APPENDIX A:

Hydrology and Hydraulics

Hydrology Model Parameters

TABLE A.1:
SUMMARY OF LANDUSES AND IMPERVOUS COMPONENTS

Catchment	Area (ha)	Landuse	Coverage (ha)	% Coverage	% Impervious	% Dir.Connected*
Watercourse 5						
501	119.6	Transportation	14.8	12%	50%	35%
		Residential	13.2	11%	40%	25%
		Low-density Residential	11.5	10%	20%	9%
		Total Developed	***39.4***	***33%***	***38%***	***24%***
		Undevelopment/Woods	80.2	67%	0%	
502	51.1	Transportation	5.0	10%	50%	35%
		Residential	0.1	0%	40%	25%
		Low-density Residential	8.9	17%	20%	9%
		Industrial/Commerical	7.5	15%	70%	59%
		Institutional (school)	4.4	9%	30%	16%
		Total Developed	***25.9***	***51%***	***42%***	***30%***
		Undevelopment/Woods	25.2	49%	0%	
503	13.8	Industrial/Commerical	8.4	61%	70%	59%
		Low-density Residential	2.0	14%	20%	9%
		Transportation	1.8	13%	50%	35%
		Total Developed	***12.2***	***88%***	***59%***	***47%***
		Undevelopment/Woods	1.7	12%	0%	
504	7.7	Industrial/Commerical	6.1	79%	70%	59%
		Low-density Residential	0.0	0%	20%	9%
		Transportation	1.3	17%	50%	35%
		Total Developed	***7.4***	***96%***	***66%***	***54%***
		Undevelopment/Woods	0.3	4%	0%	
505	15.9	Industrial/Commerical	11.6	73%	70%	59%
		Low-density Residential		0%	20%	9%
		Transportation	3.0	19%	50%	35%
		Total Developed	***14.6***	***91%***	***66%***	***54%***
		Undevelopment/Woods	1.3	8%	0%	
506	11.7	Industrial/Commerical	5.8	50%	70%	59%
		Low-density Residential		0%	20%	9%
		Transportation	2.0	17%	50%	35%
		Total Developed	***7.8***	***67%***	***65%***	***53%***
		Undevelopment/Woods	3.9	33%	0%	
507	48.9	Industrial/Commerical	0.5	1%	70%	59%
		Low-density Residential	1.4	3%	20%	9%
		Residential	18.2	37%	40%	25%
		Transportation	20.3	41%	50%	35%
		Total Developed	***40.5***	***83%***	***45%***	***30%***
		Undevelopment/Woods	8.4	17%	0%	
510	1.7	Industrial/Commerical	0.0	0%	70%	59%
		Low-density Residential		0%	20%	9%
		Transportation	0.9	55%	50%	35%
		Total Developed	***0.9***	***56%***	***50%***	***35%***
		Undevelopment/Woods	0.8	47%	0%	
511	3.0	Transportation	1.1	37%	50%	35%
		Total Developed	***1.1***	***37%***	***50%***	***35%***
		Undevelopment/Woods	1.9	64%	0%	
512	3.9	Industrial/Commerical	1.6	40%	70%	59%
		Low-density Residential		0%	20%	9%
		Transportation	1.6	41%	50%	35%
		Total Developed	***3.2***	***82%***	***60%***	***47%***
		Undevelopment/Woods	0.7	18%	0%	
520	29.7	Transportation	0.7	2%	50%	35%
		Residential		0%	40%	25%
		Low-density Residential	6.1	21%	20%	9%
		Industrial/Commerical		0%	70%	59%
		Institutional (school)	0.1	0%	30%	16%
		Total Developed	***6.9***	***23%***	***23%***	***12%***
		Undevelopment/Woods	22.8	77%	0%	

TABLE A.1 con't:
SUMMARY OF LANDUSES AND IMPERVOUS COMPONENTS

Catchment	Area (ha)	Landuse	Coverage (ha)	% Coverage	% Impervious	% Dir.Connected*
521	15.7	Industrial/Commerical	7.4	47%	70%	59%
		Low-density Residential	4.0	25%	20%	9%
		Transportation	2.4	15%	50%	35%
		Total Developed	***13.8***	***88%***	***52%***	***40%***
		Undevelopment/Woods	1.9	12%	0%	
530	5.8	Industrial/Commerical	3.6	62%	70%	59%
		Low-density Residential	0.5	8%	20%	9%
		Transportation	1.7	29%	50%	35%
		Total Developed	***5.8***	***100%***	***60%***	***48%***
		Undevelopment/Woods	0.0	0%	0%	
540	9.4	Transportation	1.4	15%	50%	35%
		Residential	1.8	19%	40%	25%
		Low-density Residential	2.8	30%	20%	9%
		Total Developed	***6.0***	***64%***	***33%***	***20%***
		Undevelopment/Woods	3.4	36%	0%	
Watercourse 6						
601	55.1	Transportation	3.0	5%	50%	35%
		Low-density Residential	8.0	14%	20%	9%
		Total Developed	***11.0***	***20%***	***28%***	***16%***
		Undevelopment/Woods	44.1	80%	0%	
602	56.5	Transportation	6.6	12%	50%	35%
		Low-density Residential	6.3	11%	20%	9%
		Total Developed	***12.9***	***23%***	***35%***	***23%***
		Undevelopment/Woods	43.6	77%	0%	
603	34.6	Transportation	1.9	5%	50%	35%
		Residential		0%	40%	25%
		Low-density Residential	8.3	24%	20%	9%
		Industrial/Commerical	0.1	0%	70%	59%
		Institutional (school)	5.4	15%	30%	16%
		Total Developed	***15.7***	***45%***	***28%***	***15%***
		Undevelopment/Woods	19.0	55%	0%	
604	24.0	Industrial/Commerical	18.9	79%	70%	59%
		Low-density Residential	1.7	7%	20%	9%
		Transportation	1.8	8%	50%	35%
		Total Developed	***22.3***	***93%***	***65%***	***53%***
		Undevelopment/Woods	1.7	7%	0%	
605	15.9	Industrial/Commerical	12.4	78%	70%	59%
		Transportation	3.1	19%	50%	35%
		Total Developed	***15.5***	***97%***	***66%***	***54%***
		Undevelopment/Woods	0.4	3%	0%	
610	21.1	Industrial/Commerical	0.3	2%	70%	59%
		Low-density Residential	9.3	44%	20%	9%
		Transportation	2.4	11%	50%	35%
		Total Developed	***12.1***	***57%***	***27%***	***16%***
		Undevelopment/Woods	9.0	43%	0%	
611	11.4	Industrial/Commerical	7.4	65%	70%	59%
		Low-density Residential	0.4	4%	20%	9%
		Transportation	3.0	26%	50%	35%
		Total Developed	***10.8***	***95%***	***62%***	***50%***
		Undevelopment/Woods	0.6	5%	0%	
620	11.9	Industrial/Commerical	1.7	15%	70%	59%
		Transportation	0.6	5%	50%	35%
		Total Developed	***2.3***	***20%***	***65%***	***53%***
		Undevelopment/Woods	9.6	81%	0%	
621	21.6	Industrial/Commerical	14.2	66%	70%	59%
		Low-density Residential	0.1	0%	20%	9%
		Transportation	2.8	13%	50%	35%
		Total Developed	***17.0***	***79%***	***67%***	***55%***
		Undevelopment/Woods	4.6	22%	0%	

TABLE A.1 con't:
SUMMARY OF LANDUSES AND IMPERVOUS COMPONENTS

Catchment	Area (ha)	Landuse	Coverage (ha)	% Coverage	% Impervious	% Dir.Connected*
622	16.9	Industrial/Commerical	15.3	90%	70%	59%
		Transportation	1.2	7%	50%	35%
		Total Developed	***16.6***	***98%***	***68%***	***57%***
		Undevelopment/Woods	0.3	2%	0%	
623	20.6	Transportation	6.3	31%	50%	35%
		Residential	4.3	21%	40%	25%
		Low-density Residential	4.9	24%	20%	9%
		Total Developed	***15.5***	***75%***	***38%***	***24%***
		Undevelopment/Woods	5.1	25%	0%	
630	2.6	Industrial/Commerical	1.6	63%	70%	59%
		Transportation	0.9	36%	50%	35%
		Total Developed	***2.6***	***99%***	***63%***	***50%***
		Undevelopment/Woods	0.0	0%	0%	
631	8.8	Industrial/Commerical	5.8	66%	70%	59%
		Transportation	3.0	35%	50%	35%
		Total Developed	***8.8***	***100%***	***63%***	***51%***
		Undevelopment/Woods	0.0	0%	0%	
632	5.3	Transportation	2.1	39%	50%	35%
		Residential	1.6	29%	40%	25%
		Low-density Residential	0.6	11%	20%	9%
		Total Developed	***4.3***	***80%***	***42%***	***28%***
		Undevelopment/Woods	1.1	20%	0%	
640	16.7	Industrial/Commerical	13.4	80%	70%	59%
		Transportation	2.7	16%	50%	35%
		Total Developed	***16.0***	***96%***	***67%***	***55%***
		Undevelopment/Woods	0.7	4%	0%	
641	13.6	Industrial/Commerical	11.0	81%	70%	59%
		Transportation	1.6	12%	50%	35%
		Total Developed	***12.6***	***93%***	***67%***	***56%***
		Undevelopment/Woods	1.0	7%	0%	
642	17.5	Transportation	7.0	40%	50%	35%
		Residential	4.1	23%	40%	25%
		Low-density Residential	2.7	16%	20%	9%
		Industrial/Commerical	0.1	0%	70%	59%
		Institutional (school)		0%	30%	16%
		Total Developed	***13.8***	***79%***	***41%***	***27%***
		Undevelopment/Woods	3.6	21%	0%	
650	9.1	Transportation	1.1	12%	50%	35%
		Residential	0.0	0%	40%	25%
		Low-density Residential	1.1	12%	20%	9%
		Total Developed	***2.2***	***24%***	***35%***	***22%***
		Undevelopment/Woods	6.9	76%	0%	
660	13.7	Transportation	5.2	38%	50%	35%
		Residential	4.5	33%	40%	25%
		Low-density Residential	2.0	14%	20%	9%
		Total Developed	***11.7***	***85%***	***41%***	***27%***
		Undevelopment/Woods	2.0	14%	0%	
Watercourse 7						
701	115.5	Transportation	9.8	8%	50%	35%
		Low-density Residential	7.4	6%	20%	9%
		Industrial/Commerical	1.8	2%	70%	59%
		Institutional (school)	6.0	5%	30%	16%
		Total Developed	***25.1***	***22%***	***38%***	***25%***
		Undevelopment/Woods	90.4	78%	0%	
702	42.5	Transportation	4.9	12%	50%	35%
		Low-density Residential	13.3	31%	20%	9%
		Industrial/Commerical	4.7	11%	70%	59%
		Institutional (school)	3.5	8%	30%	16%
		Total Developed	***26.4***	***62%***	***36%***	***24%***
		Undevelopment/Woods	16.1	38%	0%	

TABLE A.1 con't:
SUMMARY OF LANDUSES AND IMPERVOUS COMPONENTS

Catchment	Area (ha)	Landuse	Coverage (ha)	% Coverage	% Impervious	% Dir.Connected*
703	23.3	Transportation	1.8	8%	50%	35%
		Low-density Residential	1.5	6%	20%	9%
		Industrial/Commerical	16.0	68%	70%	59%
		Institutional (school)	0.4	2%	30%	16%
		Total Developed	***19.7***	***84%***	***64%***	***52%***
		Undevelopment/Woods	3.7	16%	0%	
704	23.7	Transportation	2.1	9%	50%	35%
		Low-density Residential	0.1	1%	20%	9%
		Industrial/Commerical	12.3	52%	70%	59%
		Total Developed	***14.5***	***61%***	***67%***	***55%***
		Undevelopment/Woods	9.2	39%	0%	
705	6.8	Transportation	3.1	45%	50%	35%
		Low-density Residential	1.6	23%	20%	9%
		Total Developed	***4.7***	***69%***	***40%***	***26%***
		Undevelopment/Woods	2.1	30%	0%	
710	88.1	Transportation	4.5	5%	50%	35%
		Low-density Residential	6.8	8%	20%	9%
		Industrial/Commerical	6.1	7%	70%	59%
		Total Developed	***17.5***	***20%***	***45%***	***33%***
		Undevelopment/Woods	70.7	80%	0%	
711	60.3	Transportation	3.1	5%	50%	35%
		Low-density Residential	6.4	11%	20%	9%
		Industrial/Commerical	1.2	2%	70%	59%
		Institutional (school)	0.5	1%	30%	16%
		Total Developed	***11.2***	***19%***	***34%***	***22%***
		Undevelopment/Woods	49.1	81%	0%	
720	22.5	Transportation	2.4	11%	50%	35%
		Low-density Residential	1.5	7%	20%	9%
		Industrial/Commerical	4.6	21%	70%	59%
		Total Developed	***8.5***	***38%***	***55%***	***43%***
		Undevelopment/Woods	14.0	62%	0%	
721	18.1	Transportation	1.9	11%	50%	35%
		Low-density Residential	0.4	2%	20%	9%
		Industrial/Commerical	7.0	39%	70%	59%
		Total Developed	***9.3***	***52%***	***64%***	***52%***
		Undevelopment/Woods	8.7	48%	0%	
730	3.4	Transportation	1.4	41%	50%	35%
		Low-density Residential	2.0	59%	20%	9%
		Total Developed	***3.4***	***100%***	***32%***	***20%***
		Undevelopment/Woods	0.0	0%	0%	
740	3.7	Transportation	2.4	64%	50%	35%
		Low-density Residential	1.3	34%	20%	9%
		Total Developed	***3.7***	***98%***	***40%***	***26%***
		Undevelopment/Woods	0.0	0%	0%	
750	5.5	Transportation	2.5	45%	50%	35%
		Low-density Residential	3.0	55%	20%	9%
		Total Developed	***5.5***	***100%***	***34%***	***21%***
		Undevelopment/Woods	0.0	0%	0%	

% Directly Connected = 0.1(% impervisous^1.5)
(Southerland, R.C., 1995. Methodology for Estimating the Effective Impervious Area of Urban Watersheds. Watershed Prtotection Technique)

TABLE A.2:
SUMMARY OF SOILS AND "CN" PARAMETERS

Catchment	Area (ha)	Soils*		Coverage (ha)	% Coverage	Soil Group**	CN***	Composite CN AMC II
501	119.6	FARMINGTON	58576	5.9	5%	B	66	65
		ONEIDA	298412	29.8	25%	BC	72	
		CHINGUACOUSY	101160	10.1	8%	BC	72	
		WINONA	54627	5.5	5%	B	66	
		JEDDO	271994	27.2	23%	BC	72	
		WINONA	3273	0.3	0%	B	66	
		TRAFALGAR, Silty clay loam	44650	4.5	4%	D	82	
		STREAM COURSE	14568	1.5	1%			
		ESCARPMENT	106466	10.6	9%			
		ONEIDA	166604	16.7	14%	BC	72	
		CHINGUACOUSY	75831	7.6	6%	BC	72	
502	51.1	JEDDO	1423	0.1	0%	BC	72	62
		WINONA	241916	24.2	47%	B	66	
		TRAFALGAR, Silty clay loam	114062	11.4	22%	D	82	
		STREAM COURSE	71992	7.2	14%			
		MORLEY	81129	8.1	16%	C	77	
503	13.8	JEDDO	6821	0.7	5%	BC	72	71
		MORLEY	295	0.0	0%	C	77	
		STREAM COURSE	14813	1.5	11%			
		TRAFALGAR, Silty clay loam	103828	10.4	75%	D	82	
		WINONA, Sandy loam - JEDDO, Sandy loam	12694	1.3	9%	B	66	
504	7.7	JEDDO	27244	2.7	35%	BC	72	68
		WINONA, Sandy loam - JEDDO, Sandy loam	49805	5.0	65%	B	66	
505	15.9	JEDDO	49388	4.9	31%	BC	72	68
		WINONA, Sandy loam - JEDDO, Sandy loam	110100	11.0	69%	B	66	
506	11.7	JEDDO	98861	9.9	85%	BC	72	71
		WINONA, Sandy loam - JEDDO, Sandy loam	17937	1.8	15%	B	66	
507	48.9	JEDDO	357758	39.8	81%	BC	72	74
		WINONA, Sandy loam - JEDDO, Sandy loam	115053	11.5	24%	B	66	
510	1.7	WINONA, Sandy loam - JEDDO, Sandy loam	16728	1.7	100%	B	66	66
511	3.0	JEDDO	3682	0.4	12%	BC	72	67
		WINONA, Sandy loam - JEDDO, Sandy loam	25850	2.6	88%	B	66	
512	3.9	JEDDO	33663	3.4	87%	BC	72	71
		WINONA, Sandy loam - JEDDO, Sandy loam	5035	0.5	13%	B	66	
520	29.7	WINONA, Sandy loam	131032	13.1	44%	B	66	72
		MORLEY	157302	15.7	53%	C	77	
		TRAFALGAR, Silty clay loam	8597	0.9	3%	D	82	
521	15.7	MORLEY	2748	0.3	2%	C	77	77
		TRAFALGAR, Silty clay loam	105364	10.5	67%	D	82	
		WINONA, Sandy loam - JEDDO, Sandy loam	49298	4.9	31%	B	66	
530	5.8	WINONA, Sandy loam - JEDDO, Sandy loam	57677	5.8	100%	B	66	66
540	9.4	WINONA, Sandy loam - JEDDO, Sandy loam	94405	9.4	100%	B	66	66
Watercourse 6								
601	55.1	CHINGUACOUSY	17944	1.8	3%	BC	72	62
		ESCARPMENT	70091	7.0	13%			
		FARMINGTON	38234	3.8	7%	B	66	
		JEDDO	132358	13.2	24%	BC	72	
		ONEIDA	217291	21.7	39%	BC	72	
		WINONA, Sandy loam	75442	7.5	14%	B	66	
602	56.5	CHINGUACOUSY	42236	4.2	7%	BC	72	62
		ESCARPMENT	69867	7.0	12%			
		FARMINGTON	15455	1.5	3%	B	66	
		JEDDO	186556	18.7	33%	BC	72	
		ONEIDA	176928	17.7	31%	BC	72	
		WINONA, Sandy loam	74230	7.4	13%	B	66	
603	34.6	JEDDO	26442	2.6	8%	BC	72	72
		WINONA, Sandy loam	142878	14.3	41%	B	66	
		MORLEY	163253	16.3	47%	C	77	
		TRAFALGAR, Silty clay loam	3445	0.3	1%	D	82	
		TRAFALGAR, Silty clay loam - MORELY, silty clay loam	9765	1.0	3%	CD	80	
604	24.0	WINONA, Sandy loam - JEDDO, Sandy loam	16548	1.7	7%	B	66	79
		MORLEY	55163	5.5	23%	C	77	
		TRAFALGAR, Silty clay loam	116994	11.7	49%	D	82	
		TRAFALGAR, Silty clay loam - MORELY, silty clay loam	50852	5.1	21%	CD	80	
605	15.9	WINONA, Sandy loam - JEDDO, Sandy loam	159451	15.9	100%	B	66	66
610	21.1	WINONA, Sandy loam	137054	13.7	65%	B	66	70
		MORLEY	60575	6.1	29%	C	77	
		TRAFALGAR, Silty clay loam	13211	1.3	6%	D	82	
611	11.4	WINONA, Sandy loam - JEDDO, Sandy loam	52994	5.3	46%	B	66	75
		TRAFALGAR, Silty clay loam	61486	6.1	54%	D	82	

TABLE A.2 con't:
SUMMARY OF SOILS AND "CN" PARAMETERS

Catchment	Area (ha)	Soils*		Coverage (ha)	% Coverage	Soil Group**	CN***	Composite CN AMC II
620	11.9	WINONA, Sandy loam	8278	0.8	7%	B	66	77
		MORLEY	79197	7.9	67%	C	77	
		TRAFALGAR, Silty clay loam - MORELY, silty clay loam	31582	3.2	27%	CD	80	
621	21.6	MORLEY	359	0.0	0%	C	77	80
		WINONA, Sandy loam - JEDDO, Sandy loam	970	0.1	0%	B	66	
		TRAFALGAR, Silty clay loam - MORELY, silty clay loam	214811	21.5	99%	CD	80	
622	16.9	WINONA, Sandy loam - JEDDO, Sandy loam	159863	16.0	94%	B	66	67
		TRAFALGAR, Silty clay loam - MORELY, silty clay loam	9520	1.0	6%	CD	80	
623	20.6	WINONA, Sandy loam - JEDDO, Sandy loam	205727	20.6	100%	B	66	66
630	2.6	TRAFALGAR, Silty clay loam - MORELY, silty clay loam	25980	2.6	100%	CD	80	80
631	8.8	WINONA, Sandy loam - JEDDO, Sandy loam	83788	8.4	95%	B	66	67
		TRAFALGAR, Silty clay loam - MORELY, silty clay loam	4298	0.4	5%	CD	80	
632	5.3	WINONA, Sandy loam - JEDDO, Sandy loam	53414	5.3	100%	B	66	66
640	16.7	TRAFALGAR, Silty clay loam	12801	1.3	8%	D	82	80
		TRAFALGAR, Silty clay loam - MORELY, silty clay loam	154045	15.4	92%	CD	80	
641	13.6	WINONA, Sandy loam - JEDDO, Sandy loam	78912	7.9	58%	B	66	72
		TRAFALGAR, Silty clay loam - MORELY, silty clay loam	56645	5.7	42%	CD	80	
642	17.5	WINONA, Sandy loam - JEDDO, Sandy loam	174608	17.5	100%	B	66	66
650	9.1	WINONA, Sandy loam - JEDDO, Sandy loam	91291	9.1	100%	B	66	66
660	13.7	WINONA, Sandy loam - JEDDO, Sandy loam	136886	13.7	120%	B	66	79
Watercourse 7								
701	115.5	CHINGUACOUSY	152908	15.3	13%	BC	72	59
		ESCARPMENT	183298	18.3	16%			
		FARMINGTON	95768	9.6	8%	B	66	
		JEDDO	254473	25.4	22%	BC	72	
		ONEIDA	218133	21.8	19%	BC	72	
		WINONA, Sandy loam	244090	24.4	21%	B	66	
		TRAFALGAR, Silty clay loam	6360	0.6	1%	D	82	
702	42.5	JEDDO	65114	6.5	15%	BC	72	64
		WINONA, Sandy loam	187870	18.8	44%	B	66	
		MORLEY	40596	4.1	10%	C	77	
		STREAM COURSE	36477	3.6	9%			
		TRAFALGAR, Silty clay loam	25845	2.6	6%	D	82	
		WINONA, Sandy loam - JEDDO, Sandy loam	32909	3.3	8%	B	66	
		TRAFALGAR, Silty clay loam - MORELY, silty clay loam	35856	3.6	8%	CD	80	
703	23.3	STREAM COURSE	26393	2.6	11%			63
		TRAFALGAR, Silty clay loam	4882	0.5	2%	D	82	
		WINONA, Sandy loam - JEDDO, Sandy loam	140198	14.0	60%	B	66	
		TRAFALGAR, Silty clay loam - MORELY, silty clay loam	61545	6.2	26%	CD	80	
704	23.7	STREAM COURSE	26600	2.7	11%			61
		WINONA, Sandy loam - JEDDO, Sandy loam	176829	17.7	75%	B	66	
		TRAFALGAR, Silty clay loam - MORELY, silty clay loam	33488	3.3	14%	CD	80	
705	6.8	STREAM COURSE	15558	1.6	23%			51
		WINONA, Sandy loam - JEDDO, Sandy loam	52799	5.3	77%	B	66	
710	88.1	CHINGUACOUSY	155078	15.5	18%	BC	72	52
		ESCARPMENT	223256	22.3	25%			
		FARMINGTON	109213	10.9	12%	B	66	
		JEDDO	2875	0.3	0%	BC	72	
		ONEIDA	151870	15.2	17%	BC	72	
		WINONA, Sandy loam	185436	18.5	21%	B	66	
		TRAFALGAR, Silty clay loam	53446	5.3	6%	D	82	
711	60.3	JEDDO	140805	14.1	23%	BC	72	70
		MORLEY	129367	12.9	21%	C	77	
		STREAM COURSE	18	0.0	0%			
		WINONA	148697	14.9	25%	B	66	
		WINONA, Sandy loam - JEDDO, Sandy loam	184200	18.4	31%	B	66	
720	22.5	MORLEY	59	0.0	0%	C	77	66
		WINONA	11565	1.2	5%	B	66	
		WINONA, Sandy loam - JEDDO, Sandy loam	213294	21.3	95%	B	66	
721	18.1	WINONA, Sandy loam - JEDDO, Sandy loam	180879	18.1	100%	B	66	66
730	3.4	WINONA, Sandy loam - JEDDO, Sandy loam	34453	3.4	100%	B	66	66
740	3.7	WINONA, Sandy loam - JEDDO, Sandy loam	37343	3.7	100%	B	66	66
750	5.5	WINONA, Sandy loam - JEDDO, Sandy loam	54813	5.5	99%	B	66	66

* Soil Survey Mapping for Hamilton (Wentworth County) and Regional Municipality of Niagara

** MTO Drainage Manual, Chart H2-6A

*** Assuming rural cover (meadows), AMCII

TABLE A.3:
SUMMARY OF SUBCATCHMENT PHYSICAL PARAMETERS

Catchment	Landuse	Area (ha)	Length (m)*	Slope (%)
Watercourse 5				
501	Urban	**39.4**		
	Undeveloped/Woods	80.2	1801	6.1%
502	Urban	25.9		
	Undeveloped/Woods	25.2	1189	0.8%
503	Urban	12.2		
	Undeveloped/Woods	1.7	372	0.8%
504	Urban	7.4		
	Undeveloped/Woods	0.3	262	0.4%
505	Urban	14.6		
	Undeveloped/Woods	1.3	171	0.6%
506	Urban	7.8		
	Undeveloped/Woods	3.9	297	1.3%
507	Urban	40.5		
	Undeveloped/Woods	8.4	766	0.3%
510	Urban	0.9		
	Undeveloped/Woods	0.8	185	0.1%
511	Urban	0.2		
	Undeveloped/Woods	1.9	145	0.6%
512	Urban	3.2		
	Undeveloped/Woods	0.7	469	0.4%
520	Urban	6.9		
	Undeveloped/Woods	22.8	1131	1.1%
521	Urban	11.9		
	Undeveloped/Woods	1.9	543	0.9%
530	Urban	5.8		
	Undeveloped/Woods	0.0	444	28.9%
540	Urban	6.0		
	Undeveloped/Woods	3.4	520	31.2%
Watercourse 6				
601	Urban	11.0		
	Undeveloped/Woods	44.1	1749	6.2%
602	Urban	12.9		
	Undeveloped/Woods	43.6	2085	5.4%
603	Urban	15.7		
	Undeveloped/Woods	19.0	917	0.8%
604	Urban	22.3		
	Undeveloped/Woods	1.7	669	0.0%
605	Urban	15.5		
	Undeveloped/Woods	0.4	718	0.5%
610	Urban	12.1		
	Undeveloped/Woods	9.0	1044	1.1%
611	Urban	10.8		
	Undeveloped/Woods	0.6	576	0.7%
620	Urban	2.3		
	Undeveloped/Woods	9.6	420	0.5%
621	Urban	17.0		
	Undeveloped/Woods	4.6	632	0.8%
622	Urban	16.6		
	Undeveloped/Woods	0.3	489	0.6%
623	Urban	15.5		
	Undeveloped/Woods	5.1	655	0.8%
630	Urban	2.6		
	Undeveloped/Woods	0.0	277	1.1%
631	Urban	8.8		
	Undeveloped/Woods	0.0	607	0.7%
632	Urban	4.3		
	Undeveloped/Woods	1.1	541	0.9%
640	Urban	16.0		
	Undeveloped/Woods	0.7	828	0.6%
641	Urban	12.6		
	Undeveloped/Woods	1.0	452	0.7%
642	Urban	13.8		
	Undeveloped/Woods	3.6	533	1.1%
650	Urban	3.5		
	Undeveloped/Woods	6.7	590	0.8%
660	Urban	11.7		
	Undeveloped/Woods	2.0	372	1.6%

TABLE A.3 con't:
SUMMARY OF SUBCATCHMENT PHYSICAL PARAMETERS

Catchment	Landuse	Area (ha)	Length (m)*	Slope (%)
Watercourse 7				
701	Urban	25.1		
	Undeveloped/Woods	90.4	1604	6.7%
702	Urban	26.4		
	Undeveloped/Woods	16.1	1185	0.5%
703	Urban	19.7		
	Undeveloped/Woods	3.7	458	0.4%
704	Urban	14.5		
	Undeveloped/Woods	9.2	450	1.1%
705	Urban	4.7		
	Undeveloped/Woods	2.1	286	1.4%
710	Urban	17.5		
	Undeveloped/Woods	70.7	1604	6.6%
711	Urban	11.2		
	Undeveloped/Woods	49.1	1117	0.8%
720	Urban	8.5		
	Undeveloped/Woods	14.0	511	0.8%
721	Urban	9.3		
	Undeveloped/Woods	8.7	430	0.5%
730	Urban	3.4		
	Undeveloped/Woods	0.0	236	2.1%
740	Urban	3.7		
	Undeveloped/Woods	0.0	206	2.4%
750	Urban	5.5		
	Undeveloped/Woods	0.0	190	3.2%

* catchment length as measured along flow path

Table A.4
Calibration and Validation Parameter for SCUBE West Hydrology Model

	Curve Number (CN)						Initial Abstraction (IA)						Depesion Storage (DPSI)						Time to Peak (Tp)			Manning's n			Nashyd "n"	Slope		Length	
		Calibration / Validation				Design		Calibration / Validation				Design		Calibration / Validation				Design	Base	Calibration /Validation	Design Storm	Base	Calibration /Validation	Design Storm		Pervious	Impervious	Pervious	Impervious
Catchment	Base	Calibration 1	Calibration 2	Calibration 3	Validation 1	Storm	Base	Calibration 1	Calibration 2	Calibration 3	Validation 1	Storm	Base	Calibration 1	Calibration 2	Calibration 3	Validation 1	Storm											
501	65	-20%	0%	-45%	+20%	65	5	+60%	+60%	+100%	+40%	8	2	+300%	+300%	+300%	+250%	6	0.4	0.7	0.7				3	1%	1%	40	512.51
502	62	-20%	0%	-45%	+20%	62	5	+60%	+60%	+100%	+40%	8	2	+300%	+300%	+300%	+250%	6	0.7	1.5	1.5	0.055/0.035	0.11/0.07	0.11/0.07	3	1%	1%	40	415.53
503	71	-20%	0%	-45%	+20%	71	5	+60%	+60%	+100%	+40%	8	2	+300%	+300%	+300%	+250%	6	0.4	0.8	0.8	0.045/0.035	0.09/0.07	0.09/0.07	3	1%	1%	40	285.19
504	68	-20%	0%	-45%	+20%	68	5	+60%	+60%	+100%	+40%	8	2	+300%	+300%	+300%	+250%	6	0.4	0.9	0.9	0.045/0.035	0.09/0.07	0.09/0.07	3	1%	1%	40	222.11
505	68	-20%	0%	-45%	+20%	68	5	+60%	+60%	+100%	+40%	8	2	+300%	+300%	+300%	+250%	6	0.3	0.6	0.6	0.055/0.035	0.11/0.07	0.11/0.07	3	1%	1%	40	311.98
506	71					71	5					8	2					6	0.3		0.6	0.045/0.035		0.09/0.07	3	1%	1%	40	228.04
507	74					74	5					8	2					6	0.9		1.7	0.045/0.035		0.09/0.07	3	1%	1%	40	519.62
510	66					66	5					8	2					6	0.7		1.4				3	1%	1%	40	77.46
511	67					67	5					8	2					6	0.3		0.6	0.055/0.035		0.011/0.07	3	1%	1%	40	85.63
512	71					71	5					8	2					6	0.6		1.1	0.045/0.035		0.09/0.07	3	1%	1%	40	146.06
520	72	-20%	0%	-45%	+20%	72	5	+60%	+60%	+100%	+40%	8	2	+300%	+300%	+300%	+250%	6	0.7	1.3	1.3				3	1%	1%	40	214.48
521	77	-20%	0%	-45%	+20%	77	5	+60%	+60%	+100%	+40%	8	2	+300%	+300%	+300%	+250%	6	0.5	1.0	1.0	0.045/0.035	0.09/0.07	0.09/0.07	3	1%	1%	40	303.32
530	66					66	5					8	2					6	0.5		1.0	0.055/0.035		0.11/0.07	3	1%	1%	40	196.64
540	66					66	5					8	2					6	0.5		1.0				3	1%	1%	40	200
601	62	-20%	0%	-45%	+20%	62	5	+60%	+60%	+100%	+40%	8	2	+300%	+300%	+300%	+250%	6	0.42	0.8	0.8				3	1%	1%	40	270.8
602	62	-20%	0%	-45%	+20%	62	5	+60%	+60%	+100%	+40%	8	2	+300%	+300%	+300%	+250%	6	0.47	0.9	0.9				3	1%	1%	40	293.26
603	72	-20%	0%	-45%	+20%	72	5	+60%	+60%	+100%	+40%	8	2	+300%	+300%	+300%	+250%	6	0.66	1.3	1.3	0.07/0.035	0.14/0.07	0.14/0.07	3	1%	1%	40	323.52
604	79	-20%	0%	-45%	+20%	79	5	+60%	+60%	+100%	+40%	8	2	+300%	+300%	+300%	+250%	6	2.06	4.1	4.1	0.045/0.035	0.09/0.07	0.09/0.07	3	1%	1%	40	385.57
605	66	-20%	0%	-45%	+20%	66	5	+60%	+60%	+100%	+40%	8	2	+300%	+300%	+300%	+250%	6	0.65	1.3	1.3	0.055/0.035	0.11/0.07	0.11/0.07	3	1%	1%	40	321.46
610	70	-20%	0%	-45%	+20%	70	5	+60%	+60%	+100%	+40%	8	2	+300%	+300%	+300%	+250%	6	0.61	1.2	1.2				3	1%	1%	40	284.02
611	75	-20%	0%	-45%	+20%	75	5	+60%	+60%	+100%	+40%	8	2	+300%	+300%	+300%	+250%	6	0.54	1.1	1.1	0.045/0.035	0.09/0.07	0.09/0.07	3	1%	1%	40	268.33
620	77					77	5					8	2					6	0.52		1.0				3	1%	1%	40	123.83
621	80					80	5					8	2					6	0.54		1.1	0.045/0.035		0.09/0.07	3	1%	1%	40	336.65
622	67					67	5					8	2					6	0.52		1.0	0.055/0.035		0.11/0.07	3	1%	1%	40	332.67
623	66					66	5					8	2					6	0.56		1.1				3	1%	1%	40	321.46
630	80					80	5					8	2					6	0.32		0.6				3	1%	1%	40	131.66
631	67					67	5					8	2					6	0.56		1.1	0.055/0.035		0.11/0.07	3	1%	1%	40	242.21
632	66					66	5					8	2					6	0.48		1.0	0.055/0.035		0.11/0.07	3	1%	1%	40	169.31
640	80					80	5					8	2					6	0.68		1.4				3	1%	1%	40	326.6
641	72					72	5					8	2					6	0.48		1.0	0.055/0.035		0.11/0.07	3	1%	1%	40	289.83
642	66					66	5					8	2					6	0.44		0.9	0.055/0.035		0.11/0.07	3	1%	1%	40	303.32
650	66					66	5					8	2					6	0.51		1.0				3	1%	1%	40	121.11
660	79					79	5					8	2					6	0.33		0.7				3	1%	1%	40	279.28
701	59					59	5					8	2					6	0.39		0.8				3	1%	1%	40	409.06
702	64					64	5					8	2					6	0.86		1.7	0.055/0.035		0.11/0.07	3	1%	1%	40	419.52
703	63					63	5					8	2					6	0.56		1.1	0.055/0.035		0.11/0.07	3	1%	1%	40	362.4
704	61					61	5					8	2					6	0.41		0.8	0.055/0.035			3	1%	1%	40	310.91
705	51					51	5					8	2					6	0.3		0.6	0.055/0.035		0.11/0.07	3	1%	1%	40	177.01
710	52					52	5					8	2					6	0.39		0.8				3	1%	1%	40	341.57
711	70					70	5					8	2					6	0.72		1.4	0.055/0.035		0.11/0.07	3	1%	1%	40	273.25
720	66					66	5					8	2					6	0.49		1.0	0.055/0.035		0.11/0.07	3	1%	1%	40	238.05
721	66					66	5					8	2					6	0.53		1.1				3	1%	1%	40	249
730	66					66	5					8	2					6	0.24		0.5				3	1%	1%	40	150.55
740	66					66	5					8	2					6	0.21		0.4				3	1%	1%	40	157.06
750	66					66	5					8	2					6	0.19		0.4				3	1%	1%	40	191.49

Table A.5a - Design Storm Hyetograph for 2 year 6 hours SCS Distribution

Time (mins)	Rainfall (mm/hr)
0	1.59
10	1.59
20	1.59
30	2.38
40	2.38
50	2.38
60	2.38
70	2.38
80	2.38
90	3.97
100	3.97
110	3.97
120	4.76
130	4.76
140	4.76
150	23.82
160	42.88
170	61.93
180	8.73
190	8.73
200	8.73
210	3.97
220	3.97
230	3.97
240	3.18
250	3.18
260	3.18
270	2.38
280	3.38
290	3.38
300	1.59
310	1.59
320	1.59
330	1.59
340	1.59
350	1.59

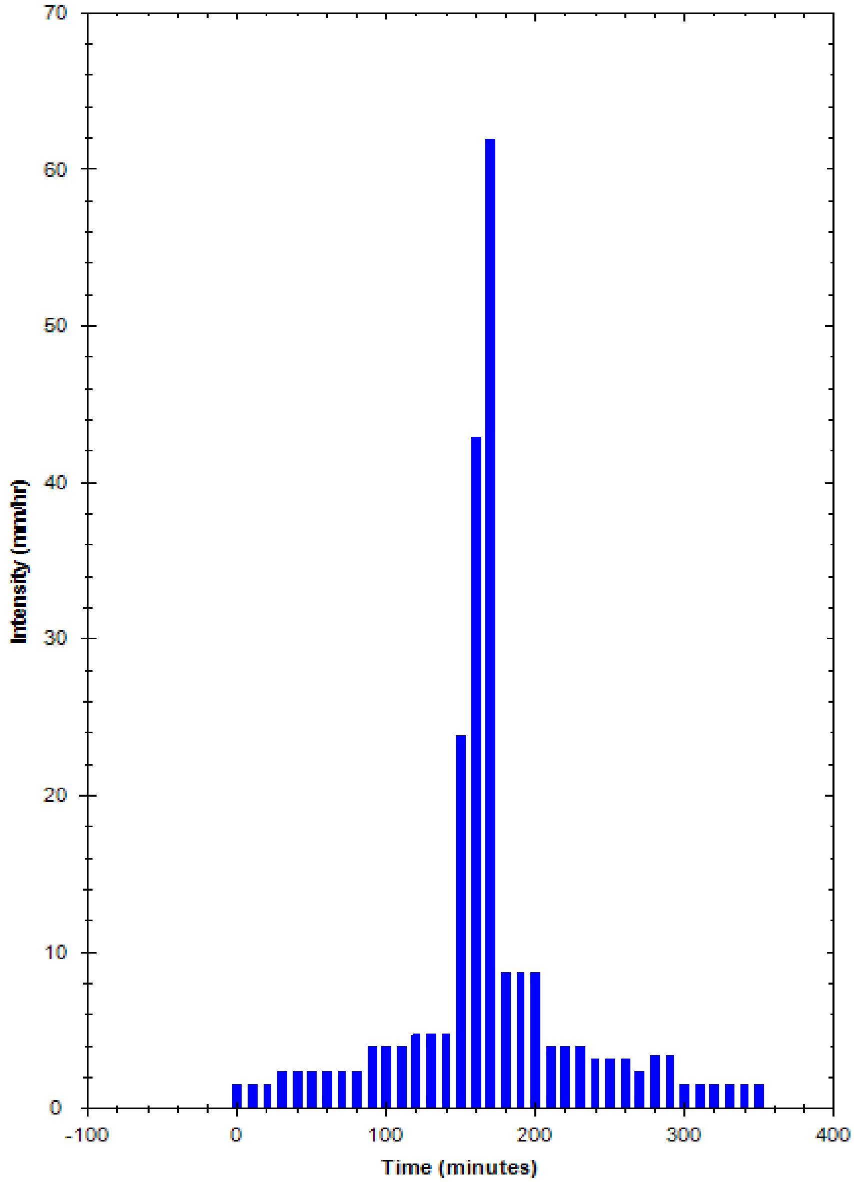


Table A.5b - Design Storm Hyetograph for 5 year 6 hours SCS Distribution

Time (mins)	Rainfall (mm/hr)
0	2.26
10	2.26
20	2.26
30	3.39
40	3.39
50	3.39
60	3.39
70	3.39
80	3.39
90	5.65
100	5.65
110	5.65
120	6.78
130	6.78
140	6.78
150	33.90
160	61.02
170	88.14
180	12.43
190	12.43
200	12.43
210	5.65
220	5.65
230	5.65
240	4.52
250	4.52
260	4.52
270	3.39
280	3.39
290	3.39
300	2.26
310	2.26
320	2.26
330	2.26
340	2.26
350	2.26

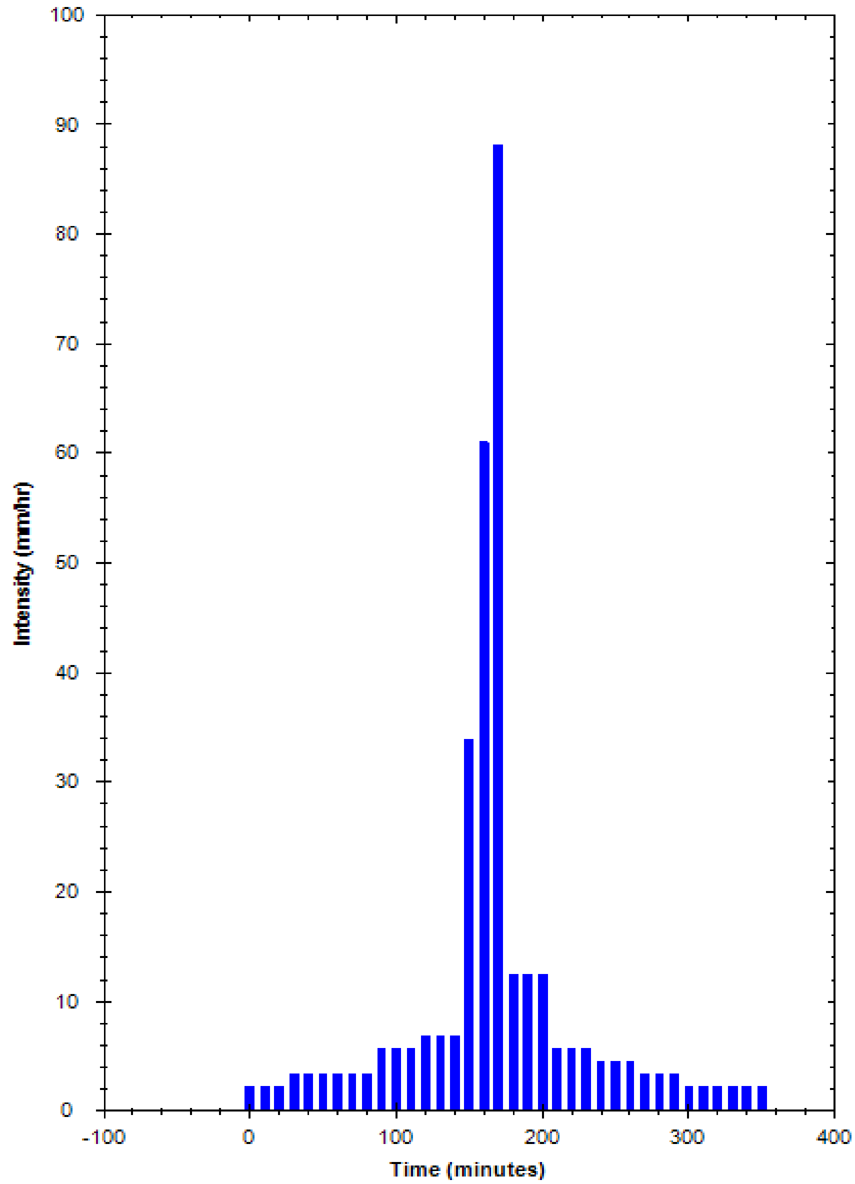


Table A.5c - Design Storm Hyetograph for 10 year 6 hours SCS Distribution

Time (mins)	Rainfall (mm/hr)
0	2.70
10	2.70
20	2.70
30	4.06
40	4.06
50	4.06
60	4.06
70	4.06
80	4.06
90	6.76
100	6.76
110	6.76
120	8.11
130	8.11
140	8.11
150	40.56
160	73.01
170	105.46
180	14.87
190	14.87
200	14.87
210	6.76
220	6.76
230	6.76
240	5.41
250	5.41
260	5.41
270	4.06
280	4.06
290	4.06
300	2.70
310	2.70
320	2.70
330	2.70
340	2.70
350	2.70

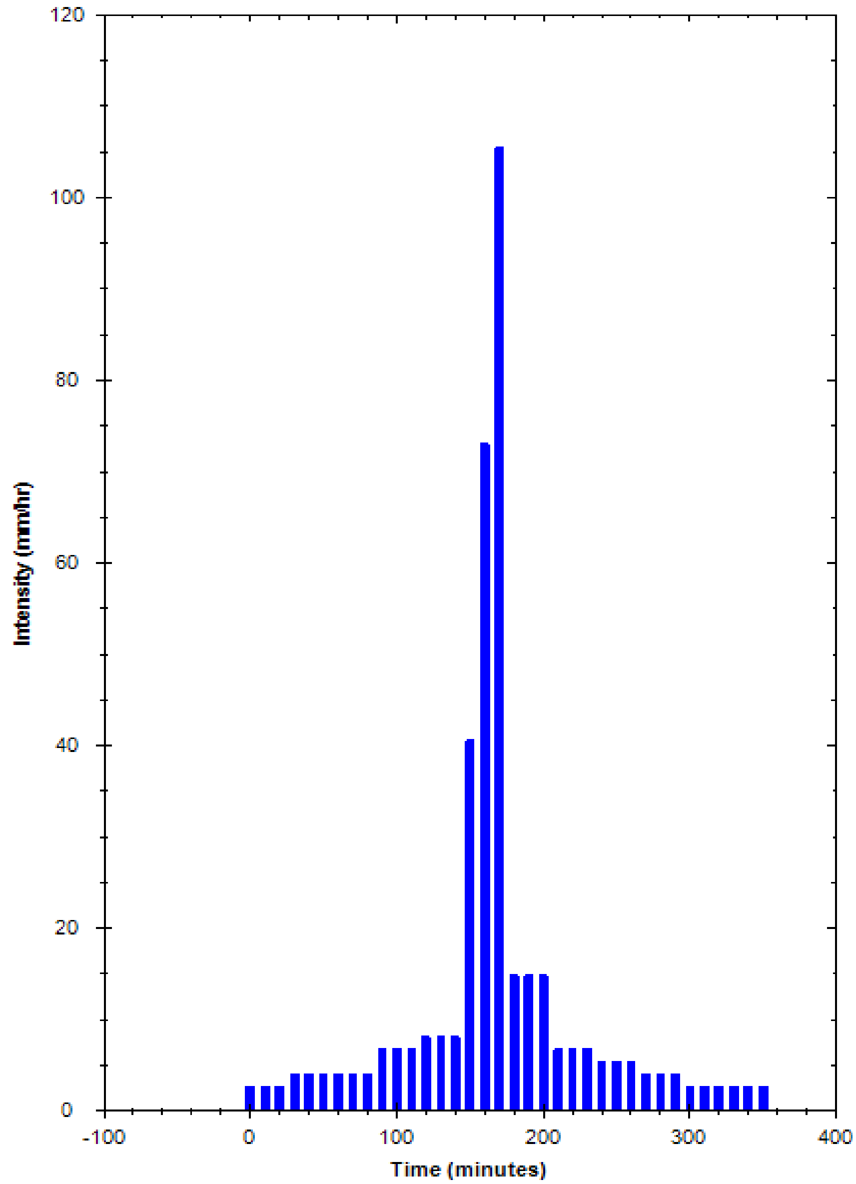


Table A.5d - Design Storm Hyetograph for 25 year 6 hours SCS Distribution

Time (mins)	Rainfall (mm/hr)
0	3.26
10	3.26
20	3.26
30	4.90
40	4.90
50	4.90
60	4.90
70	4.90
80	4.90
90	8.16
100	8.16
110	8.16
120	9.79
130	9.79
140	9.79
150	48.96
160	88.13
170	127.30
180	17.95
190	17.95
200	17.95
210	8.16
220	8.16
230	8.16
240	6.53
250	6.53
260	6.53
270	4.90
280	4.90
290	4.90
300	3.26
310	3.26
320	3.26
330	3.26
340	3.26
350	3.26

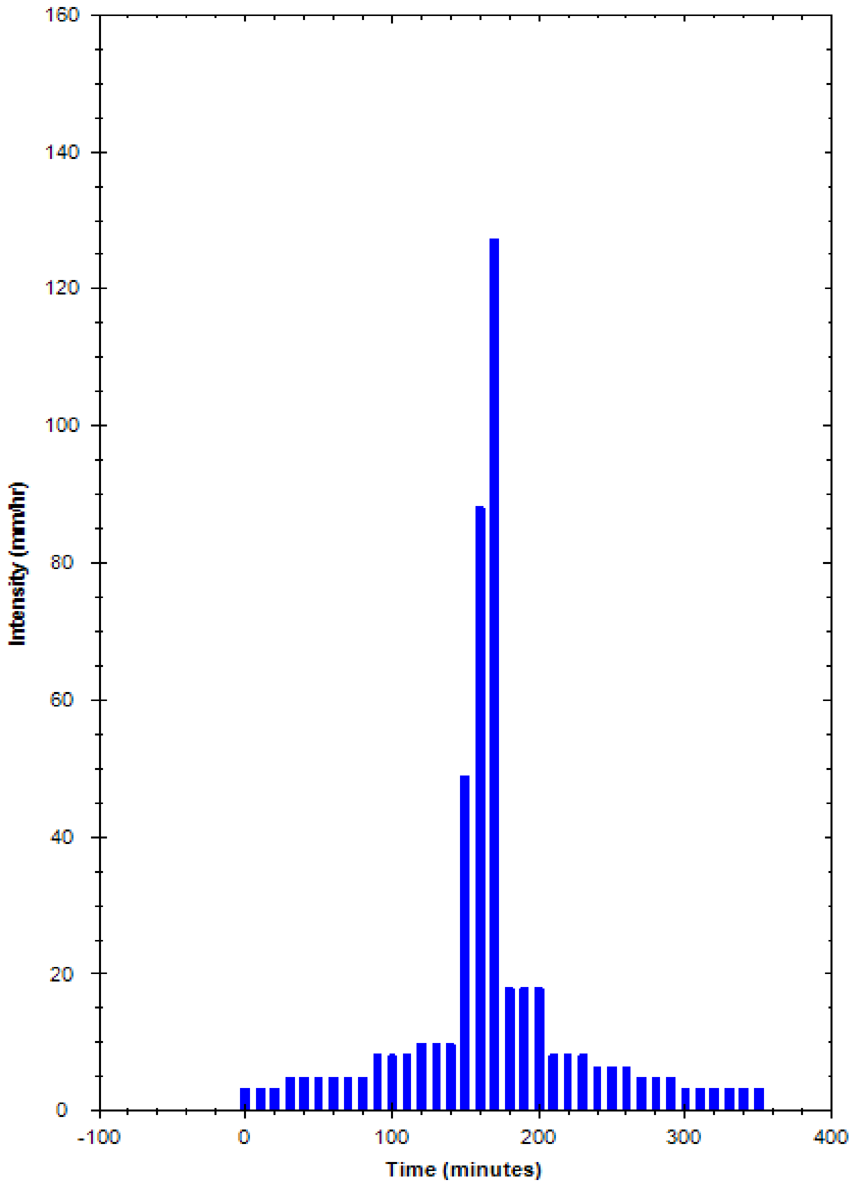


Table A.5e - Design Storm Hyetograph for 50 year 6 hours SCS Distribution

Time (mins	Rainfall (mm/hr)
0	3.68
10	3.68
20	3.68
30	5.51
40	5.51
50	5.51
60	5.51
70	5.51
80	5.51
90	9.19
100	9.19
110	9.19
120	11.03
130	11.03
140	11.03
150	55.14
160	99.25
170	143.36
180	20.22
190	20.22
200	20.22
210	9.19
220	9.19
230	9.19
240	7.35
250	7.35
260	7.35
270	5.51
280	5.51
290	5.51
300	3.68
310	3.68
320	3.68
330	3.68
340	3.68
350	3.68

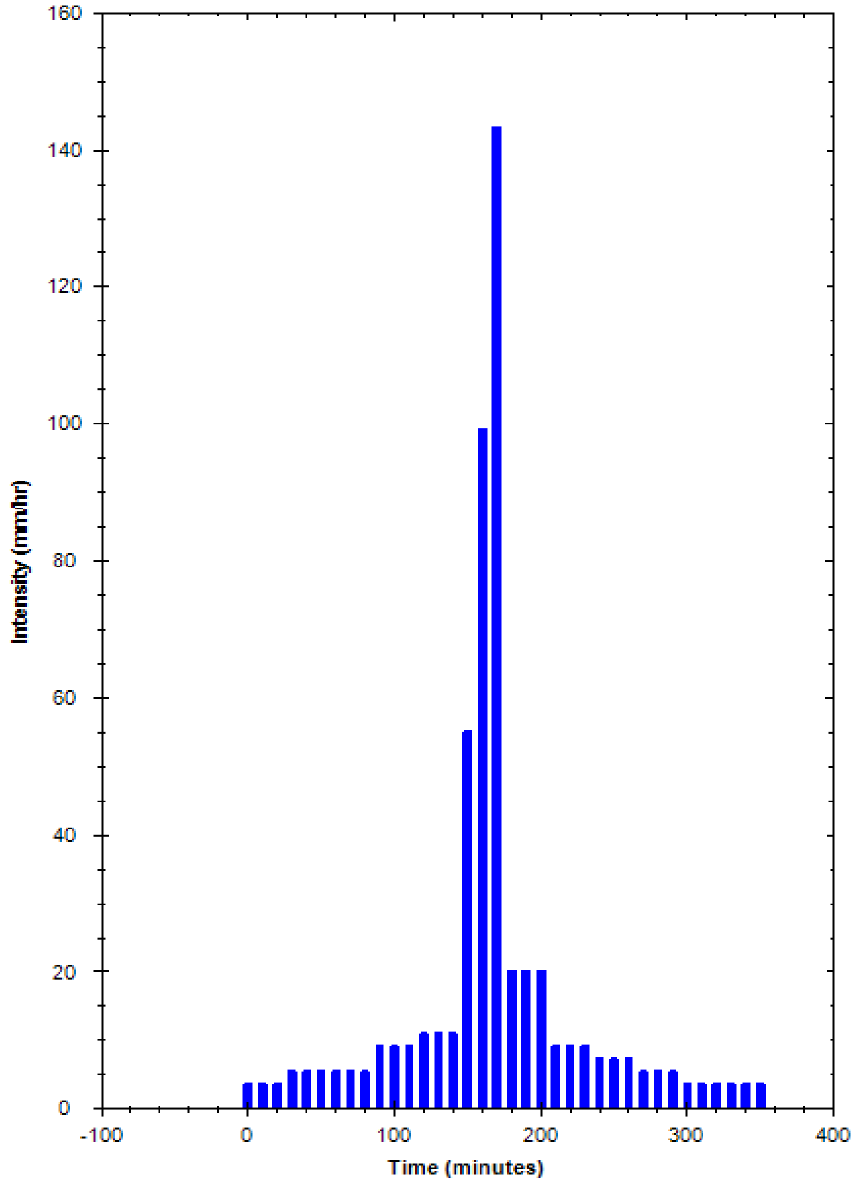
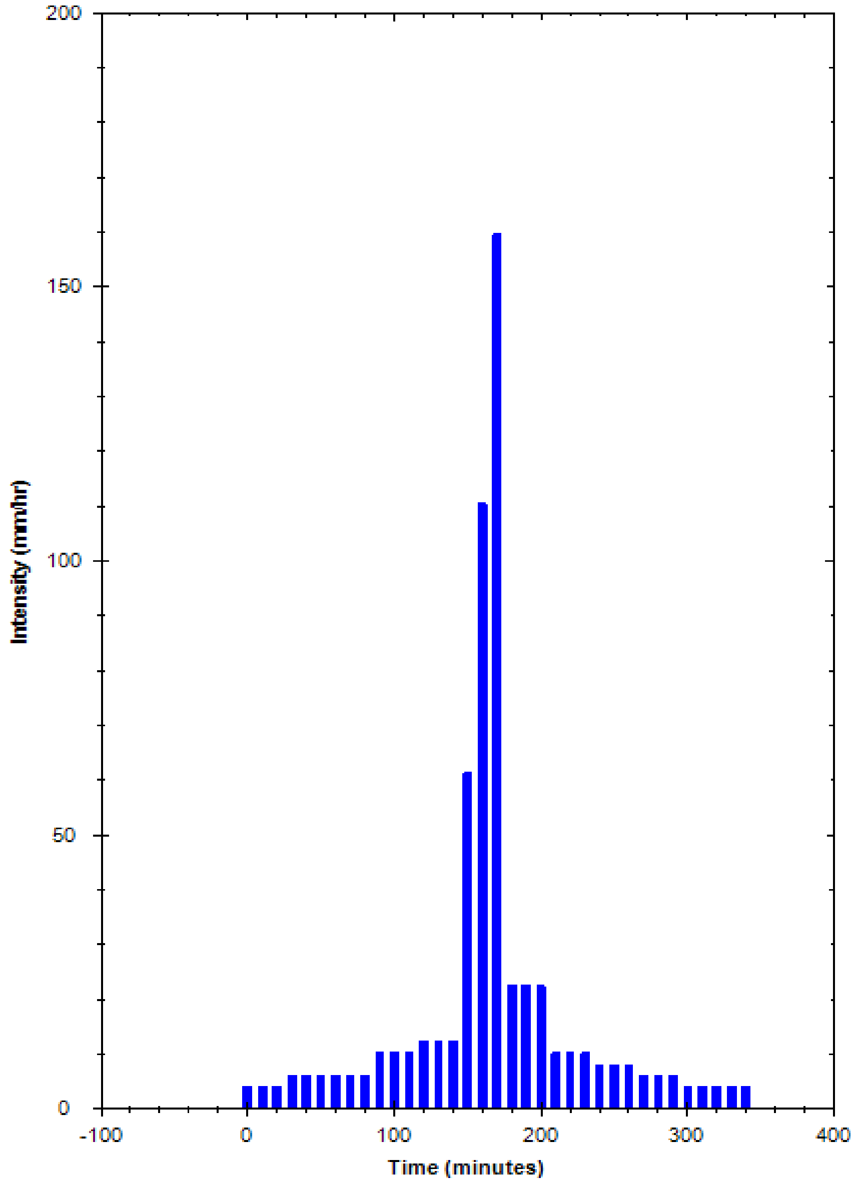


Table A.5f - Design Storm Hyetograph for 100 year 6 hours SCS Distribution

Time (mins)	Rainfall (mm/hr)
0	4.09
10	4.09
20	4.09
30	6.14
40	6.14
50	6.14
60	6.14
70	6.14
80	6.14
90	10.23
100	10.23
110	10.23
120	12.28
130	12.28
140	12.28
150	61.38
160	110.48
170	159.59
180	22.51
190	22.51
200	22.51
210	10.23
220	10.23
230	10.23
240	8.18
250	8.18
260	8.18
270	6.14
280	6.14
290	6.14
300	4.09
310	4.09
320	4.09
330	4.09
340	4.09
350	3.68



Hydrology Model Output

1) Existing Landuse

```
=================================================================
=========================================

      V   V  I   SSSSS  U   U   A    L
      V   V  I   SS     U   U   A A  L
       V V   I    SS    U   U  AAAAA L
       V V   I     SS   U   U  A   A L
        VV   I   SSSSS  UUUUU  A   A LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O    Company
       OOO     T      T    H   H    Y    M   M   OOO
Serial
```



```
                  *****  D E T A I L E D   O U T P U T *****

  Input   filename: C:\Program Files (x86)\Visual Otthymo
2.4\VO2\voin.dat
  Output  filename: C:\Users\Jenny\AppData\Local\Temp\a8b7002d-
931f-4bdf-82e5-bad09a870f5a\Scenario.out
  Summary filename: C:\Users\Jenny\AppData\Local\Temp\a8b7002d-
931f-4bdf-82e5-bad09a870f5a\Scenario.sum


DATE: 05/13/2013                           TIME: 10:50:59

USER:


COMMENTS:
____________________________________________________________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  ****************************
  ** SIMULATION NUMBER:   1 **
  ****************************


-------------------
|    READ STORM    |    Filename: C:\Users\Jenny\AppD
|                  |              ata\Local\Temp\
|                  |              a8b7002d-931f-4bdf-82e5-
bad09a870f5a\c58676da
| Ptotal=101.62 mm |    Comments: Mount Hope-6 hour SCS
Distribution Desig
-------------------
                 TIME    RAIN |   TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |    hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                 0.17    4.09 |  1.67   10.23 |  3.17   22.51 |
4.67    6.14
                 0.33    4.09 |  1.83   10.23 |  3.33   22.51 |
4.83    6.14
                 0.50    4.09 |  2.00   10.23 |  3.50   22.51 |
5.00    6.14
                 0.67    6.14 |  2.17   12.28 |  3.67   10.23 |
5.17    4.09
                 0.83    6.14 |  2.33   12.28 |  3.83   10.23 |
5.33    4.09
                 1.00    6.14 |  2.50   12.28 |  4.00   10.23 |
5.50    4.09
                 1.17    6.14 |  2.67   61.38 |  4.17    8.18 |
5.67    4.09
                 1.33    6.14 |  2.83  110.48 |  4.33    8.18 |
5.83    4.09
                 1.50    6.14 |  3.00  159.59 |  4.50    8.18 |

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-------------------
| CALIB            |
| NASHYD    (5071) |   Area    (ha)=   8.40   Curve Number
(CN)= 74.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.72

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                            ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |   TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |    hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                0.083    4.09 | 1.583   10.23 | 3.083   22.51 |
4.58    6.14
                0.167    4.09 | 1.667   10.23 | 3.167   22.51 |
4.67    6.14
                0.250    4.09 | 1.750   10.23 | 3.250   22.51 |
4.75    6.14
                0.333    4.09 | 1.833   10.23 | 3.333   22.51 |
4.83    6.14
                0.417    4.09 | 1.917   10.23 | 3.417   22.51 |
4.92    6.14
                0.500    4.09 | 2.000   10.23 | 3.500   22.51 |
5.00    6.14
                0.583    6.14 | 2.083   12.28 | 3.583   10.23 |
5.08    4.09
                0.667    6.14 | 2.167   12.28 | 3.667   10.23 |
5.17    4.09
                0.750    6.14 | 2.250   12.28 | 3.750   10.23 |
5.25    4.09
                0.833    6.14 | 2.333   12.28 | 3.833   10.23 |
5.33    4.09
                0.917    6.14 | 2.417   12.28 | 3.917   10.23 |
5.42    4.09
                1.000    6.14 | 2.500   12.28 | 4.000   10.23 |
5.50    4.09
                1.083    6.14 | 2.583   61.38 | 4.083    8.18 |
5.58    4.09
                1.167    6.14 | 2.667   61.38 | 4.167    8.18 |
5.67    4.09
                1.250    6.14 | 2.750  110.48 | 4.250    8.18 |
5.75    4.09
                1.333    6.14 | 2.833  110.48 | 4.333    8.18 |
5.83    4.09
                1.417    6.14 | 2.917  159.59 | 4.417    8.18 |
                1.500    6.14 | 3.000  159.59 | 4.500    8.18 |

     Unit Hyd Qpeak  (cms)=   0.187

     PEAK FLOW       (cms)=   0.292 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  47.930
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.472

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (5072) |   Area    (ha)=  40.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
30.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      18.23         22.28
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     519.62         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     159.59        138.69
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```
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       5.70 (ii)   13.32 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.20          0.08

*TOTALS*
     PEAK FLOW       (cms)=       5.04          5.04
9.320 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62         54.93
67.14
     TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
     RUNOFF COEFFICIENT   =       0.94          0.54
0.66


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  74.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0121) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5071):     8.40   0.292     4.92    47.93
        + ID2= 2 (5072):    40.50   9.320     3.00    67.14
          ===============================================
          ID = 3 (0121):    48.90   9.346     3.00    63.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (5121) |   Area    (ha)=   0.70   Curve Number
(CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.14

     Unit Hyd Qpeak  (cms)=   0.023

     PEAK FLOW       (cms)=   0.031 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)=  44.405
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.437

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5122) |   Area    (ha)=   3.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=
47.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.92          1.28
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     146.06         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     159.59        138.15
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       2.66 (ii)   10.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.29          0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.66          0.32
0.934 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62         52.54
72.79
     TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
     RUNOFF COEFFICIENT   =       0.94          0.52
0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0118) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5121):     0.70   0.031     4.17    44.40
        + ID2= 2 (5122):     3.20   0.934     3.00    72.79
          ===============================================
          ID = 3 (0118):     3.90   0.939     3.00    67.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (5111) |   Area    (ha)=   1.90   Curve Number
(CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.56

     Unit Hyd Qpeak  (cms)=   0.129

     PEAK FLOW       (cms)=   0.128 (i)
     TIME TO PEAK    (hrs)=   3.500
     RUNOFF VOLUME    (mm)=  40.070
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.394

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5112) |   Area    (ha)=   1.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.55          0.55
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=      85.63         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     159.59        134.29
                over (min)        5.00         10.00
     Storage Coeff.  (min)=       1.93 (ii)    9.65 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.31          0.11

*TOTALS*
     PEAK FLOW       (cms)=       0.17          0.14
0.313 (iii)
```

```
     TIME TO PEAK    (hrs)=       3.00          3.00
3.00
     RUNOFF VOLUME    (mm)=      95.62         52.00
67.26
     TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
     RUNOFF COEFFICIENT   =       0.94          0.51
0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0116) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5111):     1.90   0.128     3.50    40.07
        + ID2= 2 (5112):     1.10   0.313     3.00    67.26
          ===============================================
          ID = 3 (0116):     3.00   0.366     3.00    50.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (5101) |   Area    (ha)=   0.80   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.42

     Unit Hyd Qpeak  (cms)=   0.022

     PEAK FLOW       (cms)=   0.026 (i)
     TIME TO PEAK    (hrs)=   4.583
     RUNOFF VOLUME    (mm)=  39.043
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.384

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5102) |   Area    (ha)=   0.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.45          0.45
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=      77.46         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     159.59        120.33
                over (min)        5.00         10.00
     Storage Coeff.  (min)=       1.82 (ii)    9.89 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.32          0.11

*TOTALS*
     PEAK FLOW       (cms)=       0.14          0.10
0.241 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62         46.47
63.67
     TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
     RUNOFF COEFFICIENT   =       0.94          0.46
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0115) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5101):     0.80   0.026     4.58    39.04
        + ID2= 2 (5102):     0.90   0.241     3.00    63.67
          ===============================================
          ID = 3 (0115):     1.70   0.244     3.00    52.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0511) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 553.6) ------>
              Distance      Elevation        Manning
                 0.00          81.24          0.1100
                33.01          80.98          0.1100
                49.97          81.27          0.1100
                54.18          80.35          0.1100
                60.88          81.23     0.1100 /0.0700  Main
Channel
                69.13          79.02          0.0700      Main
Channel
                92.42          79.04          0.0700      Main
Channel
                98.70          80.89     0.0700 /0.1100  Main
Channel
               128.88          81.13          0.1100
               199.00          81.23          0.1100

        <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
       (m)     (m)     (cu.m.)       (cms)        (m/s)
(min)
      0.12   79.13   .361E+03        0.6          0.24
9.91
      0.23   79.25   .776E+03        2.1          0.40
6.09
      0.35   79.37   .121E+04        4.3          0.52
4.65
      0.47   79.48   .165E+04        7.1          0.63
3.85
      0.59   79.60   .211E+04       10.5          0.72
3.34
      0.70   79.72   .258E+04       14.4          0.81
2.98
      0.82   79.84   .307E+04       18.8          0.89
2.71
      0.94   79.95   .357E+04       23.8          0.97
2.50
      1.05   80.07   .408E+04       29.2          1.04
2.33
      1.17   80.19   .461E+04       35.1          1.10
2.19
      1.29   80.30   .515E+04       41.5          1.17
2.07
```

```
       1.41    80.42    .571E+04      48.4          1.23
1.97
       1.52    80.54    .631E+04      55.8          1.28
1.88
       1.64    80.66    .695E+04      63.8          1.33
1.81
       1.76    80.77    .762E+04      72.3          1.38
1.76
       1.87    80.89    .833E+04      81.4          1.42
1.71
       2.00    81.02    .931E+04      92.4          1.44
1.68
       2.13    81.14    .109E+05     104.8          1.39
1.74
       2.25    81.27    .140E+05     120.9          1.25
1.93

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (0115)    1.70     0.24    3.00  52.08
0.05      0.24
     OUTFLOW: ID= 1 (0511)    1.70     0.18    3.08  52.08
0.03      0.24


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--------------------
| ADD HYD   (0117) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0116):     3.00   0.366     3.00    50.04
        + ID2= 2 (0511):     1.70   0.175     3.08    52.08
          ==================================================
          ID = 3 (0117):     4.70   0.533     3.00    50.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0512) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 484.2) ------>
              Distance      Elevation       Manning
                 0.00         80.80        0.0900
                 9.73         80.46        0.0900
                14.10         82.04        0.0900
                17.18         82.28        0.0900
                41.13         82.12    0.0900 /0.0700  Main
Channel
                46.88         79.71        0.0700      Main
Channel
                51.41         80.90    0.0700 /0.0900  Main
Channel
                94.29         80.56        0.0900
               175.64         80.72        0.0900
               192.09         80.85        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.13    79.84    .255E+02       0.0          0.14
54.71
       0.26    79.98    .102E+03       0.0          0.23
34.47
       0.40    80.11    .229E+03       0.1          0.30
26.30
       0.53    80.24    .408E+03       0.3          0.36
21.71
       0.66    80.37    .637E+03       0.6          0.42
18.71
       0.79    80.51    .934E+03       0.9          0.46
16.84
       0.93    80.64    .245E+04       1.6          0.31
24.96
       1.06    80.77    .873E+04       4.6          0.25
31.51
       1.19    80.90    .179E+05      11.4          0.30
26.08
       1.32    81.04    .278E+05      22.6          0.38
20.45
       1.46    81.17    .381E+05      37.5          0.46
16.91
       1.60    81.31    .484E+05      55.4          0.54
14.57
       1.74    81.45    .588E+05      76.0          0.61
12.90
       1.87    81.59    .693E+05      99.3          0.67
11.63
       2.01    81.72    .798E+05     125.0          0.73
10.64
       2.15    81.86    .903E+05     153.1          0.80
9.83
       2.29    82.00    .101E+06     183.5          0.85
9.16
       2.42    82.14    .112E+06     214.3          0.90
8.68
       2.56    82.27    .123E+06     244.4          0.93
8.40

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (0117)    4.70     0.53    3.00  50.78
0.64      0.41
     OUTFLOW: ID= 1 (0512)    4.70     0.32    3.25  50.77
0.54      0.36


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--------------------
| ADD HYD   (0119) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0118):     3.90   0.939     3.00    67.69
        + ID2= 2 (0512):     4.70   0.324     3.25    50.77
          ==================================================
          ID = 3 (0119):     8.60   1.194     3.00    58.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5061) |   Area    (ha)=   3.90   Curve Number
(CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.239

     PEAK FLOW       (cms)=   0.273 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  44.407
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.437

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (5062) |   Area    (ha)=   7.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        5.07          2.73
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      228.04         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      159.59        140.91
                over (min)         5.00         15.00
     Storage Coeff.  (min)=        3.47 (ii)    11.05 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.26          0.09

*TOTALS*
     PEAK FLOW       (cms)=        1.80          0.67
2.375 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       95.62         52.92
75.55
     TOTAL RAINFALL   (mm)=      101.62        101.62
101.62
     RUNOFF COEFFICIENT   =        0.94          0.52
0.74

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0109) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5061):     3.90   0.273     3.58    44.41
        + ID2= 2 (5062):     7.80   2.375     3.00    75.55
          ==================================================
          ID = 3 (0109):    11.70   2.477     3.00    65.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (5051) |   Area    (ha)=   1.30   Curve Number
(CN)= 68.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.080

     PEAK FLOW       (cms)=   0.084 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  41.118
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.405

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (5052) |   Area    (ha)=  14.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        9.64          4.96
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      311.98         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      159.59        133.73
                over (min)         5.00         15.00
     Storage Coeff.  (min)=        4.19 (ii)    11.93 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.24          0.09

*TOTALS*
     PEAK FLOW       (cms)=        3.39          1.12
4.336 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       95.62         49.77
74.53
     TOTAL RAINFALL   (mm)=      101.62        101.62
101.62
     RUNOFF COEFFICIENT   =        0.94          0.49
0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0107) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5051):     1.30   0.084     3.58    41.12
        + ID2= 2 (5052):    14.60   4.336     3.00    74.53
          ==================================================
          ID = 3 (0107):    15.90   4.367     3.00    71.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (5211) |   Area    (ha)=   1.90   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   0.076

     PEAK FLOW       (cms)=   0.113 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=  51.711
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.509

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5212) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  52.00   Dir. Conn.(%)=
40.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        7.18          6.62
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     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      303.32         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      159.59        143.83
                over (min)         5.00         15.00
     Storage Coeff.  (min)=        4.12 (ii)    11.64 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.24          0.09

*TOTALS*
     PEAK FLOW       (cms)=        2.37          1.65
3.795 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       95.62         58.15
73.14
     TOTAL RAINFALL   (mm)=      101.62        101.62
101.62
     RUNOFF COEFFICIENT   =        0.94          0.57
0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0112) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5211):     1.90   0.113     3.92    51.71
        + ID2= 2 (5212):    13.80   3.795     3.00    73.14
          ==================================================
          ID = 3 (0112):    15.70   3.821     3.00    70.55

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (5201) |   Area    (ha)=  22.80   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.31

     Unit Hyd Qpeak  (cms)=   0.663

     PEAK FLOW       (cms)=   0.928 (i)
     TIME TO PEAK    (hrs)=   4.417
     RUNOFF VOLUME    (mm)=  45.555
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.448

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5202) |   Area    (ha)=   6.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  23.00   Dir. Conn.(%)=
12.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.59          5.31
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      214.48         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      159.59        113.06
                over (min)         5.00         15.00
     Storage Coeff.  (min)=        3.35 (ii)    11.62 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.26          0.09

*TOTALS*
     PEAK FLOW       (cms)=        0.36          1.02
1.225 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       95.62         49.45
54.99
     TOTAL RAINFALL   (mm)=      101.62        101.62
101.62
     RUNOFF COEFFICIENT   =        0.94          0.49
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
               YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0111) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5201):    22.80   0.928     4.42    45.56
        + ID2= 2 (5202):     6.90   1.225     3.00    54.99
          ==================================================
          ID = 3 (0111):    29.70   1.350     3.00    47.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0521) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 815.4) ------>
              Distance      Elevation       Manning
                415.18        83.86        0.0900
                461.15        83.40        0.0900
                501.83        83.53    0.0900 /0.0700  Main
Channel
                513.93        82.96        0.0700      Main
Channel
                526.85        83.23    0.0700 /0.0900  Main
Channel
                569.63        83.21        0.0900
                610.76        83.63        0.0900
                663.54        83.88        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.05    83.00    .378E+02       0.0          0.11
83.81
       0.09    83.05    .151E+03       0.0          0.17
52.79
       0.14    83.09    .340E+03       0.1          0.22
40.29
       0.18    83.14    .605E+03       0.3          0.27
33.26
       0.23    83.18    .946E+03       0.5          0.32
28.66
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```
      0.27    83.23    .151E+04       0.9          0.33
27.77
      0.32    83.27    .323E+04       1.8          0.31
29.51
      0.37    83.32    .510E+04       3.2          0.34
26.44
      0.42    83.37    .713E+04       5.0          0.38
23.61
      0.46    83.42    .934E+04       7.3          0.42
21.44
      0.51    83.47    .121E+05      10.0          0.45
20.23
      0.56    83.52    .156E+05      13.4          0.47
19.44
      0.61    83.57    .196E+05      17.7          0.49
18.52
      0.66    83.61    .240E+05      22.8          0.52
17.49
      0.71    83.66    .286E+05      28.4          0.54
16.75
      0.75    83.71    .336E+05      34.7          0.56
16.14
      0.80    83.76    .390E+05      41.8          0.58
15.55
      0.85    83.81    .448E+05      49.8          0.60
14.99
      0.90    83.86    .510E+05      58.8          0.63
14.46

                                   <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0111)   29.70     1.35    3.00  47.75
0.29     0.32
    OUTFLOW: ID= 1 (0521)   29.70     1.03    4.67  47.73
0.28     0.32

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| ADD HYD   (0113) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0112):    15.70   3.821     3.00    70.55
        + ID2= 2 (0521):    29.70   1.031     4.67    47.73
          ===============================================
          ID = 3 (0113):    45.40   4.279     3.00    55.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB              |
| NASHYD    (5041) |   Area    (ha)=   0.30   Curve Number
(CN)= 68.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.89

     Unit Hyd Qpeak  (cms)=   0.013

     PEAK FLOW      (cms)=   0.015 (i)
     TIME TO PEAK   (hrs)=   3.917
     RUNOFF VOLUME   (mm)=  41.113
     TOTAL RAINFALL  (mm)= 101.620
     RUNOFF COEFFICIENT  =   0.405

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| STANDHYD  (5042) |   Area    (ha)=   7.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.88         2.52
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     222.11        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       133.73
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.42 (ii)   11.16 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.26         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.74         0.58
2.236 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        49.77
74.53
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.49
0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0105) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5041):     0.30   0.015     3.92    41.11
        + ID2= 2 (5042):     7.40   2.236     3.00    74.53
          ===============================================
          ID = 3 (0105):     7.70   2.240     3.00    73.23

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB              |
| NASHYD    (5031) |   Area    (ha)=   1.70   Curve Number
(CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.82

     Unit Hyd Qpeak  (cms)=   0.079

     PEAK FLOW      (cms)=   0.096 (i)
     TIME TO PEAK   (hrs)=   3.833
     RUNOFF VOLUME   (mm)=  44.407
     TOTAL RAINFALL  (mm)= 101.620
     RUNOFF COEFFICIENT  =   0.437

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB              |
| STANDHYD  (5032) |   Area    (ha)=  12.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  59.00   Dir. Conn.(%)=
47.00
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                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.20         5.00
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     285.19        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       133.17
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.97 (ii)   11.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.09

*TOTALS*
     PEAK FLOW       (cms)=       2.47         1.14
3.440 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        51.84
72.41
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.51
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0103) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5031):     1.70   0.096     3.83    44.41
        + ID2= 2 (5032):    12.20   3.440     3.00    72.41
          ===============================================
          ID = 3 (0103):    13.90   3.465     3.00    68.99

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB              |
| NASHYD    (5021) |   Area    (ha)=  25.20   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.46

     Unit Hyd Qpeak  (cms)=   0.662

     PEAK FLOW      (cms)=   0.724 (i)
     TIME TO PEAK   (hrs)=   4.583
     RUNOFF VOLUME   (mm)=  35.158
     TOTAL RAINFALL  (mm)= 101.620
     RUNOFF COEFFICIENT  =   0.346

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB              |
| STANDHYD  (5022) |   Area    (ha)=  25.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  42.00   Dir. Conn.(%)=
30.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.88        15.02
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     415.53        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59        97.19
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.98 (ii)   13.77 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.28         2.27
5.160 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        40.29
56.89
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.40
0.56

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0101) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5021):    25.20   0.724     4.58    35.16
        + ID2= 2 (5022):    25.90   5.160     3.00    56.89
          ===============================================
          ID = 3 (0101):    51.10   5.237     3.00    46.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB              |
| NASHYD    (5011) |   Area    (ha)=  80.20   Curve Number
(CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.85

     Unit Hyd Qpeak  (cms)=   3.621

     PEAK FLOW      (cms)=   3.787 (i)
     TIME TO PEAK   (hrs)=   3.833
     RUNOFF VOLUME   (mm)=  38.043
     TOTAL RAINFALL  (mm)= 101.620
     RUNOFF COEFFICIENT  =   0.374

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB              |
| STANDHYD  (5012) |   Area    (ha)=  39.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.97        24.43
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     512.51        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       107.14
```

```
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       5.65 (ii)   14.10 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.20         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.93         4.06
7.301 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        43.76
56.20
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.43
0.55

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  65.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0100) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5011):    80.20   3.787     3.83    38.04
        + ID2= 2 (5012):    39.40   7.301     3.00    56.20
          ===============================================
          ID = 3 (0100):   119.60   8.229     3.00    44.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0502) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1537.5) ------>
               Distance      Elevation       Manning
                  0.00         89.30         0.1100
                  4.20         89.28         0.1100
                  9.03         88.80         0.1100
                 21.55         88.78         0.1100
                 29.06         88.24         0.1100
                 39.87         87.83         0.1100
                 55.54         87.84    0.1100 /0.0700  Main
Channel
                 57.54         86.84         0.0700      Main
Channel
                 59.04         86.84         0.0700      Main
Channel
                 61.04         87.84    0.0700 /0.1100  Main
Channel
                 74.10         87.86         0.1100
                 87.72         88.07         0.1100
                101.34         88.18         0.1100
                113.53         88.23         0.1100
                128.57         88.32         0.1100
                142.19         88.61         0.1100
                155.81         88.53         0.1100
                183.05         88.85         0.1100
                187.19         88.84         0.1100
                211.21         88.88         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
       (m)     (m)     (cu.m.)       (cms)        (m/s)
(min)
      0.10    86.94    .202E+03       0.0          0.25
78.80
      0.20    87.04    .452E+03       0.1          0.37
52.91
      0.30    87.14    .749E+03       0.3          0.47
42.34
      0.40    87.24    .109E+04       0.5          0.55
36.26
      0.50    87.34    .149E+04       0.8          0.62
32.18
      0.60    87.44    .193E+04       1.1          0.68
29.19
      0.70    87.54    .241E+04       1.5          0.74
26.87
      0.80    87.64    .295E+04       2.0          0.79
25.01
      0.90    87.74    .353E+04       2.5          0.84
23.46
      1.00    87.84    .421E+04       3.1          0.89
22.39
      1.10    87.94    .849E+04       4.5          0.63
31.56
      1.21    88.05    .150E+05       7.1          0.56
35.43
      1.33    88.17    .233E+05      10.6          0.54
36.49
      1.44    88.28    .346E+05      15.5          0.53
37.18
      1.56    88.40    .484E+05      22.8          0.56
35.35
      1.67    88.51    .634E+05      32.1          0.60
32.90
      1.79    88.63    .807E+05      41.2          0.61
32.65
      1.90    88.74    .101E+06      54.6          0.64
30.77
      2.02    88.86    .124E+06      64.7          0.62
31.85

                                   <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0100)  119.60     8.23    3.00  44.03
1.25     0.55
    OUTFLOW: ID= 1 (0502)  119.60     5.08    3.83  44.02
1.13     0.61

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| ADD HYD   (0102) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0101):    51.10   5.237     3.00    46.17
        + ID2= 2 (0502):   119.60   5.084     3.83    44.02
          ===============================================
          ID = 3 (0102):   170.70   8.158     3.00    44.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0503) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1157.9) ------>
               Distance      Elevation       Manning
                  0.00         86.78         0.0900
                 25.34         87.17         0.0900
                 68.44         87.04         0.0900
                117.13         86.81         0.0900
                125.36         85.21    0.0900 /0.0700  Main
Channel
                127.36         84.21         0.0700      Main
Channel
```

```
                128.86        84.21        0.0700      Main
Channel
                130.86        85.21    0.0700 /0.0900  Main
Channel
                131.88        86.36        0.0900
                140.63        86.77        0.0900
                168.26        86.90        0.0900
                169.81        87.10        0.0900
                202.11        87.50        0.0900
                239.06        87.35        0.0900
                270.29        87.83        0.0900
                283.90        87.90        0.0900
                297.51        87.86        0.0900
                324.73        87.89        0.0900
                351.95        87.78        0.0900
                388.59        87.46        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.17    84.38    .114E+03      0.1          0.34
18.34
       0.33    84.54    .269E+03      0.4          0.50
12.51
       0.50    84.71    .465E+03      0.8          0.62
10.07
       0.67    84.88    .703E+03      1.4          0.72
8.63
       0.83    85.04    .982E+03      2.1          0.81
7.65
       1.00    85.21    .130E+04      3.1          0.89
6.93
       1.21    85.42    .177E+04      5.0          1.06
5.87
       1.41    85.62    .234E+04      7.4          1.17
5.28
       1.62    85.83    .300E+04     10.2          1.27
4.89
       1.83    86.04    .376E+04     13.6          1.35
4.60
       2.03    86.24    .462E+04     17.6          1.42
4.37
       2.24    86.45    .560E+04     22.1          1.47
4.22
       2.45    86.66    .695E+04     27.6          1.48
4.20
       2.66    86.87    .925E+04     31.2          1.25
4.94
       2.86    87.07    .168E+05     43.1          0.96
6.48
       3.07    87.28    .297E+05     67.7          0.85
7.30
       3.28    87.49    .456E+05    103.1          0.84
7.38
       3.48    87.69    .663E+05    159.6          0.89
6.93
       3.69    87.90    .907E+05    223.4          0.92
6.77

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0102)  170.70     8.16    3.00  44.66
1.47     1.20
     OUTFLOW: ID= 1 (0503)  170.70     7.61    3.08  44.66
1.43     1.18


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| ADD HYD   (0104) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0103):    13.90   3.465     3.00     68.99
        + ID2= 2 (0503):   170.70   7.611     3.08     44.66
          ===============================================
          ID = 3 (0104):   184.60  10.236     3.00     46.50

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0504) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 815.4) ------>
              Distance      Elevation      Manning
                 19.10        82.03        0.0900
                 29.01        83.14        0.0900
                 40.83        82.56        0.0900
                 81.51        82.27        0.0900
                122.18        82.68        0.0900
                169.31        82.61        0.0900
                217.10        82.90        0.0900
                229.61        83.66    0.0900 /0.0700  Main
Channel
                232.80        81.85        0.0700      Main
Channel
                243.24        83.87        0.0700      Main
Channel
                257.77        84.06        0.0900
                312.01        83.52        0.0900
                415.18        83.86        0.0900
                461.15        83.40        0.0900
                501.83        83.53        0.0900
                513.93        82.96        0.0900
                526.85        83.23        0.0900
                569.63        83.21        0.0900
                610.76        83.63        0.0900
                663.54        83.88        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.11    81.96    .117E+02      0.0          0.18
23.95
       0.23    82.08    .492E+02      0.1          0.28
15.67
       0.34    82.19    .135E+03      0.2          0.34
13.00
       0.45    82.30    .312E+03      0.4          0.32
13.44
       0.57    82.42    .116E+04      1.2          0.28
15.74
       0.68    82.53    .287E+04      3.5          0.32
13.85
       0.79    82.64    .549E+04      7.0          0.33
13.13
       0.91    82.76    .101E+05     14.9          0.39
11.28
       1.02    82.87    .155E+05     27.5          0.47
9.38
       1.13    82.98    .214E+05     45.2          0.55
7.89
       1.25    83.10    .277E+05     67.2          0.64
6.87
       1.36    83.21    .344E+05     93.6          0.71
6.12
       1.47    83.32    .426E+05    125.3          0.77
5.67
       1.59    83.44    .516E+05    162.2          0.82
5.30
       1.70    83.55    .620E+05    204.2          0.86
5.06
       1.81    83.66    .747E+05    254.0          0.89
4.90
```

```
       1.95    83.80    .924E+05    324.9          0.92
4.74
       2.08    83.93    .113E+06    411.3          0.95
4.59
       2.21    84.06    .135E+06    515.5          1.00
4.37

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0104)  184.60    10.24    3.00  46.50
0.84     0.35
     OUTFLOW: ID= 1 (0504)  184.60     8.20    3.25  46.50
0.81     0.34


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-------------------
| ADD HYD   (0106) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0105):     7.70   2.240     3.00     73.23
        + ID2= 2 (0504):   184.60   8.201     3.25     46.50
          ===============================================
          ID = 3 (0106):   192.30   8.885     3.25     47.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0114) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0106):   192.30   8.885     3.25     47.57
        + ID2= 2 (0113):    45.40   4.279     3.00     55.62
          ===============================================
          ID = 3 (0114):   237.70  12.423     3.00     49.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0505) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 553.6) ------>
              Distance      Elevation      Manning
                  0.00        81.24        0.1100
                 33.01        80.98        0.1100
                 49.97        81.27        0.1100
                 54.18        80.35        0.1100
                 60.88        81.23        0.1100
                 69.13        79.02        0.1100
                 92.42        79.04        0.1100
                 98.70        80.89        0.1100
                128.88        81.13        0.1100
                199.00        81.23        0.1100
                266.11        81.68        0.1100
                306.94        81.73        0.1100
                331.74        81.55    0.1100 /0.0700  Main
Channel
                336.74        80.15        0.0700      Main
Channel
                346.34        81.64    0.0700 /0.0900  Main
Channel
                394.77        81.68        0.0900
                431.64        81.44        0.0900
                477.44        82.08        0.0900
                481.25        82.81        0.0900
                501.51        83.16        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12    79.13    .418E+03      0.4          0.15
18.59
       0.23    79.25    .899E+03      1.3          0.25
11.41
       0.35    79.36    .140E+04      2.7          0.33
8.70
       0.46    79.48    .191E+04      4.4          0.39
7.22
       0.58    79.59    .244E+04      6.5          0.46
6.26
       0.69    79.71    .299E+04      8.9          0.51
5.58
       0.81    79.82    .355E+04     11.7          0.56
5.08
       0.92    79.94    .413E+04     14.7          0.61
4.68
       1.04    80.05    .472E+04     18.1          0.65
4.36
       1.15    80.17    .533E+04     21.7          0.70
4.09
       1.27    80.28    .598E+04     25.7          0.74
3.88
       1.38    80.40    .666E+04     29.7          0.76
3.74
       1.50    80.51    .740E+04     33.7          0.78
3.67
       1.61    80.63    .822E+04     38.1          0.79
3.59
       1.73    80.74    .909E+04     43.1          0.81
3.52
       1.84    80.86    .100E+05     48.6          0.83
3.45
       1.96    80.97    .111E+05     48.4          0.74
3.83
       2.07    81.09    .128E+05     43.8          0.59
4.86
       2.19    81.21    .155E+05     40.6          0.45
6.35

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0114)  237.70    12.42    3.00  49.11
0.84     0.57
     OUTFLOW: ID= 1 (0505)  237.70    11.81    3.08  49.11
0.81     0.56


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-------------------
| ADD HYD   (0108) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0107):    15.90   4.367     3.00     71.80
        + ID2= 2 (0505):   237.70  11.814     3.08     49.11
          ===============================================
          ID = 3 (0108):   253.60  14.830     3.00     50.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0506) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 304.1) ------>
              Distance      Elevation      Manning
```

```
                  0.00        81.42        0.0900
                  7.45        81.36        0.0900
                 32.34        80.38        0.0900
                 45.97        80.05        0.0900
                 65.23        79.93        0.0900
                 84.49        80.35        0.0900
                113.49        80.02        0.0900
                136.48        80.07        0.0900
                188.81        79.81        0.0900
                197.86        79.25    0.0900 /0.0700  Main
Channel
                200.70        78.22        0.0700      Main
Channel
                203.29        79.35    0.0700 /0.0900  Main
Channel
                204.01        79.67        0.0900
                236.47        80.40        0.0900
                277.80        80.48        0.0900
                305.35        80.37        0.0900
                346.67        80.41        0.0900
                387.99        80.33        0.0900
                415.54        80.53        0.0900
                447.88        80.49        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.11    78.34    .979E+01      0.0          0.23
21.53
       0.23    78.45    .392E+02      0.0          0.37
13.56
       0.34    78.56    .881E+02      0.1          0.48
10.35
       0.46    78.68    .157E+03      0.3          0.58
8.54
       0.57    78.79    .245E+03      0.6          0.67
7.36
       0.68    78.91    .352E+03      0.9          0.76
6.52
       0.80    79.02    .480E+03      1.4          0.84
5.88
       0.91    79.13    .627E+03      1.9          0.92
5.38
       1.03    79.25    .793E+03      2.7          0.99
4.98
       1.15    79.37    .103E+04      3.8          1.09
4.55
       1.28    79.50    .135E+04      5.2          1.16
4.28
       1.40    79.62    .175E+04      7.1          1.20
4.12
       1.52    79.75    .228E+04      9.3          1.21
4.08
       1.65    79.87    .318E+04     11.7          1.10
4.52
       1.77    80.00    .524E+04     15.8          0.90
5.52
       1.90    80.12    .973E+04     24.3          0.74
6.69
       2.02    80.24    .158E+05     39.7          0.75
6.62
       2.15    80.37    .230E+05     59.2          0.77
6.46
       2.27    80.49    .349E+05     90.3          0.77
6.44

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0108)  253.60    14.83    3.00  50.53
1.74     0.94
     OUTFLOW: ID= 1 (0506)  253.60    13.49    3.17  50.53
1.71     1.00


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| ADD HYD   (0110) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0109):    11.70   2.477     3.00     65.17
        + ID2= 2 (0506):   253.60  13.488     3.17     50.53
          ===============================================
          ID = 3 (0110):   265.30  14.658     3.17     51.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0120) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0110):   265.30  14.658     3.17     51.17
        + ID2= 2 (0119):     8.60   1.194     3.00     58.44
          ===============================================
          ID = 3 (0120):   273.90  15.396     3.17     51.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (5302) |   Area    (ha)=   5.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=
48.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.48         2.32
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     196.64        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       120.33
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.18 (ii)   11.25 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.22         0.48
1.622 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        46.47
70.06
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.46
0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| NASHYD    (6051) |   Area    (ha)=   0.40   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
```

```
-------------------   U.H. Tp(hrs)=   1.31

     Unit Hyd Qpeak  (cms)=   0.012

     PEAK FLOW       (cms)=   0.014 (i)
     TIME TO PEAK    (hrs)=   4.417
     RUNOFF VOLUME    (mm)=  39.039
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.384

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (6052) |   Area    (ha)=  15.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.23         5.27
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     321.46        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       128.04
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.27 (ii)   12.14 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.09

*TOTALS*
     PEAK FLOW       (cms)=       3.59         1.13
4.539 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        47.60
73.53
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.47
0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0131) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6051):      0.40   0.014     4.42    39.04
        + ID2= 2 (6052):     15.50   4.539     3.00    73.53
          ===============================================
          ID = 3 (0131):     15.90   4.541     3.00    72.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6111) |   Area    (ha)=   0.60   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.08

     Unit Hyd Qpeak  (cms)=   0.021

     PEAK FLOW       (cms)=   0.033 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  51.708
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.509

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (6112) |   Area    (ha)=  10.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  62.00   Dir. Conn.(%)=
50.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.70         4.10
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     268.33        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       148.49
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.83 (ii)   11.25 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.09

*TOTALS*
     PEAK FLOW       (cms)=       2.34         1.07
3.255 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        57.09
76.35
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.56
0.75

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0137) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6111):      0.60   0.033     4.08    51.71
        + ID2= 2 (6112):     10.80   3.255     3.00    76.35
          ===============================================
          ID = 3 (0137):     11.40   3.261     3.00    75.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6101) |   Area    (ha)=   9.00   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.23

     Unit Hyd Qpeak  (cms)=   0.279

     PEAK FLOW       (cms)=   0.365 (i)
     TIME TO PEAK    (hrs)=   4.333
     RUNOFF VOLUME    (mm)=  43.287
     TOTAL RAINFALL   (mm)= 101.620
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     RUNOFF COEFFICIENT   =   0.426

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (6102) |   Area    (ha)=  12.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  27.00   Dir. Conn.(%)=
16.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.27         8.83
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     284.02        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       109.05
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.96 (ii)   12.36 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.84         1.59
2.173 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        47.35
55.07
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.47
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
                YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0136) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6101):      9.00   0.365     4.33    43.29
        + ID2= 2 (6102):     12.10   2.173     3.00    55.07
          ===============================================
          ID = 3 (0136):     21.10   2.226     3.00    50.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0611) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 940.0) ------>
               Distance      Elevation       Manning
                  0.00         83.36         0.0900
                 12.33         84.54         0.0900
                 21.95         84.33     0.0900 /0.0700  Main
Channel
                 25.80         83.10         0.0700      Main
Channel
                 39.87         83.58     0.0700 /0.0900  Main
Channel
                 95.01         83.67         0.0900
                132.30         84.45         0.0900

       <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.07    83.17    .442E+02       0.0          0.13
76.06
      0.14    83.24    .177E+03       0.1          0.20
47.91
      0.21    83.31    .398E+03       0.2          0.26
36.56
      0.28    83.38    .709E+03       0.4          0.32
30.22
      0.35    83.44    .113E+04       0.7          0.36
26.38
      0.41    83.51    .167E+04       1.2          0.41
23.66
      0.48    83.58    .232E+04       1.8          0.45
21.54
      0.56    83.66    .431E+04       3.1          0.42
23.06
      0.64    83.74    .779E+04       5.6          0.42
23.11
      0.72    83.82    .115E+05       9.1          0.46
20.97
      0.80    83.90    .154E+05      13.6          0.51
18.96
      0.88    83.98    .196E+05      18.9          0.55
17.31
      0.96    84.06    .240E+05      25.0          0.60
15.97
      1.04    84.14    .286E+05      32.1          0.65
14.88
      1.12    84.22    .334E+05      39.9          0.69
13.96
      1.20    84.30    .385E+05      48.6          0.73
13.19
      1.28    84.38    .438E+05      58.0          0.76
12.59
      1.36    84.46    .495E+05      68.4          0.80
12.06
      1.44    84.54    .555E+05      81.0          0.84
11.40

                                     <---- hydrograph ---->   <-
pipe / channel->
                                 AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                 (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0136)     21.10      2.23    3.00  50.05
0.51      0.44
     OUTFLOW: ID= 1 (0611)     21.10      1.41    3.25  50.03
0.44      0.42


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| ADD HYD   (0138) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0137):     11.40   3.261     3.00    75.06
        + ID2= 2 (0611):     21.10   1.407     3.25    50.03
          ===============================================
          ID = 3 (0138):     32.50   4.187     3.00    58.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6041) |   Area    (ha)=   1.70   Curve Number
(CN)= 79.0
```

```
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   4.12

     Unit Hyd Qpeak  (cms)=   0.016

     PEAK FLOW       (cms)=   0.032 (i)
     TIME TO PEAK    (hrs)=   7.500
     RUNOFF VOLUME    (mm)=  54.387
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.535

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6042) |   Area    (ha)=  22.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.49         7.81
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     385.57        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       165.04
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.76 (ii)   11.87 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.09

*TOTALS*
     PEAK FLOW       (cms)=       5.01         2.24
6.959 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        62.70
80.15
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.62
0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0129) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6041):      1.70   0.032     7.50    54.39
        + ID2= 2 (6042):     22.30   6.959     3.00    80.15
          ===============================================
          ID = 3 (0129):     24.00   6.960     3.00    78.32

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6031) |   Area    (ha)=  19.00   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.32

     Unit Hyd Qpeak  (cms)=   0.550

     PEAK FLOW       (cms)=   0.771 (i)
     TIME TO PEAK    (hrs)=   4.417
     RUNOFF VOLUME    (mm)=  45.555
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.448

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6032) |   Area    (ha)=  15.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
15.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.40        11.30
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     323.52        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       118.78
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.29 (ii)   12.40 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.01         2.23
2.894 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        50.39
57.17
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.50
0.56

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
                YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0127) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6031):     19.00   0.771     4.42    45.56
        + ID2= 2 (6032):     15.70   2.894     3.00    57.17
          ===============================================
          ID = 3 (0127):     34.70   2.997     3.00    50.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| NASHYD    (6011) |   Area    (ha)=  44.10   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.83

     Unit Hyd Qpeak  (cms)=   2.027
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     PEAK FLOW       (cms)=   1.942 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  35.157
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.346

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6012) |   Area    (ha)=  11.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
16.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        3.08          7.92
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      270.80         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      159.59         91.88
                over (min)         5.00         15.00
     Storage Coeff.  (min)=        3.85 (ii)    12.84 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.25          0.08

*TOTALS*
     PEAK FLOW       (cms)=        0.76          1.16
1.726 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       95.62         39.35
48.35
     TOTAL RAINFALL   (mm)=      101.62        101.62
101.62
     RUNOFF COEFFICIENT   =        0.94          0.39
0.48

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0124) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6011):    44.10   1.942     3.83    35.16
        + ID2= 2 (6012):    11.00   1.726     3.00    48.35
          ==================================================
          ID = 3 (0124):    55.10   2.327     3.50    37.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB              |
| NASHYD    (6021) |   Area    (ha)=  43.60   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------  U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   1.753

     PEAK FLOW       (cms)=   1.734 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  35.157
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.346

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6022) |   Area    (ha)=  12.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
23.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        4.51          8.39
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      293.26         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      159.59         94.24
                over (min)         5.00         15.00
     Storage Coeff.  (min)=        4.04 (ii)    12.94 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.24          0.08

*TOTALS*
     PEAK FLOW       (cms)=        1.28          1.26
2.325 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       95.62         39.77
52.62
     TOTAL RAINFALL   (mm)=      101.62        101.62
101.62
     RUNOFF COEFFICIENT   =        0.94          0.39
0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0125) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6021):    43.60   1.734     4.00    35.16
        + ID2= 2 (6022):    12.90   2.325     3.00    52.62
          ==================================================
          ID = 3 (0125):    56.50   2.680     3.00    39.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0126) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0124):    55.10   2.327     3.50    37.79
        + ID2= 2 (0125):    56.50   2.680     3.00    39.14
          ==================================================
          ID = 3 (0126):   111.60   4.886     3.00    38.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0603) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (2135.9) ------>
              Distance      Elevation       Manning
                 0.00          92.58        0.1400
                 8.54          92.59        0.1400
                22.11          92.47        0.1400
                48.74          91.83        0.1400
                67.59          91.58        0.1400
                86.45          91.21        0.1400
               103.50          90.80        0.1400
               118.09          90.23        0.1400
               127.84          90.09     0.1400 /0.0700  Main
Channel
               129.84          89.59        0.0700      Main
Channel
               130.34          90.09     0.0700 /0.1400  Main
Channel
               140.57          90.14        0.1400
               161.87          90.11        0.1400
               177.03          90.04        0.1400
               188.67          89.87        0.1400
               199.59          90.31        0.1400
               212.02          90.96        0.1400
               225.58          91.35        0.1400
               252.71          91.66        0.1400
               274.11          91.86        0.1400

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12    89.71    .358E+02       0.0          0.19
81.29
       0.25    89.84    .143E+03       0.0          0.30
51.21
       0.37    89.96    .689E+03       0.2          0.23
67.44
       0.50    90.09    .278E+04       0.6          0.20
77.83
       0.67    90.26    .132E+05       3.4          0.23
65.31
       0.83    90.42    .262E+05       9.3          0.33
46.76
       1.00    90.59    .403E+05      17.9          0.41
37.64
       1.17    90.76    .556E+05      28.8          0.48
32.17
       1.33    90.92    .721E+05      42.0          0.53
28.63
       1.50    91.09    .903E+05      57.1          0.58
26.37
       1.67    91.26    .110E+06      74.7          0.62
24.65
       1.83    91.42    .133E+06      93.4          0.64
23.71
       2.00    91.59    .159E+06     113.6          0.66
23.26
       2.17    91.76    .188E+06     136.6          0.67
22.96
       2.33    91.92    .222E+06     168.5          0.70
21.97
       2.50    92.09    .258E+06     211.3          0.75
20.33
       2.67    92.26    .294E+06     258.5          0.81
18.98
       2.83    92.42    .332E+06     310.1          0.86
17.85
       3.00    92.59    .371E+06     358.0          0.88
17.29

                              <---- hydrograph ---->   <-
pipe / channel->
                            AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0126)  111.60     4.89    3.00  38.48
0.71      0.25
     OUTFLOW: ID= 1 (0603)  111.60     3.29    4.50  38.47
0.66      0.23


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| ADD HYD   (0128) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0127):    34.70   2.997     3.00    50.81
        + ID2= 2 (0603):   111.60   3.287     4.50    38.47
          ==================================================
          ID = 3 (0128):   146.30   4.359     4.42    41.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0604) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1414.9) ------>
              Distance      Elevation       Manning
                 0.00          86.75        0.0900
                 3.09          87.40        0.0900
                18.33          87.41        0.0900
                35.33          86.99        0.0900
                73.84          86.75        0.0900
               103.33          86.41        0.0900
               120.33          86.11        0.0900
               129.46          86.13        0.0900
               143.37          85.32        0.0900
               154.33          85.02        0.0900
               161.57          85.09        0.0900
               163.05          84.78     0.0900 /0.0700  Main
Channel
               166.55          83.78        0.0700      Main
Channel
               168.05          84.78     0.0700 /0.1100  Main
Channel
               172.02          85.29        0.1100
               191.39          86.19        0.1100
               270.18          85.78        0.1100
               296.33          86.36        0.1100
               324.34          86.68        0.1100
               368.56          87.05        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.17    83.95    .465E+02       0.0          0.03
432.88
       0.33    84.11    .186E+03       0.0          0.04
272.70
       0.50    84.28    .418E+03       0.0          0.05
208.11
       0.67    84.45    .743E+03       0.1          0.06
171.79
       0.83    84.61    .116E+04       0.1          0.08
148.04
       1.00    84.78    .167E+04       0.2          0.09
131.10
       1.20    84.98    .252E+04       0.4          0.10
110.62
       1.41    85.19    .469E+04       0.6          0.09
121.59
       1.61    85.39    .842E+04       1.1          0.09
126.63
       1.81    85.59    .133E+05       1.8          0.09
121.99
       2.01    85.79    .192E+05       2.7          0.10
116.68
       2.22    86.00    .298E+05       4.0          0.09
125.45
       2.42    86.20    .487E+05       5.6          0.08
143.80
       2.62    86.40    .736E+05       9.0          0.08
137.02
       2.82    86.60    .102E+06      13.1          0.09
130.82
       3.03    86.81    .136E+06      18.1          0.09
125.42
       3.23    87.01    .178E+06      24.4          0.09
121.07
       3.43    87.21    .224E+06      34.2          0.10
108.80
       3.63    87.41    .271E+06      44.8          0.11
100.89

                              <---- hydrograph ---->   <-
pipe / channel->
                            AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0128)  146.30     4.36    4.42  41.40
2.26      0.09
     OUTFLOW: ID= 1 (0604)  146.30     3.20    4.92  41.39
2.14      0.09

     **** WARNING:  COMPUTATIONS FAILED TO CONVERGE.

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| ADD HYD   (0130) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0129):    24.00   6.960     3.00    78.32
        + ID2= 2 (0604):   146.30   3.200     4.92    41.39
          ==================================================
          ID = 3 (0130):   170.30   8.061     3.00    46.59

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0605) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 801.4) ------>
              Distance      Elevation       Manning
                 0.00          82.95        0.1100
                 3.78          82.95        0.1100
                 9.24          82.49        0.1100
                50.67          82.10        0.1100
               105.12          82.17        0.1100
               119.34          81.56        0.1100
               150.67          81.66        0.1100
               157.23          82.37        0.1100
               190.03          82.57        0.1100
               223.75          82.27        0.1100
               252.32          82.50        0.1100
               254.65          81.95     0.1100 /0.0700  Main
Channel
               258.15          80.95        0.0700      Main
Channel
               259.65          81.95     0.0700 /0.1100  Main
Channel
               263.15          82.90        0.1100
               278.14          82.80        0.1100
               282.35          81.68        0.1100
               285.02          82.19        0.1100
               336.56          82.53        0.1100
               404.40          82.68        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.08    81.03    .125E+02       0.0          0.11
104.30
       0.17    81.12    .499E+02       0.0          0.18
65.70
       0.25    81.20    .112E+03       0.0          0.24
50.14
       0.33    81.28    .199E+03       0.1          0.29
41.39
       0.42    81.37    .312E+03       0.1          0.34
35.67
       0.50    81.45    .449E+03       0.2          0.38
31.59
       0.58    81.53    .611E+03       0.4          0.42
28.50
       0.67    81.62    .117E+04       0.5          0.33
36.10
       0.75    81.70    .316E+04       1.1          0.24
49.12
       0.83    81.78    .560E+04       2.1          0.27
45.15
       0.92    81.87    .827E+04       3.4          0.30
40.03
       1.00    81.95    .112E+05       5.2          0.33
35.88
       1.10    82.05    .151E+05       8.0          0.38
31.68
       1.21    82.16    .207E+05       8.8          0.30
39.37
       1.31    82.26    .306E+05      14.0          0.33
36.36
       1.41    82.36    .433E+05      20.3          0.34
35.59
       1.52    82.47    .606E+05      28.4          0.34
35.57
       1.62    82.57    .828E+05      41.0          0.36
33.68
       1.73    82.68    .109E+06      60.1          0.39
30.35

                              <---- hydrograph ---->   <-
pipe / channel->
                            AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0130)  170.30     8.06    3.00  46.59
1.12      0.37
     OUTFLOW: ID= 1 (0605)  170.30     3.56    3.25  46.59
0.92      0.30


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--------------------
| ADD HYD   (0139) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0138):    32.50   4.187     3.00    58.81
        + ID2= 2 (0605):   170.30   3.562     3.25    46.59
          ==================================================
          ID = 3 (0139):   202.80   6.877     3.00    48.55

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0132) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0131):    15.90   4.541     3.00    72.66
        + ID2= 2 (0139):   202.80   6.877     3.00    48.55
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         =================================================
         ID = 3 (0132):   218.70  11.418     3.00    50.30

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0530) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 350.0) ------>
              Distance      Elevation       Manning
                 0.00          81.70        0.1100
                 3.84          81.72        0.1100
                 5.87          80.72        0.1100
                 9.38          81.42        0.1100
                49.64          81.07        0.1100
                80.61          80.72        0.1100
                85.61          81.14        0.1100
                93.32          80.00        0.1100
                95.04          80.45        0.1100
               102.72          80.66        0.1100
               110.13          78.93    0.1100 /0.0700  Main
Channel
               118.05          78.63        0.0700      Main
Channel
               124.40          78.89    0.0700 /0.1100  Main
Channel
               132.18          79.61        0.1100
               139.34          79.23        0.1100
               144.67          79.43        0.1100
               149.63          79.98        0.1100
               153.42          79.79        0.1100
               158.56          80.58        0.1100
               176.89          81.15        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.13    78.76    .190E+03       0.1          0.19
38.41
       0.26    78.89    .758E+03       0.5          0.31
24.20
       0.43    79.05    .189E+04       2.1          0.50
14.77
       0.59    79.22    .321E+04       4.7          0.65
11.35
       0.76    79.39    .498E+04       8.2          0.73
10.10
       0.93    79.55    .743E+04      13.1          0.78
9.48
       1.09    79.72    .103E+05      19.5          0.84
8.84
       1.26    79.89    .135E+05      27.1          0.89
8.29
       1.43    80.05    .171E+05      36.3          0.94
7.85
       1.59    80.22    .209E+05      47.2          1.00
7.39
       1.76    80.39    .251E+05      59.8          1.06
6.99
       1.93    80.56    .296E+05      73.5          1.10
6.70
       2.10    80.72    .348E+05      87.6          1.12
6.61
       2.26    80.89    .412E+05     102.8          1.11
6.68
       2.43    81.06    .495E+05     122.0          1.09
6.77
       2.60    81.22    .596E+05     146.2          1.09
6.80
       2.76    81.39    .714E+05     176.9          1.10
6.72
       2.93    81.56    .841E+05     215.0          1.13
6.52
       3.10    81.72    .970E+05     256.7          1.18
6.30

                              <---- hydrograph ---->    <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0132)  218.70    11.42    3.00  50.30
0.87     0.76
     OUTFLOW: ID= 1 (0530)  218.70     9.02    3.08  50.30
0.79     0.74


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--------------------
| ADD HYD   (0134) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0530):   218.70   9.023     3.08    50.30
       + ID2= 2 (5302):     5.80   1.622     3.00    70.06
         =================================================
         ID = 3 (0134):   224.50   9.892     3.08    50.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0135) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0120):   273.90  15.396     3.17    51.40
       + ID2= 2 (0134):   224.50   9.892     3.08    50.81
         =================================================
         ID = 3 (0135):   498.40  25.128     3.08    51.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0507) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (  40.0) ------>
              Distance      Elevation       Manning
                 0.00          79.36        0.0900
                 7.45          79.32        0.0900
                13.77          79.27        0.0900
                20.24          79.24        0.0900
                27.28          79.26        0.0900
                34.16          79.13        0.0900
                40.79          79.05        0.0900
                47.58          79.05        0.0900
                54.30          79.07        0.0900
                60.87          79.24        0.0900
                71.39          79.48        0.0900
                73.53          78.96        0.0900
                76.96          78.07        0.0900
                82.21          77.08    0.0900 /0.0700  Main
Channel
                85.82          76.28        0.0700      Main
Channel
                89.97          76.89        0.0700      Main
Channel
                91.35          77.38    0.0700 /0.0900  Main
Channel
                95.27          78.68        0.0900
                98.44          79.63        0.0900
               102.89          79.89        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.16    76.44    .113E+03       0.0          0.14
88.10
       0.32    76.60    .451E+03       0.1          0.23
55.50
       0.49    76.76    .101E+04       0.4          0.30
42.35
       0.65    76.92    .180E+04       0.9          0.37
34.57
       0.81    77.09    .276E+04       1.6          0.44
28.86
       0.97    77.25    .388E+04       2.7          0.52
24.37
       1.14    77.41    .516E+04       4.0          0.59
21.56
       1.30    77.57    .660E+04       5.7          0.66
19.26
       1.46    77.74    .822E+04       7.8          0.72
17.67
       1.62    77.90    .100E+05      10.1          0.77
16.48
       1.79    78.06    .120E+05      12.8          0.82
15.54
       1.95    78.22    .141E+05      15.9          0.87
14.74
       2.11    78.39    .163E+05      19.4          0.91
14.06
       2.27    78.55    .187E+05      23.2          0.95
13.47
       2.44    78.71    .212E+05      27.3          0.99
12.95
       2.60    78.87    .239E+05      31.9          1.02
12.50
       2.76    79.04    .267E+05      36.8          1.06
12.10
       2.92    79.20    .320E+05      39.4          0.94
13.56
       3.09    79.36    .409E+05      45.7          0.85
14.94

                              <---- hydrograph ---->    <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0135)  498.40    25.13    3.08  51.14
2.35     0.97
     OUTFLOW: ID= 1 (0507)  498.40    21.89    3.33  51.14
2.22     0.93


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--------------------
| ADD HYD   (0122) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0121):    48.90   9.346     3.00    63.84
       + ID2= 2 (0507):   498.40  21.891     3.33    51.14
         =================================================
         ID = 3 (0122):   547.30  27.079     3.17    52.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD   (5401) |   Area    (ha)=   3.40   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.99

     Unit Hyd Qpeak  (cms)=   0.131

     PEAK FLOW       (cms)=   0.146 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  39.046
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.384

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5402) |   Area    (ha)=   6.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  33.00   Dir. Conn.(%)=
20.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.98         4.02
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      200.00        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      159.59       105.19
               over (min)        5.00        15.00
     Storage Coeff.  (min)=        3.21 (ii)   11.73 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.27         0.09

*TOTALS*
     PEAK FLOW       (cms)=        0.52         0.71
1.120 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       95.62        44.06
54.37
     TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
     RUNOFF COEFFICIENT   =        0.94         0.43
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
                  YOU SHOULD CONSIDER SPLITTING THE AREA.

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0123) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (5401):     3.40   0.146     4.00    39.05
       + ID2= 2 (5402):     6.00   1.120     3.00    54.37
         =================================================
         ID = 3 (0123):     9.40   1.148     3.00    48.83

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| STORE HYD (1505) |   AREA       (ha)= 253.60
| ID= 1 DT= 5.0min |   QPEAK     (cms)=   0.78
--------------------   TPEAK     (hrs)=  15.58
                       VOLUME     (mm)=  47.57

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |'  TIME    FLOW |
TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |'   hrs     cms |
hrs     cms
   0.00    0.00 | 31.33    0.10 | 62.67    0.25 | 94.00    0.26
|125.33    0.16
   0.08    0.00 | 31.42    0.10 | 62.75    0.25 | 94.08    0.26
|125.42    0.16
   0.17    0.00 | 31.50    0.10 | 62.83    0.25 | 94.17    0.25
|125.50    0.16
   0.25    0.00 | 31.58    0.10 | 62.92    0.25 | 94.25    0.25
|125.58    0.16
   0.33    0.00 | 31.67    0.10 | 63.00    0.25 | 94.33    0.25
|125.67    0.17
   0.42    0.00 | 31.75    0.10 | 63.08    0.25 | 94.42    0.25
|125.75    0.16
   0.50    0.00 | 31.83    0.10 | 63.17    0.25 | 94.50    0.25
|125.83    0.16
   0.58    0.00 | 31.92    0.10 | 63.25    0.24 | 94.58    0.25
|125.92    0.17
   0.67    0.00 | 32.00    0.10 | 63.33    0.24 | 94.67    0.24
|126.00    0.15
   0.75    0.00 | 32.08    0.10 | 63.42    0.24 | 94.75    0.25
|126.08    0.16
   0.83    0.00 | 32.17    0.10 | 63.50    0.23 | 94.83    0.24
|126.17    0.16
   0.92    0.00 | 32.25    0.10 | 63.58    0.24 | 94.92    0.25
|126.25    0.16
   1.00    0.00 | 32.33    0.10 | 63.67    0.24 | 95.00    0.25
|126.33    0.16
   1.08    0.00 | 32.42    0.10 | 63.75    0.24 | 95.08    0.25
|126.42    0.16
   1.17    0.00 | 32.50    0.10 | 63.83    0.23 | 95.17    0.24
|126.50    0.17
   1.25    0.00 | 32.58    0.10 | 63.92    0.23 | 95.25    0.21
|126.58    0.16
   1.33    0.00 | 32.67    0.10 | 64.00    0.23 | 95.33    0.25
|126.67    0.16
   1.42    0.00 | 32.75    0.10 | 64.08    0.23 | 95.42    0.22
|126.75    0.17
   1.50    0.00 | 32.83    0.10 | 64.17    0.23 | 95.50    0.23
|126.83    0.17
   1.58    0.00 | 32.92    0.10 | 64.25    0.24 | 95.58    0.22
|126.92    0.17
   1.67    0.00 | 33.00    0.10 | 64.33    0.23 | 95.67    0.24
|127.00    0.17
   1.75    0.00 | 33.08    0.10 | 64.42    0.23 | 95.75    0.26
|127.08    0.17
   1.83    0.00 | 33.17    0.10 | 64.50    0.23 | 95.83    0.24
|127.17    0.18
   1.92    0.00 | 33.25    0.11 | 64.58    0.23 | 95.92    0.23
|127.25    0.17
   2.00    0.00 | 33.33    0.11 | 64.67    0.24 | 96.00    0.24
|127.33    0.18
   2.08    0.00 | 33.42    0.11 | 64.75    0.24 | 96.08    0.24
|127.42    0.18
   2.17    0.00 | 33.50    0.11 | 64.83    0.24 | 96.17    0.24
|127.50    0.16
   2.25    0.00 | 33.58    0.11 | 64.92    0.24 | 96.25    0.24
|127.58    0.18
   2.33    0.00 | 33.67    0.11 | 65.00    0.24 | 96.33    0.24
|127.67    0.17
   2.42    0.00 | 33.75    0.11 | 65.08    0.23 | 96.42    0.24
|127.75    0.18
   2.50    0.00 | 33.83    0.11 | 65.17    0.23 | 96.50    0.24
|127.83    0.17
   2.58    0.00 | 33.92    0.11 | 65.25    0.23 | 96.58    0.23
|127.92    0.17
   2.67    0.00 | 34.00    0.11 | 65.33    0.23 | 96.67    0.24
|128.00    0.17
   2.75    0.00 | 34.08    0.11 | 65.42    0.22 | 96.75    0.23
|128.08    0.17
   2.83    0.00 | 34.17    0.11 | 65.50    0.22 | 96.83    0.23
|128.17    0.17
   2.92    0.00 | 34.25    0.11 | 65.58    0.22 | 96.92    0.24
|128.25    0.18
   3.00    0.00 | 34.33    0.11 | 65.67    0.22 | 97.00    0.23
|128.33    0.18
   3.08    0.00 | 34.42    0.11 | 65.75    0.22 | 97.08    0.22
|128.42    0.19
   3.17    0.00 | 34.50    0.11 | 65.83    0.22 | 97.17    0.23
|128.50    0.18
   3.25    0.00 | 34.58    0.11 | 65.92    0.21 | 97.25    0.22
|128.58    0.17
   3.33    0.00 | 34.67    0.11 | 66.00    0.21 | 97.33    0.25
|128.67    0.18
   3.42    0.00 | 34.75    0.11 | 66.08    0.21 | 97.42    0.22
|128.75    0.18
   3.50    0.00 | 34.83    0.11 | 66.17    0.20 | 97.50    0.24
|128.83    0.18
   3.58    0.00 | 34.92    0.11 | 66.25    0.20 | 97.58    0.23
|128.92    0.18
   3.67    0.00 | 35.00    0.11 | 66.33    0.20 | 97.67    0.22
|129.00    0.18
   3.75    0.00 | 35.08    0.11 | 66.42    0.20 | 97.75    0.23
|129.08    0.19
   3.83    0.00 | 35.17    0.11 | 66.50    0.19 | 97.83    0.22
|129.17    0.17
   3.92    0.00 | 35.25    0.11 | 66.58    0.20 | 97.92    0.21
|129.25    0.17
   4.00    0.00 | 35.33    0.11 | 66.67    0.20 | 98.00    0.22
|129.33    0.17
   4.08    0.00 | 35.42    0.11 | 66.75    0.20 | 98.08    0.23
|129.42    0.18
   4.17    0.00 | 35.50    0.11 | 66.83    0.19 | 98.17    0.21
|129.50    0.18
   4.25    0.00 | 35.58    0.11 | 66.92    0.19 | 98.25    0.21
|129.58    0.18
   4.33    0.00 | 35.67    0.11 | 67.00    0.20 | 98.33    0.23
|129.67    0.18
   4.42    0.00 | 35.75    0.11 | 67.08    0.20 | 98.42    0.21
|129.75    0.18
   4.50    0.00 | 35.83    0.11 | 67.17    0.20 | 98.50    0.21
|129.83    0.18
   4.58    0.00 | 35.92    0.11 | 67.25    0.20 | 98.58    0.23
|129.92    0.18
   4.67    0.00 | 36.00    0.11 | 67.33    0.20 | 98.67    0.22
|130.00    0.18
   4.75    0.00 | 36.08    0.11 | 67.42    0.21 | 98.75    0.23
|130.08    0.17
   4.83    0.00 | 36.17    0.11 | 67.50    0.22 | 98.83    0.24
|130.17    0.17
   4.92    0.00 | 36.25    0.11 | 67.58    0.22 | 98.92    0.22
|130.25    0.17
   5.00    0.00 | 36.33    0.11 | 67.67    0.23 | 99.00    0.20
|130.33    0.17
   5.08    0.00 | 36.42    0.12 | 67.75    0.24 | 99.08    0.20
|130.42    0.18
   5.17    0.00 | 36.50    0.12 | 67.83    0.26 | 99.17    0.22
|130.50    0.18
   5.25    0.00 | 36.58    0.12 | 67.92    0.27 | 99.25    0.21
|130.58    0.18
   5.33    0.00 | 36.67    0.12 | 68.00    0.28 | 99.33    0.22
|130.67    0.17
   5.42    0.00 | 36.75    0.12 | 68.08    0.31 | 99.42    0.21
|130.75    0.17
   5.50    0.00 | 36.83    0.12 | 68.17    0.32 | 99.50    0.20
|130.83    0.18
   5.58    0.00 | 36.92    0.12 | 68.25    0.34 | 99.58    0.21
|130.92    0.17
   5.67    0.00 | 37.00    0.12 | 68.33    0.35 | 99.67    0.20
|131.00    0.17
   5.75    0.00 | 37.08    0.12 | 68.42    0.38 | 99.75    0.19
|131.08    0.17
   5.83    0.00 | 37.17    0.12 | 68.50    0.39 | 99.83    0.20
|131.17    0.18
   5.92    0.00 | 37.25    0.12 | 68.58    0.40 | 99.92    0.22
|131.25    0.18
   6.00    0.00 | 37.33    0.12 | 68.67    0.42 |100.00    0.21
|131.33    0.17
   6.08    0.00 | 37.42    0.12 | 68.75    0.44 |100.08    0.20
|131.42    0.17
   6.17    0.00 | 37.50    0.12 | 68.83    0.46 |100.17    0.21
|131.50    0.17
   6.25    0.00 | 37.58    0.12 | 68.92    0.49 |100.25    0.19
|131.58    0.17
   6.33    0.00 | 37.67    0.13 | 69.00    0.51 |100.33    0.19
|131.67    0.17
   6.42    0.00 | 37.75    0.12 | 69.08    0.54 |100.42    0.19
|131.75    0.17
   6.50    0.00 | 37.83    0.12 | 69.17    0.56 |100.50    0.19
|131.83    0.17
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6.58	0.00	37.92	0.12	69.25	0.60	100.58	0.19	131.92	0.17
6.67	0.00	38.00	0.12	69.33	0.64	100.67	0.19	132.00	0.16
6.75	0.00	38.08	0.12	69.42	0.67	100.75	0.21	132.08	0.17
6.83	0.00	38.17	0.12	69.50	0.67	100.83	0.19	132.17	0.17
6.92	0.00	38.25	0.12	69.58	0.68	100.92	0.19	132.25	0.17
7.00	0.00	38.33	0.12	69.67	0.65	101.00	0.19	132.33	0.17
7.08	0.00	38.42	0.12	69.75	0.66	101.08	0.19	132.42	0.18
7.17	0.00	38.50	0.12	69.83	0.66	101.17	0.20	132.50	0.17
7.25	0.00	38.58	0.12	69.92	0.67	101.25	0.19	132.58	0.16
7.33	0.00	38.67	0.13	70.00	0.66	101.33	0.18	132.67	0.17
7.42	0.00	38.75	0.13	70.08	0.67	101.42	0.19	132.75	0.17
7.50	0.00	38.83	0.13	70.17	0.67	101.50	0.19	132.83	0.17
7.58	0.00	38.92	0.13	70.25	0.70	101.58	0.19	132.92	0.16
7.67	0.00	39.00	0.13	70.33	0.74	101.67	0.20	133.00	0.17
7.75	0.00	39.08	0.14	70.42	0.73	101.75	0.19	133.08	0.16
7.83	0.00	39.17	0.14	70.50	0.74	101.83	0.18	133.17	0.16
7.92	0.00	39.25	0.14	70.58	0.74	101.92	0.19	133.25	0.16
8.00	0.00	39.33	0.14	70.67	0.74	102.00	0.19	133.33	0.15
8.08	0.00	39.42	0.14	70.75	0.75	102.08	0.19	133.42	0.16
8.17	0.00	39.50	0.15	70.83	0.75	102.17	0.19	133.50	0.16
8.25	0.00	39.58	0.16	70.92	0.74	102.25	0.18	133.58	0.17
8.33	0.00	39.67	0.16	71.00	0.74	102.33	0.18	133.67	0.16
8.42	0.00	39.75	0.16	71.08	0.75	102.42	0.19	133.75	0.15
8.50	0.00	39.83	0.16	71.17	0.77	102.50	0.19	133.83	0.16
8.58	0.00	39.92	0.17	71.25	0.76	102.58	0.19	133.92	0.16
8.67	0.00	40.00	0.17	71.33	0.76	102.67	0.18	134.00	0.16
8.75	0.00	40.08	0.17	71.42	0.77	102.75	0.20	134.08	0.16
8.83	0.00	40.17	0.17	71.50	0.76	102.83	0.18	134.17	0.15
8.92	0.00	40.25	0.18	71.58	0.77	102.92	0.18	134.25	0.16
9.00	0.00	40.33	0.18	71.67	0.76	103.00	0.17	134.33	0.16
9.08	0.00	40.42	0.18	71.75	0.76	103.08	0.17	134.42	0.16
9.17	0.00	40.50	0.18	71.83	0.78	103.17	0.18	134.50	0.16
9.25	0.00	40.58	0.19	71.92	0.77	103.25	0.18	134.58	0.15
9.33	0.00	40.67	0.19	72.00	0.76	103.33	0.17	134.67	0.16
9.42	0.00	40.75	0.19	72.08	0.74	103.42	0.17	134.75	0.15
9.50	0.00	40.83	0.19	72.17	0.75	103.50	0.17	134.83	0.15
9.58	0.00	40.92	0.19	72.25	0.74	103.58	0.18	134.92	0.16
9.67	0.00	41.00	0.19	72.33	0.72	103.67	0.18	135.00	0.15
9.75	0.00	41.08	0.19	72.42	0.70	103.75	0.18	135.08	0.15
9.83	0.00	41.17	0.20	72.50	0.70	103.83	0.18	135.17	0.15
9.92	0.00	41.25	0.20	72.58	0.69	103.92	0.19	135.25	0.15
10.00	0.00	41.33	0.21	72.67	0.70	104.00	0.17	135.33	0.15
10.08	0.00	41.42	0.22	72.75	0.68	104.08	0.18	135.42	0.15
10.17	0.00	41.50	0.23	72.83	0.67	104.17	0.18	135.50	0.15
10.25	0.00	41.58	0.23	72.92	0.66	104.25	0.17	135.58	0.15
10.33	0.00	41.67	0.23	73.00	0.64	104.33	0.17	135.67	0.14
10.42	0.00	41.75	0.24	73.08	0.63	104.42	0.17	135.75	0.15
10.50	0.00	41.83	0.25	73.17	0.63	104.50	0.18	135.83	0.16
10.58	0.00	41.92	0.25	73.25	0.61	104.58	0.17	135.92	0.15
10.67	0.00	42.00	0.26	73.33	0.62	104.67	0.16	136.00	0.15
10.75	0.00	42.08	0.25	73.42	0.61	104.75	0.16	136.08	0.15
10.83	0.00	42.17	0.26	73.50	0.62	104.83	0.18	136.17	0.15
10.92	0.00	42.25	0.26	73.58	0.60	104.92	0.16	136.25	0.15
11.00	0.00	42.33	0.26	73.67	0.62	105.00	0.17	136.33	0.15
11.08	0.00	42.42	0.26	73.75	0.58	105.08	0.16	136.42	0.15
11.17	0.00	42.50	0.26	73.83	0.59	105.17	0.16	136.50	0.15
11.25	0.00	42.58	0.26	73.92	0.57	105.25	0.16	136.58	0.15
11.33	0.00	42.67	0.26	74.00	0.57	105.33	0.16	136.67	0.14
11.42	0.00	42.75	0.25	74.08	0.57	105.42	0.16	136.75	0.15
11.50	0.00	42.83	0.26	74.17	0.56	105.50	0.16	136.83	0.14
11.58	0.00	42.92	0.25	74.25	0.58	105.58	0.16	136.92	0.14
11.67	0.00	43.00	0.25	74.33	0.58	105.67	0.16	137.00	0.14
11.75	0.00	43.08	0.25	74.42	0.58	105.75	0.17	137.08	0.15
11.83	0.00	43.17	0.25	74.50	0.59	105.83	0.16	137.17	0.14
11.92	0.00	43.25	0.25	74.58	0.60	105.92	0.16	137.25	0.15
12.00	0.00	43.33	0.25	74.67	0.57	106.00	0.16	137.33	0.15
12.08	0.00	43.42	0.25	74.75	0.56	106.08	0.16	137.42	0.14
12.17	0.00	43.50	0.25	74.83	0.54	106.17	0.16	137.50	0.14
12.25	0.00	43.58	0.25	74.92	0.56	106.25	0.17	137.58	0.14
12.33	0.00	43.67	0.25	75.00	0.53	106.33	0.16	137.67	0.15
12.42	0.00	43.75	0.25	75.08	0.51	106.42	0.16	137.75	0.14
12.50	0.00	43.83	0.26	75.17	0.51	106.50	0.16	137.83	0.14
12.58	0.00	43.92	0.26	75.25	0.51	106.58	0.16	137.92	0.14
12.67	0.00	44.00	0.26	75.33	0.51	106.67	0.16	138.00	0.14
12.75	0.00	44.08	0.26	75.42	0.50	106.75	0.16	138.08	0.14
12.83	0.00	44.17	0.26	75.50	0.50	106.83	0.15	138.17	0.14
12.92	0.00	44.25	0.27	75.58	0.49	106.92	0.15	138.25	0.14
13.00	0.00	44.33	0.26	75.67	0.49	107.00	0.16	138.33	0.14
13.08	0.00	44.42	0.26	75.75	0.49	107.08	0.16	138.42	0.14
13.17	0.00	44.50	0.26	75.83	0.48	107.17	0.16	138.50	0.14
13.25	0.00	44.58	0.26	75.92	0.47	107.25	0.15	138.58	0.14
13.33	0.00	44.67	0.26	76.00	0.47	107.33	0.16	138.67	0.14
13.42	0.00	44.75	0.26	76.08	0.48	107.42	0.16	138.75	0.14
13.50	0.00	44.83	0.26	76.17	0.46	107.50	0.15	138.83	0.14
13.58	0.00	44.92	0.26	76.25	0.45	107.58	0.16	138.92	0.14
13.67	0.00	45.00	0.26	76.33	0.45	107.67	0.15	139.00	0.14
13.75	0.00	45.08	0.26	76.42	0.43	107.75	0.15	139.08	0.14
13.83	0.00	45.17	0.25	76.50	0.44	107.83	0.16	139.17	0.13
13.92	0.00	45.25	0.25	76.58	0.46	107.92	0.16	139.25	0.14
14.00	0.00	45.33	0.25	76.67	0.43	108.00	0.16	139.33	0.14
14.08	0.00	45.42	0.25	76.75	0.44	108.08	0.15	139.42	0.14
14.17	0.00	45.50	0.25	76.83	0.43	108.17	0.15	139.50	0.14
14.25	0.00	45.58	0.25	76.92	0.45	108.25	0.15	139.58	0.13
14.33	0.00	45.67	0.25	77.00	0.42	108.33	0.16	139.67	0.14
14.42	0.00	45.75	0.25	77.08	0.43	108.42	0.16	139.75	0.14
14.50	0.00	45.83	0.26	77.17	0.43	108.50	0.15	139.83	0.13
14.58	0.00	45.92	0.25	77.25	0.42	108.58	0.15	139.92	0.14
14.67	0.00	46.00	0.26	77.33	0.41	108.67	0.15	140.00	0.14
14.75	0.00	46.08	0.26	77.42	0.43	108.75	0.16	140.08	0.13
14.83	0.00	46.17	0.25	77.50	0.41	108.83	0.15	140.17	0.13
14.92	0.69	46.25	0.26	77.58	0.43	108.92	0.15	140.25	0.13
15.00	0.69	46.33	0.26	77.67	0.39	109.00	0.15	140.33	0.13
15.08	0.71	46.42	0.26	77.75	0.39	109.08	0.15	140.42	0.14
15.17	0.74	46.50	0.26	77.83	0.37	109.17	0.15	140.50	0.13
15.25	0.74	46.58	0.26	77.92	0.39	109.25	0.15	140.58	0.13
15.33	0.74	46.67	0.26	78.00	0.39	109.33	0.14	140.67	0.13
15.42	0.77	46.75	0.26	78.08	0.39	109.42	0.15	140.75	0.13
15.50	0.76	46.83	0.25	78.17	0.37	109.50	0.15	140.83	0.13
15.58	0.78	46.92	0.25	78.25	0.36	109.58	0.14	140.92	0.13
15.67	0.78	47.00	0.25	78.33	0.37	109.67	0.15	141.00	0.13
15.75	0.77	47.08	0.25	78.42	0.38	109.75	0.14	141.08	0.13
15.83	0.77	47.17	0.26	78.50	0.36	109.83	0.15	141.17	0.13
15.92	0.77	47.25	0.26	78.58	0.36	109.92	0.14	141.25	0.13
16.00	0.76	47.33	0.26	78.67	0.36	110.00	0.14	141.33	0.13
16.08	0.74	47.42	0.26	78.75	0.37	110.08	0.14	141.42	0.13
16.17	0.74	47.50	0.26	78.83	0.34	110.17	0.14	141.50	0.13
16.25	0.74	47.58	0.25	78.92	0.35	110.25	0.14	141.58	0.13
16.33	0.72	47.67	0.26	79.00	0.36	110.33	0.15	141.67	0.13
16.42	0.69	47.75	0.26	79.08	0.35	110.42	0.15	141.75	0.13
16.50	0.69	47.83	0.26	79.17	0.35	110.50	0.14	141.83	0.13
16.58	0.67	47.92	0.26	79.25	0.36	110.58	0.14	141.92	0.13
16.67	0.66	48.00	0.25	79.33	0.36	110.67	0.14	142.00	0.13
16.75	0.64	48.08	0.25	79.42	0.33	110.75	0.15	142.08	0.12
16.83	0.63	48.17	0.26	79.50	0.33	110.83	0.14	142.17	0.13
16.92	0.63	48.25	0.25	79.58	0.33	110.92	0.15	142.25	0.13
17.00	0.60	48.33	0.25	79.67	0.32	111.00	0.15	142.33	0.13
17.08	0.58	48.42	0.25	79.75	0.33	111.08	0.14	142.42	0.12
17.17	0.58	48.50	0.25	79.83	0.33	111.17	0.14	142.50	0.13
17.25	0.57	48.58	0.25	79.92	0.32	111.25	0.14	142.58	0.13
17.33	0.56	48.67	0.24	80.00	0.33	111.33	0.15	142.67	0.13
17.42	0.55	48.75	0.24	80.08	0.34	111.42	0.14	142.75	0.13
17.50	0.54	48.83	0.24	80.17	0.32	111.50	0.15	142.83	0.12
17.58	0.51	48.92	0.24	80.25	0.31	111.58	0.14	142.92	0.13
17.67	0.50	49.00	0.24	80.33	0.33	111.67	0.14	143.00	0.12
17.75	0.48	49.08	0.25	80.42	0.31	111.75	0.14	143.08	0.12
17.83	0.47	49.17	0.24	80.50	0.32	111.83	0.14	143.17	0.12
17.92	0.47	49.25	0.24	80.58	0.31	111.92	0.14	143.25	0.12
18.00	0.45	49.33	0.24	80.67	0.31	112.00	0.15	143.33	0.12
18.08	0.44	49.42	0.23	80.75	0.33	112.08	0.15	143.42	0.12
18.17	0.41	49.50	0.23	80.83	0.31	112.17	0.14	143.50	0.12
18.25	0.42	49.58	0.24	80.92	0.32	112.25	0.14	143.58	0.12
18.33	0.40	49.67	0.23	81.00	0.32	112.33	0.14	143.67	0.12
18.42	0.39	49.75	0.24	81.08	0.31	112.42	0.15	143.75	0.12
18.50	0.38	49.83	0.24	81.17	0.31	112.50	0.15	143.83	0.12
18.58	0.38	49.92	0.23	81.25	0.31	112.58	0.15	143.92	0.12
18.67	0.37	50.00	0.23	81.33	0.31	112.67	0.15	144.00	0.12
18.75	0.37	50.08	0.23	81.42	0.31	112.75	0.14	144.08	0.12
18.83	0.36	50.17	0.24	81.50	0.32	112.83	0.15	144.17	0.12
18.92	0.35	50.25	0.23	81.58	0.32	112.92	0.14	144.25	0.12
19.00	0.34	50.33	0.23	81.67	0.34	113.00	0.15	144.33	0.12
19.08	0.34	50.42	0.23	81.75	0.34	113.08	0.15	144.42	0.12
19.17	0.34	50.50	0.23	81.83	0.35	113.17	0.14	144.50	0.12
19.25	0.34	50.58	0.23	81.92	0.37	113.25	0.15	144.58	0.12
19.33	0.33	50.67	0.23	82.00	0.36	113.33	0.15	144.67	0.12
19.42	0.33	50.75	0.23	82.08	0.37	113.42	0.14	144.75	0.12
19.50	0.32	50.83	0.23	82.17	0.38	113.50	0.14	144.83	0.12
19.58	0.32	50.92	0.23	82.25	0.36	113.58	0.14	144.92	0.12
19.67	0.32	51.00	0.23	82.33	0.35	113.67	0.14	145.00	0.12
19.75	0.31	51.08	0.23	82.42	0.37	113.75	0.14	145.08	0.12
19.83	0.30	51.17	0.23	82.50	0.37	113.83	0.14	145.17	0.12
19.92	0.30	51.25	0.23	82.58	0.36	113.92	0.14	145.25	0.12
20.00	0.29	51.33	0.23	82.67	0.38	114.00	0.14	145.33	0.12
20.08	0.29	51.42	0.23	82.75	0.38	114.08	0.14	145.42	0.12
20.17	0.28	51.50	0.23	82.83	0.41	114.17	0.14	145.50	0.12
20.25	0.28	51.58	0.23	82.92	0.40	114.25	0.14	145.58	0.12
20.33	0.28	51.67	0.23	83.00	0.40	114.33	0.14	145.67	0.12
20.42	0.27	51.75	0.23	83.08	0.40	114.42	0.14	145.75	0.12
20.50	0.27	51.83	0.23	83.17	0.44	114.50	0.15	145.83	0.12
20.58	0.26	51.92	0.23	83.25	0.44	114.58	0.14	145.92	0.12
20.67	0.27	52.00	0.23	83.33	0.42	114.67	0.14	146.00	0.12
20.75	0.26	52.08	0.24	83.42	0.42	114.75	0.14	146.08	0.11
20.83	0.26	52.17	0.24	83.50	0.42	114.83	0.15	146.17	0.11
20.92	0.25	52.25	0.24	83.58	0.41	114.92	0.14	146.25	0.11
21.00	0.25	52.33	0.25	83.67	0.41	115.00	0.15	146.33	0.12
21.08	0.25	52.42	0.25	83.75	0.42	115.08	0.14	146.42	0.11
21.17	0.24	52.50	0.25	83.83	0.41	115.17	0.14	146.50	0.12
21.25	0.25	52.58	0.25	83.92	0.41	115.25	0.14	146.58	0.12
21.33	0.24	52.67	0.25	84.00	0.43	115.33	0.15	146.67	0.11
21.42	0.24	52.75	0.25	84.08	0.40	115.42	0.14	146.75	0.12
21.50	0.24	52.83	0.25	84.17	0.42	115.50	0.15	146.83	0.11
21.58	0.23	52.92	0.25	84.25	0.41	115.58	0.14	146.92	0.12
21.67	0.23	53.00	0.27	84.33	0.42	115.67	0.14	147.00	0.11
21.75	0.23	53.08	0.27	84.42	0.42	115.75	0.14	147.08	0.12
21.83	0.23	53.17	0.28	84.50	0.43	115.83	0.14	147.17	0.11
21.92	0.23	53.25	0.28	84.58	0.44	115.92	0.14	147.25	0.12
22.00	0.23	53.33	0.28	84.67	0.42	116.00	0.15	147.33	0.12
22.08	0.22	53.42	0.28	84.75	0.44	116.08	0.14	147.42	0.11
22.17	0.22	53.50	0.28	84.83	0.45	116.17	0.15	147.50	0.11
22.25	0.22	53.58	0.29	84.92	0.45	116.25	0.14	147.58	0.11
22.33	0.22	53.67	0.29	85.00	0.46	116.33	0.14	147.67	0.11
22.42	0.21	53.75	0.29	85.08	0.47	116.42	0.14	147.75	0.11
22.50	0.21	53.83	0.30	85.17	0.46	116.50	0.14	147.83	0.11
22.58	0.21	53.92	0.30	85.25	0.46	116.58	0.14	147.92	0.11
22.67	0.21	54.00	0.30	85.33	0.44	116.67	0.14	148.00	0.11
22.75	0.21	54.08	0.30	85.42	0.45	116.75	0.14	148.08	0.11
22.83	0.20	54.17	0.31	85.50	0.45	116.83	0.14	148.17	0.11
22.92	0.20	54.25	0.30	85.58	0.45	116.92	0.14	148.25	0.11
23.00	0.20	54.33	0.31	85.67	0.45	117.00	0.14	148.33	0.11
23.08	0.20	54.42	0.30	85.75	0.46	117.08	0.14	148.42	0.11
23.17	0.20	54.50	0.31	85.83	0.45	117.17	0.14	148.50	0.11
23.25	0.20	54.58	0.32	85.92	0.47	117.25	0.14	148.58	0.11
23.33	0.19	54.67	0.32	86.00	0.44	117.33	0.14	148.67	0.11
23.42	0.19	54.75	0.32	86.08	0.45	117.42	0.14	148.75	0.11
23.50	0.19	54.83	0.32	86.17	0.43	117.50	0.14	148.83	0.11
23.58	0.19	54.92	0.32	86.25	0.43	117.58	0.14	148.92	0.11
23.67	0.19	55.00	0.32	86.33	0.43	117.67	0.13	149.00	0.11
23.75	0.18	55.08	0.32	86.42	0.43	117.75	0.13	149.08	0.11
23.83	0.18	55.17	0.32	86.50	0.45	117.83	0.14	149.17	0.11
23.92	0.18	55.25	0.33	86.58	0.42	117.92	0.13	149.25	0.11
24.00	0.18	55.33	0.33	86.67	0.42	118.00	0.13	149.33	0.11
24.08	0.18	55.42	0.33	86.75	0.43	118.08	0.13	149.42	0.11
24.17	0.18	55.50	0.33	86.83	0.41	118.17	0.13	149.50	0.11
24.25	0.17	55.58	0.32	86.92	0.40	118.25	0.13	149.58	0.11
24.33	0.18	55.67	0.32	87.00	0.40	118.33	0.13	149.67	0.11
24.42	0.17	55.75	0.32	87.08	0.39	118.42	0.13	149.75	0.11
24.50	0.17	55.83	0.32	87.17	0.39	118.50	0.13	149.83	0.11
24.58	0.17	55.92	0.32	87.25	0.39	118.58	0.13	149.92	0.11
24.67	0.17	56.00	0.32	87.33	0.37	118.67	0.13	150.00	0.11
24.75	0.16	56.08	0.32	87.42	0.37	118.75	0.13	150.08	0.11
24.83	0.16	56.17	0.32	87.50	0.38	118.83	0.13	150.17	0.11
24.92	0.16	56.25	0.32	87.58	0.37	118.92	0.13	150.25	0.11
25.00	0.16	56.33	0.32	87.67	0.36	119.00	0.13	150.33	0.11
25.08	0.16	56.42	0.32	87.75	0.38	119.08	0.13	150.42	0.11
25.17	0.16	56.50	0.32	87.83	0.38	119.17	0.13	150.50	0.11
25.25	0.16	56.58	0.31	87.92	0.34	119.25	0.13	150.58	0.11
25.33	0.15	56.67	0.31	88.00	0.35	119.33	0.13	150.67	0.11
25.42	0.16	56.75	0.32	88.08	0.34	119.42	0.13	150.75	0.11
25.50	0.15	56.83	0.31	88.17	0.35	119.50	0.13	150.83	0.11
25.58	0.15	56.92	0.31	88.25	0.34	119.58	0.13	150.92	0.11
25.67	0.15	57.00	0.31	88.33	0.36	119.67	0.13	151.00	0.11
25.75	0.15	57.08	0.31	88.42	0.33	119.75	0.13	151.08	0.11
25.83	0.15	57.17	0.31	88.50	0.33	119.83	0.13	151.17	0.11
25.92	0.15	57.25	0.31	88.58	0.34	119.92	0.13	151.25	0.11
26.00	0.15	57.33	0.30	88.67	0.33	120.00	0.13	151.33	0.11
26.08	0.15	57.42	0.30	88.75	0.33	120.08	0.13	151.42	0.11
26.17	0.15	57.50	0.30	88.83	0.32	120.17	0.13	151.50	0.11
26.25	0.14	57.58	0.30	88.92	0.30	120.25	0.14	151.58	0.11

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 26.33    0.14 | 57.67    0.31 | 89.00    0.31 |120.33    0.14
|151.67    0.11
 26.42    0.14 | 57.75    0.30 | 89.08    0.31 |120.42    0.13
|151.75    0.11
 26.50    0.14 | 57.83    0.30 | 89.17    0.30 |120.50    0.14
|151.83    0.11
 26.58    0.14 | 57.92    0.30 | 89.25    0.31 |120.58    0.14
|151.92    0.11
 26.67    0.14 | 58.00    0.29 | 89.33    0.32 |120.67    0.14
|152.00    0.11
 26.75    0.14 | 58.08    0.29 | 89.42    0.31 |120.75    0.14
|152.08    0.11
 26.83    0.14 | 58.17    0.29 | 89.50    0.30 |120.83    0.14
|152.17    0.11
 26.92    0.14 | 58.25    0.29 | 89.58    0.29 |120.92    0.14
|152.25    0.11
 27.00    0.14 | 58.33    0.29 | 89.67    0.29 |121.00    0.14
|152.33    0.10
 27.08    0.13 | 58.42    0.29 | 89.75    0.29 |121.08    0.14
|152.42    0.11
 27.17    0.13 | 58.50    0.29 | 89.83    0.28 |121.17    0.14
|152.50    0.11
 27.25    0.13 | 58.58    0.29 | 89.92    0.30 |121.25    0.14
|152.58    0.10
 27.33    0.13 | 58.67    0.28 | 90.00    0.31 |121.33    0.14
|152.67    0.10
 27.42    0.13 | 58.75    0.28 | 90.08    0.31 |121.42    0.14
|152.75    0.10
 27.50    0.13 | 58.83    0.28 | 90.17    0.30 |121.50    0.14
|152.83    0.10
 27.58    0.13 | 58.92    0.29 | 90.25    0.30 |121.58    0.14
|152.92    0.10
 27.67    0.13 | 59.00    0.29 | 90.33    0.31 |121.67    0.14
|153.00    0.11
 27.75    0.13 | 59.08    0.29 | 90.42    0.30 |121.75    0.14
|153.08    0.10
 27.83    0.13 | 59.17    0.28 | 90.50    0.31 |121.83    0.14
|153.17    0.10
 27.92    0.12 | 59.25    0.28 | 90.58    0.31 |121.92    0.14
|153.25    0.11
 28.00    0.13 | 59.33    0.28 | 90.67    0.31 |122.00    0.15
|153.33    0.10
 28.08    0.12 | 59.42    0.27 | 90.75    0.31 |122.08    0.14
|153.42    0.11
 28.17    0.12 | 59.50    0.27 | 90.83    0.30 |122.17    0.14
|153.50    0.10
 28.25    0.12 | 59.58    0.27 | 90.92    0.31 |122.25    0.14
|153.58    0.10
 28.33    0.12 | 59.67    0.26 | 91.00    0.30 |122.33    0.14
|153.67    0.10
 28.42    0.12 | 59.75    0.26 | 91.08    0.30 |122.42    0.15
|153.75    0.11
 28.50    0.12 | 59.83    0.26 | 91.17    0.32 |122.50    0.15
|153.83    0.10
 28.58    0.12 | 59.92    0.26 | 91.25    0.30 |122.58    0.15
|153.92    0.10
 28.67    0.12 | 60.00    0.25 | 91.33    0.28 |122.67    0.14
|154.00    0.10
 28.75    0.12 | 60.08    0.25 | 91.42    0.30 |122.75    0.15
|154.08    0.10
 28.83    0.12 | 60.17    0.25 | 91.50    0.28 |122.83    0.14
|154.17    0.10
 28.92    0.12 | 60.25    0.25 | 91.58    0.31 |122.92    0.14
|154.25    0.10
 29.00    0.12 | 60.33    0.25 | 91.67    0.28 |123.00    0.15
|154.33    0.10
 29.08    0.12 | 60.42    0.24 | 91.75    0.30 |123.08    0.15
|154.42    0.10
 29.17    0.11 | 60.50    0.24 | 91.83    0.31 |123.17    0.15
|154.50    0.10
 29.25    0.11 | 60.58    0.24 | 91.92    0.27 |123.25    0.15
|154.58    0.10
 29.33    0.11 | 60.67    0.23 | 92.00    0.28 |123.33    0.15
|154.67    0.10
 29.42    0.11 | 60.75    0.24 | 92.08    0.29 |123.42    0.15
|154.75    0.10
 29.50    0.11 | 60.83    0.23 | 92.17    0.27 |123.50    0.15
|154.83    0.10
 29.58    0.11 | 60.92    0.23 | 92.25    0.28 |123.58    0.15
|154.92    0.10
 29.67    0.11 | 61.00    0.23 | 92.33    0.28 |123.67    0.15
|155.00    0.10
 29.75    0.11 | 61.08    0.23 | 92.42    0.31 |123.75    0.15
|155.08    0.10
 29.83    0.11 | 61.17    0.23 | 92.50    0.28 |123.83    0.15
|155.17    0.10
 29.92    0.11 | 61.25    0.22 | 92.58    0.28 |123.92    0.15
|155.25    0.10
 30.00    0.11 | 61.33    0.23 | 92.67    0.28 |124.00    0.15
|155.33    0.10
 30.08    0.11 | 61.42    0.23 | 92.75    0.28 |124.08    0.15
|155.42    0.10
 30.17    0.11 | 61.50    0.24 | 92.83    0.27 |124.17    0.15
|155.50    0.10
 30.25    0.11 | 61.58    0.24 | 92.92    0.28 |124.25    0.15
|155.58    0.10
 30.33    0.11 | 61.67    0.23 | 93.00    0.28 |124.33    0.14
|155.67    0.10
 30.42    0.11 | 61.75    0.23 | 93.08    0.27 |124.42    0.15
|155.75    0.10
 30.50    0.11 | 61.83    0.23 | 93.17    0.29 |124.50    0.15
|155.83    0.10
 30.58    0.11 | 61.92    0.23 | 93.25    0.28 |124.58    0.16
|155.92    0.10
 30.67    0.11 | 62.00    0.23 | 93.33    0.26 |124.67    0.15
|156.00    0.10
 30.75    0.11 | 62.08    0.23 | 93.42    0.27 |124.75    0.15
|156.08    0.10
 30.83    0.11 | 62.17    0.23 | 93.50    0.27 |124.83    0.15
|156.17    0.10
 30.92    0.11 | 62.25    0.23 | 93.58    0.26 |124.92    0.17
|156.25    0.10
 31.00    0.11 | 62.33    0.24 | 93.67    0.26 |125.00    0.16 |
 31.08    0.10 | 62.42    0.25 | 93.75    0.28 |125.08    0.16 |
 31.17    0.10 | 62.50    0.25 | 93.83    0.25 |125.17    0.16 |
 31.25    0.10 | 62.58    0.26 | 93.92    0.28 |125.25    0.16 |
----------------------------------------------------------------------
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| STORE HYD (1605) |   AREA      (ha)= 218.70
| ID= 1 DT= 5.0min |   QPEAK     (cms)=   1.37
-------------------    TPEAK     (hrs)=  71.92
                       VOLUME     (mm)=  85.77

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |' TIME    FLOW |
TIME    FLOW
   hrs    cms |   hrs    cms |   hrs    cms |'  hrs    cms |
hrs    cms
  0.00    0.00 | 31.25    0.15 | 62.50    0.38 | 93.75    0.37
|125.00    0.20
  0.08    0.00 | 31.33    0.15 | 62.58    0.38 | 93.83    0.36
|125.08    0.20
  0.17    0.00 | 31.42    0.15 | 62.67    0.38 | 93.92    0.36
|125.17    0.20
  0.25    0.00 | 31.50    0.15 | 62.75    0.38 | 94.00    0.36
|125.25    0.20
  0.33    0.00 | 31.58    0.15 | 62.83    0.38 | 94.08    0.36
|125.33    0.20
  0.42    0.00 | 31.67    0.15 | 62.92    0.38 | 94.17    0.36
|125.42    0.20
  0.50    0.00 | 31.75    0.15 | 63.00    0.37 | 94.25    0.36
|125.50    0.20
  0.58    0.00 | 31.83    0.14 | 63.08    0.38 | 94.33    0.36
|125.58    0.20
  0.67    0.00 | 31.92    0.14 | 63.17    0.37 | 94.42    0.36
|125.67    0.21
  0.75    0.00 | 32.00    0.14 | 63.25    0.37 | 94.50    0.36
|125.75    0.21
  0.83    0.00 | 32.08    0.14 | 63.33    0.37 | 94.58    0.36
|125.83    0.21
  0.92    0.00 | 32.17    0.14 | 63.42    0.37 | 94.67    0.36
|125.92    0.21
  1.00    0.00 | 32.25    0.14 | 63.50    0.37 | 94.75    0.36
|126.00    0.21
  1.08    0.00 | 32.33    0.14 | 63.58    0.37 | 94.83    0.36
|126.08    0.21
  1.17    0.00 | 32.42    0.14 | 63.67    0.36 | 94.92    0.35
|126.17    0.21
  1.25    0.00 | 32.50    0.14 | 63.75    0.36 | 95.00    0.35
|126.25    0.21
  1.33    0.00 | 32.58    0.14 | 63.83    0.36 | 95.08    0.35
|126.33    0.21
  1.42    0.00 | 32.67    0.14 | 63.92    0.36 | 95.17    0.35
|126.42    0.22
  1.50    0.00 | 32.75    0.14 | 64.00    0.36 | 95.25    0.35
|126.50    0.22
  1.58    0.00 | 32.83    0.14 | 64.08    0.36 | 95.33    0.35
|126.58    0.22
  1.67    0.00 | 32.92    0.14 | 64.17    0.36 | 95.42    0.35
|126.67    0.22
  1.75    0.00 | 33.00    0.14 | 64.25    0.35 | 95.50    0.35
|126.75    0.22
  1.83    0.00 | 33.08    0.14 | 64.33    0.35 | 95.58    0.34
|126.83    0.22
  1.92    0.00 | 33.17    0.14 | 64.42    0.35 | 95.67    0.34
|126.92    0.23
  2.00    0.00 | 33.25    0.14 | 64.50    0.35 | 95.75    0.34
|127.00    0.23
  2.08    0.00 | 33.33    0.14 | 64.58    0.34 | 95.83    0.34
|127.08    0.23
  2.17    0.00 | 33.42    0.14 | 64.67    0.34 | 95.92    0.34
|127.17    0.23
  2.25    0.00 | 33.50    0.14 | 64.75    0.34 | 96.00    0.34
|127.25    0.23
  2.33    0.00 | 33.58    0.14 | 64.83    0.34 | 96.08    0.34
|127.33    0.24
  2.42    0.00 | 33.67    0.14 | 64.92    0.34 | 96.17    0.34
|127.42    0.24
  2.50    0.00 | 33.75    0.14 | 65.00    0.34 | 96.25    0.34
|127.50    0.24
  2.58    0.00 | 33.83    0.14 | 65.08    0.34 | 96.33    0.34
|127.58    0.24
  2.67    0.00 | 33.92    0.14 | 65.17    0.34 | 96.42    0.34
|127.67    0.24
  2.75    0.00 | 34.00    0.14 | 65.25    0.34 | 96.50    0.34
|127.75    0.24
  2.83    0.00 | 34.08    0.14 | 65.33    0.34 | 96.58    0.34
|127.83    0.25
  2.92    0.00 | 34.17    0.14 | 65.42    0.34 | 96.67    0.34
|127.92    0.25
  3.00    0.00 | 34.25    0.14 | 65.50    0.34 | 96.75    0.33
|128.00    0.25
  3.08    0.00 | 34.33    0.14 | 65.58    0.33 | 96.83    0.33
|128.08    0.25
  3.17    0.00 | 34.42    0.14 | 65.67    0.34 | 96.92    0.33
|128.17    0.25
  3.25    0.00 | 34.50    0.14 | 65.75    0.33 | 97.00    0.33
|128.25    0.25
  3.33    0.00 | 34.58    0.14 | 65.83    0.33 | 97.08    0.33
|128.33    0.25
  3.42    0.00 | 34.67    0.14 | 65.92    0.33 | 97.17    0.33
|128.42    0.25
  3.50    0.00 | 34.75    0.14 | 66.00    0.33 | 97.25    0.33
|128.50    0.25
  3.58    0.00 | 34.83    0.14 | 66.08    0.32 | 97.33    0.33
|128.58    0.26
  3.67    0.00 | 34.92    0.14 | 66.17    0.33 | 97.42    0.33
|128.67    0.26
  3.75    0.00 | 35.00    0.14 | 66.25    0.33 | 97.50    0.33
|128.75    0.26
  3.83    0.00 | 35.08    0.14 | 66.33    0.32 | 97.58    0.33
|128.83    0.26
  3.92    0.00 | 35.17    0.14 | 66.42    0.32 | 97.67    0.33
|128.92    0.26
  4.00    0.00 | 35.25    0.14 | 66.50    0.33 | 97.75    0.33
|129.00    0.26
  4.08    0.00 | 35.33    0.14 | 66.58    0.32 | 97.83    0.33
|129.08    0.26
  4.17    0.00 | 35.42    0.14 | 66.67    0.32 | 97.92    0.33
|129.17    0.26
  4.25    0.00 | 35.50    0.14 | 66.75    0.32 | 98.00    0.32
|129.25    0.27
  4.33    0.00 | 35.58    0.14 | 66.83    0.32 | 98.08    0.32
|129.33    0.27
  4.42    0.00 | 35.67    0.14 | 66.92    0.32 | 98.17    0.32
|129.42    0.27
  4.50    0.00 | 35.75    0.14 | 67.00    0.32 | 98.25    0.32
|129.50    0.27
  4.58    0.00 | 35.83    0.14 | 67.08    0.32 | 98.33    0.32
|129.58    0.28
  4.67    0.00 | 35.92    0.14 | 67.17    0.32 | 98.42    0.32
|129.67    0.28
  4.75    0.00 | 36.00    0.14 | 67.25    0.32 | 98.50    0.32
|129.75    0.28
  4.83    0.00 | 36.08    0.14 | 67.33    0.33 | 98.58    0.32
|129.83    0.29
  4.92    0.00 | 36.17    0.14 | 67.42    0.34 | 98.67    0.32
|129.92    0.29
  5.00    0.00 | 36.25    0.14 | 67.50    0.34 | 98.75    0.32
|130.00    0.29
  5.08    0.00 | 36.33    0.15 | 67.58    0.35 | 98.83    0.32
|130.08    0.29
  5.17    0.00 | 36.42    0.15 | 67.67    0.35 | 98.92    0.32
|130.17    0.29
  5.25    0.00 | 36.50    0.15 | 67.75    0.36 | 99.00    0.32
|130.25    0.29
  5.33    0.00 | 36.58    0.15 | 67.83    0.37 | 99.08    0.32
|130.33    0.29
  5.42    0.00 | 36.67    0.15 | 67.92    0.38 | 99.17    0.32
|130.42    0.29
  5.50    0.00 | 36.75    0.15 | 68.00    0.40 | 99.25    0.32
|130.50    0.29
  5.58    0.00 | 36.83    0.15 | 68.08    0.41 | 99.33    0.32
|130.58    0.29
  5.67    0.00 | 36.92    0.15 | 68.17    0.42 | 99.42    0.32
|130.67    0.29
  5.75    0.00 | 37.00    0.15 | 68.25    0.43 | 99.50    0.32
|130.75    0.29
  5.83    0.00 | 37.08    0.15 | 68.33    0.45 | 99.58    0.31
|130.83    0.29
  5.92    0.00 | 37.17    0.15 | 68.42    0.47 | 99.67    0.31
|130.92    0.29
  6.00    0.00 | 37.25    0.15 | 68.50    0.48 | 99.75    0.31
|131.00    0.29
  6.08    0.00 | 37.33    0.15 | 68.58    0.50 | 99.83    0.31
|131.08    0.29
  6.17    0.00 | 37.42    0.15 | 68.67    0.52 | 99.92    0.31
|131.17    0.29
  6.25    0.00 | 37.50    0.15 | 68.75    0.53 |100.00    0.31
|131.25    0.29
  6.33    0.00 | 37.58    0.15 | 68.83    0.56 |100.08    0.31
|131.33    0.29
  6.42    0.00 | 37.67    0.15 | 68.92    0.57 |100.17    0.31
|131.42    0.29
  6.50    0.00 | 37.75    0.16 | 69.00    0.58 |100.25    0.31
|131.50    0.29
  6.58    0.00 | 37.83    0.16 | 69.08    0.60 |100.33    0.31
|131.58    0.28
  6.67    0.00 | 37.92    0.16 | 69.17    0.61 |100.42    0.31
|131.67    0.28
  6.75    0.00 | 38.00    0.16 | 69.25    0.63 |100.50    0.30
|131.75    0.28
  6.83    0.00 | 38.08    0.16 | 69.33    0.63 |100.58    0.30
|131.83    0.28
  6.92    0.00 | 38.17    0.16 | 69.42    0.64 |100.67    0.30
|131.92    0.28
  7.00    0.00 | 38.25    0.16 | 69.50    0.66 |100.75    0.30
|132.00    0.28
  7.08    0.00 | 38.33    0.16 | 69.58    0.68 |100.83    0.30
|132.08    0.28
  7.17    0.00 | 38.42    0.16 | 69.67    0.70 |100.92    0.30
|132.17    0.28
  7.25    0.00 | 38.50    0.16 | 69.75    0.71 |101.00    0.30
|132.25    0.28
  7.33    0.00 | 38.58    0.16 | 69.83    0.74 |101.08    0.30
|132.33    0.28
  7.42    0.00 | 38.67    0.17 | 69.92    0.76 |101.17    0.30
|132.42    0.28
  7.50    0.00 | 38.75    0.17 | 70.00    0.78 |101.25    0.30
|132.50    0.27
  7.58    0.00 | 38.83    0.17 | 70.08    0.80 |101.33    0.29
|132.58    0.27
  7.67    0.00 | 38.92    0.17 | 70.17    0.82 |101.42    0.29
|132.67    0.27
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|132.75    0.27
  7.83    0.00 | 39.08    0.17 | 70.33    0.87 |101.58    0.29
|132.83    0.27
  7.92    0.00 | 39.17    0.17 | 70.42    0.91 |101.67    0.29
|132.92    0.27
  8.00    0.00 | 39.25    0.18 | 70.50    0.94 |101.75    0.28
|133.00    0.27
  8.08    0.00 | 39.33    0.18 | 70.58    0.98 |101.83    0.28
|133.08    0.27
  8.17    0.00 | 39.42    0.18 | 70.67    1.01 |101.92    0.28
|133.17    0.27
  8.25    0.00 | 39.50    0.18 | 70.75    1.04 |102.00    0.28
|133.25    0.26
  8.33    0.00 | 39.58    0.19 | 70.83    1.09 |102.08    0.28
|133.33    0.26
  8.42    0.00 | 39.67    0.19 | 70.92    1.14 |102.17    0.28
|133.42    0.26
  8.50    0.00 | 39.75    0.19 | 71.00    1.20 |102.25    0.28
|133.50    0.26
  8.58    0.00 | 39.83    0.19 | 71.08    1.23 |102.33    0.28
|133.58    0.26
  8.67    0.00 | 39.92    0.20 | 71.17    1.25 |102.42    0.27
|133.67    0.26
  8.75    0.00 | 40.00    0.20 | 71.25    1.30 |102.50    0.27
|133.75    0.26
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|133.83    0.25
  8.92    0.00 | 40.17    0.21 | 71.42    1.33 |102.67    0.27
|133.92    0.25
  9.00    0.00 | 40.25    0.21 | 71.50    1.34 |102.75    0.27
|134.00    0.25
  9.08    0.00 | 40.33    0.21 | 71.58    1.36 |102.83    0.27
|134.08    0.25
  9.17    0.00 | 40.42    0.22 | 71.67    1.36 |102.92    0.27
|134.17    0.25
  9.25    0.00 | 40.50    0.22 | 71.75    1.36 |103.00    0.27
|134.25    0.25
  9.33    0.00 | 40.58    0.22 | 71.83    1.37 |103.08    0.27
|134.33    0.25
  9.42    0.00 | 40.67    0.23 | 71.92    1.37 |103.17    0.27
|134.42    0.25
  9.50    0.00 | 40.75    0.23 | 72.00    1.36 |103.25    0.26
|134.50    0.25
  9.58    0.00 | 40.83    0.24 | 72.08    1.35 |103.33    0.26
|134.58    0.24
  9.67    0.00 | 40.92    0.24 | 72.17    1.35 |103.42    0.26
|134.67    0.24
  9.75    0.00 | 41.00    0.24 | 72.25    1.33 |103.50    0.26
|134.75    0.24
  9.83    0.00 | 41.08    0.25 | 72.33    1.32 |103.58    0.26
|134.83    0.24
  9.92    0.00 | 41.17    0.25 | 72.42    1.31 |103.67    0.26
|134.92    0.24
 10.00    0.00 | 41.25    0.26 | 72.50    1.29 |103.75    0.25
|135.00    0.24
 10.08    0.00 | 41.33    0.27 | 72.58    1.27 |103.83    0.25
|135.08    0.24
 10.17    0.00 | 41.42    0.27 | 72.67    1.26 |103.92    0.25
|135.17    0.24
 10.25    0.00 | 41.50    0.28 | 72.75    1.23 |104.00    0.25
|135.25    0.24
 10.33    0.00 | 41.58    0.29 | 72.83    1.23 |104.08    0.25
|135.33    0.23
 10.42    0.00 | 41.67    0.29 | 72.92    1.21 |104.17    0.25
|135.42    0.23
 10.50    0.00 | 41.75    0.30 | 73.00    1.20 |104.25    0.25
|135.50    0.23
 10.58    0.00 | 41.83    0.30 | 73.08    1.17 |104.33    0.25
|135.58    0.23
 10.67    0.00 | 41.92    0.31 | 73.17    1.17 |104.42    0.24
|135.67    0.23
 10.75    0.00 | 42.00    0.32 | 73.25    1.16 |104.50    0.24
|135.75    0.23
 10.83    0.00 | 42.08    0.32 | 73.33    1.15 |104.58    0.24
|135.83    0.23
 10.92    0.00 | 42.17    0.33 | 73.42    1.12 |104.67    0.24
|135.92    0.23
 11.00    0.00 | 42.25    0.33 | 73.50    1.12 |104.75    0.24
|136.00    0.22
 11.08    0.00 | 42.33    0.34 | 73.58    1.11 |104.83    0.24
|136.08    0.22
 11.17    0.00 | 42.42    0.34 | 73.67    1.09 |104.92    0.24
|136.17    0.22
 11.25    0.00 | 42.50    0.35 | 73.75    1.08 |105.00    0.24
|136.25    0.22
 11.33    0.00 | 42.58    0.36 | 73.83    1.06 |105.08    0.24
|136.33    0.22
 11.42    0.00 | 42.67    0.36 | 73.92    1.05 |105.17    0.23
|136.42    0.22
 11.50    0.00 | 42.75    0.37 | 74.00    1.03 |105.25    0.23
|136.50    0.22
 11.58    0.00 | 42.83    0.38 | 74.08    1.03 |105.33    0.23
|136.58    0.22
 11.67    0.00 | 42.92    0.39 | 74.17    1.02 |105.42    0.23
|136.67    0.21
 11.75    0.00 | 43.00    0.40 | 74.25    1.00 |105.50    0.23
|136.75    0.21
 11.83    0.00 | 43.08    0.40 | 74.33    0.99 |105.58    0.23
|136.83    0.21
 11.92    0.00 | 43.17    0.42 | 74.42    0.97 |105.67    0.23
|136.92    0.21
 12.00    0.00 | 43.25    0.42 | 74.50    0.96 |105.75    0.23
|137.00    0.21
 12.08    0.00 | 43.33    0.43 | 74.58    0.95 |105.83    0.23
|137.08    0.21
 12.17    0.00 | 43.42    0.44 | 74.67    0.94 |105.92    0.23
|137.17    0.21
 12.25    0.00 | 43.50    0.45 | 74.75    0.92 |106.00    0.22
|137.25    0.21
 12.33    0.00 | 43.58    0.46 | 74.83    0.91 |106.08    0.22
|137.33    0.21
 12.42    0.00 | 43.67    0.47 | 74.92    0.89 |106.17    0.22
|137.42    0.21
 12.50    0.00 | 43.75    0.48 | 75.00    0.88 |106.25    0.22
|137.50    0.20
 12.58    0.00 | 43.83    0.49 | 75.08    0.87 |106.33    0.22
|137.58    0.20
 12.67    0.00 | 43.92    0.50 | 75.17    0.85 |106.42    0.22
|137.67    0.20
 12.75    0.00 | 44.00    0.50 | 75.25    0.84 |106.50    0.22
|137.75    0.20
 12.83    0.00 | 44.08    0.51 | 75.33    0.83 |106.58    0.22
|137.83    0.20
 12.92    0.00 | 44.17    0.51 | 75.42    0.81 |106.67    0.22
|137.92    0.20
 13.00    0.00 | 44.25    0.52 | 75.50    0.80 |106.75    0.21
|138.00    0.20
 13.08    0.00 | 44.33    0.52 | 75.58    0.79 |106.83    0.21
|138.08    0.20
 13.17    0.00 | 44.42    0.53 | 75.67    0.77 |106.92    0.21
|138.17    0.20
 13.25    0.00 | 44.50    0.53 | 75.75    0.77 |107.00    0.21
|138.25    0.19
 13.33    0.00 | 44.58    0.53 | 75.83    0.76 |107.08    0.21
|138.33    0.19
 13.42    0.00 | 44.67    0.54 | 75.92    0.74 |107.17    0.21
|138.42    0.19
 13.50    0.00 | 44.75    0.54 | 76.00    0.74 |107.25    0.21
|138.50    0.19
 13.58    0.00 | 44.83    0.54 | 76.08    0.72 |107.33    0.21
|138.58    0.19
 13.67    0.00 | 44.92    0.55 | 76.17    0.72 |107.42    0.21
|138.67    0.19
 13.75    0.00 | 45.00    0.55 | 76.25    0.71 |107.50    0.21
|138.75    0.19
 13.83    0.00 | 45.08    0.55 | 76.33    0.70 |107.58    0.21
|138.83    0.19
 13.92    0.00 | 45.17    0.55 | 76.42    0.69 |107.67    0.21
|138.92    0.19
 14.00    0.00 | 45.25    0.55 | 76.50    0.68 |107.75    0.20
|139.00    0.19
 14.08    0.00 | 45.33    0.55 | 76.58    0.68 |107.83    0.20
|139.08    0.19
 14.17    0.00 | 45.42    0.55 | 76.67    0.68 |107.92    0.20
|139.17    0.18
 14.25    0.00 | 45.50    0.55 | 76.75    0.66 |108.00    0.20
|139.25    0.18
 14.33    0.00 | 45.58    0.55 | 76.83    0.65 |108.08    0.20
|139.33    0.18
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 14.42   0.00 | 45.67   0.55 | 76.92   0.65 |108.17   0.20
|139.42   0.18
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|139.50   0.18
 14.58   0.00 | 45.83   0.55 | 77.08   0.63 |108.33   0.20
|139.58   0.18
 14.67   0.00 | 45.92   0.55 | 77.17   0.63 |108.42   0.20
|139.67   0.18
 14.75   0.99 | 46.00   0.54 | 77.25   0.63 |108.50   0.20
|139.75   0.18
 14.83   0.99 | 46.08   0.54 | 77.33   0.62 |108.58   0.20
|139.83   0.18
 14.92   1.00 | 46.17   0.54 | 77.42   0.61 |108.67   0.20
|139.92   0.18
 15.00   1.00 | 46.25   0.54 | 77.50   0.60 |108.75   0.19
|140.00   0.18
 15.08   1.01 | 46.33   0.53 | 77.58   0.60 |108.83   0.19
|140.08   0.18
 15.17   1.01 | 46.42   0.53 | 77.67   0.59 |108.92   0.19
|140.17   0.18
 15.25   1.02 | 46.50   0.53 | 77.75   0.59 |109.00   0.19
|140.25   0.18
 15.33   1.03 | 46.58   0.52 | 77.83   0.58 |109.08   0.19
|140.33   0.18
 15.42   1.04 | 46.67   0.52 | 77.92   0.58 |109.17   0.19
|140.42   0.17
 15.50   1.05 | 46.75   0.52 | 78.00   0.58 |109.25   0.19
|140.50   0.17
 15.58   1.06 | 46.83   0.52 | 78.08   0.58 |109.33   0.19
|140.58   0.17
 15.67   1.07 | 46.92   0.51 | 78.17   0.57 |109.42   0.19
|140.67   0.17
 15.75   1.08 | 47.00   0.51 | 78.25   0.56 |109.50   0.19
|140.75   0.17
 15.83   1.08 | 47.08   0.51 | 78.33   0.56 |109.58   0.19
|140.83   0.17
 15.92   1.08 | 47.17   0.51 | 78.42   0.55 |109.67   0.18
|140.92   0.17
 16.00   1.09 | 47.25   0.51 | 78.50   0.55 |109.75   0.18
|141.00   0.17
 16.08   1.09 | 47.33   0.51 | 78.58   0.55 |109.83   0.18
|141.08   0.17
 16.17   1.09 | 47.42   0.51 | 78.67   0.55 |109.92   0.18
|141.17   0.17
 16.25   1.09 | 47.50   0.50 | 78.75   0.54 |110.00   0.18
|141.25   0.17
 16.33   1.09 | 47.58   0.50 | 78.83   0.54 |110.08   0.18
|141.33   0.17
 16.42   1.09 | 47.67   0.50 | 78.92   0.54 |110.17   0.18
|141.42   0.17
 16.50   1.09 | 47.75   0.50 | 79.00   0.54 |110.25   0.18
|141.50   0.16
 16.58   1.10 | 47.83   0.50 | 79.08   0.53 |110.33   0.18
|141.58   0.16
 16.67   1.09 | 47.92   0.50 | 79.17   0.52 |110.42   0.18
|141.67   0.16
 16.75   1.09 | 48.00   0.50 | 79.25   0.52 |110.50   0.18
|141.75   0.16
 16.83   1.08 | 48.08   0.50 | 79.33   0.51 |110.58   0.18
|141.83   0.16
 16.92   1.09 | 48.17   0.49 | 79.42   0.50 |110.67   0.18
|141.92   0.16
 17.00   1.08 | 48.25   0.49 | 79.50   0.50 |110.75   0.18
|142.00   0.16
 17.08   1.07 | 48.33   0.49 | 79.58   0.49 |110.83   0.18
|142.08   0.16
 17.17   1.06 | 48.42   0.49 | 79.67   0.49 |110.92   0.18
|142.17   0.16
 17.25   1.06 | 48.50   0.49 | 79.75   0.48 |111.00   0.18
|142.25   0.16
 17.33   1.05 | 48.58   0.49 | 79.83   0.48 |111.08   0.18
|142.33   0.16
 17.42   1.04 | 48.67   0.48 | 79.92   0.48 |111.17   0.18
|142.42   0.16
 17.50   1.04 | 48.75   0.48 | 80.00   0.47 |111.25   0.18
|142.50   0.16
 17.58   1.03 | 48.83   0.48 | 80.08   0.47 |111.33   0.18
|142.58   0.16
 17.67   1.02 | 48.92   0.48 | 80.17   0.46 |111.42   0.18
|142.67   0.16
 17.75   1.01 | 49.00   0.47 | 80.25   0.46 |111.50   0.18
|142.75   0.16
 17.83   1.00 | 49.08   0.47 | 80.33   0.46 |111.58   0.18
|142.83   0.16
 17.92   0.99 | 49.17   0.47 | 80.42   0.45 |111.67   0.18
|142.92   0.16
 18.00   0.98 | 49.25   0.47 | 80.50   0.45 |111.75   0.18
|143.00   0.16
 18.08   0.97 | 49.33   0.47 | 80.58   0.45 |111.83   0.17
|143.08   0.15
 18.17   0.96 | 49.42   0.46 | 80.67   0.45 |111.92   0.17
|143.17   0.15
 18.25   0.95 | 49.50   0.46 | 80.75   0.44 |112.00   0.17
|143.25   0.15
 18.33   0.93 | 49.58   0.46 | 80.83   0.44 |112.08   0.17
|143.33   0.15
 18.42   0.92 | 49.67   0.46 | 80.92   0.44 |112.17   0.17
|143.42   0.15
 18.50   0.91 | 49.75   0.45 | 81.00   0.44 |112.25   0.17
|143.50   0.15
 18.58   0.89 | 49.83   0.45 | 81.08   0.44 |112.33   0.17
|143.58   0.15
 18.67   0.87 | 49.92   0.45 | 81.17   0.44 |112.42   0.17
|143.67   0.15
 18.75   0.86 | 50.00   0.45 | 81.25   0.44 |112.50   0.17
|143.75   0.15
 18.83   0.84 | 50.08   0.44 | 81.33   0.44 |112.58   0.17
|143.83   0.15
 18.92   0.83 | 50.17   0.44 | 81.42   0.43 |112.67   0.17
|143.92   0.15
 19.00   0.81 | 50.25   0.44 | 81.50   0.44 |112.75   0.17
|144.00   0.15
 19.08   0.79 | 50.33   0.44 | 81.58   0.45 |112.83   0.17
|144.08   0.15
 19.17   0.78 | 50.42   0.44 | 81.67   0.46 |112.92   0.17
|144.17   0.15
 19.25   0.76 | 50.50   0.44 | 81.75   0.45 |113.00   0.17
|144.25   0.15
 19.33   0.74 | 50.58   0.44 | 81.83   0.46 |113.08   0.17
|144.33   0.15
 19.42   0.72 | 50.67   0.44 | 81.92   0.46 |113.17   0.16
|144.42   0.15
 19.50   0.71 | 50.75   0.43 | 82.00   0.47 |113.25   0.16
|144.50   0.15
 19.58   0.69 | 50.83   0.43 | 82.08   0.47 |113.33   0.16
|144.58   0.15
 19.67   0.68 | 50.92   0.43 | 82.17   0.47 |113.42   0.16
|144.67   0.15
 19.75   0.66 | 51.00   0.43 | 82.25   0.48 |113.50   0.16
|144.75   0.15
 19.83   0.65 | 51.08   0.43 | 82.33   0.49 |113.58   0.16
|144.83   0.14
 19.92   0.64 | 51.17   0.43 | 82.42   0.49 |113.67   0.16
|144.92   0.14
 20.00   0.62 | 51.25   0.43 | 82.50   0.49 |113.75   0.16
|145.00   0.14
 20.08   0.61 | 51.33   0.43 | 82.58   0.49 |113.83   0.16
|145.08   0.14
 20.17   0.60 | 51.42   0.43 | 82.67   0.50 |113.92   0.16
|145.17   0.14
 20.25   0.58 | 51.50   0.43 | 82.75   0.50 |114.00   0.16
|145.25   0.14
 20.33   0.58 | 51.58   0.43 | 82.83   0.50 |114.08   0.16
|145.33   0.14
 20.42   0.56 | 51.67   0.43 | 82.92   0.50 |114.17   0.16
|145.42   0.14
 20.50   0.55 | 51.75   0.43 | 83.00   0.50 |114.25   0.16
|145.50   0.14
 20.58   0.54 | 51.83   0.43 | 83.08   0.50 |114.33   0.16
|145.58   0.14
 20.67   0.53 | 51.92   0.43 | 83.17   0.51 |114.42   0.16
|145.67   0.14
 20.75   0.52 | 52.00   0.43 | 83.25   0.51 |114.50   0.16
|145.75   0.14
 20.83   0.51 | 52.08   0.43 | 83.33   0.51 |114.58   0.16
|145.83   0.14
 20.92   0.50 | 52.17   0.43 | 83.42   0.51 |114.67   0.16
|145.92   0.14
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 21.00   0.49 | 52.25   0.43 | 83.50   0.52 |114.75   0.16
|146.00   0.14
 21.08   0.49 | 52.33   0.43 | 83.58   0.52 |114.83   0.16
|146.08   0.14
 21.17   0.48 | 52.42   0.43 | 83.67   0.53 |114.92   0.16
|146.17   0.14
 21.25   0.47 | 52.50   0.43 | 83.75   0.53 |115.00   0.16
|146.25   0.14
 21.33   0.47 | 52.58   0.43 | 83.83   0.54 |115.08   0.16
|146.33   0.14
 21.42   0.46 | 52.67   0.43 | 83.92   0.55 |115.17   0.16
|146.42   0.14
 21.50   0.45 | 52.75   0.43 | 84.00   0.56 |115.25   0.16
|146.50   0.14
 21.58   0.45 | 52.83   0.43 | 84.08   0.57 |115.33   0.16
|146.58   0.14
 21.67   0.44 | 52.92   0.44 | 84.17   0.58 |115.42   0.16
|146.67   0.14
 21.75   0.43 | 53.00   0.44 | 84.25   0.60 |115.50   0.16
|146.75   0.14
 21.83   0.43 | 53.08   0.44 | 84.33   0.62 |115.58   0.16
|146.83   0.14
 21.92   0.42 | 53.17   0.44 | 84.42   0.64 |115.67   0.16
|146.92   0.13
 22.00   0.42 | 53.25   0.44 | 84.50   0.66 |115.75   0.16
|147.00   0.13
 22.08   0.41 | 53.33   0.45 | 84.58   0.69 |115.83   0.16
|147.08   0.13
 22.17   0.41 | 53.42   0.45 | 84.67   0.72 |115.92   0.16
|147.17   0.13
 22.25   0.40 | 53.50   0.45 | 84.75   0.74 |116.00   0.16
|147.25   0.13
 22.33   0.40 | 53.58   0.45 | 84.83   0.77 |116.08   0.15
|147.33   0.13
 22.42   0.39 | 53.67   0.46 | 84.92   0.79 |116.17   0.15
|147.42   0.13
 22.50   0.39 | 53.75   0.46 | 85.00   0.81 |116.25   0.16
|147.50   0.13
 22.58   0.38 | 53.83   0.46 | 85.08   0.82 |116.33   0.16
|147.58   0.13
 22.67   0.38 | 53.92   0.46 | 85.17   0.84 |116.42   0.16
|147.67   0.13
 22.75   0.37 | 54.00   0.47 | 85.25   0.85 |116.50   0.16
|147.75   0.13
 22.83   0.37 | 54.08   0.47 | 85.33   0.85 |116.58   0.16
|147.83   0.13
 22.92   0.36 | 54.17   0.47 | 85.42   0.86 |116.67   0.16
|147.92   0.13
 23.00   0.36 | 54.25   0.48 | 85.50   0.87 |116.75   0.16
|148.00   0.13
 23.08   0.36 | 54.33   0.48 | 85.58   0.86 |116.83   0.16
|148.08   0.13
 23.17   0.35 | 54.42   0.49 | 85.67   0.87 |116.92   0.16
|148.17   0.13
 23.25   0.35 | 54.50   0.49 | 85.75   0.86 |117.00   0.16
|148.25   0.13
 23.33   0.34 | 54.58   0.50 | 85.83   0.85 |117.08   0.16
|148.33   0.13
 23.42   0.34 | 54.67   0.50 | 85.92   0.85 |117.17   0.16
|148.42   0.13
 23.50   0.34 | 54.75   0.51 | 86.00   0.84 |117.25   0.16
|148.50   0.13
 23.58   0.33 | 54.83   0.52 | 86.08   0.83 |117.33   0.16
|148.58   0.13
 23.67   0.33 | 54.92   0.53 | 86.17   0.82 |117.42   0.16
|148.67   0.13
 23.75   0.32 | 55.00   0.53 | 86.25   0.81 |117.50   0.16
|148.75   0.13
 23.83   0.32 | 55.08   0.54 | 86.33   0.81 |117.58   0.16
|148.83   0.13
 23.92   0.32 | 55.17   0.55 | 86.42   0.79 |117.67   0.16
|148.92   0.13
 24.00   0.31 | 55.25   0.55 | 86.50   0.78 |117.75   0.16
|149.00   0.13
 24.08   0.31 | 55.33   0.55 | 86.58   0.77 |117.83   0.16
|149.08   0.13
 24.17   0.30 | 55.42   0.56 | 86.67   0.76 |117.92   0.16
|149.17   0.13
 24.25   0.30 | 55.50   0.56 | 86.75   0.74 |118.00   0.16
|149.25   0.12
 24.33   0.30 | 55.58   0.57 | 86.83   0.74 |118.08   0.16
|149.33   0.12
 24.42   0.30 | 55.67   0.57 | 86.92   0.73 |118.17   0.16
|149.42   0.12
 24.50   0.29 | 55.75   0.58 | 87.00   0.71 |118.25   0.16
|149.50   0.12
 24.58   0.29 | 55.83   0.58 | 87.08   0.71 |118.33   0.16
|149.58   0.12
 24.67   0.29 | 55.92   0.58 | 87.17   0.70 |118.42   0.16
|149.67   0.12
 24.75   0.28 | 56.00   0.58 | 87.25   0.68 |118.50   0.16
|149.75   0.12
 24.83   0.28 | 56.08   0.58 | 87.33   0.68 |118.58   0.15
|149.83   0.12
 24.92   0.28 | 56.17   0.58 | 87.42   0.66 |118.67   0.15
|149.92   0.12
 25.00   0.27 | 56.25   0.58 | 87.50   0.66 |118.75   0.15
|150.00   0.12
 25.08   0.27 | 56.33   0.58 | 87.58   0.65 |118.83   0.15
|150.08   0.12
 25.17   0.27 | 56.42   0.58 | 87.67   0.64 |118.92   0.15
|150.17   0.12
 25.25   0.27 | 56.50   0.59 | 87.75   0.63 |119.00   0.15
|150.25   0.12
 25.33   0.26 | 56.58   0.59 | 87.83   0.62 |119.08   0.15
|150.33   0.12
 25.42   0.26 | 56.67   0.59 | 87.92   0.62 |119.17   0.15
|150.42   0.12
 25.50   0.26 | 56.75   0.59 | 88.00   0.61 |119.25   0.15
|150.50   0.12
 25.58   0.25 | 56.83   0.59 | 88.08   0.60 |119.33   0.15
|150.58   0.12
 25.67   0.25 | 56.92   0.59 | 88.17   0.59 |119.42   0.15
|150.67   0.12
 25.75   0.25 | 57.00   0.59 | 88.25   0.58 |119.50   0.15
|150.75   0.12
 25.83   0.25 | 57.08   0.59 | 88.33   0.58 |119.58   0.15
|150.83   0.12
 25.92   0.25 | 57.17   0.59 | 88.42   0.57 |119.67   0.15
|150.92   0.12
 26.00   0.24 | 57.25   0.59 | 88.50   0.57 |119.75   0.15
|151.00   0.12
 26.08   0.24 | 57.33   0.59 | 88.58   0.56 |119.83   0.16
|151.08   0.12
 26.17   0.24 | 57.42   0.59 | 88.67   0.55 |119.92   0.16
|151.17   0.12
 26.25   0.24 | 57.50   0.59 | 88.75   0.55 |120.00   0.16
|151.25   0.12
 26.33   0.23 | 57.58   0.58 | 88.83   0.54 |120.08   0.16
|151.33   0.12
 26.42   0.23 | 57.67   0.58 | 88.92   0.53 |120.17   0.16
|151.42   0.12
 26.50   0.23 | 57.75   0.58 | 89.00   0.53 |120.25   0.16
|151.50   0.12
 26.58   0.23 | 57.83   0.57 | 89.08   0.52 |120.33   0.16
|151.58   0.12
 26.67   0.23 | 57.92   0.57 | 89.17   0.51 |120.42   0.16
|151.67   0.12
 26.75   0.22 | 58.00   0.57 | 89.25   0.51 |120.50   0.16
|151.75   0.12
 26.83   0.22 | 58.08   0.57 | 89.33   0.50 |120.58   0.16
|151.83   0.12
 26.92   0.22 | 58.17   0.56 | 89.42   0.50 |120.67   0.16
|151.92   0.12
 27.00   0.22 | 58.25   0.56 | 89.50   0.49 |120.75   0.16
|152.00   0.12
 27.08   0.22 | 58.33   0.56 | 89.58   0.48 |120.83   0.16
|152.08   0.12
 27.17   0.21 | 58.42   0.55 | 89.67   0.48 |120.92   0.16
|152.17   0.12
 27.25   0.21 | 58.50   0.55 | 89.75   0.47 |121.00   0.16
|152.25   0.12
 27.33   0.21 | 58.58   0.54 | 89.83   0.47 |121.08   0.16
|152.33   0.11
 27.42   0.21 | 58.67   0.54 | 89.92   0.47 |121.17   0.17
|152.42   0.11
 27.50   0.21 | 58.75   0.53 | 90.00   0.47 |121.25   0.17
|152.50   0.11
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 27.58   0.21 | 58.83   0.53 | 90.08   0.46 |121.33   0.17
|152.58   0.11
 27.67   0.20 | 58.92   0.52 | 90.17   0.46 |121.42   0.17
|152.67   0.11
 27.75   0.20 | 59.00   0.52 | 90.25   0.45 |121.50   0.17
|152.75   0.11
 27.83   0.20 | 59.08   0.52 | 90.33   0.45 |121.58   0.17
|152.83   0.11
 27.92   0.20 | 59.17   0.51 | 90.42   0.44 |121.67   0.17
|152.92   0.11
 28.00   0.19 | 59.25   0.51 | 90.50   0.44 |121.75   0.17
|153.00   0.11
 28.08   0.19 | 59.33   0.50 | 90.58   0.44 |121.83   0.17
|153.08   0.11
 28.17   0.19 | 59.42   0.50 | 90.67   0.43 |121.92   0.17
|153.17   0.11
 28.25   0.19 | 59.50   0.49 | 90.75   0.43 |122.00   0.17
|153.25   0.11
 28.33   0.19 | 59.58   0.49 | 90.83   0.43 |122.08   0.17
|153.33   0.11
 28.42   0.19 | 59.67   0.49 | 90.92   0.43 |122.17   0.17
|153.42   0.11
 28.50   0.19 | 59.75   0.48 | 91.00   0.42 |122.25   0.18
|153.50   0.11
 28.58   0.18 | 59.83   0.48 | 91.08   0.42 |122.33   0.18
|153.58   0.11
 28.67   0.18 | 59.92   0.47 | 91.17   0.42 |122.42   0.18
|153.67   0.11
 28.75   0.18 | 60.00   0.47 | 91.25   0.42 |122.50   0.18
|153.75   0.11
 28.83   0.18 | 60.08   0.47 | 91.33   0.41 |122.58   0.18
|153.83   0.11
 28.92   0.18 | 60.17   0.46 | 91.42   0.41 |122.67   0.18
|153.92   0.11
 29.00   0.18 | 60.25   0.46 | 91.50   0.41 |122.75   0.18
|154.00   0.11
 29.08   0.18 | 60.33   0.45 | 91.58   0.41 |122.83   0.18
|154.08   0.11
 29.17   0.18 | 60.42   0.45 | 91.67   0.41 |122.92   0.18
|154.17   0.11
 29.25   0.17 | 60.50   0.44 | 91.75   0.41 |123.00   0.18
|154.25   0.11
 29.33   0.17 | 60.58   0.44 | 91.83   0.40 |123.08   0.18
|154.33   0.11
 29.42   0.17 | 60.67   0.44 | 91.92   0.40 |123.17   0.18
|154.42   0.11
 29.50   0.17 | 60.75   0.43 | 92.00   0.40 |123.25   0.18
|154.50   0.11
 29.58   0.17 | 60.83   0.43 | 92.08   0.40 |123.33   0.18
|154.58   0.11
 29.67   0.17 | 60.92   0.42 | 92.17   0.40 |123.42   0.18
|154.67   0.11
 29.75   0.17 | 61.00   0.42 | 92.25   0.39 |123.50   0.18
|154.75   0.11
 29.83   0.17 | 61.08   0.42 | 92.33   0.39 |123.58   0.18
|154.83   0.11
 29.92   0.16 | 61.17   0.42 | 92.42   0.39 |123.67   0.18
|154.92   0.11
 30.00   0.16 | 61.25   0.41 | 92.50   0.39 |123.75   0.18
|155.00   0.11
 30.08   0.16 | 61.33   0.41 | 92.58   0.38 |123.83   0.18
|155.08   0.11
 30.17   0.16 | 61.42   0.40 | 92.67   0.38 |123.92   0.18
|155.17   0.11
 30.25   0.16 | 61.50   0.40 | 92.75   0.38 |124.00   0.18
|155.25   0.11
 30.33   0.16 | 61.58   0.40 | 92.83   0.38 |124.08   0.18
|155.33   0.11
 30.42   0.16 | 61.67   0.40 | 92.92   0.38 |124.17   0.18
|155.42   0.11
 30.50   0.16 | 61.75   0.39 | 93.00   0.37 |124.25   0.18
|155.50   0.11
 30.58   0.16 | 61.83   0.39 | 93.08   0.37 |124.33   0.19
|155.58   0.11
 30.67   0.16 | 61.92   0.39 | 93.17   0.37 |124.42   0.19
|155.67   0.11
 30.75   0.16 | 62.00   0.38 | 93.25   0.37 |124.50   0.19
|155.75   0.11
 30.83   0.15 | 62.08   0.38 | 93.33   0.37 |124.58   0.19
|155.83   0.10
 30.92   0.15 | 62.17   0.38 | 93.42   0.37 |124.67   0.20
|155.92   0.11
 31.00   0.15 | 62.25   0.38 | 93.50   0.37 |124.75   0.20
|156.00   0.10
 31.08   0.15 | 62.33   0.39 | 93.58   0.37 |124.83   0.20 |
 31.17   0.15 | 62.42   0.39 | 93.67   0.37 |124.92   0.20 |
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| CALIB             |
| NASHYD    (6201) |   Area    (ha)=   9.60   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.04

     Unit Hyd Qpeak  (cms)=   0.352

     PEAK FLOW       (cms)=   0.535 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  51.712
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.509

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (6202) |   Area    (ha)=   2.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.50          0.81
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      123.83         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      159.59        158.91
               over (min)          5.00         10.00
     Storage Coeff.  (min)=        2.41 (ii)     9.63 (ii)
     Unit Hyd. Tpeak (min)=        5.00         10.00
     Unit Hyd. peak  (cms)=        0.30          0.11

*TOTALS*
     PEAK FLOW       (cms)=        0.54          0.25
0.789 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.00
3.00
     RUNOFF VOLUME    (mm)=       95.62         60.14
78.94
     TOTAL RAINFALL   (mm)=      101.62        101.62
101.62
     RUNOFF COEFFICIENT   =        0.94          0.59
0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0140) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6201):      9.60   0.535     4.08    51.71
        + ID2= 2 (6202):      2.30   0.789     3.00    78.94
          ===============================================
          ID = 3 (0140):     11.90   0.896     3.00    56.98
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    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0621) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1549.0) ------>
               Distance      Elevation       Manning
                  0.00         87.56         0.0900
                  3.37         87.60         0.0900
                 16.78         87.21         0.0900
                 31.08         87.29         0.0900
                 43.62         87.28         0.0900
                 62.88         87.41         0.0900
                 68.00         87.22         0.0900
                 96.20         87.43         0.0900
                112.60         86.39      0.0900 /0.0700  Main
Channel
                113.70         86.10         0.0700     Main
Channel
                114.40         86.51      0.0700 /0.0900  Main
Channel
                114.60         86.67         0.0900
                131.60         87.07         0.0900
                156.70         87.16         0.0900
                184.59         87.41         0.0900
                194.09         87.56         0.0900
                202.66         87.64         0.0900
                221.43         87.69         0.0900
                230.63         87.86         0.0900

      <--------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)      (cu.m.)      (cms)       (m/s)
(min)
     0.07    86.17    .898E+01       0.0          0.13
79.55
     0.14    86.24    .359E+02       0.0          0.21
50.11
     0.21    86.31    .808E+02       0.0          0.28
38.24
     0.29    86.39    .144E+03       0.1          0.33
31.57
     0.36    86.46    .256E+03       0.2          0.39
27.10
     0.44    86.54    .435E+03       0.3          0.42
25.03
     0.52    86.62    .680E+03       0.5          0.46
23.12
     0.60    86.70    .998E+03       0.8          0.48
21.78
     0.68    86.78    .150E+04       1.2          0.48
21.76
     0.76    86.85    .223E+04       1.7          0.48
21.78
     0.83    86.93    .319E+04       2.5          0.49
21.41
     0.91    87.01    .437E+04       3.5          0.51
20.74
     0.99    87.09    .580E+04       4.7          0.51
20.64
     1.07    87.17    .811E+04       6.2          0.48
21.90
     1.15    87.25    .113E+05       7.8          0.44
24.18
     1.23    87.32    .165E+05      10.6          0.41
26.00
     1.30    87.40    .239E+05      16.0          0.42
24.97
     1.38    87.48    .327E+05      24.3          0.47
22.45
     1.46    87.56    .419E+05      34.6          0.52
20.16

                                        <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0140)   11.90     0.90    3.00  56.98
0.63     0.48
    OUTFLOW: ID= 1 (0621)   11.90     0.57    4.25  56.95
0.54     0.46


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-------------------
| CALIB             |
| NASHYD   (6211) |   Area    (ha)=   4.60   Curve Number
(CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.08

    Unit Hyd Qpeak  (cms)=   0.162

    PEAK FLOW       (cms)=   0.270 (i)
    TIME TO PEAK    (hrs)=   4.083
    RUNOFF VOLUME    (mm)=  55.783
    TOTAL RAINFALL   (mm)= 101.620
    RUNOFF COEFFICIENT   =   0.549

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6212) |   Area    (ha)=  17.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       11.39         5.61
    Dep. Storage     (mm)=        6.00         8.00
    Average Slope     (%)=        1.00         1.00
    Length            (m)=      336.65        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=      159.59       171.56
               over (min)         5.00        15.00
    Storage Coeff.  (min)=        4.39 (ii)   11.39 (ii)
    Unit Hyd. Tpeak (min)=        5.00        15.00
    Unit Hyd. peak  (cms)=        0.23         0.09

*TOTALS*
    PEAK FLOW       (cms)=        4.00         1.71
5.489 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=       95.62        64.42
81.58
    TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
    RUNOFF COEFFICIENT   =        0.94         0.63
0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0141) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (6211):     4.60   0.270     4.08     55.78
      + ID2= 2 (6212):    17.00   5.489     3.00     81.58
        ================================================
        ID = 3 (0141):    21.60   5.542     3.00     76.09

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0142) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0141):    21.60   5.542     3.00     76.09
      + ID2= 2 (0621):    11.90   0.572     4.25     56.95
        ================================================
        ID = 3 (0142):    33.50   5.972     3.00     69.29

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0622) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 953.0) ------>
               Distance      Elevation       Manning
                 16.75         82.21         0.1100
                 30.34         82.03         0.1100
                 44.96         81.97         0.1100
                 58.95         81.94         0.1100
                 71.21         81.85         0.1100
                100.74         81.58         0.1100
                112.29         81.50         0.1100
                121.63         81.56         0.1100
                127.04         81.66      0.1100 /0.0700  Main
Channel
                129.04         80.66         0.0700     Main
Channel
                130.04         80.66         0.0700     Main
Channel
                131.04         80.66         0.0700     Main
Channel
                133.04         81.66      0.0700 /0.1100  Main
Channel
                134.58         82.08         0.1100
                135.14         82.01         0.1100
                139.68         81.73         0.1100
                151.74         81.75         0.1100
                153.37         81.71         0.1100
                167.06         81.83         0.1100
                187.62         81.87         0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)      (cu.m.)      (cms)       (m/s)
(min)
     0.06    80.72    .649E+02       0.0          0.17
49.00
     0.12    80.79    .138E+03       0.1          0.25
32.10
     0.19    80.85    .218E+03       0.1          0.32
25.32
     0.25    80.91    .306E+03       0.2          0.38
21.50
     0.31    80.97    .401E+03       0.4          0.43
18.99
     0.37    81.04    .504E+03       0.5          0.47
17.19
     0.44    81.10    .615E+03       0.6          0.52
15.81
     0.50    81.16    .733E+03       0.8          0.55
14.71
     0.56    81.22    .860E+03       1.0          0.59
13.81
     0.62    81.29    .993E+03       1.3          0.62
13.06
     0.69    81.35    .113E+04       1.5          0.66
12.41
     0.75    81.41    .128E+04       1.8          0.69
11.84
     0.81    81.47    .144E+04       2.1          0.72
11.35
     0.87    81.54    .170E+04       2.5          0.71
11.50
     0.94    81.60    .245E+04       3.0          0.59
13.80
     1.00    81.66    .355E+04       3.7          0.51
16.06
     1.07    81.73    .511E+04       4.9          0.47
17.27
     1.14    81.80    .759E+04       6.7          0.43
18.98
     1.21    81.87    .109E+05       9.0          0.40
20.28

                                        <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0142)   33.50     5.97    3.00  69.29
1.11     0.45
    OUTFLOW: ID= 1 (0622)   33.50     3.66    3.17  69.28
1.00     0.51


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-------------------
| CALIB             |
| STANDHYD  (6222) |   Area    (ha)=  16.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=
57.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       11.29         5.31
    Dep. Storage     (mm)=        6.00         8.00
    Average Slope     (%)=        1.00         1.00
    Length            (m)=      332.67        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=      159.59       129.51
               over (min)         5.00        15.00
    Storage Coeff.  (min)=        4.36 (ii)   12.19 (ii)
    Unit Hyd. Tpeak (min)=        5.00        15.00
    Unit Hyd. peak  (cms)=        0.23         0.09

*TOTALS*
    PEAK FLOW       (cms)=        4.05         1.15
5.020 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=       95.62        48.48
75.35
    TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
    RUNOFF COEFFICIENT   =        0.94         0.48
0.74

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| NASHYD   (6221) |   Area    (ha)=   0.30   Curve Number
(CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.03

    Unit Hyd Qpeak  (cms)=   0.011

    PEAK FLOW       (cms)=   0.013 (i)
    TIME TO PEAK    (hrs)=   4.083
    RUNOFF VOLUME    (mm)=  40.065
    TOTAL RAINFALL   (mm)= 101.620
    RUNOFF COEFFICIENT   =   0.394

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0143) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (6221):     0.30   0.013     4.08     40.06
      + ID2= 2 (6222):    16.60   5.020     3.00     75.35
        ================================================
        ID = 3 (0143):    16.90   5.022     3.00     74.72

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0144) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0143):    16.90   5.022     3.00     74.72
      + ID2= 2 (0622):    33.50   3.656     3.17     69.28
        ================================================
        ID = 3 (0144):    50.40   8.290     3.00     71.11

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD   (6231) |   Area    (ha)=   5.10   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.12

    Unit Hyd Qpeak  (cms)=   0.175

    PEAK FLOW       (cms)=   0.200 (i)
    TIME TO PEAK    (hrs)=   4.167
    RUNOFF VOLUME    (mm)=  39.046
    TOTAL RAINFALL   (mm)= 101.620
    RUNOFF COEFFICIENT   =   0.384

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6232) |   Area    (ha)=  15.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        5.89         9.61
    Dep. Storage     (mm)=        6.00         8.00
    Average Slope     (%)=        1.00         1.00
    Length            (m)=      321.46        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=      159.59       109.69
               over (min)         5.00        15.00
    Storage Coeff.  (min)=        4.27 (ii)   12.64 (ii)
    Unit Hyd. Tpeak (min)=        5.00        15.00
    Unit Hyd. peak  (cms)=        0.23         0.08

*TOTALS*
    PEAK FLOW       (cms)=        1.60         1.72
3.033 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=       95.62        44.80
57.00
    TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
    RUNOFF COEFFICIENT   =        0.94         0.44
0.56

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0145) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (6231):     5.10   0.200     4.17     39.05
      + ID2= 2 (6232):    15.50   3.033     3.00     57.00
        ================================================
        ID = 3 (0145):    20.60   3.066     3.00     52.55

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0146) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0144):    50.40   8.290     3.00     71.11
      + ID2= 2 (0145):    20.60   3.066     3.00     52.55
        ================================================
        ID = 3 (0146):    71.00  11.356     3.00     65.72

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6302) |   Area    (ha)=   2.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=
50.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        1.64         0.96
    Dep. Storage     (mm)=        6.00         8.00
    Average Slope     (%)=        1.00         1.00
    Length            (m)=      131.66        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=      159.59       169.52
               over (min)         5.00        10.00
    Storage Coeff.  (min)=        2.50 (ii)    9.53 (ii)
    Unit Hyd. Tpeak (min)=        5.00        10.00
    Unit Hyd. peak  (cms)=        0.29         0.12

*TOTALS*
    PEAK FLOW       (cms)=        0.57         0.32
0.898 (iii)
```

```
     TIME TO PEAK    (hrs)=       3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=      95.62        64.18
79.90
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.63
0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0631) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 788.2) ------>
               Distance      Elevation       Manning
                 0.00         81.00         0.1100
                15.70         81.00         0.1100
                17.50         80.50    0.1100 /0.0700  Main
Channel
                18.50         80.50         0.0700      Main
Channel
                20.00         81.00    0.0700 /0.1100  Main
Channel
                24.00         81.00         0.1100
                38.00         81.50         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.03    80.53    .174E+02       0.0          0.10
100.96
       0.05    80.55    .375E+02       0.0          0.15
66.64
       0.08    80.58    .604E+02       0.0          0.19
52.98
       0.11    80.61    .861E+02       0.0          0.22
45.34
       0.13    80.63    .115E+03       0.0          0.25
40.34
       0.16    80.66    .146E+03       0.1          0.28
36.75
       0.18    80.68    .180E+03       0.1          0.30
34.02
       0.21    80.71    .217E+03       0.1          0.32
31.85
       0.24    80.74    .256E+03       0.1          0.34
30.07
       0.26    80.76    .298E+03       0.2          0.35
28.57
       0.29    80.79    .344E+03       0.2          0.37
27.28
       0.32    80.82    .391E+03       0.2          0.39
26.15
       0.34    80.84    .442E+03       0.3          0.40
25.16
       0.37    80.87    .495E+03       0.3          0.42
24.27
       0.39    80.89    .552E+03       0.4          0.43
23.48
       0.42    80.92    .611E+03       0.4          0.44
22.75
       0.45    80.95    .672E+03       0.5          0.46
22.09
       0.47    80.97    .737E+03       0.6          0.47
21.48
       0.50    81.00    .804E+03       0.6          0.48
20.91

     **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (6302)    2.60     0.90    3.00  79.90
0.47     0.47
     OUTFLOW: ID= 1 (0631)    2.60     0.49    3.08  79.67
0.44     0.45


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--------------------
| CALIB            |
| STANDHYD  (6312) |   Area    (ha)=   8.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=
51.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.54         3.26
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     242.21        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       126.64
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.60 (ii)   11.51 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.95         0.70
2.544 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        48.07
72.32
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.47
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0149) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0631):     2.60   0.494     3.08    79.67
        + ID2= 2 (6312):     8.80   2.544     3.00    72.32
          ===============================================
          ID = 3 (0149):    11.40   2.963     3.00    74.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0632) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 924.2) ------>
               Distance      Elevation       Manning
                 0.00         82.50         0.1100
                 6.00         82.00         0.1100
                11.00         81.00         0.1100
                12.00         80.00         0.1100
                13.50         79.50    0.1100 /0.0700  Main
Channel
                14.50         79.50         0.0700      Main
Channel
                16.00         80.00    0.0700 /0.1100  Main
Channel
                18.00         80.00         0.1100
                29.70         80.00         0.1100
                37.00         80.50         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.05    79.55    .330E+02       0.0          0.17
52.00
       0.11    79.61    .749E+02       0.0          0.26
35.21
       0.16    79.66    .126E+03       0.1          0.32
28.45
       0.21    79.71    .186E+03       0.1          0.37
24.60
       0.26    79.76    .255E+03       0.2          0.41
22.04
       0.32    79.82    .333E+03       0.3          0.45
20.16
       0.37    79.87    .420E+03       0.4          0.48
18.69
       0.42    79.92    .515E+03       0.5          0.51
17.51
       0.47    79.97    .620E+03       0.6          0.55
16.53
       0.53    80.03    .931E+03       0.8          0.48
18.86
       0.58    80.08    .146E+04       1.2          0.43
20.73
       0.63    80.13    .201E+04       1.6          0.44
20.51
       0.68    80.18    .258E+04       2.2          0.46
19.66
       0.74    80.24    .318E+04       2.8          0.48
18.66
       0.79    80.29    .380E+04       3.6          0.51
17.70
       0.84    80.34    .445E+04       4.4          0.54
16.82
       0.89    80.39    .511E+04       5.3          0.56
16.03
       0.95    80.45    .580E+04       6.3          0.59
15.32
       1.00    80.50    .652E+04       7.4          0.61
14.69


                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (0149)   11.40     2.96    3.00  74.00
0.75     0.49
     OUTFLOW: ID= 1 (0632)   11.40     1.69    3.08  73.97
0.64     0.44


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--------------------
| CALIB            |
| NASHYD    (6321) |   Area    (ha)=   1.10   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   0.044

     PEAK FLOW       (cms)=   0.049 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  39.045
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.384

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6322) |   Area    (ha)=   4.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  42.00   Dir. Conn.(%)=
28.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.81         2.49
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     169.31        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       111.91
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.91 (ii)   11.21 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.53         0.48
0.931 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        45.16
59.29
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.44
0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0173) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6321):     1.10   0.049     4.00    39.04
        + ID2= 2 (6322):     4.30   0.931     3.00    59.29
          ===============================================
          ID = 3 (0173):     5.40   0.941     3.00    55.16

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0174) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0173):     5.40   0.941     3.00    55.16
        + ID2= 2 (0632):    11.40   1.690     3.08    73.97
          ===============================================
          ID = 3 (0174):    16.80   2.448     3.00    67.93

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (6401) |   Area    (ha)=   0.70   Curve Number
(CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.36

     Unit Hyd Qpeak  (cms)=   0.020

     PEAK FLOW       (cms)=   0.034 (i)
     TIME TO PEAK    (hrs)=   4.417
     RUNOFF VOLUME    (mm)=  55.780
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.549

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6402) |   Area    (ha)=  16.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.72         5.28
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     326.60        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       171.56
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.31 (ii)   11.31 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.09

*TOTALS*
     PEAK FLOW       (cms)=       3.77         1.61
5.177 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        64.42
81.58
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.63
0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0177) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6401):     0.70   0.034     4.42    55.78
        + ID2= 2 (6402):    16.00   5.177     3.00    81.58
          ===============================================
          ID = 3 (0177):    16.70   5.181     3.00    80.50

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0641) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 910.0) ------>
               Distance      Elevation       Manning
                 0.00         83.92         0.1100
                 1.93         83.93         0.1100
                 3.02         83.94         0.1100
                 5.01         83.96         0.1100
                 6.81         83.80         0.1100
                 7.33         83.77         0.1100
                 8.42         83.41    0.1100 /0.0700  Main
Channel
                10.42         82.41         0.0700      Main
Channel
                11.17         82.41         0.0700      Main
Channel
                11.92         82.41         0.0700      Main
Channel
                13.92         83.41    0.0700 /0.1100  Main
Channel
                21.33         84.40         0.1100
                23.85         84.09         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.10    82.51    .768E+02       0.0          0.24
32.02
       0.20    82.61    .172E+03       0.1          0.35
21.50
       0.30    82.71    .285E+03       0.3          0.44
17.20
       0.40    82.81    .416E+03       0.5          0.51
14.73
       0.50    82.91    .565E+03       0.7          0.58
13.08
       0.60    83.01    .732E+03       1.0          0.64
11.86
       0.70    83.11    .918E+03       1.4          0.69
10.92
       0.80    83.21    .112E+04       1.8          0.74
10.16
       0.90    83.31    .134E+04       2.3          0.79
9.53
       1.00    83.41    .158E+04       2.9          0.84
9.00
       1.11    83.52    .188E+04       3.8          0.92
8.20
       1.22    83.63    .224E+04       4.8          0.98
7.72
       1.33    83.74    .266E+04       6.0          1.02
7.39
       1.44    83.85    .315E+04       7.3          1.05
7.20
       1.55    83.96    .379E+04       8.7          1.04
7.24
       1.66    84.07    .471E+04      10.6          1.02
7.41
       1.77    84.18    .567E+04      12.7          1.01
7.46
       1.88    84.29    .673E+04      15.1          1.01
7.43
       1.99    84.40    .787E+04      17.8          1.02
7.36

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (0177)   16.70     5.18    3.00  80.50
1.25     0.99
     OUTFLOW: ID= 1 (0641)   16.70     4.15    3.00  80.50
1.14     0.94
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| CALIB             |
| NASHYD    (6411) |   Area    (ha)=   1.00   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.97

     Unit Hyd Qpeak  (cms)=   0.039

     PEAK FLOW       (cms)=   0.051 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  45.553
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.448

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6412) |   Area    (ha)=  12.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
56.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.44         4.16
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     289.83        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       142.37
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.01 (ii)   11.56 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.09

*TOTALS*
     PEAK FLOW       (cms)=       3.04         1.02
3.913 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        53.88
77.25
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.53
0.76

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0181) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6411):     1.00   0.051     4.00    45.55
        + ID2= 2 (6412):    12.60   3.913     3.00    77.25
          ===============================================
          ID = 3 (0181):    13.60   3.924     3.00    74.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0184) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0181):    13.60   3.924     3.00    74.92
        + ID2= 2 (0641):    16.70   4.149     3.00    80.50
          ===============================================
          ID = 3 (0184):    30.30   8.073     3.00    78.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0642) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1099.5) ------>
               Distance       Elevation       Manning
                  0.00          85.00         0.1100
                 14.50          80.00         0.1100
                 15.30          80.00         0.1100
                 16.80          79.50    0.1100 /0.0700  Main
Channel
                 17.80          79.50         0.0700     Main
Channel
                 19.30          80.00    0.0700 /0.1100  Main
Channel
                 20.30          80.00         0.1100
                 27.30          81.00         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.08    79.58    .520E+02       0.0          0.24
36.74
       0.16    79.66    .124E+03       0.1          0.35
25.35
       0.24    79.74    .216E+03       0.2          0.43
20.68
       0.32    79.82    .328E+03       0.3          0.49
17.96
       0.39    79.89    .460E+03       0.5          0.55
16.11
       0.47    79.97    .611E+03       0.7          0.60
14.73
       0.55    80.05    .836E+03       1.0          0.62
14.31
       0.63    80.13    .112E+04       1.4          0.66
13.40
       0.71    80.21    .143E+04       1.9          0.70
12.62
       0.79    80.29    .178E+04       2.5          0.74
11.97
       0.87    80.37    .216E+04       3.2          0.78
11.42
       0.95    80.45    .258E+04       3.9          0.81
10.93
       1.03    80.53    .302E+04       4.8          0.85
10.51
       1.11    80.61    .350E+04       5.8          0.88
10.14
       1.18    80.68    .402E+04       6.8          0.91
9.80
       1.26    80.76    .456E+04       8.0          0.94
9.49
       1.34    80.84    .514E+04       9.3          0.96
9.21
       1.42    80.92    .575E+04      10.7          0.99
8.96
       1.50    81.00    .640E+04      12.2          1.02
8.72

                                    <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0184)    30.30     8.07     3.00  78.00
1.27      0.94
     OUTFLOW: ID= 1 (0642)    30.30     6.28     3.08  78.00
1.14      0.89


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-------------------
| CALIB             |
| NASHYD    (6421) |   Area    (ha)=   3.60   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.88

     Unit Hyd Qpeak  (cms)=   0.156

     PEAK FLOW       (cms)=   0.169 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=  39.046
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.384

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6422) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  41.00   Dir. Conn.(%)=
27.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.66         8.14
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     303.32        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       127.47
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.12 (ii)   12.01 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.60         1.75
3.090 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        51.74
63.59
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.51
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0185) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6421):     3.60   0.169     3.92    39.05
        + ID2= 2 (6422):    13.80   3.090     3.00    63.59
          ===============================================
          ID = 3 (0185):    17.40   3.129     3.00    58.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0187) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0185):    17.40   3.129     3.00    58.51
        + ID2= 2 (0642):    30.30   6.281     3.08    78.00
          ===============================================
          ID = 3 (0187):    47.70   8.732     3.08    70.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6501) |   Area    (ha)=   6.90   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.02

     Unit Hyd Qpeak  (cms)=   0.258

     PEAK FLOW       (cms)=   0.290 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  39.046
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.384

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (6502) |   Area    (ha)=   2.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
22.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.77         1.43
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     121.11        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       106.03
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.38 (ii)   10.86 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.30         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.21         0.26
0.434 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        44.20
55.51
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.43
0.55

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0190) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6501):     6.90   0.290     4.08    39.05
        + ID2= 2 (6502):     2.20   0.434     3.00    55.51
          ===============================================
          ID = 3 (0190):     9.10   0.489     3.00    43.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| NASHYD    (6601) |   Area    (ha)=   2.00   Curve Number
(CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.66

     Unit Hyd Qpeak  (cms)=   0.116

     PEAK FLOW       (cms)=   0.168 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  54.391
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.535

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6602) |   Area    (ha)=  11.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  41.00   Dir. Conn.(%)=
27.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.80         6.90
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     279.28        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       147.67
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.92 (ii)   11.36 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.36         1.79
2.915 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        60.47
69.96
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.60
0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0193) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6601):     2.00   0.168     3.58    54.39
        + ID2= 2 (6602):    11.70   2.915     3.00    69.96
          ===============================================
          ID = 3 (0193):    13.70   2.977     3.00    67.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7302) |   Area    (ha)=   3.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=
20.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09         2.31
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     150.55        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       102.72
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.71 (ii)   11.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.30         0.40
0.638 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        43.64
54.03
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.43
0.53

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7402) |   Area    (ha)=   3.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  40.00   Dir. Conn.(%)=
26.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.48         2.22
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     157.06        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       110.76
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.78 (ii)   11.12 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.42         0.42
0.779 (iii)
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```
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62        44.98
58.14
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.44
0.57

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| NASHYD    (7031) |   Area    (ha)=   3.70   Curve Number
(CN)= 63.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.12

    Unit Hyd Qpeak  (cms)=   0.126

    PEAK FLOW       (cms)=   0.133 (i)
    TIME TO PEAK    (hrs)=   4.167
    RUNOFF VOLUME    (mm)=  36.099
    TOTAL RAINFALL   (mm)= 101.620
    RUNOFF COEFFICIENT   =   0.355

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7032) |   Area    (ha)=  19.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      12.61         7.09
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     362.40        40.00
    Mannings n           =      0.013        0.250

    Max.Eff.Inten.(mm/hr)=     159.59       116.98
               over (min)        5.00        15.00
    Storage Coeff.  (min)=       4.59 (ii)   12.75 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
    PEAK FLOW       (cms)=       4.36         1.35
5.491 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62        44.06
70.87
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.43
0.70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  63.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0213) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (7031):     3.70   0.133     4.17    36.10
      + ID2= 2 (7032):    19.70   5.491     3.00    70.87
        ================================================
        ID = 3 (0213):    23.40   5.512     3.00    65.37

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (7101) |   Area    (ha)=  70.70   Curve Number
(CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.78

    Unit Hyd Qpeak  (cms)=   3.471

    PEAK FLOW       (cms)=   2.451 (i)
    TIME TO PEAK    (hrs)=   3.750
    RUNOFF VOLUME    (mm)=  26.715
    TOTAL RAINFALL   (mm)= 101.620
    RUNOFF COEFFICIENT   =   0.263

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7102) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
33.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       7.88         9.62
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     341.57        40.00
    Mannings n           =      0.013        0.250

    Max.Eff.Inten.(mm/hr)=     159.59        76.29
               over (min)        5.00        15.00
    Storage Coeff.  (min)=       4.43 (ii)   14.11 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
    PEAK FLOW       (cms)=       2.47         1.11
3.376 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62        31.42
52.61
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.31
0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0218) |
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```
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (7101):    70.70   2.451     3.75    26.71
      + ID2= 2 (7102):    17.50   3.376     3.00    52.61
        ================================================
        ID = 3 (0218):    88.20   4.012     3.00    31.85

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0711) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
             <------ DATA FOR SECTION (1487.9) ------>
             Distance      Elevation       Manning
                 0.00          95.00        0.1100
                89.00          94.00        0.1100
               135.70          94.00    0.1100 /0.0700  Main
Channel
               137.20          93.50        0.0700      Main
Channel
               138.20          93.50        0.0700      Main
Channel
               139.70          94.00    0.0700 /0.1100  Main
Channel
               211.60          94.00        0.1100
               249.00          95.00        0.1100

       <-------------------- TRAVEL TIME TABLE ------------------
---->
    DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.07    93.57    .969E+02       0.0          0.20
95.33
     0.14    93.64    .228E+03       0.1          0.29
64.56
     0.21    93.71    .393E+03       0.1          0.36
51.73
     0.29    93.79    .593E+03       0.2          0.42
44.23
     0.36    93.86    .826E+03       0.4          0.48
39.15
     0.43    93.93    .109E+04       0.5          0.53
35.40
     0.50    94.00    .140E+04       0.7          0.57
32.52
     0.58    94.08    .133E+05       2.6          0.22
84.59
     0.67    94.17    .262E+05       6.5          0.28
67.17
     0.75    94.25    .400E+05      12.0          0.33
55.64
     0.83    94.33    .549E+05      19.0          0.39
48.10
     0.92    94.42    .707E+05      27.5          0.43
42.81
     1.00    94.50    .875E+05      37.5          0.48
38.86
     1.08    94.58    .105E+06      49.0          0.52
35.80
     1.17    94.67    .124E+06      62.0          0.56
33.34
     1.25    94.75    .144E+06      76.6          0.59
31.30
     1.33    94.83    .165E+06      92.7          0.63
29.59
     1.42    94.92    .186E+06     110.4          0.66
28.12
     1.50    95.00    .209E+06     129.7          0.69
26.84

                                     <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0218)   88.20     4.01    3.00  31.85
0.61     0.24
    OUTFLOW: ID= 1 (0711)   88.20     2.21    4.75  31.85
0.57     0.25


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-------------------
| CALIB            |
| NASHYD    (7111) |   Area    (ha)=  49.10   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.43

    Unit Hyd Qpeak  (cms)=   1.311

    PEAK FLOW       (cms)=   1.773 (i)
    TIME TO PEAK    (hrs)=   4.583
    RUNOFF VOLUME    (mm)=  43.287
    TOTAL RAINFALL   (mm)= 101.620
    RUNOFF COEFFICIENT   =   0.426

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7112) |   Area    (ha)=  11.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  34.00   Dir. Conn.(%)=
22.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       3.81         7.39
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     273.25        40.00
    Mannings n           =      0.013        0.250

    Max.Eff.Inten.(mm/hr)=     159.59       113.66
               over (min)        5.00        15.00
    Storage Coeff.  (min)=       3.87 (ii)   12.13 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.25         0.09

*TOTALS*
    PEAK FLOW       (cms)=       1.06         1.40
2.246 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62        48.12
58.57
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.47
0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0222) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (7111):    49.10   1.773     4.58    43.29
      + ID2= 2 (7112):    11.20   2.246     3.00    58.57
        ================================================
```

```
        ID = 3 (0222):    60.30   2.451     3.00    46.13

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0223) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0222):    60.30   2.451     3.00    46.13
      + ID2= 2 (0711):    88.20   2.205     4.75    31.85
        ================================================
        ID = 3 (0223):   148.50   4.149     4.67    37.64

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (7011) |   Area    (ha)=  90.40   Curve Number
(CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.77

    Unit Hyd Qpeak  (cms)=   4.467

    PEAK FLOW       (cms)=   3.862 (i)
    TIME TO PEAK    (hrs)=   3.750
    RUNOFF VOLUME    (mm)=  32.446
    TOTAL RAINFALL   (mm)= 101.620
    RUNOFF COEFFICIENT   =   0.319

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7012) |   Area    (ha)=  25.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
25.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       9.54        15.56
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     409.06        40.00
    Mannings n           =      0.013        0.250

    Max.Eff.Inten.(mm/hr)=     159.59        90.54
               over (min)        5.00        15.00
    Storage Coeff.  (min)=       4.93 (ii)   13.98 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
    PEAK FLOW       (cms)=       2.65         2.17
4.436 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62        37.47
52.00
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.37
0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  59.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0205) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (7011):    90.40   3.862     3.75    32.45
      + ID2= 2 (7012):    25.10   4.436     3.00    52.00
        ================================================
        ID = 3 (0205):   115.50   5.475     3.00    36.70

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0702) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
             <------ DATA FOR SECTION (1184.6) ------>
             Distance      Elevation       Manning
                 0.00          93.00        0.1100
                56.00          92.00        0.1100
                65.40          92.00        0.1100
                74.80          91.50    0.1100 /0.0700  Main
Channel
                75.80          91.50        0.0700      Main
Channel
                77.30          92.00    0.0700 /0.1100  Main
Channel
               144.00          92.00        0.1100
               186.00          93.00        0.1100

       <-------------------- TRAVEL TIME TABLE ------------------
---->
    DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.08    91.58    .236E+03       0.0          0.13
200.27
     0.16    91.66    .689E+03       0.1          0.18
146.52
     0.24    91.74    .136E+04       0.2          0.22
121.67
     0.32    91.82    .225E+04       0.4          0.25
105.99
     0.39    91.89    .336E+04       0.6          0.28
94.79
     0.47    91.97    .468E+04       0.9          0.31
86.24
     0.55    92.05    .128E+05       1.5          0.19
142.36
     0.63    92.13    .251E+05       3.4          0.22
123.43
     0.71    92.21    .384E+05       6.1          0.26
104.46
     0.79    92.29    .526E+05       9.6          0.29
90.95
     0.87    92.37    .678E+05      13.9          0.33
81.16
     0.95    92.45    .840E+05      19.0          0.36
73.76
     1.03    92.53    .101E+06      24.8          0.39
67.97
     1.11    92.61    .119E+06      31.4          0.42
63.30
     1.18    92.68    .139E+06      38.8          0.45
59.44
     1.26    92.76    .159E+06      47.1          0.48
56.18
     1.34    92.84    .180E+06      56.1          0.50
53.38
     1.42    92.92    .202E+06      66.0          0.52
50.95
     1.50    93.00    .225E+06      76.8          0.55
48.81
```

```
                                   <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0205)  115.50     5.47    3.00  36.70
0.69     0.25
     OUTFLOW: ID= 1 (0702)  115.50     2.44    4.67  36.69
0.59     0.20


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-------------------
| CALIB             |
| NASHYD    (7021) |   Area    (ha)=  16.10   Curve Number
(CN)= 64.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.72

     Unit Hyd Qpeak  (cms)=   0.358

     PEAK FLOW       (cms)=   0.430 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  37.061
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.365

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7022) |   Area    (ha)=  26.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  36.00   Dir. Conn.(%)=
24.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.50        16.90
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     419.52        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59        99.37
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       5.01 (ii)   13.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.21         0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.67         2.62
4.849 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        41.83
54.74
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.41
0.54


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  64.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0209) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (7021):     16.10   0.430     4.92    37.06
       + ID2= 2 (7022):     26.40   4.849     3.00    54.74
         ================================================
         ID = 3 (0209):     42.50   4.884     3.00    48.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0210) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0209):     42.50   4.884     3.00    48.04
       + ID2= 2 (0702):    115.50   2.443     4.67    36.69
         ================================================
         ID = 3 (0210):    158.00   5.632     3.00    39.74

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0224) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0210):    158.00   5.632     3.00    39.74
       + ID2= 2 (0223):    148.50   4.149     4.67    37.64
         ================================================
         ID = 3 (0224):    306.50   8.983     3.00    38.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0703) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (2329.2) ------>
               Distance      Elevation       Manning
                   0.00         88.00        0.1100
                  37.50         87.00        0.1100
                  51.30         86.00        0.1100
                  82.80         86.00        0.1100
                 107.50         87.00        0.1100
                 117.30         86.00        0.1100
                 125.90         86.00    0.1100 /0.0700  Main
Channel
                 127.40         85.50        0.0700      Main
Channel
                 128.40         85.50        0.0700      Main
Channel
                 129.90         86.00    0.0700 /0.1100  Main
Channel
                 133.00         86.00        0.1100
                 149.00         87.00        0.1100
                 193.00         88.00        0.1100

       <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.12    85.62    .787E+02       0.0          0.19
40.30
        0.25    85.75    .200E+03       0.1          0.28
27.58
        0.37    85.88    .365E+03       0.3          0.35
22.10
        0.50    86.00    .572E+03       0.5          0.41
18.84
        0.63    86.13    .372E+04       1.8          0.22
34.16
        0.77    86.27    .738E+04       4.4          0.27
28.02
        0.90    86.40    .116E+05       8.1          0.32
23.77
        1.03    86.53    .163E+05      13.0          0.37
20.89
        1.17    86.67    .215E+05      19.1          0.41
18.82
        1.30    86.80    .273E+05      26.4          0.44
17.24
        1.43    86.93    .336E+05      35.0          0.48
15.99
        1.57    87.07    .404E+05      44.9          0.51
15.00
        1.70    87.20    .479E+05      56.3          0.54
14.18
        1.83    87.33    .560E+05      69.3          0.57
13.47
        1.97    87.47    .648E+05      84.0          0.59
12.85
        2.10    87.60    .743E+05     100.6          0.62
12.31
        2.23    87.73    .844E+05     119.0          0.65
11.82
        2.37    87.87    .952E+05     139.3          0.67
11.39
        2.50    88.00    .107E+06     161.7          0.69
11.00

                                   <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0224)  306.50     8.98    3.00  38.73
0.92     0.33
     OUTFLOW: ID= 1 (0703)  306.50     7.28    4.83  38.73
0.87     0.31


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| ADD HYD   (0215) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0213):     23.40   5.512     3.00    65.37
       + ID2= 2 (0703):    306.50   7.279     4.83    38.73
         ================================================
         ID = 3 (0215):    329.90   8.954     3.00    40.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0704) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (2755.4) ------>
               Distance      Elevation       Manning
                   0.00         85.00        0.1100
                  25.00         84.00        0.1100
                  32.00         84.00    0.1100 /0.0700  Main
Channel
                  33.50         83.50        0.0700      Main
Channel
                  34.50         83.50        0.0700      Main
Channel
                  36.00         84.00    0.0700 /0.1100  Main
Channel
                  65.00         84.00        0.1100

       <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.03    83.53    .121E+02       0.0          0.12
61.52
        0.05    83.55    .259E+02       0.0          0.19
40.35
        0.08    83.58    .414E+02       0.0          0.24
31.84
        0.10    83.60    .585E+02       0.0          0.28
27.04
        0.13    83.63    .774E+02       0.1          0.31
23.87
        0.15    83.65    .979E+02       0.1          0.35
21.59
        0.18    83.68    .120E+03       0.1          0.38
19.84
        0.20    83.70    .144E+03       0.1          0.41
18.45
        0.23    83.73    .170E+03       0.2          0.43
17.31
        0.25    83.75    .197E+03       0.2          0.46
16.34
        0.28    83.78    .226E+03       0.2          0.48
15.52
        0.30    83.80    .257E+03       0.3          0.51
14.80
        0.33    83.83    .289E+03       0.3          0.53
14.16
        0.35    83.85    .323E+03       0.4          0.55
13.60
        0.38    83.88    .359E+03       0.5          0.57
13.09
        0.40    83.90    .396E+03       0.5          0.59
12.64
        0.43    83.93    .435E+03       0.6          0.61
12.22
        0.45    83.95    .476E+03       0.7          0.63
11.84
        0.48    83.98    .518E+03       0.8          0.65
11.49

      **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                   <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0215)  329.90     8.95    3.00  40.62
0.47     0.65
     OUTFLOW: ID= 1 (0704)  329.90     7.66    5.00  40.61
0.48     0.65


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-------------------
| CALIB             |
| NASHYD    (7041) |   Area    (ha)=   9.20   Curve Number
(CN)= 61.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.82

     Unit Hyd Qpeak  (cms)=   0.431

     PEAK FLOW       (cms)=   0.399 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  34.235
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.337

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7042) |   Area    (ha)=  14.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.72         4.78
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     310.91        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       115.80
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.19 (ii)   12.38 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.43         0.91
4.186 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        42.68
71.79
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.42
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  61.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0227) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (7041):      9.20   0.399     3.83    34.23
       + ID2= 2 (7042):     14.50   4.186     3.00    71.79
         ================================================
         ID = 3 (0227):     23.70   4.287     3.00    57.21

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0229) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0227):     23.70   4.287     3.00    57.21
       + ID2= 2 (0704):    329.90   7.663     5.00    40.61
         ================================================
         ID = 3 (0229):    353.60   9.681     3.00    41.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (7201) |   Area    (ha)=  14.00   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.98

     Unit Hyd Qpeak  (cms)=   0.548

     PEAK FLOW       (cms)=   0.609 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  39.046
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.384

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (7202) |   Area    (ha)=   8.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=
43.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.68         3.83
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     238.05        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       115.53
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.57 (ii)   11.77 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.26         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.59         0.74
2.214 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        45.73
67.18
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.45
0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0232) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (7201):     14.00   0.609     4.00    39.05
       + ID2= 2 (7202):      8.50   2.214     3.00    67.18
         ================================================
         ID = 3 (0232):     22.50   2.337     3.00    49.68

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0721) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 920.0) ------>
               Distance      Elevation       Manning
                   0.00         82.00        0.1100
                  41.00         82.00        0.1100
                  50.70         82.00        0.1100
                  57.80         81.00    0.1100 /0.0700  Main
Channel
                  59.30         79.84        0.0700      Main
Channel
                  60.30         79.84        0.0700      Main
Channel
                  61.80         81.00    0.0700 /0.1100  Main
Channel
                  63.30         81.00        0.1100
                  85.90         81.00        0.1100
```

```
                100.00         82.00        0.1100

     <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.11    79.95    .515E+02       0.0          0.20
35.58
       0.21    80.05    .115E+03       0.1          0.30
24.20
       0.32    80.16    .192E+03       0.2          0.37
19.53
       0.42    80.26    .280E+03       0.3          0.43
16.82
       0.53    80.37    .381E+03       0.4          0.48
15.00
       0.63    80.47    .494E+03       0.6          0.53
13.65
       0.74    80.58    .620E+03       0.8          0.57
12.60
       0.84    80.68    .758E+03       1.1          0.61
11.75
       0.95    80.79    .908E+03       1.4          0.65
11.04
       1.05    80.89    .107E+04       1.7          0.69
10.44
       1.16    81.00    .125E+04       2.1          0.72
9.92
       1.28    81.12    .283E+04       3.2          0.49
14.61
       1.41    81.25    .455E+04       5.0          0.48
15.04
       1.53    81.37    .642E+04       7.4          0.50
14.36
       1.66    81.50    .843E+04      10.4          0.53
13.50
       1.78    81.62    .106E+05      13.9          0.57
12.67
       1.91    81.75    .129E+05      18.0          0.60
11.93
       2.03    81.87    .153E+05      22.6          0.63
11.29
       2.16    82.00    .179E+05      27.8          0.67
10.73

                                        <---- hydrograph ---->   <-
pipe / channel->
                                   AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                                   (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0232)   22.50     2.34     3.00  49.68
1.19     0.66
    OUTFLOW: ID= 1 (0721)   22.50     1.71     3.08  49.68
1.05     0.69


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--------------------
| CALIB             |
| NASHYD    (7211) |   Area    (ha)=   8.70   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.06

     Unit Hyd Qpeak  (cms)=   0.312

     PEAK FLOW       (cms)=   0.354 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  39.046
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.384

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB             |
| STANDHYD  (7212) |   Area    (ha)=   9.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.95         3.35
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     249.00        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       125.18
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.66 (ii)   11.61 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.09

*TOTALS*
     PEAK FLOW       (cms)=       2.10         0.71
2.699 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        47.19
72.37
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.46
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0236) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7211):      8.70   0.354     4.08     39.05
        + ID2= 2 (7212):      9.30   2.699     3.00     72.37
          ===============================================
          ID = 3 (0236):     18.00   2.762     3.00     56.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0237) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0236):     18.00   2.762     3.00     56.26
        + ID2= 2 (0721):     22.50   1.714     3.08     49.68
          ===============================================
          ID = 3 (0237):     40.50   4.418     3.00     52.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0238) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0229):    353.60   9.681     3.00     41.73
        + ID2= 2 (0237):     40.50   4.418     3.00     52.60
          ===============================================
          ID = 3 (0238):    394.10  14.099     3.00    42.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0705) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (3276.8) ------>
               Distance      Elevation       Manning
                   0.00          80.50        0.1100
                   5.70          80.00        0.1100
                  14.00          79.00        0.1100
                  22.00          79.00    0.1100 /0.0700  Main
Channel
                  23.50          78.50        0.0700      Main
Channel
                  24.50          78.50        0.0700      Main
Channel
                  26.00          79.00    0.0700 /0.1100  Main
Channel
                  28.00          79.00        0.1100
                  41.00          80.00        0.1100

     <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    78.57    .248E+02       0.0          0.26
18.45
       0.14    78.64    .584E+02       0.1          0.38
12.49
       0.21    78.71    .101E+03       0.2          0.48
10.01
       0.29    78.79    .152E+03       0.3          0.56
8.56
       0.36    78.86    .212E+03       0.5          0.63
7.58
       0.43    78.93    .280E+03       0.7          0.70
6.85
       0.50    79.00    .358E+03       0.9          0.76
6.29
       0.58    79.08    .712E+03       1.6          0.64
7.50
       0.67    79.17    .111E+04       2.5          0.65
7.35
       0.75    79.25    .155E+04       3.7          0.69
6.94
       0.83    79.33    .203E+04       5.2          0.73
6.52
       0.92    79.42    .255E+04       6.9          0.78
6.14
       1.00    79.50    .312E+04       9.0          0.82
5.81
       1.08    79.58    .373E+04      11.3          0.86
5.52
       1.17    79.67    .438E+04      13.9          0.90
5.27
       1.25    79.75    .507E+04      16.7          0.94
5.05
       1.33    79.83    .581E+04      20.0          0.98
4.85
       1.42    79.92    .659E+04      23.5          1.02
4.68
       1.50    80.00    .741E+04      27.3          1.06
4.52

                                        <---- hydrograph ---->   <-
pipe / channel->
                                   AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                                   (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0238)  394.10    14.10     3.00  42.84
1.17     0.91
    OUTFLOW: ID= 1 (0705)  394.10    12.73     3.08  42.84
1.13     0.89


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--------------------
| CALIB             |
| NASHYD    (7051) |   Area    (ha)=   2.10   Curve Number
(CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.60

     Unit Hyd Qpeak  (cms)=   0.133

     PEAK FLOW       (cms)=   0.085 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  25.956
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.255

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (7052) |   Area    (ha)=   4.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  40.00   Dir. Conn.(%)=
26.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.88         2.82
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     177.01        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59        75.88
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       2.98 (ii)   12.69 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.54         0.34
0.814 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        30.89
47.72
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.30
0.47

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  51.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0241) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7051):      2.10   0.085     3.58     25.96
        + ID2= 2 (7052):      4.70   0.814     3.00     47.72
          ===============================================
          ID = 3 (0241):      6.80   0.845     3.00     41.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0243) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0241):      6.80   0.845     3.00     41.00
        + ID2= 2 (0705):    394.10  12.727     3.08     42.84
          ===============================================
          ID = 3 (0243):    400.90  13.273     3.08     42.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| STANDHYD  (7502) |   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  34.00   Dir. Conn.(%)=
21.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.87         3.63
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     191.49        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       105.61
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.13 (ii)   11.63 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.51         0.65
1.047 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        44.13
54.94
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.43
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   2 **
  ****************************


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|    READ STORM     |    Filename: C:\Users\Jenny\AppD
|                   |              ata\Local\Temp\
|                   |              a8b7002d-931f-4bdf-82e5-
bad09a870f5a\b6e93259
| Ptotal= 40.03 mm |    Comments: Mount Hope-6 hour SCS
Distribution Desig
--------------------
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME   RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
               0.17    1.59 |  1.67    3.97 |  3.17    8.73 |
4.67   2.38
               0.33    1.59 |  1.83    3.97 |  3.33    8.73 |
4.83   3.38
               0.50    1.59 |  2.00    3.97 |  3.50    8.73 |
5.00   3.38
               0.67    2.38 |  2.17    4.76 |  3.67    3.97 |
5.17   1.59
               0.83    2.38 |  2.33    4.76 |  3.83    3.97 |
5.33   1.59
               1.00    2.38 |  2.50    4.76 |  4.00    3.97 |
5.50   1.59
               1.17    2.38 |  2.67   23.82 |  4.17    3.18 |
5.67   1.59
               1.33    2.38 |  2.83   42.88 |  4.33    3.18 |
5.83   1.59
               1.50    2.38 |  3.00   61.93 |  4.50    3.18 |
6.00   1.59

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| CALIB             |
| NASHYD    (5071) |   Area    (ha)=   8.40   Curve Number
(CN)= 74.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.72

       NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                         ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME   RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
              0.083    1.59 | 1.583    3.97 | 3.083    8.73 |
4.58   2.38
              0.167    1.59 | 1.667    3.97 | 3.167    8.73 |
4.67   2.38
              0.250    1.59 | 1.750    3.97 | 3.250    8.73 |
4.75   3.38
              0.333    1.59 | 1.833    3.97 | 3.333    8.73 |
4.83   3.38
              0.417    1.59 | 1.917    3.97 | 3.417    8.73 |
4.92   3.38
              0.500    1.59 | 2.000    3.97 | 3.500    8.73 |
5.00   3.38
              0.583    2.38 | 2.083    4.76 | 3.583    3.97 |
5.08   1.59
              0.667    2.38 | 2.167    4.76 | 3.667    3.97 |
5.17   1.59
              0.750    2.38 | 2.250    4.76 | 3.750    3.97 |
5.25   1.59
              0.833    2.38 | 2.333    4.76 | 3.833    3.97 |
5.33   1.59
              0.917    2.38 | 2.417    4.76 | 3.917    3.97 |
5.42   1.59
              1.000    2.38 | 2.500    4.76 | 4.000    3.97 |
5.50   1.59
              1.083    2.38 | 2.583   23.82 | 4.083    3.18 |
5.58   1.59
              1.167    2.38 | 2.667   23.82 | 4.167    3.18 |
5.67   1.59
              1.250    2.38 | 2.750   42.88 | 4.250    3.18 |
5.75   1.59
              1.333    2.38 | 2.833   42.88 | 4.333    3.18 |
5.83   1.59
              1.417    2.38 | 2.917   61.93 | 4.417    3.18 |
5.92   1.59
              1.500    2.38 | 3.000   61.93 | 4.500    3.18 |
6.00   1.59

     Unit Hyd Qpeak  (cms)=   0.187

     PEAK FLOW       (cms)=   0.049 (i)
     TIME TO PEAK    (hrs)=   5.167
     RUNOFF VOLUME    (mm)=   8.460
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.211

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| CALIB             |
| STANDHYD  (5072) |   Area    (ha)=  40.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
30.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      18.23        22.28
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     519.62        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        19.80
               over (min)        10.00        25.00
     Storage Coeff.  (min)=       8.32 (ii)   24.92 (ii)
     Unit Hyd. Tpeak (min)=      10.00        25.00
     Unit Hyd. peak  (cms)=       0.13         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.69         0.64
1.994 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03        10.96
17.88
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.27
0.45

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  74.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0121) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5071):     8.40   0.049     5.17     8.46
        + ID2= 2 (5072):    40.50   1.994     3.00    17.88
          ===============================================
          ID = 3 (0121):    48.90   1.996     3.00    16.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (5121) |   Area    (ha)=   0.70   Curve Number
(CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.14

     Unit Hyd Qpeak  (cms)=   0.023

     PEAK FLOW       (cms)=   0.005 (i)
     TIME TO PEAK    (hrs)=   4.333
     RUNOFF VOLUME    (mm)=   7.553
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.189

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (5122) |   Area    (ha)=   3.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=
47.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.92         1.28
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     146.06        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        19.24
               over (min)         5.00        25.00
     Storage Coeff.  (min)=       3.88 (ii)   20.68 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.25         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.25         0.04
0.271 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03        10.29
21.44
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.26
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0118) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5121):     0.70   0.005     4.33     7.55
        + ID2= 2 (5122):     3.20   0.271     3.00    21.44
          ===============================================
          ID = 3 (0118):     3.90   0.272     3.00    18.95

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (5111) |   Area    (ha)=   1.90   Curve Number
(CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.56

     Unit Hyd Qpeak  (cms)=   0.129

     PEAK FLOW       (cms)=   0.019 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=   6.529
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.163

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (5112) |   Area    (ha)=   1.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.55         0.55
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      85.63        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        18.48
               over (min)         5.00        20.00
     Storage Coeff.  (min)=       2.82 (ii)   19.89 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.28         0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.07         0.02
0.076 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      34.03        10.10
18.46
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.25
0.46

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0116) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5111):     1.90   0.019     3.58     6.53
        + ID2= 2 (5112):     1.10   0.076     3.00    18.46
          ===============================================
          ID = 3 (0116):     3.00   0.082     3.00    10.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| NASHYD    (5101) |   Area    (ha)=   0.80   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.42

     Unit Hyd Qpeak  (cms)=   0.022

     PEAK FLOW       (cms)=   0.004 (i)
     TIME TO PEAK    (hrs)=   4.750
     RUNOFF VOLUME    (mm)=   6.296
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.157

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (5102) |   Area    (ha)=   0.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.45         0.45
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      77.46        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        15.40
               over (min)         5.00        25.00
     Storage Coeff.  (min)=       2.65 (ii)   21.02 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.29         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.05         0.01
0.059 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03         8.53
17.44
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.21
0.44

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0115) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5101):     0.80   0.004     4.75     6.30
        + ID2= 2 (5102):     0.90   0.059     3.00    17.44
          ===============================================
          ID = 3 (0115):     1.70   0.059     3.00    12.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0511) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 553.6) ------>
              Distance      Elevation       Manning
                  0.00          81.24        0.1100
                 33.01          80.98        0.1100
                 49.97          81.27        0.1100
                 54.18          80.35        0.1100
                 60.88          81.23     0.1100 /0.0700  Main
Channel
                 69.13          79.02        0.0700      Main
Channel
                 92.42          79.04        0.0700      Main
Channel
                 98.70          80.89     0.0700 /0.1100  Main
Channel
                128.88          81.13        0.1100
                199.00          81.23        0.1100

       <-------------------- TRAVEL TIME TABLE -----------------
---->
        DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
          (m)     (m)      (cu.m.)      (cms)        (m/s)
(min)
         0.12    79.13    .361E+03       0.6          0.24
9.91
         0.23    79.25    .776E+03       2.1          0.40
6.09
         0.35    79.37    .121E+04       4.3          0.52
4.65
         0.47    79.48    .165E+04       7.1          0.63
3.85
         0.59    79.60    .211E+04      10.5          0.72
3.34
         0.70    79.72    .258E+04      14.4          0.81
2.98
         0.82    79.84    .307E+04      18.8          0.89
2.71
         0.94    79.95    .357E+04      23.8          0.97
2.50
         1.05    80.07    .408E+04      29.2          1.04
2.33
         1.17    80.19    .461E+04      35.1          1.10
2.19
         1.29    80.30    .515E+04      41.5          1.17
2.07
         1.41    80.42    .571E+04      48.4          1.23
1.97
         1.52    80.54    .631E+04      55.8          1.28
1.88
         1.64    80.66    .695E+04      63.8          1.33
1.81
         1.76    80.77    .762E+04      72.3          1.38
1.76
         1.87    80.89    .833E+04      81.4          1.42
1.71
         2.00    81.02    .931E+04      92.4          1.44
1.68
         2.13    81.14    .109E+05     104.8          1.39
1.74
         2.25    81.27    .140E+05     120.9          1.25
1.93
                                   <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
   INFLOW : ID= 2 (0115)    1.70     0.06    3.00  12.20
0.01     0.24
   OUTFLOW: ID= 1 (0511)    1.70     0.04    3.00  12.20
0.01     0.24

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| ADD HYD   (0117) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0116):     3.00   0.082     3.00    10.90
        + ID2= 2 (0511):     1.70   0.043     3.00    12.20
          ===============================================
          ID = 3 (0117):     4.70   0.125     3.00    11.37

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0512) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 484.2) ------>
              Distance      Elevation       Manning
                  0.00          80.80        0.0900
                  9.73          80.46        0.0900
                 14.10          82.04        0.0900
                 17.18          82.28        0.0900
                 41.13          82.12     0.0900 /0.0700  Main
Channel
                 46.88          79.71        0.0700      Main
Channel
                 51.41          80.90     0.0700 /0.0900  Main
Channel
                 94.29          80.56        0.0900
                175.64          80.72        0.0900
                192.09          80.85        0.0900

       <-------------------- TRAVEL TIME TABLE -----------------
---->
        DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
          (m)     (m)      (cu.m.)      (cms)        (m/s)
(min)
         0.13    79.84    .255E+02       0.0          0.14
54.71
         0.26    79.98    .102E+03       0.0          0.23
34.47
         0.40    80.11    .229E+03       0.1          0.30
26.30
         0.53    80.24    .408E+03       0.3          0.36
21.71
         0.66    80.37    .637E+03       0.6          0.42
18.71
         0.79    80.51    .934E+03       0.9          0.46
16.84
         0.93    80.64    .245E+04       1.6          0.31
24.96
         1.06    80.77    .873E+04       4.6          0.25
31.51
         1.19    80.90    .179E+05      11.4          0.30
26.08
         1.32    81.04    .278E+05      22.6          0.38
20.45
         1.46    81.17    .381E+05      37.5          0.46
16.91
         1.60    81.31    .484E+05      55.4          0.54
14.57
         1.74    81.45    .588E+05      76.0          0.61
12.90
         1.87    81.59    .693E+05      99.3          0.67
11.63
         2.01    81.72    .798E+05     125.0          0.73
10.64
         2.15    81.86    .903E+05     153.1          0.80
9.83
         2.29    82.00    .101E+06     183.5          0.85
9.16
         2.42    82.14    .112E+06     214.3          0.90
8.68
         2.56    82.27    .123E+06     244.4          0.93
8.40
                                   <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
   INFLOW : ID= 2 (0117)    4.70     0.12    3.00  11.37
0.37     0.28
   OUTFLOW: ID= 1 (0512)    4.70     0.06    3.42  11.37
0.28     0.23

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| ADD HYD   (0119) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0118):     3.90   0.272     3.00    18.95
        + ID2= 2 (0512):     4.70   0.060     3.42    11.37
          ===============================================
          ID = 3 (0119):     8.60   0.317     3.00    14.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (5061) |   Area    (ha)=   3.90   Curve Number
(CN)= 71.0
```

```
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------  U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.239

     PEAK FLOW       (cms)=   0.042 (i)
     TIME TO PEAK    (hrs)=   3.667
     RUNOFF VOLUME    (mm)=   7.556
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.189

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5062) |   Area    (ha)=   7.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        5.07          2.73
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      228.04         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=       61.93         19.79
                over (min)        5.00         25.00
     Storage Coeff.  (min)=        5.07 (ii)    21.69 (ii)
     Unit Hyd. Tpeak (min)=        5.00         25.00
     Unit Hyd. peak  (cms)=        0.21          0.05

*TOTALS*
     PEAK FLOW       (cms)=        0.68          0.08
0.717 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=       34.03         10.43
22.94
     TOTAL RAINFALL   (mm)=       40.03         40.03
40.03
     RUNOFF COEFFICIENT   =        0.85          0.26
0.57

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0109) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5061):     3.90   0.042     3.67     7.56
        + ID2= 2 (5062):     7.80   0.717     3.00    22.94
          ================================================
          ID = 3 (0109):    11.70   0.728     3.00    17.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5051) |   Area    (ha)=   1.30   Curve Number
(CN)= 68.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------  U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.080

     PEAK FLOW       (cms)=   0.012 (i)
     TIME TO PEAK    (hrs)=   3.667
     RUNOFF VOLUME    (mm)=   6.768
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.169

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5052) |   Area    (ha)=  14.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        9.64          4.96
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      311.98         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=       61.93         18.03
                over (min)        5.00         25.00
     Storage Coeff.  (min)=        6.12 (ii)    23.37 (ii)
     Unit Hyd. Tpeak (min)=        5.00         25.00
     Unit Hyd. peak  (cms)=        0.19          0.05

*TOTALS*
     PEAK FLOW       (cms)=        1.26          0.14
1.321 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=       34.03          9.51
22.75
     TOTAL RAINFALL   (mm)=       40.03         40.03
40.03
     RUNOFF COEFFICIENT   =        0.85          0.24
0.57

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0107) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5051):     1.30   0.012     3.67     6.77
        + ID2= 2 (5052):    14.60   1.321     3.00    22.75
          ================================================
          ID = 3 (0107):    15.90   1.324     3.00    21.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5211) |   Area    (ha)=   1.90   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------  U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   0.076

     PEAK FLOW       (cms)=   0.019 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=   9.508
     TOTAL RAINFALL   (mm)=  40.032
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     RUNOFF COEFFICIENT   =   0.238

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5212) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  52.00   Dir. Conn.(%)=
40.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        7.18          6.62
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      303.32         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=       61.93         21.47
                over (min)        5.00         25.00
     Storage Coeff.  (min)=        6.02 (ii)    22.10 (ii)
     Unit Hyd. Tpeak (min)=        5.00         25.00
     Unit Hyd. peak  (cms)=        0.19          0.05

*TOTALS*
     PEAK FLOW       (cms)=        0.88          0.22
0.988 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=       34.03         11.99
20.81
     TOTAL RAINFALL   (mm)=       40.03         40.03
40.03
     RUNOFF COEFFICIENT   =        0.85          0.30
0.52

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0112) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5211):     1.90   0.019     4.08     9.51
        + ID2= 2 (5212):    13.80   0.988     3.00    20.81
          ================================================
          ID = 3 (0112):    15.70   0.990     3.00    19.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5201) |   Area    (ha)=  22.80   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------  U.H. Tp(hrs)=   1.31

     Unit Hyd Qpeak  (cms)=   0.663

     PEAK FLOW       (cms)=   0.148 (i)
     TIME TO PEAK    (hrs)=   4.583
     RUNOFF VOLUME    (mm)=   7.844
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.196

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5202) |   Area    (ha)=   6.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  23.00   Dir. Conn.(%)=
12.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.59          5.31
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      214.48         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=       61.93         14.51
                over (min)        5.00         25.00
     Storage Coeff.  (min)=        4.89 (ii)    23.70 (ii)
     Unit Hyd. Tpeak (min)=        5.00         25.00
     Unit Hyd. peak  (cms)=        0.22          0.05

*TOTALS*
     PEAK FLOW       (cms)=        0.14          0.12
0.189 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=       34.03          9.13
12.12
     TOTAL RAINFALL   (mm)=       40.03         40.03
40.03
     RUNOFF COEFFICIENT   =        0.85          0.23
0.30

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
                YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0111) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5201):    22.80   0.148     4.58     7.84
        + ID2= 2 (5202):     6.90   0.189     3.00    12.12
          ================================================
          ID = 3 (0111):    29.70   0.199     3.00     8.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0521) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                <------ DATA FOR SECTION ( 815.4) ------>
                Distance      Elevation       Manning
                  415.18        83.86         0.0900
                  461.15        83.40         0.0900
                  501.83        83.53     0.0900 /0.0700  Main
Channel
                  513.93        82.96         0.0700      Main
Channel
                  526.85        83.23     0.0700 /0.0900  Main
Channel
                  569.63        83.21         0.0900
                  610.76        83.63         0.0900
                  663.54        83.88         0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
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```
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.05    83.00    .378E+02       0.0          0.11
83.81
        0.09    83.05    .151E+03       0.0          0.17
52.79
        0.14    83.09    .340E+03       0.1          0.22
40.29
        0.18    83.14    .605E+03       0.3          0.27
33.26
        0.23    83.18    .946E+03       0.5          0.32
28.66
        0.27    83.23    .151E+04       0.9          0.33
27.77
        0.32    83.27    .323E+04       1.8          0.31
29.51
        0.37    83.32    .510E+04       3.2          0.34
26.44
        0.42    83.37    .713E+04       5.0          0.38
23.61
        0.46    83.42    .934E+04       7.3          0.42
21.44
        0.51    83.47    .121E+05      10.0          0.45
20.23
        0.56    83.52    .156E+05      13.4          0.47
19.44
        0.61    83.57    .196E+05      17.7          0.49
18.52
        0.66    83.61    .240E+05      22.8          0.52
17.49
        0.71    83.66    .286E+05      28.4          0.54
16.75
        0.75    83.71    .336E+05      34.7          0.56
16.14
        0.80    83.76    .390E+05      41.8          0.58
15.55
        0.85    83.81    .448E+05      49.8          0.60
14.99
        0.90    83.86    .510E+05      58.8          0.63
14.46

                                   <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
   INFLOW : ID= 2 (0111)   29.70     0.20    3.00   8.84
0.15     0.24
   OUTFLOW: ID= 1 (0521)   29.70     0.18    4.75   8.83
0.15     0.23

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--------------------
| ADD HYD   (0113) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0112):    15.70   0.990     3.00    19.44
        + ID2= 2 (0521):    29.70   0.180     4.75     8.83
          ================================================
          ID = 3 (0113):    45.40   1.039     3.00    12.50

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5041) |   Area    (ha)=   0.30   Curve Number
(CN)= 68.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------  U.H. Tp(hrs)=   0.89

     Unit Hyd Qpeak  (cms)=   0.013

     PEAK FLOW       (cms)=   0.002 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=   6.763
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.169

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5042) |   Area    (ha)=   7.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        4.88          2.52
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      222.11         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=       61.93         18.03
                over (min)        5.00         25.00
     Storage Coeff.  (min)=        4.99 (ii)    22.24 (ii)
     Unit Hyd. Tpeak (min)=        5.00         25.00
     Unit Hyd. peak  (cms)=        0.21          0.05

*TOTALS*
     PEAK FLOW       (cms)=        0.65          0.07
0.688 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=       34.03          9.51
22.75
     TOTAL RAINFALL   (mm)=       40.03         40.03
40.03
     RUNOFF COEFFICIENT   =        0.85          0.24
0.57

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0105) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5041):     0.30   0.002     4.00     6.76
        + ID2= 2 (5042):     7.40   0.688     3.00    22.75
          ================================================
          ID = 3 (0105):     7.70   0.689     3.00    22.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (5031) |   Area    (ha)=   1.70   Curve Number
(CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------  U.H. Tp(hrs)=   0.82

     Unit Hyd Qpeak  (cms)=   0.079

     PEAK FLOW       (cms)=   0.015 (i)
     TIME TO PEAK    (hrs)=   3.917
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```
     RUNOFF VOLUME    (mm)=   7.555
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT  =   0.189

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5032) |   Area    (ha)=  12.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  59.00   Dir. Conn.(%)=
47.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.20         5.00
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     285.19        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        18.26
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       5.80 (ii)   22.96 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.20         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.92         0.14
0.987 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03        10.04
21.31
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.25
0.53


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0103) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5031):     1.70   0.015     3.92     7.56
        + ID2= 2 (5032):    12.20   0.987     3.00    21.31
          ===============================================
          ID = 3 (0103):    13.90   0.990     3.00    19.63

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (5021) |   Area    (ha)=  25.20   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.46

     Unit Hyd Qpeak  (cms)=   0.662

     PEAK FLOW       (cms)=   0.105 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=   5.466
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT  =   0.137

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5022) |   Area    (ha)=  25.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  42.00   Dir. Conn.(%)=
30.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.88        15.02
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     415.53        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93         9.63
                over (min)        5.00        30.00
     Storage Coeff.  (min)=       7.27 (ii)   29.43 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.17         0.04

*TOTALS*
     PEAK FLOW       (cms)=       1.20         0.22
1.280 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      34.03         6.87
15.02
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.17
0.38


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0101) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5021):    25.20   0.105     4.83     5.47
        + ID2= 2 (5022):    25.90   1.280     3.00    15.02
          ===============================================
          ID = 3 (0101):    51.10   1.286     3.00    10.31

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (5011) |   Area    (ha)=  80.20   Curve Number
(CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.85

     Unit Hyd Qpeak  (cms)=   3.621

     PEAK FLOW       (cms)=   0.550 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=   6.078
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT  =   0.152

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
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| STANDHYD  (5012) |   Area    (ha)=  39.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.97        24.43
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     512.51        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        13.05
                over (min)       10.00        30.00
     Storage Coeff.  (min)=       8.25 (ii)   27.87 (ii)
     Unit Hyd. Tpeak (min)=      10.00        30.00
     Unit Hyd. peak  (cms)=       0.13         0.04

*TOTALS*
     PEAK FLOW       (cms)=       1.32         0.43
1.476 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      34.03         7.74
14.05
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.19
0.35


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  65.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0100) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5011):    80.20   0.550     3.92     6.08
        + ID2= 2 (5012):    39.40   1.476     3.00    14.05
          ===============================================
          ID = 3 (0100):   119.60   1.576     3.08     8.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0502) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1537.5) ------>
               Distance      Elevation       Manning
                  0.00         89.30         0.1100
                  4.20         89.28         0.1100
                  9.03         88.80         0.1100
                 21.55         88.78         0.1100
                 29.06         88.24         0.1100
                 39.87         87.83         0.1100
                 55.54         87.84     0.1100 /0.0700  Main
Channel
                 57.54         86.84         0.0700      Main
Channel
                 59.04         86.84         0.0700      Main
Channel
                 61.04         87.84     0.0700 /0.1100  Main
Channel
                 74.10         87.86         0.1100
                 87.72         88.07         0.1100
                101.34         88.18         0.1100
                113.53         88.23         0.1100
                128.57         88.32         0.1100
                142.19         88.61         0.1100
                155.81         88.53         0.1100
                183.05         88.85         0.1100
                187.19         88.84         0.1100
                211.21         88.88         0.1100

         <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.10    86.94    .202E+03       0.0          0.25
78.80
     0.20    87.04    .452E+03       0.1          0.37
52.91
     0.30    87.14    .749E+03       0.3          0.47
42.34
     0.40    87.24    .109E+04       0.5          0.55
36.26
     0.50    87.34    .149E+04       0.8          0.62
32.18
     0.60    87.44    .193E+04       1.1          0.68
29.19
     0.70    87.54    .241E+04       1.5          0.74
26.87
     0.80    87.64    .295E+04       2.0          0.79
25.01
     0.90    87.74    .353E+04       2.5          0.84
23.46
     1.00    87.84    .421E+04       3.1          0.89
22.39
     1.10    87.94    .849E+04       4.5          0.63
31.56
     1.21    88.05    .150E+05       7.1          0.56
35.43
     1.33    88.17    .233E+05      10.6          0.54
36.49
     1.44    88.28    .346E+05      15.5          0.53
37.18
     1.56    88.40    .484E+05      22.8          0.56
35.35
     1.67    88.51    .634E+05      32.1          0.60
32.90
     1.79    88.63    .807E+05      41.2          0.61
32.65
     1.90    88.74    .101E+06      54.6          0.64
30.77
     2.02    88.86    .124E+06      64.7          0.62
31.85

                              <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0100)  119.60     1.58    3.08   8.70
0.72     0.75
    OUTFLOW: ID= 1 (0502)  119.60     1.01    3.67   8.70
0.57     0.66


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| ADD HYD   (0102) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0101):    51.10   1.286     3.00    10.31
        + ID2= 2 (0502):   119.60   1.014     3.67     8.70
          ===============================================
          ID = 3 (0102):   170.70   1.805     3.00     9.18

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0503) |
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```
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1157.9) ------>
               Distance      Elevation       Manning
                  0.00         86.78         0.0900
                 25.34         87.17         0.0900
                 68.44         87.04         0.0900
                117.13         86.81         0.0900
                125.36         85.21     0.0900 /0.0700  Main
Channel
                127.36         84.21         0.0700      Main
Channel
                128.86         84.21         0.0700      Main
Channel
                130.86         85.21     0.0700 /0.0900  Main
Channel
                131.88         86.36         0.0900
                140.63         86.77         0.0900
                168.26         86.90         0.0900
                169.81         87.10         0.0900
                202.11         87.50         0.0900
                239.06         87.35         0.0900
                270.29         87.83         0.0900
                283.90         87.90         0.0900
                297.51         87.86         0.0900
                324.73         87.89         0.0900
                351.95         87.78         0.0900
                388.59         87.46         0.0900

         <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.17    84.38    .114E+03       0.1          0.34
18.34
     0.33    84.54    .269E+03       0.4          0.50
12.51
     0.50    84.71    .465E+03       0.8          0.62
10.07
     0.67    84.88    .703E+03       1.4          0.72
8.63
     0.83    85.04    .982E+03       2.1          0.81
7.65
     1.00    85.21    .130E+04       3.1          0.89
6.93
     1.21    85.42    .177E+04       5.0          1.06
5.87
     1.41    85.62    .234E+04       7.4          1.17
5.28
     1.62    85.83    .300E+04      10.2          1.27
4.89
     1.83    86.04    .376E+04      13.6          1.35
4.60
     2.03    86.24    .462E+04      17.6          1.42
4.37
     2.24    86.45    .560E+04      22.1          1.47
4.22
     2.45    86.66    .695E+04      27.6          1.48
4.20
     2.66    86.87    .925E+04      31.2          1.25
4.94
     2.86    87.07    .168E+05      43.1          0.96
6.48
     3.07    87.28    .297E+05      67.7          0.85
7.30
     3.28    87.49    .456E+05     103.1          0.84
7.38
     3.48    87.69    .663E+05     159.6          0.89
6.93
     3.69    87.90    .907E+05     223.4          0.92
6.77

                              <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0102)  170.70     1.81    3.00   9.18
0.76     0.77
    OUTFLOW: ID= 1 (0503)  170.70     1.51    3.08   9.18
0.70     0.73


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| ADD HYD   (0104) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0103):    13.90   0.990     3.00    19.63
        + ID2= 2 (0503):   170.70   1.511     3.08     9.18
          ===============================================
          ID = 3 (0104):   184.60   2.303     3.00     9.97

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0504) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 815.4) ------>
               Distance      Elevation       Manning
                 19.10         82.03         0.0900
                 29.01         83.14         0.0900
                 40.83         82.56         0.0900
                 81.51         82.27         0.0900
                122.18         82.68         0.0900
                169.31         82.61         0.0900
                217.10         82.90         0.0900
                229.61         83.66     0.0900 /0.0700  Main
Channel
                232.80         81.85         0.0700      Main
Channel
                243.24         83.87         0.0700      Main
Channel
                257.77         84.06         0.0900
                312.01         83.52         0.0900
                415.18         83.86         0.0900
                461.15         83.40         0.0900
                501.83         83.53         0.0900
                513.93         82.96         0.0900
                526.85         83.23         0.0900
                569.63         83.21         0.0900
                610.76         83.63         0.0900
                663.54         83.88         0.0900

         <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.11    81.96    .117E+02       0.0          0.18
23.95
     0.23    82.08    .492E+02       0.1          0.28
15.67
     0.34    82.19    .135E+03       0.2          0.34
13.00
     0.45    82.30    .312E+03       0.4          0.32
13.44
     0.57    82.42    .116E+04       1.2          0.28
15.74
     0.68    82.53    .287E+04       3.5          0.32
13.85
     0.79    82.64    .549E+04       7.0          0.33
13.13
     0.91    82.76    .101E+05      14.9          0.39
11.28
     1.02    82.87    .155E+05      27.5          0.47
9.38
     1.13    82.98    .214E+05      45.2          0.55
7.89
```

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      1.25    83.10    .277E+05      67.2          0.64
6.87
      1.36    83.21    .344E+05      93.6          0.71
6.12
      1.47    83.32    .426E+05     125.3          0.77
5.67
      1.59    83.44    .516E+05     162.2          0.82
5.30
      1.70    83.55    .620E+05     204.2          0.86
5.06
      1.81    83.66    .747E+05     254.0          0.89
4.90
      1.95    83.80    .924E+05     324.9          0.92
4.74
      2.08    83.93    .113E+06     411.3          0.95
4.59
      2.21    84.06    .135E+06     515.5          1.00
4.37

                                    <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0104)  184.60     2.30    3.00   9.97
0.62     0.29
    OUTFLOW: ID= 1 (0504)  184.60     1.71    3.50   9.97
0.59     0.28


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--------------------
| ADD HYD   (0106) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0105):     7.70   0.689     3.00    22.12
        + ID2= 2 (0504):   184.60   1.709     3.50     9.97
          ===============================================
          ID = 3 (0106):   192.30   1.869     3.33    10.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0114) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0106):   192.30   1.869     3.33    10.45
        + ID2= 2 (0113):    45.40   1.039     3.00    12.50
          ===============================================
          ID = 3 (0114):   237.70   2.906     3.00    10.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0505) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation       Manning
                   0.00          81.24        0.1100
                  33.01          80.98        0.1100
                  49.97          81.27        0.1100
                  54.18          80.35        0.1100
                  60.88          81.23        0.1100
                  69.13          79.02        0.1100
                  92.42          79.04        0.1100
                  98.70          80.89        0.1100
                 128.88          81.13        0.1100
                 199.00          81.23        0.1100
                 266.11          81.68        0.1100
                 306.94          81.73        0.1100
                 331.74          81.55     0.1100 /0.0700  Main
Channel
                 336.74          80.15        0.0700      Main
Channel
                 346.34          81.64     0.0700 /0.0900  Main
Channel
                 394.77          81.68        0.0900
                 431.64          81.44        0.0900
                 477.44          82.08        0.0900
                 481.25          82.81        0.0900
                 501.51          83.16        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.12    79.13    .418E+03       0.4          0.15
18.59
      0.23    79.25    .899E+03       1.3          0.25
11.41
      0.35    79.36    .140E+04       2.7          0.33
8.70
      0.46    79.48    .191E+04       4.4          0.39
7.22
      0.58    79.59    .244E+04       6.5          0.46
6.26
      0.69    79.71    .299E+04       8.9          0.51
5.58
      0.81    79.82    .355E+04      11.7          0.56
5.08
      0.92    79.94    .413E+04      14.7          0.61
4.68
      1.04    80.05    .472E+04      18.1          0.65
4.36
      1.15    80.17    .533E+04      21.7          0.70
4.09
      1.27    80.28    .598E+04      25.7          0.74
3.88
      1.38    80.40    .666E+04      29.7          0.76
3.74
      1.50    80.51    .740E+04      33.7          0.78
3.67
      1.61    80.63    .822E+04      38.1          0.79
3.59
      1.73    80.74    .909E+04      43.1          0.81
3.52
      1.84    80.86    .100E+05      48.6          0.83
3.45
      1.96    80.97    .111E+05      48.4          0.74
3.83
      2.07    81.09    .128E+05      43.8          0.59
4.86
      2.19    81.21    .155E+05      40.6          0.45
6.35

                                    <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0114)  237.70     2.91    3.00  10.84
0.36     0.34
    OUTFLOW: ID= 1 (0505)  237.70     2.46    3.08  10.84
0.33     0.31


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--------------------
| ADD HYD   (0108) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0107):    15.90   1.324     3.00    21.44
        + ID2= 2 (0505):   237.70   2.456     3.08    10.84
          ===============================================
          ID = 3 (0108):   253.60   3.468     3.00    11.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0506) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 304.1) ------>
               Distance      Elevation       Manning
                   0.00          81.42        0.0900
                   7.45          81.36        0.0900
                  32.34          80.38        0.0900
                  45.97          80.05        0.0900
                  65.23          79.93        0.0900
                  84.49          80.35        0.0900
                 113.49          80.02        0.0900
                 136.48          80.07        0.0900
                 188.81          79.81        0.0900
                 197.86          79.25     0.0900 /0.0700  Main
Channel
                 200.70          78.22        0.0700      Main
Channel
                 203.29          79.35     0.0700 /0.0900  Main
Channel
                 204.01          79.67        0.0900
                 236.47          80.40        0.0900
                 277.80          80.48        0.0900
                 305.35          80.37        0.0900
                 346.67          80.41        0.0900
                 387.99          80.33        0.0900
                 415.54          80.53        0.0900
                 447.88          80.49        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.11    78.34    .979E+01       0.0          0.23
21.53
      0.23    78.45    .392E+02       0.0          0.37
13.56
      0.34    78.56    .881E+02       0.1          0.48
10.35
      0.46    78.68    .157E+03       0.3          0.58
8.54
      0.57    78.79    .245E+03       0.6          0.67
7.36
      0.68    78.91    .352E+03       0.9          0.76
6.52
      0.80    79.02    .480E+03       1.4          0.84
5.88
      0.91    79.13    .627E+03       1.9          0.92
5.38
      1.03    79.25    .793E+03       2.7          0.99
4.98
      1.15    79.37    .103E+04       3.8          1.09
4.55
      1.28    79.50    .135E+04       5.2          1.16
4.28
      1.40    79.62    .175E+04       7.1          1.20
4.12
      1.52    79.75    .228E+04       9.3          1.21
4.08
      1.65    79.87    .318E+04      11.7          1.10
4.52
      1.77    80.00    .524E+04      15.8          0.90
5.52
      1.90    80.12    .973E+04      24.3          0.74
6.69
      2.02    80.24    .158E+05      39.7          0.75
6.62
      2.15    80.37    .230E+05      59.2          0.77
6.46
      2.27    80.49    .349E+05      90.3          0.77
6.44

                                    <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0108)  253.60     3.47    3.00  11.51
1.12     1.06
    OUTFLOW: ID= 1 (0506)  253.60     3.25    3.08  11.51
1.09     1.04


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| ADD HYD   (0110) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0109):    11.70   0.728     3.00    17.81
        + ID2= 2 (0506):   253.60   3.246     3.08    11.51
          ===============================================
          ID = 3 (0110):   265.30   3.637     3.08    11.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0120) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0110):   265.30   3.637     3.08    11.79
        + ID2= 2 (0119):     8.60   0.317     3.00    14.81
          ===============================================
          ID = 3 (0120):   273.90   3.858     3.00    11.88

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB             |
| STANDHYD  (5302) |   Area    (ha)=   5.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=
48.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.48          2.32
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     196.64         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      61.93         15.40
                over (min)        5.00         25.00
     Storage Coeff.  (min)=       4.64 (ii)    23.01 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.22          0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.46          0.05
0.485 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03          8.53
20.77
     TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
     RUNOFF COEFFICIENT   =       0.85          0.21
0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB             |
| NASHYD    (6051) |   Area    (ha)=   0.40   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.31

     Unit Hyd Qpeak  (cms)=   0.012

     PEAK FLOW       (cms)=   0.002 (i)
     TIME TO PEAK    (hrs)=   4.583
     RUNOFF VOLUME    (mm)=   6.292
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.157

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB             |
| STANDHYD  (6052) |   Area    (ha)=  15.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.23          5.27
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     321.46         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      61.93         16.78
                over (min)        5.00         25.00
     Storage Coeff.  (min)=       6.24 (ii)    23.98 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.19          0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.33          0.13
1.392 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03          8.90
22.47
     TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
     RUNOFF COEFFICIENT   =       0.85          0.22
0.56


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0131) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6051):     0.40   0.002     4.58     6.29
        + ID2= 2 (6052):    15.50   1.392     3.00    22.47
          ===============================================
          ID = 3 (0131):    15.90   1.392     3.00    22.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB             |
| NASHYD    (6111) |   Area    (ha)=   0.60   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.08

     Unit Hyd Qpeak  (cms)=   0.021

     PEAK FLOW       (cms)=   0.005 (i)
     TIME TO PEAK    (hrs)=   4.250
     RUNOFF VOLUME    (mm)=   9.505
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.237

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB             |
| STANDHYD  (6112) |   Area    (ha)=  10.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  62.00   Dir. Conn.(%)=
50.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.70          4.10
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     268.33         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      61.93         25.81
                over (min)        5.00         25.00
     Storage Coeff.  (min)=       5.59 (ii)    20.53 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.20          0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.87          0.14
0.943 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03         11.73
22.88
     TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
     RUNOFF COEFFICIENT   =       0.85          0.29
0.57


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0137) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6111):     0.60   0.005     4.25     9.51
        + ID2= 2 (6112):    10.80   0.943     3.00    22.88
          ===============================================
          ID = 3 (0137):    11.40   0.944     3.00    22.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| NASHYD    (6101) |   Area    (ha)=   9.00   Curve Number
(CN)= 70.0
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|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.23

     Unit Hyd Qpeak  (cms)=   0.279

     PEAK FLOW       (cms)=   0.057 (i)
     TIME TO PEAK    (hrs)=   4.500
     RUNOFF VOLUME    (mm)=   7.282
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.182

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6102) |   Area    (ha)=  12.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  27.00   Dir. Conn.(%)=
16.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.27         8.83
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     284.02        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        13.64
                over (min)       5.00        30.00
     Storage Coeff.  (min)=       5.79 (ii)   25.07 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.20         0.04

*TOTALS*
     PEAK FLOW       (cms)=       0.31         0.17
0.374 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      34.03         8.57
12.64
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.21
0.32

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
               YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0136) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6101):      9.00   0.057     4.50     7.28
        + ID2= 2 (6102):     12.10   0.374     3.00    12.64
          ===============================================
          ID = 3 (0136):     21.10   0.378     3.00    10.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0611) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 940.0) ------>
              Distance      Elevation       Manning
                0.00          83.36         0.0900
               12.33          84.54         0.0900
               21.95          84.33     0.0900 /0.0700  Main
Channel
               25.80          83.10         0.0700      Main
Channel
               39.87          83.58     0.0700 /0.0900  Main
Channel
               95.01          83.67         0.0900
              132.30          84.45         0.0900

         <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.07    83.17    .442E+02       0.0          0.13
76.06
        0.14    83.24    .177E+03       0.1          0.20
47.91
        0.21    83.31    .398E+03       0.2          0.26
36.56
        0.28    83.38    .709E+03       0.4          0.32
30.22
        0.35    83.44    .113E+04       0.7          0.36
26.38
        0.41    83.51    .167E+04       1.2          0.41
23.66
        0.48    83.58    .232E+04       1.8          0.45
21.54
        0.56    83.66    .431E+04       3.1          0.42
23.06
        0.64    83.74    .779E+04       5.6          0.42
23.11
        0.72    83.82    .115E+05       9.1          0.46
20.97
        0.80    83.90    .154E+05      13.6          0.51
18.96
        0.88    83.98    .196E+05      18.9          0.55
17.31
        0.96    84.06    .240E+05      25.0          0.60
15.97
        1.04    84.14    .286E+05      32.1          0.65
14.88
        1.12    84.22    .334E+05      39.9          0.69
13.96
        1.20    84.30    .385E+05      48.6          0.73
13.19
        1.28    84.38    .438E+05      58.0          0.76
12.59
        1.36    84.46    .495E+05      68.4          0.80
12.06
        1.44    84.54    .555E+05      81.0          0.84
11.40

                                         <---- hydrograph ---->   <-
pipe / channel->
                                 AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                                 (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0136)   21.10      0.38    3.00  10.36
0.27     0.31
     OUTFLOW: ID= 1 (0611)   21.10      0.20    3.58  10.34
0.21     0.27


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-------------------
| ADD HYD   (0138) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0137):     11.40   0.944     3.00    22.17
        + ID2= 2 (0611):     21.10   0.203     3.58    10.34
          ===============================================
          ID = 3 (0138):     32.50   1.069     3.00    14.49
```

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     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6041) |   Area    (ha)=   1.70   Curve Number
(CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   4.12

     Unit Hyd Qpeak  (cms)=   0.016

     PEAK FLOW       (cms)=   0.006 (i)
     TIME TO PEAK    (hrs)=   7.750
     RUNOFF VOLUME    (mm)=  10.301
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.257

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6042) |   Area    (ha)=  22.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.49         7.81
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     385.57        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        31.30
                over (min)       5.00        25.00
     Storage Coeff.  (min)=       6.95 (ii)   20.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.17         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.84         0.33
2.010 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03        13.76
24.51
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.34
0.61


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0129) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6041):      1.70   0.006     7.75    10.30
        + ID2= 2 (6042):     22.30   2.010     3.00    24.51
          ===============================================
          ID = 3 (0129):     24.00   2.010     3.00    23.50

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6031) |   Area    (ha)=  19.00   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.32

     Unit Hyd Qpeak  (cms)=   0.550

     PEAK FLOW       (cms)=   0.123 (i)
     TIME TO PEAK    (hrs)=   4.583
     RUNOFF VOLUME    (mm)=   7.844
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.196

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6032) |   Area    (ha)=  15.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
15.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.40        11.30
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     323.52        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        15.59
                over (min)       5.00        25.00
     Storage Coeff.  (min)=       6.26 (ii)   24.53 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.19         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.37         0.26
0.493 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03         9.46
13.14
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.24
0.33

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
               YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0127) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6031):     19.00   0.123     4.58     7.84
        + ID2= 2 (6032):     15.70   0.493     3.00    13.14
          ===============================================
          ID = 3 (0127):     34.70   0.501     3.00    10.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| NASHYD    (6011) |   Area    (ha)=  44.10   Curve Number
(CN)= 62.0
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```
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.83

     Unit Hyd Qpeak  (cms)=   2.027

     PEAK FLOW       (cms)=   0.275 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=   5.466
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.137

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (6012) |   Area    (ha)=  11.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
16.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.08         7.92
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     270.80        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93         8.91
                over (min)       5.00        30.00
     Storage Coeff.  (min)=       5.63 (ii)   28.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.20         0.04

*TOTALS*
     PEAK FLOW       (cms)=       0.28         0.11
0.323 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      34.03         6.61
10.99
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.17
0.27

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
               YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0124) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6011):     44.10   0.275     3.92     5.47
        + ID2= 2 (6012):     11.00   0.323     3.00    10.99
          ===============================================
          ID = 3 (0124):     55.10   0.372     3.75     6.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| NASHYD    (6021) |   Area    (ha)=  43.60   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   1.753

     PEAK FLOW       (cms)=   0.247 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=   5.466
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.137

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (6022) |   Area    (ha)=  12.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
23.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.51         8.39
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     293.26        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93         9.23
                over (min)       5.00        30.00
     Storage Coeff.  (min)=       5.90 (ii)   28.44 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.19         0.04

*TOTALS*
     PEAK FLOW       (cms)=       0.48         0.12
0.519 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      34.03         6.72
13.00
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.17
0.32


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0125) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6021):     43.60   0.247     4.08     5.47
        + ID2= 2 (6022):     12.90   0.519     3.00    13.00
          ===============================================
          ID = 3 (0125):     56.50   0.549     3.00     7.19

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0126) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0124):     55.10   0.372     3.75     6.57
        + ID2= 2 (0125):     56.50   0.549     3.00     7.19
          ===============================================
          ID = 3 (0126):    111.60   0.915     3.00     6.88

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ROUTE CHN (0603) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                 <------ DATA FOR SECTION (2135.9) ------>
               Distance      Elevation       Manning
                   0.00          92.58        0.1400
                   8.54          92.59        0.1400
                  22.11          92.47        0.1400
                  48.74          91.83        0.1400
                  67.59          91.58        0.1400
                  86.45          91.21        0.1400
                 103.50          90.80        0.1400
                 118.09          90.23        0.1400
                 127.84          90.09    0.1400 /0.0700  Main
Channel
                 129.84          89.59        0.0700      Main
Channel
                 130.34          90.09    0.0700 /0.1400  Main
Channel
                 140.57          90.14        0.1400
                 161.87          90.11        0.1400
                 177.03          90.04        0.1400
                 188.67          89.87        0.1400
                 199.59          90.31        0.1400
                 212.02          90.96        0.1400
                 225.58          91.35        0.1400
                 252.71          91.66        0.1400
                 274.11          91.86        0.1400

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.12   89.71   .358E+02        0.0          0.19
81.29
        0.25   89.84   .143E+03        0.0          0.30
51.21
        0.37   89.96   .689E+03        0.2          0.23
67.44
        0.50   90.09   .278E+04        0.6          0.20
77.83
        0.67   90.26   .132E+05        3.4          0.23
65.31
        0.83   90.42   .262E+05        9.3          0.33
46.76
        1.00   90.59   .403E+05       17.9          0.41
37.64
        1.17   90.76   .556E+05       28.8          0.48
32.17
        1.33   90.92   .721E+05       42.0          0.53
28.63
        1.50   91.09   .903E+05       57.1          0.58
26.37
        1.67   91.26   .110E+06       74.7          0.62
24.65
        1.83   91.42   .133E+06       93.4          0.64
23.71
        2.00   91.59   .159E+06      113.6          0.66
23.26
        2.17   91.76   .188E+06      136.6          0.67
22.96
        2.33   91.92   .222E+06      168.5          0.70
21.97
        2.50   92.09   .258E+06      211.3          0.75
20.33
        2.67   92.26   .294E+06      258.5          0.81
18.98
        2.83   92.42   .332E+06      310.1          0.86
17.85
        3.00   92.59   .371E+06      358.0          0.88
17.29

                                      <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0126)  111.60     0.92    3.00   6.88
0.52      0.20
     OUTFLOW: ID= 1 (0603)  111.60     0.52    4.83   6.88
0.48      0.20


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| ADD HYD   (0128) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0127):    34.70   0.501     3.00    10.24
        + ID2= 2 (0603):   111.60   0.522     4.83     6.88
          ===============================================
          ID = 3 (0128):   146.30   0.731     4.50     7.68

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0604) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                 <------ DATA FOR SECTION (1414.9) ------>
               Distance      Elevation       Manning
                   0.00          86.75        0.0900
                   3.09          87.40        0.0900
                  18.33          87.41        0.0900
                  35.33          86.99        0.0900
                  73.84          86.75        0.0900
                 103.33          86.41        0.0900
                 120.33          86.11        0.0900
                 129.46          86.13        0.0900
                 143.37          85.32        0.0900
                 154.33          85.02        0.0900
                 161.57          85.09        0.0900
                 163.05          84.78    0.0900 /0.0700  Main
Channel
                 166.55          83.78        0.0700      Main
Channel
                 168.05          84.78    0.0700 /0.1100  Main
Channel
                 172.02          85.29        0.1100
                 191.39          86.19        0.1100
                 270.18          85.78        0.1100
                 296.33          86.36        0.1100
                 324.34          86.68        0.1100
                 368.56          87.05        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.17   83.95   .465E+02        0.0          0.03
432.88
        0.33   84.11   .186E+03        0.0          0.04
272.70
        0.50   84.28   .418E+03        0.0          0.05
208.11
        0.67   84.45   .743E+03        0.1          0.06
171.79
        0.83   84.61   .116E+04        0.1          0.08
148.04
        1.00   84.78   .167E+04        0.2          0.09
131.10
        1.20   84.98   .252E+04        0.4          0.10
110.62
        1.41   85.19   .469E+04        0.6          0.09
121.59
        1.61   85.39   .842E+04        1.1          0.09
126.63
        1.81   85.59   .133E+05        1.8          0.09
121.99
        2.01   85.79   .192E+05        2.7          0.10
116.68
        2.22   86.00   .298E+05        4.0          0.09
125.45
        2.42   86.20   .487E+05        5.6          0.08
143.80
        2.62   86.40   .736E+05        9.0          0.08
137.02
        2.82   86.60   .102E+06       13.1          0.09
130.82
        3.03   86.81   .136E+06       18.1          0.09
125.42
        3.23   87.01   .178E+06       24.4          0.09
121.07
        3.43   87.21   .224E+06       34.2          0.10
108.80
        3.63   87.41   .271E+06       44.8          0.11
100.89

                                      <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0128)  146.30     0.73    4.50   7.68
1.44      0.09
     OUTFLOW: ID= 1 (0604)  146.30     0.55    5.42   7.66
1.39      0.09

     **** WARNING:  COMPUTATIONS FAILED TO CONVERGE.

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| ADD HYD   (0130) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0129):    24.00   2.010     3.00    23.50
        + ID2= 2 (0604):   146.30   0.552     5.42     7.66
          ===============================================
          ID = 3 (0130):   170.30   2.185     3.00     9.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0605) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                 <------ DATA FOR SECTION ( 801.4) ------>
               Distance      Elevation       Manning
                   0.00          82.95        0.1100
                   3.78          82.95        0.1100
                   9.24          82.49        0.1100
                  50.67          82.10        0.1100
                 105.12          82.17        0.1100
                 119.34          81.56        0.1100
                 150.67          81.66        0.1100
                 157.23          82.37        0.1100
                 190.03          82.57        0.1100
                 223.75          82.27        0.1100
                 252.32          82.50        0.1100
                 254.65          81.95    0.1100 /0.0700  Main
Channel
                 258.15          80.95        0.0700      Main
Channel
                 259.65          81.95    0.0700 /0.1100  Main
Channel
                 263.15          82.90        0.1100
                 278.14          82.80        0.1100
                 282.35          81.68        0.1100
                 285.02          82.19        0.1100
                 336.56          82.53        0.1100
                 404.40          82.68        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.08   81.03   .125E+02        0.0          0.11
104.30
        0.17   81.12   .499E+02        0.0          0.18
65.70
        0.25   81.20   .112E+03        0.0          0.24
50.14
        0.33   81.28   .199E+03        0.1          0.29
41.39
        0.42   81.37   .312E+03        0.1          0.34
35.67
        0.50   81.45   .449E+03        0.2          0.38
31.59
        0.58   81.53   .611E+03        0.4          0.42
28.50
        0.67   81.62   .117E+04        0.5          0.33
36.10
        0.75   81.70   .316E+04        1.1          0.24
49.12
        0.83   81.78   .560E+04        2.1          0.27
45.15
        0.92   81.87   .827E+04        3.4          0.30
40.03
        1.00   81.95   .112E+05        5.2          0.33
35.88
        1.10   82.05   .151E+05        8.0          0.38
31.68
        1.21   82.16   .207E+05        8.8          0.30
39.37
        1.31   82.26   .306E+05       14.0          0.33
36.36
        1.41   82.36   .433E+05       20.3          0.34
35.59
        1.52   82.47   .606E+05       28.4          0.34
35.57
        1.62   82.57   .828E+05       41.0          0.36
33.68
        1.73   82.68   .109E+06       60.1          0.39
30.35

                                      <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0130)  170.30     2.18    3.00   9.89
0.84      0.27
     OUTFLOW: ID= 1 (0605)  170.30     0.88    3.67   9.89
0.72      0.27


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| ADD HYD   (0139) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0138):    32.50   1.069     3.00    14.49
        + ID2= 2 (0605):   170.30   0.883     3.67     9.89
          ===============================================
          ID = 3 (0139):   202.80   1.729     3.00    10.63

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0132) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0131):    15.90   1.392     3.00    22.06
        + ID2= 2 (0139):   202.80   1.729     3.00    10.63
          ===============================================
          ID = 3 (0132):   218.70   3.122     3.00    11.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0530) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                 <------ DATA FOR SECTION ( 350.0) ------>
               Distance      Elevation       Manning
                   0.00          81.70        0.1100
                   3.84          81.72        0.1100
                   5.87          80.72        0.1100
                   9.38          81.42        0.1100
                  49.64          81.07        0.1100
                  80.61          80.72        0.1100
                  85.61          81.14        0.1100
                  93.32          80.00        0.1100
                  95.04          80.45        0.1100
                 102.72          80.66        0.1100
                 110.13          78.93    0.1100 /0.0700  Main
Channel
                 118.05          78.63        0.0700      Main
Channel
                 124.40          78.89    0.0700 /0.1100  Main
Channel
                 132.18          79.61        0.1100
                 139.34          79.23        0.1100
                 144.67          79.43        0.1100
                 149.63          79.98        0.1100
                 153.42          79.79        0.1100
                 158.56          80.58        0.1100
                 176.89          81.15        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.13   78.76   .190E+03        0.1          0.19
38.41
        0.26   78.89   .758E+03        0.5          0.31
24.20
        0.43   79.05   .189E+04        2.1          0.50
14.77
        0.59   79.22   .321E+04        4.7          0.65
11.35
        0.76   79.39   .498E+04        8.2          0.73
10.10
        0.93   79.55   .743E+04       13.1          0.78
9.48
        1.09   79.72   .103E+05       19.5          0.84
8.84
        1.26   79.89   .135E+05       27.1          0.89
8.29
        1.43   80.05   .171E+05       36.3          0.94
7.85
        1.59   80.22   .209E+05       47.2          1.00
7.39
        1.76   80.39   .251E+05       59.8          1.06
6.99
        1.93   80.56   .296E+05       73.5          1.10
6.70
        2.10   80.72   .348E+05       87.6          1.12
6.61
        2.26   80.89   .412E+05      102.8          1.11
6.68
        2.43   81.06   .495E+05      122.0          1.09
6.77
        2.60   81.22   .596E+05      146.2          1.09
6.80
        2.76   81.39   .714E+05      176.9          1.10
6.72
        2.93   81.56   .841E+05      215.0          1.13
6.52
        3.10   81.72   .970E+05      256.7          1.18
6.30

                                      <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0132)  218.70     3.12    3.00  11.46
0.49      0.55
     OUTFLOW: ID= 1 (0530)  218.70     2.23    3.08  11.46
0.43      0.51


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| ADD HYD   (0134) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0530):   218.70   2.226     3.08    11.46
        + ID2= 2 (5302):     5.80   0.485     3.00    20.77
          ===============================================
          ID = 3 (0134):   224.50   2.464     3.08    11.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0135) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0120):   273.90   3.858     3.00    11.88
        + ID2= 2 (0134):   224.50   2.464     3.08    11.70
          ===============================================
          ID = 3 (0135):   498.40   6.282     3.08    11.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0507) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                 <------ DATA FOR SECTION (  40.0) ------>
               Distance      Elevation       Manning
                   0.00          79.36        0.0900
                   7.45          79.32        0.0900
                  13.77          79.27        0.0900
                  20.24          79.24        0.0900
                  27.28          79.26        0.0900
                  34.16          79.13        0.0900
                  40.79          79.05        0.0900
                  47.58          79.05        0.0900
                  54.30          79.07        0.0900
                  60.87          79.24        0.0900
                  71.39          79.48        0.0900
                  73.53          78.96        0.0900
                  76.96          78.07        0.0900
                  82.21          77.08    0.0900 /0.0700  Main
Channel
                  85.82          76.28        0.0700      Main
Channel
                  89.97          76.89        0.0700      Main
Channel
                  91.35          77.38    0.0700 /0.0900  Main
Channel
                  95.27          78.68        0.0900
                  98.44          79.63        0.0900
                 102.89          79.89        0.0900
```

```
     <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.16    76.44    .113E+03       0.0          0.14
88.10
     0.32    76.60    .451E+03       0.1          0.23
55.50
     0.49    76.76    .101E+04       0.4          0.30
42.35
     0.65    76.92    .180E+04       0.9          0.37
34.57
     0.81    77.09    .276E+04       1.6          0.44
28.86
     0.97    77.25    .388E+04       2.7          0.52
24.37
     1.14    77.41    .516E+04       4.0          0.59
21.56
     1.30    77.57    .660E+04       5.7          0.66
19.26
     1.46    77.74    .822E+04       7.8          0.72
17.67
     1.62    77.90    .100E+05      10.1          0.77
16.48
     1.79    78.06    .120E+05      12.8          0.82
15.54
     1.95    78.22    .141E+05      15.9          0.87
14.74
     2.11    78.39    .163E+05      19.4          0.91
14.06
     2.27    78.55    .187E+05      23.2          0.95
13.47
     2.44    78.71    .212E+05      27.3          0.99
12.95
     2.60    78.87    .239E+05      31.9          1.02
12.50
     2.76    79.04    .267E+05      36.8          1.06
12.10
     2.92    79.20    .320E+05      39.4          0.94
13.56
     3.09    79.36    .409E+05      45.7          0.85
14.94

                                     <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0135)  498.40     6.28    3.08  11.80
1.34     0.68
     OUTFLOW: ID= 1 (0507)  498.40     4.66    3.50  11.80
1.20     0.62


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--------------------
| ADD HYD   (0122) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0121):    48.90   1.996     3.00    16.27
        + ID2= 2 (0507):   498.40   4.660     3.50    11.80
          ================================================
          ID = 3 (0122):   547.30   5.773     3.25    12.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5401) |   Area    (ha)=   3.40   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.99

     Unit Hyd Qpeak  (cms)=   0.131

     PEAK FLOW       (cms)=   0.022 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)=   6.299
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.157

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5402) |   Area    (ha)=   6.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  33.00   Dir. Conn.(%)=
20.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.98          4.02
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      200.00         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=       61.93         12.76
               over (min)         5.00         25.00
     Storage Coeff.  (min)=        4.69 (ii)    24.49 (ii)
     Unit Hyd. Tpeak (min)=        5.00         25.00
     Unit Hyd. peak  (cms)=        0.22          0.05

*TOTALS*
     PEAK FLOW       (cms)=        0.20          0.08
0.232 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=       34.03          7.77
13.02
     TOTAL RAINFALL   (mm)=       40.03         40.03
40.03
     RUNOFF COEFFICIENT   =        0.85          0.19
0.33

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0123) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5401):     3.40   0.022     4.17     6.30
        + ID2= 2 (5402):     6.00   0.232     3.00    13.02
          ================================================
          ID = 3 (0123):     9.40   0.235     3.00    10.59

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| STORE HYD (1505) |   AREA       (ha)= 253.60
| ID= 1 DT= 5.0min |   QPEAK     (cms)=   0.78
--------------------   TPEAK     (hrs)=  15.58
                       VOLUME     (mm)=  47.57
```

TIME hrs	FLOW cms	TIME hrs	FLOW cms	TIME hrs	FLOW cms	TIME hrs	FLOW cms	TIME hrs	FLOW cms
0.00	0.00	31.33	0.10	62.67	0.25	94.00	0.26	125.33	0.16
0.08	0.00	31.42	0.10	62.75	0.25	94.08	0.26	125.42	0.16
0.17	0.00	31.50	0.10	62.83	0.25	94.17	0.25	125.50	0.16
0.25	0.00	31.58	0.10	62.92	0.25	94.25	0.25	125.58	0.16
0.33	0.00	31.67	0.10	63.00	0.25	94.33	0.25	125.67	0.17
0.42	0.00	31.75	0.10	63.08	0.25	94.42	0.25	125.75	0.16
0.50	0.00	31.83	0.10	63.17	0.25	94.50	0.25	125.83	0.16
0.58	0.00	31.92	0.10	63.25	0.24	94.58	0.25	125.92	0.17
0.67	0.00	32.00	0.10	63.33	0.24	94.67	0.24	126.00	0.15
0.75	0.00	32.08	0.10	63.42	0.24	94.75	0.25	126.08	0.16
0.83	0.00	32.17	0.10	63.50	0.23	94.83	0.24	126.17	0.16
0.92	0.00	32.25	0.10	63.58	0.24	94.92	0.25	126.25	0.16
1.00	0.00	32.33	0.10	63.67	0.24	95.00	0.25	126.33	0.16
1.08	0.00	32.42	0.10	63.75	0.24	95.08	0.25	126.42	0.16
1.17	0.00	32.50	0.10	63.83	0.23	95.17	0.24	126.50	0.17
1.25	0.00	32.58	0.10	63.92	0.23	95.25	0.21	126.58	0.16
1.33	0.00	32.67	0.10	64.00	0.23	95.33	0.25	126.67	0.16
1.42	0.00	32.75	0.10	64.08	0.23	95.42	0.22	126.75	0.17
1.50	0.00	32.83	0.10	64.17	0.23	95.50	0.23	126.83	0.17
1.58	0.00	32.92	0.10	64.25	0.24	95.58	0.22	126.92	0.17
1.67	0.00	33.00	0.10	64.33	0.23	95.67	0.24	127.00	0.17
1.75	0.00	33.08	0.10	64.42	0.23	95.75	0.26	127.08	0.17
1.83	0.00	33.17	0.10	64.50	0.23	95.83	0.24	127.17	0.18
1.92	0.00	33.25	0.11	64.58	0.23	95.92	0.23	127.25	0.17
2.00	0.00	33.33	0.11	64.67	0.24	96.00	0.24	127.33	0.18
2.08	0.00	33.42	0.11	64.75	0.24	96.08	0.24	127.42	0.18
2.17	0.00	33.50	0.11	64.83	0.24	96.17	0.24	127.50	0.16
2.25	0.00	33.58	0.11	64.92	0.24	96.25	0.24	127.58	0.18
2.33	0.00	33.67	0.11	65.00	0.24	96.33	0.24	127.67	0.17
2.42	0.00	33.75	0.11	65.08	0.23	96.42	0.24	127.75	0.18
2.50	0.00	33.83	0.11	65.17	0.23	96.50	0.24	127.83	0.17
2.58	0.00	33.92	0.11	65.25	0.23	96.58	0.23	127.92	0.17
2.67	0.00	34.00	0.11	65.33	0.23	96.67	0.24	128.00	0.17
2.75	0.00	34.08	0.11	65.42	0.22	96.75	0.23	128.08	0.17
2.83	0.00	34.17	0.11	65.50	0.22	96.83	0.23	128.17	0.17
2.92	0.00	34.25	0.11	65.58	0.22	96.92	0.24	128.25	0.18
3.00	0.00	34.33	0.11	65.67	0.22	97.00	0.23	128.33	0.18
3.08	0.00	34.42	0.11	65.75	0.22	97.08	0.22	128.42	0.19
3.17	0.00	34.50	0.11	65.83	0.22	97.17	0.23	128.50	0.18
3.25	0.00	34.58	0.11	65.92	0.21	97.25	0.22	128.58	0.17
3.33	0.00	34.67	0.11	66.00	0.21	97.33	0.25	128.67	0.18
3.42	0.00	34.75	0.11	66.08	0.21	97.42	0.22	128.75	0.18
3.50	0.00	34.83	0.11	66.17	0.20	97.50	0.24	128.83	0.18
3.58	0.00	34.92	0.11	66.25	0.20	97.58	0.23	128.92	0.18
3.67	0.00	35.00	0.11	66.33	0.20	97.67	0.22	129.00	0.18
3.75	0.00	35.08	0.11	66.42	0.20	97.75	0.23	129.08	0.19
3.83	0.00	35.17	0.11	66.50	0.19	97.83	0.22	129.17	0.17
3.92	0.00	35.25	0.11	66.58	0.20	97.92	0.21	129.25	0.17
4.00	0.00	35.33	0.11	66.67	0.20	98.00	0.22	129.33	0.17
4.08	0.00	35.42	0.11	66.75	0.20	98.08	0.23	129.42	0.18
4.17	0.00	35.50	0.11	66.83	0.19	98.17	0.21	129.50	0.18
4.25	0.00	35.58	0.11	66.92	0.19	98.25	0.21	129.58	0.18
4.33	0.00	35.67	0.11	67.00	0.20	98.33	0.23	129.67	0.18
4.42	0.00	35.75	0.11	67.08	0.20	98.42	0.21	129.75	0.18
4.50	0.00	35.83	0.11	67.17	0.20	98.50	0.21	129.83	0.18
4.58	0.00	35.92	0.11	67.25	0.20	98.58	0.23	129.92	0.18
4.67	0.00	36.00	0.11	67.33	0.20	98.67	0.22	130.00	0.18
4.75	0.00	36.08	0.11	67.42	0.21	98.75	0.23	130.08	0.17
4.83	0.00	36.17	0.11	67.50	0.22	98.83	0.24	130.17	0.17
4.92	0.00	36.25	0.11	67.58	0.22	98.92	0.22	130.25	0.17
5.00	0.00	36.33	0.11	67.67	0.23	99.00	0.20	130.33	0.17
5.08	0.00	36.42	0.12	67.75	0.24	99.08	0.20	130.42	0.18
5.17	0.00	36.50	0.12	67.83	0.26	99.17	0.22	130.50	0.18
5.25	0.00	36.58	0.12	67.92	0.27	99.25	0.21	130.58	0.18
5.33	0.00	36.67	0.12	68.00	0.28	99.33	0.22	130.67	0.17
5.42	0.00	36.75	0.12	68.08	0.31	99.42	0.21	130.75	0.17
5.50	0.00	36.83	0.12	68.17	0.32	99.50	0.20	130.83	0.18
5.58	0.00	36.92	0.12	68.25	0.34	99.58	0.21	130.92	0.17
5.67	0.00	37.00	0.12	68.33	0.35	99.67	0.20	131.00	0.17
5.75	0.00	37.08	0.12	68.42	0.38	99.75	0.19	131.08	0.17
5.83	0.00	37.17	0.12	68.50	0.39	99.83	0.20	131.17	0.18
5.92	0.00	37.25	0.12	68.58	0.40	99.92	0.22	131.25	0.18
6.00	0.00	37.33	0.12	68.67	0.42	100.00	0.21	131.33	0.17
6.08	0.00	37.42	0.12	68.75	0.44	100.08	0.20	131.42	0.17
6.17	0.00	37.50	0.12	68.83	0.46	100.17	0.21	131.50	0.17
6.25	0.00	37.58	0.12	68.92	0.49	100.25	0.19	131.58	0.17
6.33	0.00	37.67	0.13	69.00	0.51	100.33	0.19	131.67	0.17
6.42	0.00	37.75	0.12	69.08	0.54	100.42	0.19	131.75	0.17
6.50	0.00	37.83	0.12	69.17	0.56	100.50	0.19	131.83	0.17
6.58	0.00	37.92	0.12	69.25	0.60	100.58	0.19	131.92	0.17
6.67	0.00	38.00	0.12	69.33	0.64	100.67	0.19	132.00	0.16
6.75	0.00	38.08	0.12	69.42	0.67	100.75	0.21	132.08	0.17
6.83	0.00	38.17	0.12	69.50	0.67	100.83	0.19	132.17	0.17
6.92	0.00	38.25	0.12	69.58	0.68	100.92	0.19	132.25	0.17
7.00	0.00	38.33	0.12	69.67	0.65	101.00	0.19	132.33	0.17
7.08	0.00	38.42	0.12	69.75	0.66	101.08	0.19	132.42	0.18
7.17	0.00	38.50	0.12	69.83	0.66	101.17	0.20	132.50	0.17
7.25	0.00	38.58	0.12	69.92	0.67	101.25	0.19	132.58	0.16
7.33	0.00	38.67	0.13	70.00	0.66	101.33	0.18	132.67	0.17
7.42	0.00	38.75	0.13	70.08	0.67	101.42	0.19	132.75	0.17
7.50	0.00	38.83	0.13	70.17	0.67	101.50	0.19	132.83	0.17
7.58	0.00	38.92	0.13	70.25	0.70	101.58	0.19	132.92	0.16
7.67	0.00	39.00	0.13	70.33	0.74	101.67	0.20	133.00	0.17
7.75	0.00	39.08	0.14	70.42	0.73	101.75	0.19	133.08	0.16
7.83	0.00	39.17	0.14	70.50	0.74	101.83	0.18	133.17	0.16
7.92	0.00	39.25	0.14	70.58	0.74	101.92	0.19	133.25	0.16
8.00	0.00	39.33	0.14	70.67	0.74	102.00	0.19	133.33	0.15
8.08	0.00	39.42	0.14	70.75	0.75	102.08	0.19	133.42	0.16
8.17	0.00	39.50	0.15	70.83	0.75	102.17	0.19	133.50	0.16
8.25	0.00	39.58	0.16	70.92	0.74	102.25	0.18	133.58	0.17
8.33	0.00	39.67	0.16	71.00	0.74	102.33	0.18	133.67	0.16
8.42	0.00	39.75	0.16	71.08	0.75	102.42	0.19	133.75	0.15
8.50	0.00	39.83	0.16	71.17	0.77	102.50	0.19	133.83	0.16
8.58	0.00	39.92	0.17	71.25	0.76	102.58	0.19	133.92	0.16
8.67	0.00	40.00	0.17	71.33	0.76	102.67	0.18	134.00	0.16
8.75	0.00	40.08	0.17	71.42	0.77	102.75	0.20	134.08	0.16
8.83	0.00	40.17	0.17	71.50	0.76	102.83	0.18	134.17	0.15
8.92	0.00	40.25	0.18	71.58	0.77	102.92	0.18	134.25	0.16
9.00	0.00	40.33	0.18	71.67	0.76	103.00	0.17	134.33	0.16
9.08	0.00	40.42	0.18	71.75	0.76	103.08	0.17	134.42	0.16
9.17	0.00	40.50	0.18	71.83	0.78	103.17	0.18	134.50	0.16
9.25	0.00	40.58	0.19	71.92	0.77	103.25	0.18	134.58	0.15
9.33	0.00	40.67	0.19	72.00	0.76	103.33	0.17	134.67	0.16
9.42	0.00	40.75	0.19	72.08	0.74	103.42	0.17	134.75	0.15
9.50	0.00	40.83	0.19	72.17	0.75	103.50	0.17	134.83	0.15
9.58	0.00	40.92	0.19	72.25	0.74	103.58	0.18	134.92	0.16
9.67	0.00	41.00	0.19	72.33	0.72	103.67	0.18	135.00	0.15
9.75	0.00	41.08	0.19	72.42	0.70	103.75	0.18	135.08	0.15
9.83	0.00	41.17	0.20	72.50	0.70	103.83	0.18	135.17	0.15
9.92	0.00	41.25	0.20	72.58	0.69	103.92	0.19	135.25	0.15
10.00	0.00	41.33	0.21	72.67	0.70	104.00	0.17	135.33	0.15
10.08	0.00	41.42	0.22	72.75	0.68	104.08	0.18	135.42	0.15
10.17	0.00	41.50	0.23	72.83	0.67	104.17	0.18	135.50	0.15
10.25	0.00	41.58	0.23	72.92	0.66	104.25	0.17	135.58	0.15
10.33	0.00	41.67	0.23	73.00	0.64	104.33	0.17	135.67	0.14
10.42	0.00	41.75	0.24	73.08	0.63	104.42	0.17	135.75	0.15
10.50	0.00	41.83	0.25	73.17	0.63	104.50	0.18	135.83	0.16
10.58	0.00	41.92	0.25	73.25	0.61	104.58	0.17	135.92	0.15
10.67	0.00	42.00	0.26	73.33	0.62	104.67	0.16	136.00	0.15
10.75	0.00	42.08	0.25	73.42	0.61	104.75	0.16	136.08	0.15
10.83	0.00	42.17	0.26	73.50	0.62	104.83	0.18	136.17	0.15
10.92	0.00	42.25	0.26	73.58	0.60	104.92	0.16	136.25	0.15
11.00	0.00	42.33	0.26	73.67	0.62	105.00	0.17	136.33	0.15
11.08	0.00	42.42	0.26	73.75	0.58	105.08	0.16	136.42	0.15
11.17	0.00	42.50	0.26	73.83	0.59	105.17	0.16	136.50	0.15
11.25	0.00	42.58	0.26	73.92	0.57	105.25	0.16	136.58	0.15
11.33	0.00	42.67	0.26	74.00	0.57	105.33	0.16	136.67	0.14
11.42	0.00	42.75	0.25	74.08	0.57	105.42	0.16	136.75	0.15
11.50	0.00	42.83	0.26	74.17	0.56	105.50	0.16	136.83	0.14
11.58	0.00	42.92	0.25	74.25	0.58	105.58	0.16	136.92	0.14
11.67	0.00	43.00	0.25	74.33	0.58	105.67	0.16	137.00	0.14
11.75	0.00	43.08	0.25	74.42	0.58	105.75	0.17	137.08	0.15
11.83	0.00	43.17	0.25	74.50	0.59	105.83	0.16	137.17	0.14
11.92	0.00	43.25	0.25	74.58	0.60	105.92	0.16	137.25	0.15
12.00	0.00	43.33	0.25	74.67	0.57	106.00	0.16	137.33	0.15
12.08	0.00	43.42	0.25	74.75	0.56	106.08	0.16	137.42	0.14
12.17	0.00	43.50	0.25	74.83	0.54	106.17	0.16	137.50	0.14
12.25	0.00	43.58	0.25	74.92	0.56	106.25	0.17	137.58	0.14
12.33	0.00	43.67	0.25	75.00	0.53	106.33	0.16	137.67	0.15
12.42	0.00	43.75	0.25	75.08	0.51	106.42	0.16	137.75	0.14
12.50	0.00	43.83	0.26	75.17	0.51	106.50	0.16	137.83	0.14
12.58	0.00	43.92	0.26	75.25	0.51	106.58	0.16	137.92	0.14
12.67	0.00	44.00	0.26	75.33	0.51	106.67	0.16	138.00	0.14
12.75	0.00	44.08	0.26	75.42	0.50	106.75	0.16	138.08	0.14
12.83	0.00	44.17	0.26	75.50	0.50	106.83	0.15	138.17	0.14
12.92	0.00	44.25	0.27	75.58	0.49	106.92	0.15	138.25	0.14

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 13.00    0.00 | 44.33    0.26 | 75.67    0.49 |107.00    0.16
|138.33    0.14
 13.08    0.00 | 44.42    0.26 | 75.75    0.49 |107.08    0.16
|138.42    0.14
 13.17    0.00 | 44.50    0.26 | 75.83    0.48 |107.17    0.16
|138.50    0.14
 13.25    0.00 | 44.58    0.26 | 75.92    0.47 |107.25    0.15
|138.58    0.14
 13.33    0.00 | 44.67    0.26 | 76.00    0.47 |107.33    0.16
|138.67    0.14
 13.42    0.00 | 44.75    0.26 | 76.08    0.48 |107.42    0.16
|138.75    0.14
 13.50    0.00 | 44.83    0.26 | 76.17    0.46 |107.50    0.15
|138.83    0.14
 13.58    0.00 | 44.92    0.26 | 76.25    0.45 |107.58    0.16
|138.92    0.14
 13.67    0.00 | 45.00    0.26 | 76.33    0.45 |107.67    0.15
|139.00    0.14
 13.75    0.00 | 45.08    0.26 | 76.42    0.43 |107.75    0.15
|139.08    0.14
 13.83    0.00 | 45.17    0.25 | 76.50    0.44 |107.83    0.16
|139.17    0.13
 13.92    0.00 | 45.25    0.25 | 76.58    0.46 |107.92    0.16
|139.25    0.14
 14.00    0.00 | 45.33    0.25 | 76.67    0.43 |108.00    0.16
|139.33    0.14
 14.08    0.00 | 45.42    0.25 | 76.75    0.44 |108.08    0.15
|139.42    0.14
 14.17    0.00 | 45.50    0.25 | 76.83    0.43 |108.17    0.15
|139.50    0.14
 14.25    0.00 | 45.58    0.25 | 76.92    0.45 |108.25    0.15
|139.58    0.13
 14.33    0.00 | 45.67    0.25 | 77.00    0.42 |108.33    0.16
|139.67    0.14
 14.42    0.00 | 45.75    0.25 | 77.08    0.43 |108.42    0.16
|139.75    0.14
 14.50    0.00 | 45.83    0.26 | 77.17    0.43 |108.50    0.15
|139.83    0.13
 14.58    0.00 | 45.92    0.25 | 77.25    0.42 |108.58    0.15
|139.92    0.14
 14.67    0.00 | 46.00    0.26 | 77.33    0.41 |108.67    0.15
|140.00    0.14
 14.75    0.00 | 46.08    0.26 | 77.42    0.43 |108.75    0.16
|140.08    0.13
 14.83    0.00 | 46.17    0.25 | 77.50    0.41 |108.83    0.15
|140.17    0.13
 14.92    0.69 | 46.25    0.26 | 77.58    0.43 |108.92    0.15
|140.25    0.13
 15.00    0.69 | 46.33    0.26 | 77.67    0.39 |109.00    0.15
|140.33    0.13
 15.08    0.71 | 46.42    0.26 | 77.75    0.39 |109.08    0.15
|140.42    0.14
 15.17    0.74 | 46.50    0.26 | 77.83    0.37 |109.17    0.15
|140.50    0.13
 15.25    0.74 | 46.58    0.26 | 77.92    0.39 |109.25    0.15
|140.58    0.13
 15.33    0.74 | 46.67    0.26 | 78.00    0.39 |109.33    0.14
|140.67    0.13
 15.42    0.77 | 46.75    0.26 | 78.08    0.39 |109.42    0.15
|140.75    0.13
 15.50    0.76 | 46.83    0.25 | 78.17    0.37 |109.50    0.15
|140.83    0.13
 15.58    0.78 | 46.92    0.25 | 78.25    0.36 |109.58    0.14
|140.92    0.13
 15.67    0.78 | 47.00    0.25 | 78.33    0.37 |109.67    0.15
|141.00    0.13
 15.75    0.77 | 47.08    0.25 | 78.42    0.38 |109.75    0.14
|141.08    0.13
 15.83    0.77 | 47.17    0.26 | 78.50    0.36 |109.83    0.15
|141.17    0.13
 15.92    0.77 | 47.25    0.26 | 78.58    0.36 |109.92    0.14
|141.25    0.13
 16.00    0.76 | 47.33    0.26 | 78.67    0.36 |110.00    0.14
|141.33    0.13
 16.08    0.74 | 47.42    0.26 | 78.75    0.37 |110.08    0.14
|141.42    0.13
 16.17    0.74 | 47.50    0.26 | 78.83    0.34 |110.17    0.14
|141.50    0.13
 16.25    0.74 | 47.58    0.25 | 78.92    0.35 |110.25    0.14
|141.58    0.13
 16.33    0.72 | 47.67    0.26 | 79.00    0.36 |110.33    0.15
|141.67    0.13
 16.42    0.69 | 47.75    0.26 | 79.08    0.35 |110.42    0.15
|141.75    0.13
 16.50    0.69 | 47.83    0.26 | 79.17    0.35 |110.50    0.14
|141.83    0.13
 16.58    0.67 | 47.92    0.26 | 79.25    0.36 |110.58    0.14
|141.92    0.13
 16.67    0.66 | 48.00    0.25 | 79.33    0.36 |110.67    0.14
|142.00    0.13
 16.75    0.64 | 48.08    0.25 | 79.42    0.33 |110.75    0.15
|142.08    0.12
 16.83    0.63 | 48.17    0.26 | 79.50    0.33 |110.83    0.14
|142.17    0.13
 16.92    0.63 | 48.25    0.25 | 79.58    0.33 |110.92    0.15
|142.25    0.13
 17.00    0.60 | 48.33    0.25 | 79.67    0.32 |111.00    0.15
|142.33    0.13
 17.08    0.58 | 48.42    0.25 | 79.75    0.33 |111.08    0.14
|142.42    0.12
 17.17    0.58 | 48.50    0.25 | 79.83    0.33 |111.17    0.14
|142.50    0.13
 17.25    0.57 | 48.58    0.25 | 79.92    0.32 |111.25    0.14
|142.58    0.13
 17.33    0.56 | 48.67    0.24 | 80.00    0.33 |111.33    0.15
|142.67    0.13
 17.42    0.55 | 48.75    0.24 | 80.08    0.34 |111.42    0.14
|142.75    0.13
 17.50    0.54 | 48.83    0.24 | 80.17    0.32 |111.50    0.15
|142.83    0.12
 17.58    0.51 | 48.92    0.24 | 80.25    0.31 |111.58    0.14
|142.92    0.13
 17.67    0.50 | 49.00    0.24 | 80.33    0.33 |111.67    0.14
|143.00    0.12
 17.75    0.48 | 49.08    0.25 | 80.42    0.31 |111.75    0.14
|143.08    0.12
 17.83    0.47 | 49.17    0.24 | 80.50    0.32 |111.83    0.14
|143.17    0.12
 17.92    0.47 | 49.25    0.24 | 80.58    0.31 |111.92    0.14
|143.25    0.12
 18.00    0.45 | 49.33    0.24 | 80.67    0.31 |112.00    0.15
|143.33    0.12
 18.08    0.44 | 49.42    0.23 | 80.75    0.33 |112.08    0.15
|143.42    0.12
 18.17    0.41 | 49.50    0.23 | 80.83    0.31 |112.17    0.14
|143.50    0.12
 18.25    0.42 | 49.58    0.24 | 80.92    0.32 |112.25    0.14
|143.58    0.12
 18.33    0.40 | 49.67    0.23 | 81.00    0.32 |112.33    0.14
|143.67    0.12
 18.42    0.39 | 49.75    0.24 | 81.08    0.31 |112.42    0.15
|143.75    0.12
 18.50    0.38 | 49.83    0.24 | 81.17    0.31 |112.50    0.15
|143.83    0.12
 18.58    0.38 | 49.92    0.23 | 81.25    0.31 |112.58    0.15
|143.92    0.12
 18.67    0.37 | 50.00    0.23 | 81.33    0.31 |112.67    0.15
|144.00    0.12
 18.75    0.37 | 50.08    0.23 | 81.42    0.31 |112.75    0.14
|144.08    0.12
 18.83    0.36 | 50.17    0.24 | 81.50    0.32 |112.83    0.15
|144.17    0.12
 18.92    0.35 | 50.25    0.23 | 81.58    0.32 |112.92    0.14
|144.25    0.12
 19.00    0.34 | 50.33    0.23 | 81.67    0.34 |113.00    0.15
|144.33    0.12
 19.08    0.34 | 50.42    0.23 | 81.75    0.34 |113.08    0.15
|144.42    0.12
 19.17    0.34 | 50.50    0.23 | 81.83    0.35 |113.17    0.14
|144.50    0.12
 19.25    0.34 | 50.58    0.23 | 81.92    0.37 |113.25    0.15
|144.58    0.12
 19.33    0.33 | 50.67    0.23 | 82.00    0.36 |113.33    0.15
|144.67    0.12
 19.42    0.33 | 50.75    0.23 | 82.08    0.37 |113.42    0.14
|144.75    0.12
 19.50    0.32 | 50.83    0.23 | 82.17    0.38 |113.50    0.14
|144.83    0.12
 19.58    0.32 | 50.92    0.23 | 82.25    0.36 |113.58    0.14
|144.92    0.12
 19.67    0.32 | 51.00    0.23 | 82.33    0.35 |113.67    0.14
|145.00    0.12
 19.75    0.31 | 51.08    0.23 | 82.42    0.37 |113.75    0.14
|145.08    0.12
 19.83    0.30 | 51.17    0.23 | 82.50    0.37 |113.83    0.14
|145.17    0.12
 19.92    0.30 | 51.25    0.23 | 82.58    0.36 |113.92    0.14
|145.25    0.12
 20.00    0.29 | 51.33    0.23 | 82.67    0.38 |114.00    0.14
|145.33    0.12
 20.08    0.29 | 51.42    0.23 | 82.75    0.38 |114.08    0.14
|145.42    0.12
 20.17    0.28 | 51.50    0.23 | 82.83    0.41 |114.17    0.14
|145.50    0.12
 20.25    0.28 | 51.58    0.23 | 82.92    0.40 |114.25    0.14
|145.58    0.12
 20.33    0.28 | 51.67    0.23 | 83.00    0.40 |114.33    0.14
|145.67    0.12
 20.42    0.27 | 51.75    0.23 | 83.08    0.40 |114.42    0.14
|145.75    0.12
 20.50    0.27 | 51.83    0.23 | 83.17    0.44 |114.50    0.15
|145.83    0.12
 20.58    0.26 | 51.92    0.23 | 83.25    0.44 |114.58    0.14
|145.92    0.12
 20.67    0.27 | 52.00    0.23 | 83.33    0.42 |114.67    0.14
|146.00    0.12
 20.75    0.26 | 52.08    0.24 | 83.42    0.42 |114.75    0.14
|146.08    0.11
 20.83    0.26 | 52.17    0.24 | 83.50    0.42 |114.83    0.15
|146.17    0.11
 20.92    0.25 | 52.25    0.24 | 83.58    0.41 |114.92    0.14
|146.25    0.11
 21.00    0.25 | 52.33    0.25 | 83.67    0.41 |115.00    0.15
|146.33    0.12
 21.08    0.25 | 52.42    0.25 | 83.75    0.42 |115.08    0.14
|146.42    0.11
 21.17    0.24 | 52.50    0.25 | 83.83    0.41 |115.17    0.14
|146.50    0.12
 21.25    0.25 | 52.58    0.25 | 83.92    0.41 |115.25    0.14
|146.58    0.12
 21.33    0.24 | 52.67    0.25 | 84.00    0.43 |115.33    0.15
|146.67    0.11
 21.42    0.24 | 52.75    0.25 | 84.08    0.40 |115.42    0.14
|146.75    0.12
 21.50    0.24 | 52.83    0.25 | 84.17    0.42 |115.50    0.15
|146.83    0.11
 21.58    0.23 | 52.92    0.25 | 84.25    0.41 |115.58    0.14
|146.92    0.12
 21.67    0.23 | 53.00    0.27 | 84.33    0.42 |115.67    0.14
|147.00    0.11
 21.75    0.23 | 53.08    0.27 | 84.42    0.42 |115.75    0.14
|147.08    0.12
 21.83    0.23 | 53.17    0.28 | 84.50    0.43 |115.83    0.14
|147.17    0.11
 21.92    0.23 | 53.25    0.28 | 84.58    0.44 |115.92    0.14
|147.25    0.12
 22.00    0.23 | 53.33    0.28 | 84.67    0.42 |116.00    0.15
|147.33    0.12
 22.08    0.22 | 53.42    0.28 | 84.75    0.44 |116.08    0.14
|147.42    0.11
 22.17    0.22 | 53.50    0.28 | 84.83    0.45 |116.17    0.15
|147.50    0.11
 22.25    0.22 | 53.58    0.29 | 84.92    0.45 |116.25    0.14
|147.58    0.11
 22.33    0.22 | 53.67    0.29 | 85.00    0.46 |116.33    0.14
|147.67    0.11
 22.42    0.21 | 53.75    0.29 | 85.08    0.47 |116.42    0.14
|147.75    0.11
 22.50    0.21 | 53.83    0.30 | 85.17    0.46 |116.50    0.14
|147.83    0.11
 22.58    0.21 | 53.92    0.30 | 85.25    0.46 |116.58    0.14
|147.92    0.11
 22.67    0.21 | 54.00    0.30 | 85.33    0.44 |116.67    0.14
|148.00    0.11
 22.75    0.21 | 54.08    0.30 | 85.42    0.45 |116.75    0.14
|148.08    0.11
 22.83    0.20 | 54.17    0.31 | 85.50    0.45 |116.83    0.14
|148.17    0.11
 22.92    0.20 | 54.25    0.30 | 85.58    0.45 |116.92    0.14
|148.25    0.11
 23.00    0.20 | 54.33    0.31 | 85.67    0.45 |117.00    0.14
|148.33    0.11
 23.08    0.20 | 54.42    0.30 | 85.75    0.46 |117.08    0.14
|148.42    0.11
 23.17    0.20 | 54.50    0.31 | 85.83    0.45 |117.17    0.14
|148.50    0.11
 23.25    0.20 | 54.58    0.32 | 85.92    0.47 |117.25    0.14
|148.58    0.11
 23.33    0.19 | 54.67    0.32 | 86.00    0.44 |117.33    0.14
|148.67    0.11
 23.42    0.19 | 54.75    0.32 | 86.08    0.45 |117.42    0.14
|148.75    0.11
 23.50    0.19 | 54.83    0.32 | 86.17    0.43 |117.50    0.14
|148.83    0.11
 23.58    0.19 | 54.92    0.32 | 86.25    0.43 |117.58    0.14
|148.92    0.11
 23.67    0.19 | 55.00    0.32 | 86.33    0.43 |117.67    0.13
|149.00    0.11
 23.75    0.18 | 55.08    0.32 | 86.42    0.43 |117.75    0.13
|149.08    0.11
 23.83    0.18 | 55.17    0.32 | 86.50    0.45 |117.83    0.14
|149.17    0.11
 23.92    0.18 | 55.25    0.33 | 86.58    0.42 |117.92    0.13
|149.25    0.11
 24.00    0.18 | 55.33    0.33 | 86.67    0.42 |118.00    0.13
|149.33    0.11
 24.08    0.18 | 55.42    0.33 | 86.75    0.43 |118.08    0.13
|149.42    0.11
 24.17    0.18 | 55.50    0.33 | 86.83    0.41 |118.17    0.13
|149.50    0.11
 24.25    0.17 | 55.58    0.32 | 86.92    0.40 |118.25    0.13
|149.58    0.11
 24.33    0.18 | 55.67    0.32 | 87.00    0.40 |118.33    0.13
|149.67    0.11
 24.42    0.17 | 55.75    0.32 | 87.08    0.39 |118.42    0.13
|149.75    0.11
 24.50    0.17 | 55.83    0.32 | 87.17    0.39 |118.50    0.13
|149.83    0.11
 24.58    0.17 | 55.92    0.32 | 87.25    0.39 |118.58    0.13
|149.92    0.11
 24.67    0.17 | 56.00    0.32 | 87.33    0.37 |118.67    0.13
|150.00    0.11
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|150.08    0.11
 24.83    0.16 | 56.17    0.32 | 87.50    0.38 |118.83    0.13
|150.17    0.11
 24.92    0.16 | 56.25    0.32 | 87.58    0.37 |118.92    0.13
|150.25    0.11
 25.00    0.16 | 56.33    0.32 | 87.67    0.36 |119.00    0.13
|150.33    0.11
 25.08    0.16 | 56.42    0.32 | 87.75    0.38 |119.08    0.13
|150.42    0.11
 25.17    0.16 | 56.50    0.32 | 87.83    0.38 |119.17    0.13
|150.50    0.11
 25.25    0.16 | 56.58    0.31 | 87.92    0.34 |119.25    0.13
|150.58    0.11
 25.33    0.15 | 56.67    0.31 | 88.00    0.35 |119.33    0.13
|150.67    0.11
 25.42    0.16 | 56.75    0.32 | 88.08    0.34 |119.42    0.13
|150.75    0.11
 25.50    0.15 | 56.83    0.31 | 88.17    0.35 |119.50    0.13
|150.83    0.11
 25.58    0.15 | 56.92    0.31 | 88.25    0.34 |119.58    0.13
|150.92    0.11
 25.67    0.15 | 57.00    0.31 | 88.33    0.36 |119.67    0.13
|151.00    0.11
 25.75    0.15 | 57.08    0.31 | 88.42    0.33 |119.75    0.13
|151.08    0.11
 25.83    0.15 | 57.17    0.31 | 88.50    0.33 |119.83    0.13
|151.17    0.11
 25.92    0.15 | 57.25    0.31 | 88.58    0.34 |119.92    0.13
|151.25    0.11
 26.00    0.15 | 57.33    0.30 | 88.67    0.33 |120.00    0.13
|151.33    0.11
 26.08    0.15 | 57.42    0.30 | 88.75    0.33 |120.08    0.13
|151.42    0.11
 26.17    0.15 | 57.50    0.30 | 88.83    0.32 |120.17    0.13
|151.50    0.11
 26.25    0.14 | 57.58    0.30 | 88.92    0.30 |120.25    0.14
|151.58    0.11
 26.33    0.14 | 57.67    0.31 | 89.00    0.31 |120.33    0.14
|151.67    0.11
 26.42    0.14 | 57.75    0.30 | 89.08    0.31 |120.42    0.13
|151.75    0.11
 26.50    0.14 | 57.83    0.30 | 89.17    0.30 |120.50    0.14
|151.83    0.11
 26.58    0.14 | 57.92    0.30 | 89.25    0.31 |120.58    0.14
|151.92    0.11
 26.67    0.14 | 58.00    0.29 | 89.33    0.32 |120.67    0.14
|152.00    0.11
 26.75    0.14 | 58.08    0.29 | 89.42    0.31 |120.75    0.14
|152.08    0.11
 26.83    0.14 | 58.17    0.29 | 89.50    0.30 |120.83    0.14
|152.17    0.11
 26.92    0.14 | 58.25    0.29 | 89.58    0.29 |120.92    0.14
|152.25    0.11
 27.00    0.14 | 58.33    0.29 | 89.67    0.29 |121.00    0.14
|152.33    0.10
 27.08    0.13 | 58.42    0.29 | 89.75    0.29 |121.08    0.14
|152.42    0.11
 27.17    0.13 | 58.50    0.29 | 89.83    0.28 |121.17    0.14
|152.50    0.11
 27.25    0.13 | 58.58    0.29 | 89.92    0.30 |121.25    0.14
|152.58    0.10
 27.33    0.13 | 58.67    0.28 | 90.00    0.31 |121.33    0.14
|152.67    0.10
 27.42    0.13 | 58.75    0.28 | 90.08    0.31 |121.42    0.14
|152.75    0.10
 27.50    0.13 | 58.83    0.28 | 90.17    0.30 |121.50    0.14
|152.83    0.10
 27.58    0.13 | 58.92    0.29 | 90.25    0.30 |121.58    0.14
|152.92    0.10
 27.67    0.13 | 59.00    0.29 | 90.33    0.31 |121.67    0.14
|153.00    0.11
 27.75    0.13 | 59.08    0.29 | 90.42    0.30 |121.75    0.14
|153.08    0.10
 27.83    0.13 | 59.17    0.28 | 90.50    0.31 |121.83    0.14
|153.17    0.10
 27.92    0.12 | 59.25    0.28 | 90.58    0.31 |121.92    0.14
|153.25    0.11
 28.00    0.13 | 59.33    0.28 | 90.67    0.31 |122.00    0.15
|153.33    0.10
 28.08    0.12 | 59.42    0.27 | 90.75    0.31 |122.08    0.14
|153.42    0.11
 28.17    0.12 | 59.50    0.27 | 90.83    0.30 |122.17    0.14
|153.50    0.10
 28.25    0.12 | 59.58    0.27 | 90.92    0.31 |122.25    0.14
|153.58    0.10
 28.33    0.12 | 59.67    0.26 | 91.00    0.30 |122.33    0.14
|153.67    0.10
 28.42    0.12 | 59.75    0.26 | 91.08    0.30 |122.42    0.15
|153.75    0.11
 28.50    0.12 | 59.83    0.26 | 91.17    0.32 |122.50    0.15
|153.83    0.10
 28.58    0.12 | 59.92    0.26 | 91.25    0.30 |122.58    0.15
|153.92    0.10
 28.67    0.12 | 60.00    0.25 | 91.33    0.28 |122.67    0.14
|154.00    0.10
 28.75    0.12 | 60.08    0.25 | 91.42    0.30 |122.75    0.15
|154.08    0.10
 28.83    0.12 | 60.17    0.25 | 91.50    0.28 |122.83    0.14
|154.17    0.10
 28.92    0.12 | 60.25    0.25 | 91.58    0.31 |122.92    0.14
|154.25    0.10
 29.00    0.12 | 60.33    0.25 | 91.67    0.28 |123.00    0.15
|154.33    0.10
 29.08    0.12 | 60.42    0.24 | 91.75    0.30 |123.08    0.15
|154.42    0.10
 29.17    0.11 | 60.50    0.24 | 91.83    0.31 |123.17    0.15
|154.50    0.10
 29.25    0.11 | 60.58    0.24 | 91.92    0.27 |123.25    0.15
|154.58    0.10
 29.33    0.11 | 60.67    0.23 | 92.00    0.28 |123.33    0.15
|154.67    0.10
 29.42    0.11 | 60.75    0.24 | 92.08    0.29 |123.42    0.15
|154.75    0.10
 29.50    0.11 | 60.83    0.23 | 92.17    0.27 |123.50    0.15
|154.83    0.10
 29.58    0.11 | 60.92    0.23 | 92.25    0.28 |123.58    0.15
|154.92    0.10
 29.67    0.11 | 61.00    0.23 | 92.33    0.28 |123.67    0.15
|155.00    0.10
 29.75    0.11 | 61.08    0.23 | 92.42    0.31 |123.75    0.15
|155.08    0.10
 29.83    0.11 | 61.17    0.23 | 92.50    0.28 |123.83    0.15
|155.17    0.10
 29.92    0.11 | 61.25    0.22 | 92.58    0.28 |123.92    0.15
|155.25    0.10
 30.00    0.11 | 61.33    0.23 | 92.67    0.28 |124.00    0.15
|155.33    0.10
 30.08    0.11 | 61.42    0.23 | 92.75    0.28 |124.08    0.15
|155.42    0.10
 30.17    0.11 | 61.50    0.24 | 92.83    0.27 |124.17    0.15
|155.50    0.10
 30.25    0.11 | 61.58    0.24 | 92.92    0.28 |124.25    0.15
|155.58    0.10
 30.33    0.11 | 61.67    0.23 | 93.00    0.28 |124.33    0.14
|155.67    0.10
 30.42    0.11 | 61.75    0.23 | 93.08    0.27 |124.42    0.15
|155.75    0.10
 30.50    0.11 | 61.83    0.23 | 93.17    0.29 |124.50    0.15
|155.83    0.10
 30.58    0.11 | 61.92    0.23 | 93.25    0.28 |124.58    0.16
|155.92    0.10
 30.67    0.11 | 62.00    0.23 | 93.33    0.26 |124.67    0.15
|156.00    0.10
 30.75    0.11 | 62.08    0.23 | 93.42    0.27 |124.75    0.15
|156.08    0.10
 30.83    0.11 | 62.17    0.23 | 93.50    0.27 |124.83    0.15
|156.17    0.10
 30.92    0.11 | 62.25    0.23 | 93.58    0.26 |124.92    0.17
|156.25    0.10
 31.00    0.11 | 62.33    0.24 | 93.67    0.26 |125.00    0.16 |
 31.08    0.10 | 62.42    0.25 | 93.75    0.28 |125.08    0.16 |
 31.17    0.10 | 62.50    0.25 | 93.83    0.25 |125.17    0.16 |
 31.25    0.10 | 62.58    0.26 | 93.92    0.28 |125.25    0.16 |
----------------------------------------------------------------------
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| STORE HYD (1605) |   AREA      (ha)= 218.70
| ID= 1 DT= 5.0min |   QPEAK     (cms)=   1.37
--------------------   TPEAK     (hrs)=  71.92
                       VOLUME     (mm)=  85.77

   TIME    FLOW |  TIME    FLOW |  TIME    FLOW |' TIME    FLOW |
TIME    FLOW
    hrs     cms |   hrs     cms |   hrs     cms |'  hrs     cms |
hrs     cms
  0.00    0.00 | 31.25    0.15 | 62.50    0.38 | 93.75    0.37
|125.00    0.20
  0.08    0.00 | 31.33    0.15 | 62.58    0.38 | 93.83    0.36
|125.08    0.20
  0.17    0.00 | 31.42    0.15 | 62.67    0.38 | 93.92    0.36
|125.17    0.20
  0.25    0.00 | 31.50    0.15 | 62.75    0.38 | 94.00    0.36
|125.25    0.20
  0.33    0.00 | 31.58    0.15 | 62.83    0.38 | 94.08    0.36
|125.33    0.20
  0.42    0.00 | 31.67    0.15 | 62.92    0.38 | 94.17    0.36
|125.42    0.20
  0.50    0.00 | 31.75    0.15 | 63.00    0.37 | 94.25    0.36
|125.50    0.20
  0.58    0.00 | 31.83    0.14 | 63.08    0.38 | 94.33    0.36
|125.58    0.20
  0.67    0.00 | 31.92    0.14 | 63.17    0.37 | 94.42    0.36
|125.67    0.21
  0.75    0.00 | 32.00    0.14 | 63.25    0.37 | 94.50    0.36
|125.75    0.21
  0.83    0.00 | 32.08    0.14 | 63.33    0.37 | 94.58    0.36
|125.83    0.21
  0.92    0.00 | 32.17    0.14 | 63.42    0.37 | 94.67    0.36
|125.92    0.21
  1.00    0.00 | 32.25    0.14 | 63.50    0.37 | 94.75    0.36
|126.00    0.21
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1.08 0.00 | 32.33 0.14 | 63.58 0.37 | 94.83 0.36 |126.08 0.21
1.17 0.00 | 32.42 0.14 | 63.67 0.36 | 94.92 0.35 |126.17 0.21
1.25 0.00 | 32.50 0.14 | 63.75 0.36 | 95.00 0.35 |126.25 0.21
1.33 0.00 | 32.58 0.14 | 63.83 0.36 | 95.08 0.35 |126.33 0.21
1.42 0.00 | 32.67 0.14 | 63.92 0.36 | 95.17 0.35 |126.42 0.22
1.50 0.00 | 32.75 0.14 | 64.00 0.36 | 95.25 0.35 |126.50 0.22
1.58 0.00 | 32.83 0.14 | 64.08 0.36 | 95.33 0.35 |126.58 0.22
1.67 0.00 | 32.92 0.14 | 64.17 0.36 | 95.42 0.35 |126.67 0.22
1.75 0.00 | 33.00 0.14 | 64.25 0.35 | 95.50 0.35 |126.75 0.22
1.83 0.00 | 33.08 0.14 | 64.33 0.35 | 95.58 0.34 |126.83 0.22
1.92 0.00 | 33.17 0.14 | 64.42 0.35 | 95.67 0.34 |126.92 0.23
2.00 0.00 | 33.25 0.14 | 64.50 0.35 | 95.75 0.34 |127.00 0.23
2.08 0.00 | 33.33 0.14 | 64.58 0.34 | 95.83 0.34 |127.08 0.23
2.17 0.00 | 33.42 0.14 | 64.67 0.34 | 95.92 0.34 |127.17 0.23
2.25 0.00 | 33.50 0.14 | 64.75 0.34 | 96.00 0.34 |127.25 0.23
2.33 0.00 | 33.58 0.14 | 64.83 0.34 | 96.08 0.34 |127.33 0.24
2.42 0.00 | 33.67 0.14 | 64.92 0.34 | 96.17 0.34 |127.42 0.24
2.50 0.00 | 33.75 0.14 | 65.00 0.34 | 96.25 0.34 |127.50 0.24
2.58 0.00 | 33.83 0.14 | 65.08 0.34 | 96.33 0.34 |127.58 0.24
2.67 0.00 | 33.92 0.14 | 65.17 0.34 | 96.42 0.34 |127.67 0.24
2.75 0.00 | 34.00 0.14 | 65.25 0.34 | 96.50 0.34 |127.75 0.24
2.83 0.00 | 34.08 0.14 | 65.33 0.34 | 96.58 0.34 |127.83 0.25
2.92 0.00 | 34.17 0.14 | 65.42 0.34 | 96.67 0.34 |127.92 0.25
3.00 0.00 | 34.25 0.14 | 65.50 0.34 | 96.75 0.33 |128.00 0.25
3.08 0.00 | 34.33 0.14 | 65.58 0.33 | 96.83 0.33 |128.08 0.25
3.17 0.00 | 34.42 0.14 | 65.67 0.34 | 96.92 0.33 |128.17 0.25
3.25 0.00 | 34.50 0.14 | 65.75 0.33 | 97.00 0.33 |128.25 0.25
3.33 0.00 | 34.58 0.14 | 65.83 0.33 | 97.08 0.33 |128.33 0.25
3.42 0.00 | 34.67 0.14 | 65.92 0.33 | 97.17 0.33 |128.42 0.25
3.50 0.00 | 34.75 0.14 | 66.00 0.33 | 97.25 0.33 |128.50 0.25
3.58 0.00 | 34.83 0.14 | 66.08 0.32 | 97.33 0.33 |128.58 0.26
3.67 0.00 | 34.92 0.14 | 66.17 0.33 | 97.42 0.33 |128.67 0.26
3.75 0.00 | 35.00 0.14 | 66.25 0.33 | 97.50 0.33 |128.75 0.26
3.83 0.00 | 35.08 0.14 | 66.33 0.32 | 97.58 0.33 |128.83 0.26
3.92 0.00 | 35.17 0.14 | 66.42 0.32 | 97.67 0.33 |128.92 0.26
4.00 0.00 | 35.25 0.14 | 66.50 0.33 | 97.75 0.33 |129.00 0.26
4.08 0.00 | 35.33 0.14 | 66.58 0.32 | 97.83 0.33 |129.08 0.26
4.17 0.00 | 35.42 0.14 | 66.67 0.32 | 97.92 0.33 |129.17 0.26
4.25 0.00 | 35.50 0.14 | 66.75 0.32 | 98.00 0.32 |129.25 0.27
4.33 0.00 | 35.58 0.14 | 66.83 0.32 | 98.08 0.32 |129.33 0.27
4.42 0.00 | 35.67 0.14 | 66.92 0.32 | 98.17 0.32 |129.42 0.27
4.50 0.00 | 35.75 0.14 | 67.00 0.32 | 98.25 0.32 |129.50 0.27
4.58 0.00 | 35.83 0.14 | 67.08 0.32 | 98.33 0.32 |129.58 0.28
4.67 0.00 | 35.92 0.14 | 67.17 0.32 | 98.42 0.32 |129.67 0.28
4.75 0.00 | 36.00 0.14 | 67.25 0.32 | 98.50 0.32 |129.75 0.28
4.83 0.00 | 36.08 0.14 | 67.33 0.33 | 98.58 0.32 |129.83 0.29
4.92 0.00 | 36.17 0.14 | 67.42 0.34 | 98.67 0.32 |129.92 0.29
5.00 0.00 | 36.25 0.14 | 67.50 0.34 | 98.75 0.32 |130.00 0.29
5.08 0.00 | 36.33 0.15 | 67.58 0.35 | 98.83 0.32 |130.08 0.29
5.17 0.00 | 36.42 0.15 | 67.67 0.35 | 98.92 0.32 |130.17 0.29
5.25 0.00 | 36.50 0.15 | 67.75 0.36 | 99.00 0.32 |130.25 0.29
5.33 0.00 | 36.58 0.15 | 67.83 0.37 | 99.08 0.32 |130.33 0.29
5.42 0.00 | 36.67 0.15 | 67.92 0.38 | 99.17 0.32 |130.42 0.29
5.50 0.00 | 36.75 0.15 | 68.00 0.40 | 99.25 0.32 |130.50 0.29
5.58 0.00 | 36.83 0.15 | 68.08 0.41 | 99.33 0.32 |130.58 0.29
5.67 0.00 | 36.92 0.15 | 68.17 0.42 | 99.42 0.32 |130.67 0.29
5.75 0.00 | 37.00 0.15 | 68.25 0.43 | 99.50 0.32 |130.75 0.29
5.83 0.00 | 37.08 0.15 | 68.33 0.45 | 99.58 0.31 |130.83 0.29
5.92 0.00 | 37.17 0.15 | 68.42 0.47 | 99.67 0.31 |130.92 0.29
6.00 0.00 | 37.25 0.15 | 68.50 0.48 | 99.75 0.31 |131.00 0.29
6.08 0.00 | 37.33 0.15 | 68.58 0.50 | 99.83 0.31 |131.08 0.29
6.17 0.00 | 37.42 0.15 | 68.67 0.52 | 99.92 0.31 |131.17 0.29
6.25 0.00 | 37.50 0.15 | 68.75 0.53 |100.00 0.31 |131.25 0.29
6.33 0.00 | 37.58 0.15 | 68.83 0.56 |100.08 0.31 |131.33 0.29
6.42 0.00 | 37.67 0.15 | 68.92 0.57 |100.17 0.31 |131.42 0.29
6.50 0.00 | 37.75 0.16 | 69.00 0.58 |100.25 0.31 |131.50 0.29
6.58 0.00 | 37.83 0.16 | 69.08 0.60 |100.33 0.31 |131.58 0.28
6.67 0.00 | 37.92 0.16 | 69.17 0.61 |100.42 0.31 |131.67 0.28
6.75 0.00 | 38.00 0.16 | 69.25 0.63 |100.50 0.30 |131.75 0.28
6.83 0.00 | 38.08 0.16 | 69.33 0.63 |100.58 0.30 |131.83 0.28
6.92 0.00 | 38.17 0.16 | 69.42 0.64 |100.67 0.30 |131.92 0.28
7.00 0.00 | 38.25 0.16 | 69.50 0.66 |100.75 0.30 |132.00 0.28
7.08 0.00 | 38.33 0.16 | 69.58 0.68 |100.83 0.30 |132.08 0.28
7.17 0.00 | 38.42 0.16 | 69.67 0.70 |100.92 0.30 |132.17 0.28
7.25 0.00 | 38.50 0.16 | 69.75 0.71 |101.00 0.30 |132.25 0.28
7.33 0.00 | 38.58 0.16 | 69.83 0.74 |101.08 0.30 |132.33 0.28
7.42 0.00 | 38.67 0.17 | 69.92 0.76 |101.17 0.30 |132.42 0.28
7.50 0.00 | 38.75 0.17 | 70.00 0.78 |101.25 0.30 |132.50 0.27
7.58 0.00 | 38.83 0.17 | 70.08 0.80 |101.33 0.29 |132.58 0.27
7.67 0.00 | 38.92 0.17 | 70.17 0.82 |101.42 0.29 |132.67 0.27
7.75 0.00 | 39.00 0.17 | 70.25 0.84 |101.50 0.29 |132.75 0.27
7.83 0.00 | 39.08 0.17 | 70.33 0.87 |101.58 0.29 |132.83 0.27
7.92 0.00 | 39.17 0.17 | 70.42 0.91 |101.67 0.29 |132.92 0.27
8.00 0.00 | 39.25 0.18 | 70.50 0.94 |101.75 0.28 |133.00 0.27
8.08 0.00 | 39.33 0.18 | 70.58 0.98 |101.83 0.28 |133.08 0.27
8.17 0.00 | 39.42 0.18 | 70.67 1.01 |101.92 0.28 |133.17 0.27
8.25 0.00 | 39.50 0.18 | 70.75 1.04 |102.00 0.28 |133.25 0.26
8.33 0.00 | 39.58 0.19 | 70.83 1.09 |102.08 0.28 |133.33 0.26
8.42 0.00 | 39.67 0.19 | 70.92 1.14 |102.17 0.28 |133.42 0.26
8.50 0.00 | 39.75 0.19 | 71.00 1.20 |102.25 0.28 |133.50 0.26
8.58 0.00 | 39.83 0.19 | 71.08 1.23 |102.33 0.28 |133.58 0.26
8.67 0.00 | 39.92 0.20 | 71.17 1.25 |102.42 0.27 |133.67 0.26
8.75 0.00 | 40.00 0.20 | 71.25 1.30 |102.50 0.27 |133.75 0.26
8.83 0.00 | 40.08 0.20 | 71.33 1.32 |102.58 0.27 |133.83 0.25
8.92 0.00 | 40.17 0.21 | 71.42 1.33 |102.67 0.27 |133.92 0.25
9.00 0.00 | 40.25 0.21 | 71.50 1.34 |102.75 0.27 |134.00 0.25
9.08 0.00 | 40.33 0.21 | 71.58 1.36 |102.83 0.27 |134.08 0.25
9.17 0.00 | 40.42 0.22 | 71.67 1.36 |102.92 0.27 |134.17 0.25
9.25 0.00 | 40.50 0.22 | 71.75 1.36 |103.00 0.27 |134.25 0.25
9.33 0.00 | 40.58 0.22 | 71.83 1.37 |103.08 0.27 |134.33 0.25
9.42 0.00 | 40.67 0.23 | 71.92 1.37 |103.17 0.27 |134.42 0.25
9.50 0.00 | 40.75 0.23 | 72.00 1.36 |103.25 0.26 |134.50 0.25
9.58 0.00 | 40.83 0.24 | 72.08 1.35 |103.33 0.26 |134.58 0.24
9.67 0.00 | 40.92 0.24 | 72.17 1.35 |103.42 0.26 |134.67 0.24
9.75 0.00 | 41.00 0.24 | 72.25 1.33 |103.50 0.26 |134.75 0.24
9.83 0.00 | 41.08 0.25 | 72.33 1.32 |103.58 0.26 |134.83 0.24
9.92 0.00 | 41.17 0.25 | 72.42 1.31 |103.67 0.26 |134.92 0.24
10.00 0.00 | 41.25 0.26 | 72.50 1.29 |103.75 0.25 |135.00 0.24
10.08 0.00 | 41.33 0.27 | 72.58 1.27 |103.83 0.25 |135.08 0.24
10.17 0.00 | 41.42 0.27 | 72.67 1.26 |103.92 0.25 |135.17 0.24
10.25 0.00 | 41.50 0.28 | 72.75 1.23 |104.00 0.25 |135.25 0.24
10.33 0.00 | 41.58 0.29 | 72.83 1.23 |104.08 0.25 |135.33 0.23
10.42 0.00 | 41.67 0.29 | 72.92 1.21 |104.17 0.25 |135.42 0.23
10.50 0.00 | 41.75 0.30 | 73.00 1.20 |104.25 0.25 |135.50 0.23
10.58 0.00 | 41.83 0.30 | 73.08 1.17 |104.33 0.25 |135.58 0.23
10.67 0.00 | 41.92 0.31 | 73.17 1.17 |104.42 0.24 |135.67 0.23
10.75 0.00 | 42.00 0.32 | 73.25 1.16 |104.50 0.24 |135.75 0.23
10.83 0.00 | 42.08 0.32 | 73.33 1.15 |104.58 0.24 |135.83 0.23
10.92 0.00 | 42.17 0.33 | 73.42 1.12 |104.67 0.24 |135.92 0.23
11.00 0.00 | 42.25 0.33 | 73.50 1.12 |104.75 0.24 |136.00 0.22
11.08 0.00 | 42.33 0.34 | 73.58 1.11 |104.83 0.24 |136.08 0.22
11.17 0.00 | 42.42 0.34 | 73.67 1.09 |104.92 0.24 |136.17 0.22
11.25 0.00 | 42.50 0.35 | 73.75 1.08 |105.00 0.24 |136.25 0.22
11.33 0.00 | 42.58 0.36 | 73.83 1.06 |105.08 0.24 |136.33 0.22
11.42 0.00 | 42.67 0.36 | 73.92 1.05 |105.17 0.23 |136.42 0.22
11.50 0.00 | 42.75 0.37 | 74.00 1.03 |105.25 0.23 |136.50 0.22
11.58 0.00 | 42.83 0.38 | 74.08 1.03 |105.33 0.23 |136.58 0.22
11.67 0.00 | 42.92 0.39 | 74.17 1.02 |105.42 0.23 |136.67 0.21
11.75 0.00 | 43.00 0.40 | 74.25 1.00 |105.50 0.23 |136.75 0.21
11.83 0.00 | 43.08 0.40 | 74.33 0.99 |105.58 0.23 |136.83 0.21
11.92 0.00 | 43.17 0.42 | 74.42 0.97 |105.67 0.23 |136.92 0.21
12.00 0.00 | 43.25 0.42 | 74.50 0.96 |105.75 0.23 |137.00 0.21
12.08 0.00 | 43.33 0.43 | 74.58 0.95 |105.83 0.23 |137.08 0.21
12.17 0.00 | 43.42 0.44 | 74.67 0.94 |105.92 0.23 |137.17 0.21
12.25 0.00 | 43.50 0.45 | 74.75 0.92 |106.00 0.22 |137.25 0.21
12.33 0.00 | 43.58 0.46 | 74.83 0.91 |106.08 0.22 |137.33 0.21
12.42 0.00 | 43.67 0.47 | 74.92 0.89 |106.17 0.22 |137.42 0.21
12.50 0.00 | 43.75 0.48 | 75.00 0.88 |106.25 0.22 |137.50 0.20
12.58 0.00 | 43.83 0.49 | 75.08 0.87 |106.33 0.22 |137.58 0.20
12.67 0.00 | 43.92 0.50 | 75.17 0.85 |106.42 0.22 |137.67 0.20
12.75 0.00 | 44.00 0.50 | 75.25 0.84 |106.50 0.22 |137.75 0.20
12.83 0.00 | 44.08 0.51 | 75.33 0.83 |106.58 0.22 |137.83 0.20
12.92 0.00 | 44.17 0.51 | 75.42 0.81 |106.67 0.22 |137.92 0.20
13.00 0.00 | 44.25 0.52 | 75.50 0.80 |106.75 0.21 |138.00 0.20
13.08 0.00 | 44.33 0.52 | 75.58 0.79 |106.83 0.21 |138.08 0.20
13.17 0.00 | 44.42 0.53 | 75.67 0.77 |106.92 0.21 |138.17 0.20
13.25 0.00 | 44.50 0.53 | 75.75 0.77 |107.00 0.21 |138.25 0.19
13.33 0.00 | 44.58 0.53 | 75.83 0.76 |107.08 0.21 |138.33 0.19
13.42 0.00 | 44.67 0.54 | 75.92 0.74 |107.17 0.21 |138.42 0.19
13.50 0.00 | 44.75 0.54 | 76.00 0.74 |107.25 0.21 |138.50 0.19
13.58 0.00 | 44.83 0.54 | 76.08 0.72 |107.33 0.21 |138.58 0.19
13.67 0.00 | 44.92 0.55 | 76.17 0.72 |107.42 0.21 |138.67 0.19
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13.83 0.00 | 45.08 0.55 | 76.33 0.70 |107.58 0.21 |138.83 0.19
13.92 0.00 | 45.17 0.55 | 76.42 0.69 |107.67 0.21 |138.92 0.19
14.00 0.00 | 45.25 0.55 | 76.50 0.68 |107.75 0.20 |139.00 0.19
14.08 0.00 | 45.33 0.55 | 76.58 0.68 |107.83 0.20 |139.08 0.19
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14.25 0.00 | 45.50 0.55 | 76.75 0.66 |108.00 0.20 |139.25 0.18
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14.67 0.00 | 45.92 0.55 | 77.17 0.63 |108.42 0.20 |139.67 0.18
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14.92 1.00 | 46.17 0.54 | 77.42 0.61 |108.67 0.20 |139.92 0.18
15.00 1.00 | 46.25 0.54 | 77.50 0.60 |108.75 0.19 |140.00 0.18
15.08 1.01 | 46.33 0.53 | 77.58 0.60 |108.83 0.19 |140.08 0.18
15.17 1.01 | 46.42 0.53 | 77.67 0.59 |108.92 0.19 |140.17 0.18
15.25 1.02 | 46.50 0.53 | 77.75 0.59 |109.00 0.19 |140.25 0.18
15.33 1.03 | 46.58 0.52 | 77.83 0.58 |109.08 0.19 |140.33 0.18
15.42 1.04 | 46.67 0.52 | 77.92 0.58 |109.17 0.19 |140.42 0.17
15.50 1.05 | 46.75 0.52 | 78.00 0.58 |109.25 0.19 |140.50 0.17
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17.00 1.08 | 48.25 0.49 | 79.50 0.50 |110.75 0.18 |142.00 0.16
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18.50 0.91 | 49.75 0.45 | 81.00 0.44 |112.25 0.17 |143.50 0.15
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18.92 0.83 | 50.17 0.44 | 81.42 0.43 |112.67 0.17 |143.92 0.15
19.00 0.81 | 50.25 0.44 | 81.50 0.44 |112.75 0.17 |144.00 0.15
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19.42 0.72 | 50.67 0.44 | 81.92 0.46 |113.17 0.16 |144.42 0.15
19.50 0.71 | 50.75 0.43 | 82.00 0.47 |113.25 0.16 |144.50 0.15
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19.92 0.64 | 51.17 0.43 | 82.42 0.49 |113.67 0.16 |144.92 0.14
20.00 0.62 | 51.25 0.43 | 82.50 0.49 |113.75 0.16 |145.00 0.14
20.08 0.61 | 51.33 0.43 | 82.58 0.49 |113.83 0.16 |145.08 0.14
20.17 0.60 | 51.42 0.43 | 82.67 0.50 |113.92 0.16 |145.17 0.14
20.25 0.58 | 51.50 0.43 | 82.75 0.50 |114.00 0.16 |145.25 0.14
20.33 0.58 | 51.58 0.43 | 82.83 0.50 |114.08 0.16 |145.33 0.14
20.42 0.56 | 51.67 0.43 | 82.92 0.50 |114.17 0.16 |145.42 0.14
20.50 0.55 | 51.75 0.43 | 83.00 0.50 |114.25 0.16 |145.50 0.14
20.58 0.54 | 51.83 0.43 | 83.08 0.50 |114.33 0.16 |145.58 0.14
20.67 0.53 | 51.92 0.43 | 83.17 0.51 |114.42 0.16 |145.67 0.14
20.75 0.52 | 52.00 0.43 | 83.25 0.51 |114.50 0.16 |145.75 0.14
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 20.83    0.51 | 52.08    0.43 | 83.33    0.51 |114.58    0.16
|145.83    0.14
 20.92    0.50 | 52.17    0.43 | 83.42    0.51 |114.67    0.16
|145.92    0.14
 21.00    0.49 | 52.25    0.43 | 83.50    0.52 |114.75    0.16
|146.00    0.14
 21.08    0.49 | 52.33    0.43 | 83.58    0.52 |114.83    0.16
|146.08    0.14
 21.17    0.48 | 52.42    0.43 | 83.67    0.53 |114.92    0.16
|146.17    0.14
 21.25    0.47 | 52.50    0.43 | 83.75    0.53 |115.00    0.16
|146.25    0.14
 21.33    0.47 | 52.58    0.43 | 83.83    0.54 |115.08    0.16
|146.33    0.14
 21.42    0.46 | 52.67    0.43 | 83.92    0.55 |115.17    0.16
|146.42    0.14
 21.50    0.45 | 52.75    0.43 | 84.00    0.56 |115.25    0.16
|146.50    0.14
 21.58    0.45 | 52.83    0.43 | 84.08    0.57 |115.33    0.16
|146.58    0.14
 21.67    0.44 | 52.92    0.44 | 84.17    0.58 |115.42    0.16
|146.67    0.14
 21.75    0.43 | 53.00    0.44 | 84.25    0.60 |115.50    0.16
|146.75    0.14
 21.83    0.43 | 53.08    0.44 | 84.33    0.62 |115.58    0.16
|146.83    0.14
 21.92    0.42 | 53.17    0.44 | 84.42    0.64 |115.67    0.16
|146.92    0.13
 22.00    0.42 | 53.25    0.44 | 84.50    0.66 |115.75    0.16
|147.00    0.13
 22.08    0.41 | 53.33    0.45 | 84.58    0.69 |115.83    0.16
|147.08    0.13
 22.17    0.41 | 53.42    0.45 | 84.67    0.72 |115.92    0.16
|147.17    0.13
 22.25    0.40 | 53.50    0.45 | 84.75    0.74 |116.00    0.16
|147.25    0.13
 22.33    0.40 | 53.58    0.45 | 84.83    0.77 |116.08    0.15
|147.33    0.13
 22.42    0.39 | 53.67    0.46 | 84.92    0.79 |116.17    0.15
|147.42    0.13
 22.50    0.39 | 53.75    0.46 | 85.00    0.81 |116.25    0.16
|147.50    0.13
 22.58    0.38 | 53.83    0.46 | 85.08    0.82 |116.33    0.16
|147.58    0.13
 22.67    0.38 | 53.92    0.46 | 85.17    0.84 |116.42    0.16
|147.67    0.13
 22.75    0.37 | 54.00    0.47 | 85.25    0.85 |116.50    0.16
|147.75    0.13
 22.83    0.37 | 54.08    0.47 | 85.33    0.85 |116.58    0.16
|147.83    0.13
 22.92    0.36 | 54.17    0.47 | 85.42    0.86 |116.67    0.16
|147.92    0.13
 23.00    0.36 | 54.25    0.48 | 85.50    0.87 |116.75    0.16
|148.00    0.13
 23.08    0.36 | 54.33    0.48 | 85.58    0.86 |116.83    0.16
|148.08    0.13
 23.17    0.35 | 54.42    0.49 | 85.67    0.87 |116.92    0.16
|148.17    0.13
 23.25    0.35 | 54.50    0.49 | 85.75    0.86 |117.00    0.16
|148.25    0.13
 23.33    0.34 | 54.58    0.50 | 85.83    0.85 |117.08    0.16
|148.33    0.13
 23.42    0.34 | 54.67    0.50 | 85.92    0.85 |117.17    0.16
|148.42    0.13
 23.50    0.34 | 54.75    0.51 | 86.00    0.84 |117.25    0.16
|148.50    0.13
 23.58    0.33 | 54.83    0.52 | 86.08    0.83 |117.33    0.16
|148.58    0.13
 23.67    0.33 | 54.92    0.53 | 86.17    0.82 |117.42    0.16
|148.67    0.13
 23.75    0.32 | 55.00    0.53 | 86.25    0.81 |117.50    0.16
|148.75    0.13
 23.83    0.32 | 55.08    0.54 | 86.33    0.81 |117.58    0.16
|148.83    0.13
 23.92    0.32 | 55.17    0.55 | 86.42    0.79 |117.67    0.16
|148.92    0.13
 24.00    0.31 | 55.25    0.55 | 86.50    0.78 |117.75    0.16
|149.00    0.13
 24.08    0.31 | 55.33    0.55 | 86.58    0.77 |117.83    0.16
|149.08    0.13
 24.17    0.30 | 55.42    0.56 | 86.67    0.76 |117.92    0.16
|149.17    0.13
 24.25    0.30 | 55.50    0.56 | 86.75    0.74 |118.00    0.16
|149.25    0.12
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|149.33    0.12
 24.42    0.30 | 55.67    0.57 | 86.92    0.73 |118.17    0.16
|149.42    0.12
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|149.50    0.12
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|149.58    0.12
 24.67    0.29 | 55.92    0.58 | 87.17    0.70 |118.42    0.16
|149.67    0.12
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|149.75    0.12
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|149.83    0.12
 24.92    0.28 | 56.17    0.58 | 87.42    0.66 |118.67    0.15
|149.92    0.12
 25.00    0.27 | 56.25    0.58 | 87.50    0.66 |118.75    0.15
|150.00    0.12
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|150.08    0.12
 25.17    0.27 | 56.42    0.58 | 87.67    0.64 |118.92    0.15
|150.17    0.12
 25.25    0.27 | 56.50    0.59 | 87.75    0.63 |119.00    0.15
|150.25    0.12
 25.33    0.26 | 56.58    0.59 | 87.83    0.62 |119.08    0.15
|150.33    0.12
 25.42    0.26 | 56.67    0.59 | 87.92    0.62 |119.17    0.15
|150.42    0.12
 25.50    0.26 | 56.75    0.59 | 88.00    0.61 |119.25    0.15
|150.50    0.12
 25.58    0.25 | 56.83    0.59 | 88.08    0.60 |119.33    0.15
|150.58    0.12
 25.67    0.25 | 56.92    0.59 | 88.17    0.59 |119.42    0.15
|150.67    0.12
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|150.75    0.12
 25.83    0.25 | 57.08    0.59 | 88.33    0.58 |119.58    0.15
|150.83    0.12
 25.92    0.25 | 57.17    0.59 | 88.42    0.57 |119.67    0.15
|150.92    0.12
 26.00    0.24 | 57.25    0.59 | 88.50    0.57 |119.75    0.15
|151.00    0.12
 26.08    0.24 | 57.33    0.59 | 88.58    0.56 |119.83    0.16
|151.08    0.12
 26.17    0.24 | 57.42    0.59 | 88.67    0.55 |119.92    0.16
|151.17    0.12
 26.25    0.24 | 57.50    0.59 | 88.75    0.55 |120.00    0.16
|151.25    0.12
 26.33    0.23 | 57.58    0.58 | 88.83    0.54 |120.08    0.16
|151.33    0.12
 26.42    0.23 | 57.67    0.58 | 88.92    0.53 |120.17    0.16
|151.42    0.12
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|151.50    0.12
 26.58    0.23 | 57.83    0.57 | 89.08    0.52 |120.33    0.16
|151.58    0.12
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|151.67    0.12
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|151.75    0.12
 26.83    0.22 | 58.08    0.57 | 89.33    0.50 |120.58    0.16
|151.83    0.12
 26.92    0.22 | 58.17    0.56 | 89.42    0.50 |120.67    0.16
|151.92    0.12
 27.00    0.22 | 58.25    0.56 | 89.50    0.49 |120.75    0.16
|152.00    0.12
 27.08    0.22 | 58.33    0.56 | 89.58    0.48 |120.83    0.16
|152.08    0.12
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|152.17    0.12
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|152.25    0.12
 27.33    0.21 | 58.58    0.54 | 89.83    0.47 |121.08    0.16
|152.33    0.11
 27.42    0.21 | 58.67    0.54 | 89.92    0.47 |121.17    0.17
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|152.50    0.11
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|152.58    0.11
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|152.67    0.11
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|152.83    0.11
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|152.92    0.11
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|153.33    0.11
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|153.67    0.11
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|153.75    0.11
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|153.83    0.11
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|153.92    0.11
 29.00    0.18 | 60.25    0.46 | 91.50    0.41 |122.75    0.18
|154.00    0.11
 29.08    0.18 | 60.33    0.45 | 91.58    0.41 |122.83    0.18
|154.08    0.11
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|154.17    0.11
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|154.50    0.11
 29.58    0.17 | 60.83    0.43 | 92.08    0.40 |123.33    0.18
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|154.67    0.11
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|154.83    0.11
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 30.00    0.16 | 61.25    0.41 | 92.50    0.39 |123.75    0.18
|155.00    0.11
 30.08    0.16 | 61.33    0.41 | 92.58    0.38 |123.83    0.18
|155.08    0.11
 30.17    0.16 | 61.42    0.40 | 92.67    0.38 |123.92    0.18
|155.17    0.11
 30.25    0.16 | 61.50    0.40 | 92.75    0.38 |124.00    0.18
|155.25    0.11
 30.33    0.16 | 61.58    0.40 | 92.83    0.38 |124.08    0.18
|155.33    0.11
 30.42    0.16 | 61.67    0.40 | 92.92    0.38 |124.17    0.18
|155.42    0.11
 30.50    0.16 | 61.75    0.39 | 93.00    0.37 |124.25    0.18
|155.50    0.11
 30.58    0.16 | 61.83    0.39 | 93.08    0.37 |124.33    0.19
|155.58    0.11
 30.67    0.16 | 61.92    0.39 | 93.17    0.37 |124.42    0.19
|155.67    0.11
 30.75    0.16 | 62.00    0.38 | 93.25    0.37 |124.50    0.19
|155.75    0.11
 30.83    0.15 | 62.08    0.38 | 93.33    0.37 |124.58    0.19
|155.83    0.10
 30.92    0.15 | 62.17    0.38 | 93.42    0.37 |124.67    0.20
|155.92    0.11
 31.00    0.15 | 62.25    0.38 | 93.50    0.37 |124.75    0.20
|156.00    0.10
 31.08    0.15 | 62.33    0.39 | 93.58    0.37 |124.83    0.20 |
 31.17    0.15 | 62.42    0.39 | 93.67    0.37 |124.92    0.20 |
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| CALIB            |
| NASHYD    (6201) |   Area    (ha)=   9.60   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.04

     Unit Hyd Qpeak  (cms)=   0.352

     PEAK FLOW       (cms)=   0.090 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)=   9.509
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.238

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6202) |   Area    (ha)=   2.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.50         0.81
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     123.83        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        28.98
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.52 (ii)   17.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.26         0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.21         0.04
0.228 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      34.03        12.82
24.06
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.32
0.60

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  77.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0140) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (6201):     9.60  0.090     4.17     9.51
     + ID2= 2 (6202):     2.30  0.228     3.00    24.06
       ==================================================
       ID = 3 (0140):    11.90  0.238     3.00    12.32

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0621) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1549.0) ------>
               Distance      Elevation       Manning
                   0.00         87.56         0.0900
                   3.37         87.60         0.0900
                  16.78         87.21         0.0900
                  31.08         87.29         0.0900
                  43.62         87.28         0.0900
                  62.88         87.41         0.0900
                  68.00         87.22         0.0900
                  96.20         87.43         0.0900
                 112.60         86.39     0.0900 /0.0700  Main
Channel
                 113.70         86.10         0.0700      Main
Channel
                 114.40         86.51     0.0700 /0.0900  Main
Channel
                 114.60         86.67         0.0900
                 131.60         87.07         0.0900
                 156.70         87.16         0.0900
                 184.59         87.41         0.0900
                 194.09         87.56         0.0900
                 202.66         87.64         0.0900
                 221.43         87.69         0.0900
                 230.63         87.86         0.0900

        <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.07    86.17    .898E+01      0.0          0.13
79.55
      0.14    86.24    .359E+02      0.0          0.21
50.11
      0.21    86.31    .808E+02      0.0          0.28
38.24
      0.29    86.39    .144E+03      0.1          0.33
31.57
      0.36    86.46    .256E+03      0.2          0.39
27.10
      0.44    86.54    .435E+03      0.3          0.42
25.03
      0.52    86.62    .680E+03      0.5          0.46
23.12
      0.60    86.70    .998E+03      0.8          0.48
21.78
      0.68    86.78    .150E+04      1.2          0.48
21.76
      0.76    86.85    .223E+04      1.7          0.48
21.78
      0.83    86.93    .319E+04      2.5          0.49
21.41
      0.91    87.01    .437E+04      3.5          0.51
20.74
      0.99    87.09    .580E+04      4.7          0.51
20.64
      1.07    87.17    .811E+04      6.2          0.48
21.90
      1.15    87.25    .113E+05      7.8          0.44
24.18
      1.23    87.32    .165E+05     10.6          0.41
26.00
      1.30    87.40    .239E+05     16.0          0.42
24.97
      1.38    87.48    .327E+05     24.3          0.47
22.45
      1.46    87.56    .419E+05     34.6          0.52
20.16

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0140)   11.90     0.24    3.00  12.32
0.41     0.41
     OUTFLOW: ID= 1 (0621)   11.90     0.11    3.08  12.30
0.32     0.36


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| CALIB            |
| NASHYD    (6211) |   Area    (ha)=   4.60   Curve Number
(CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.08

     Unit Hyd Qpeak  (cms)=   0.162

     PEAK FLOW       (cms)=   0.048 (i)
     TIME TO PEAK    (hrs)=   4.250
     RUNOFF VOLUME    (mm)=  10.740
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.268

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (6212) |   Area    (ha)=  17.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.39         5.61
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     336.65        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        33.51
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       6.41 (ii)   19.87 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.18         0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.48         0.27
1.650 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      34.03        14.46
25.22
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.36
0.63


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  80.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0141) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (6211):     4.60   0.048     4.25    10.74
       + ID2= 2 (6212):    17.00   1.650     3.00    25.22
         ==================================================
         ID = 3 (0141):    21.60   1.655     3.00    22.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0142) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0141):    21.60   1.655     3.00    22.14
       + ID2= 2 (0621):    11.90   0.114     3.08    12.30
         ==================================================
         ID = 3 (0142):    33.50   1.757     3.00    18.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0622) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 953.0) ------>
              Distance      Elevation       Manning
                16.75          82.21         0.1100
                30.34          82.03         0.1100
                44.96          81.97         0.1100
                58.95          81.94         0.1100
                71.21          81.85         0.1100
               100.74          81.58         0.1100
               112.29          81.50         0.1100
               121.63          81.56         0.1100
               127.04          81.66     0.1100 /0.0700  Main
Channel
               129.04          80.66         0.0700      Main
Channel
               130.04          80.66         0.0700      Main
Channel
               131.04          80.66         0.0700      Main
Channel
               133.04          81.66     0.0700 /0.1100  Main
Channel
               134.58          82.08         0.1100
               135.14          82.01         0.1100
               139.68          81.73         0.1100
               151.74          81.75         0.1100
               153.37          81.71         0.1100
               167.06          81.83         0.1100
               187.62          81.87         0.1100

     <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.06    80.72    .649E+02       0.0          0.17
49.00
       0.12    80.79    .138E+03       0.1          0.25
32.10
       0.19    80.85    .218E+03       0.1          0.32
25.32
       0.25    80.91    .306E+03       0.2          0.38
21.50
       0.31    80.97    .401E+03       0.4          0.43
18.99
       0.37    81.04    .504E+03       0.5          0.47
17.19
       0.44    81.10    .615E+03       0.6          0.52
15.81
       0.50    81.16    .733E+03       0.8          0.55
14.71
       0.56    81.22    .860E+03       1.0          0.59
13.81
       0.62    81.29    .993E+03       1.3          0.62
13.06
       0.69    81.35    .113E+04       1.5          0.66
12.41
       0.75    81.41    .128E+04       1.8          0.69
11.84
       0.81    81.47    .144E+04       2.1          0.72
11.35
       0.87    81.54    .170E+04       2.5          0.71
11.50
       0.94    81.60    .245E+04       3.0          0.59
13.80
       1.00    81.66    .355E+04       3.7          0.51
16.06
       1.07    81.73    .511E+04       4.9          0.47
17.27
       1.14    81.80    .759E+04       6.7          0.43
18.98
       1.21    81.87    .109E+05       9.0          0.40
20.28

                                  <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0142)   33.50     1.76     3.00  18.64
0.74     0.68
     OUTFLOW: ID= 1 (0622)   33.50     1.26     3.08  18.63
0.62     0.62

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--------------------
| CALIB            |
| STANDHYD  (6222) |   Area    (ha)=  16.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=
57.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.29         5.31
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      332.67        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=       61.93        17.14
                over (min)         5.00        25.00
     Storage Coeff.  (min)=        6.36 (ii)   23.96 (ii)
     Unit Hyd. Tpeak (min)=        5.00        25.00
     Unit Hyd. peak  (cms)=        0.18         0.05

*TOTALS*
     PEAK FLOW       (cms)=        1.50         0.14
1.562 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=       34.03         9.13
23.32
     TOTAL RAINFALL   (mm)=       40.03        40.03
40.03
     RUNOFF COEFFICIENT   =        0.85         0.23
0.58


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  67.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6221) |   Area    (ha)=   0.30   Curve Number
(CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.03

     Unit Hyd Qpeak  (cms)=   0.011

     PEAK FLOW       (cms)=   0.002 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)=   6.522
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.163

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0143) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (6221):     0.30   0.002     4.17     6.52
       + ID2= 2 (6222):    16.60   1.562     3.00    23.32
         ==================================================
         ID = 3 (0143):    16.90   1.562     3.00    23.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0144) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0143):    16.90   1.562     3.00    23.03
       + ID2= 2 (0622):    33.50   1.256     3.08    18.63
         ==================================================
         ID = 3 (0144):    50.40   2.732     3.00    20.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6231) |   Area    (ha)=   5.10   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.12

     Unit Hyd Qpeak  (cms)=   0.175

     PEAK FLOW       (cms)=   0.030 (i)
     TIME TO PEAK    (hrs)=   4.333
     RUNOFF VOLUME    (mm)=   6.299
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.157

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6232) |   Area    (ha)=  15.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        5.89         9.61
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      321.46        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=       61.93        13.53
                over (min)         5.00        30.00
     Storage Coeff.  (min)=        6.24 (ii)   25.57 (ii)
     Unit Hyd. Tpeak (min)=        5.00        30.00
     Unit Hyd. peak  (cms)=        0.19         0.04

*TOTALS*
     PEAK FLOW       (cms)=        0.59         0.18
0.659 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=       34.03         8.00
14.25
     TOTAL RAINFALL   (mm)=       40.03        40.03
40.03
     RUNOFF COEFFICIENT   =        0.85         0.20
0.36


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0145) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (6231):     5.10   0.030     4.33     6.30
       + ID2= 2 (6232):    15.50   0.659     3.00    14.25
         ==================================================
         ID = 3 (0145):    20.60   0.662     3.00    12.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0146) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0144):    50.40   2.732     3.00    20.11
       + ID2= 2 (0145):    20.60   0.662     3.00    12.28
         ==================================================
         ID = 3 (0146):    71.00   3.394     3.00    17.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6302) |   Area    (ha)=   2.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=
50.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.64         0.96
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      131.66        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=       61.93        32.95
                over (min)         5.00        20.00
     Storage Coeff.  (min)=        3.65 (ii)   17.20 (ii)
     Unit Hyd. Tpeak (min)=        5.00        20.00
     Unit Hyd. peak  (cms)=        0.25         0.06

*TOTALS*
     PEAK FLOW       (cms)=        0.22         0.05
0.250 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=       34.03        14.35
24.19
     TOTAL RAINFALL   (mm)=       40.03        40.03
40.03
     RUNOFF COEFFICIENT   =        0.85         0.36
0.60

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  80.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0631) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 788.2) ------>
              Distance      Elevation       Manning
                 0.00          81.00         0.1100
                15.70          81.00         0.1100
                17.50          80.50     0.1100 /0.0700  Main
Channel
                18.50          80.50         0.0700      Main
Channel
                20.00          81.00     0.0700 /0.1100  Main
Channel
                24.00          81.00         0.1100
                38.00          81.50         0.1100

     <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.03    80.53    .174E+02       0.0          0.10
100.96
       0.05    80.55    .375E+02       0.0          0.15
66.64
       0.08    80.58    .604E+02       0.0          0.19
52.98
       0.11    80.61    .861E+02       0.0          0.22
45.34
       0.13    80.63    .115E+03       0.0          0.25
40.34
       0.16    80.66    .146E+03       0.1          0.28
36.75
       0.18    80.68    .180E+03       0.1          0.30
34.02
       0.21    80.71    .217E+03       0.1          0.32
31.85
       0.24    80.74    .256E+03       0.1          0.34
30.07
       0.26    80.76    .298E+03       0.2          0.35
28.57
       0.29    80.79    .344E+03       0.2          0.37
27.28
       0.32    80.82    .391E+03       0.2          0.39
26.15
       0.34    80.84    .442E+03       0.3          0.40
25.16
       0.37    80.87    .495E+03       0.3          0.42
24.27
       0.39    80.89    .552E+03       0.4          0.43
23.48
       0.42    80.92    .611E+03       0.4          0.44
22.75
       0.45    80.95    .672E+03       0.5          0.46
22.09
       0.47    80.97    .737E+03       0.6          0.47
21.48
       0.50    81.00    .804E+03       0.6          0.48
20.91

                                  <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6302)    2.60     0.25     3.00  24.19
0.32     0.39
     OUTFLOW: ID= 1 (0631)    2.60     0.12     3.08  23.96
0.21     0.32


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--------------------
| CALIB            |
| STANDHYD  (6312) |   Area    (ha)=   8.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=
51.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        5.54         3.26
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      242.21        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=       61.93        16.62
                over (min)         5.00        25.00
     Storage Coeff.  (min)=        5.26 (ii)   23.08 (ii)
     Unit Hyd. Tpeak (min)=        5.00        25.00
     Unit Hyd. peak  (cms)=        0.21         0.05

*TOTALS*
     PEAK FLOW       (cms)=        0.73         0.08
0.770 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=       34.03         8.99
21.76
     TOTAL RAINFALL   (mm)=       40.03        40.03
40.03
     RUNOFF COEFFICIENT   =        0.85         0.22
0.54


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  67.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0149) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0631):     2.60   0.117     3.08    23.96
       + ID2= 2 (6312):     8.80   0.770     3.00    21.76
         ==================================================
         ID = 3 (0149):    11.40   0.875     3.00    22.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0632) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 924.2) ------>
              Distance      Elevation       Manning
                 0.00          82.50         0.1100
                 6.00          82.00         0.1100
                11.00          81.00         0.1100
```

```
                12.00         80.00        0.1100
                13.50         79.50     0.1100 /0.0700  Main
Channel
                14.50         79.50        0.0700      Main
Channel
                16.00         80.00     0.0700 /0.1100  Main
Channel
                18.00         80.00        0.1100
                29.70         80.00        0.1100
                37.00         80.50        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.05    79.55    .330E+02       0.0          0.17
52.00
       0.11    79.61    .749E+02       0.0          0.26
35.21
       0.16    79.66    .126E+03       0.1          0.32
28.45
       0.21    79.71    .186E+03       0.1          0.37
24.60
       0.26    79.76    .255E+03       0.2          0.41
22.04
       0.32    79.82    .333E+03       0.3          0.45
20.16
       0.37    79.87    .420E+03       0.4          0.48
18.69
       0.42    79.92    .515E+03       0.5          0.51
17.51
       0.47    79.97    .620E+03       0.6          0.55
16.53
       0.53    80.03    .931E+03       0.8          0.48
18.86
       0.58    80.08    .146E+04       1.2          0.43
20.73
       0.63    80.13    .201E+04       1.6          0.44
20.51
       0.68    80.18    .258E+04       2.2          0.46
19.66
       0.74    80.24    .318E+04       2.8          0.48
18.66
       0.79    80.29    .380E+04       3.6          0.51
17.70
       0.84    80.34    .445E+04       4.4          0.54
16.82
       0.89    80.39    .511E+04       5.3          0.56
16.03
       0.95    80.45    .580E+04       6.3          0.59
15.32
       1.00    80.50    .652E+04       7.4          0.61
14.69

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0149)   11.40     0.88    3.00  22.26
0.53     0.47
     OUTFLOW: ID= 1 (0632)   11.40     0.54    3.08  22.24
0.44     0.53


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-------------------
| CALIB             |
| NASHYD    (6321) |   Area    (ha)=   1.10   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   0.044

     PEAK FLOW       (cms)=   0.007 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=   6.297
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.157

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6322) |   Area    (ha)=   4.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  42.00   Dir. Conn.(%)=
28.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.81          2.49
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     169.31         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      61.93         13.92
               over (min)        5.00         25.00
     Storage Coeff.  (min)=       4.24 (ii)    23.37 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.24          0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.20          0.05
0.225 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03          8.12
15.37
     TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
     RUNOFF COEFFICIENT   =       0.85          0.20
0.38

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0173) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6321):      1.10   0.007     4.08     6.30
        + ID2= 2 (6322):      4.30   0.225     3.00    15.37
          ===============================================
          ID = 3 (0173):      5.40   0.226     3.00    13.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0174) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0173):      5.40   0.226     3.00    13.52
        + ID2= 2 (0632):     11.40   0.543     3.08    22.24
          ===============================================
          ID = 3 (0174):     16.80   0.702     3.00    19.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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-------------------
| CALIB             |
| NASHYD    (6401) |   Area    (ha)=   0.70   Curve Number
(CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.36

     Unit Hyd Qpeak  (cms)=   0.020

     PEAK FLOW       (cms)=   0.006 (i)
     TIME TO PEAK    (hrs)=   4.583
     RUNOFF VOLUME    (mm)=  10.736
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.268

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6402) |   Area    (ha)=  16.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.72          5.28
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     326.60         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      61.93         33.51
               over (min)        5.00         20.00
     Storage Coeff.  (min)=       6.29 (ii)    19.75 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.19          0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.40          0.26
1.558 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=      34.03         14.46
25.22
     TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
     RUNOFF COEFFICIENT   =       0.85          0.36
0.63


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0177) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6401):      0.70   0.006     4.58    10.74
        + ID2= 2 (6402):     16.00   1.558     3.00    25.22
          ===============================================
          ID = 3 (0177):     16.70   1.558     3.00    24.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0641) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 910.0) ------>
                Distance      Elevation        Manning
                    0.00          83.92        0.1100
                    1.93          83.93        0.1100
                    3.02          83.94        0.1100
                    5.01          83.96        0.1100
                    6.81          83.80        0.1100
                    7.33          83.77        0.1100
                    8.42          83.41     0.1100 /0.0700  Main
Channel
                   10.42          82.41        0.0700      Main
Channel
                   11.17          82.41        0.0700      Main
Channel
                   11.92          82.41        0.0700      Main
Channel
                   13.92          83.41     0.0700 /0.1100  Main
Channel
                   21.33          84.40        0.1100
                   23.85          84.09        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.10    82.51    .768E+02       0.0          0.24
32.02
       0.20    82.61    .172E+03       0.1          0.35
21.50
       0.30    82.71    .285E+03       0.3          0.44
17.20
       0.40    82.81    .416E+03       0.5          0.51
14.73
       0.50    82.91    .565E+03       0.7          0.58
13.08
       0.60    83.01    .732E+03       1.0          0.64
11.86
       0.70    83.11    .918E+03       1.4          0.69
10.92
       0.80    83.21    .112E+04       1.8          0.74
10.16
       0.90    83.31    .134E+04       2.3          0.79
9.53
       1.00    83.41    .158E+04       2.9          0.84
9.00
       1.11    83.52    .188E+04       3.8          0.92
8.20
       1.22    83.63    .224E+04       4.8          0.98
7.72
       1.33    83.74    .266E+04       6.0          1.02
7.39
       1.44    83.85    .315E+04       7.3          1.05
7.20
       1.55    83.96    .379E+04       8.7          1.04
7.24
       1.66    84.07    .471E+04      10.6          1.02
7.41
       1.77    84.18    .567E+04      12.7          1.01
7.46
       1.88    84.29    .673E+04      15.1          1.01
7.43
       1.99    84.40    .787E+04      17.8          1.02
7.36

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0177)   16.70     1.56    3.00  24.62
0.74     0.71
     OUTFLOW: ID= 1 (0641)   16.70     1.15    3.08  24.62
0.63     0.65
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-------------------
| CALIB             |
| NASHYD    (6411) |   Area    (ha)=   1.00   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.97

     Unit Hyd Qpeak  (cms)=   0.039

     PEAK FLOW       (cms)=   0.008 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=   7.842
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.196

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6412) |   Area    (ha)=  12.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
56.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.44          4.16
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     289.83         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      61.93         20.23
               over (min)        5.00         25.00
     Storage Coeff.  (min)=       5.86 (ii)    22.32 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.20          0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.13          0.13
1.195 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03         10.71
23.77
     TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
     RUNOFF COEFFICIENT   =       0.85          0.27
0.59


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0181) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6411):      1.00   0.008     4.08     7.84
        + ID2= 2 (6412):     12.60   1.195     3.00    23.77
          ===============================================
          ID = 3 (0181):     13.60   1.196     3.00    22.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0184) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0181):     13.60   1.196     3.00    22.60
        + ID2= 2 (0641):     16.70   1.147     3.08    24.62
          ===============================================
          ID = 3 (0184):     30.30   2.300     3.00    23.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0642) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1099.5) ------>
                Distance      Elevation        Manning
                    0.00          85.00        0.1100
                   14.50          80.00        0.1100
                   15.30          80.00        0.1100
                   16.80          79.50     0.1100 /0.0700  Main
Channel
                   17.80          79.50        0.0700      Main
Channel
                   19.30          80.00     0.0700 /0.1100  Main
Channel
                   20.30          80.00        0.1100
                   27.30          81.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.08    79.58    .520E+02       0.0          0.24
36.74
       0.16    79.66    .124E+03       0.1          0.35
25.35
       0.24    79.74    .216E+03       0.2          0.43
20.68
       0.32    79.82    .328E+03       0.3          0.49
17.96
       0.39    79.89    .460E+03       0.5          0.55
16.11
       0.47    79.97    .611E+03       0.7          0.60
14.73
       0.55    80.05    .836E+03       1.0          0.62
14.31
       0.63    80.13    .112E+04       1.4          0.66
13.40
       0.71    80.21    .143E+04       1.9          0.70
12.62
       0.79    80.29    .178E+04       2.5          0.74
11.97
       0.87    80.37    .216E+04       3.2          0.78
11.42
       0.95    80.45    .258E+04       3.9          0.81
10.93
       1.03    80.53    .302E+04       4.8          0.85
10.51
       1.11    80.61    .350E+04       5.8          0.88
10.14
       1.18    80.68    .402E+04       6.8          0.91
9.80
       1.26    80.76    .456E+04       8.0          0.94
9.49
       1.34    80.84    .514E+04       9.3          0.96
9.21
       1.42    80.92    .575E+04      10.7          0.99
8.96
       1.50    81.00    .640E+04      12.2          1.02
8.72

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
```

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                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0184)   30.30     2.30    3.00  23.71
0.77     0.73
     OUTFLOW: ID= 1 (0642)   30.30     1.63    3.08  23.71
0.67     0.68


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-------------------
| CALIB            |
| NASHYD    (6421) |   Area    (ha)=   3.60   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------  U.H. Tp(hrs)=   0.88

     Unit Hyd Qpeak  (cms)=   0.156

     PEAK FLOW       (cms)=   0.025 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=   6.299
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT  =    0.157

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6422) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  41.00   Dir. Conn.(%)=
27.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.66         8.14
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     303.32        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        17.27
                over (min)       5.00        25.00
     Storage Coeff.  (min)=       6.02 (ii)   23.56 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.19         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.60         0.21
0.694 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03         9.94
16.44
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT  =       0.85         0.25
0.41


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0185) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (6421):      3.60   0.025     4.00     6.30
       + ID2= 2 (6422):     13.80   0.694     3.00    16.44
         ===============================================
         ID = 3 (0185):     17.40   0.698     3.00    14.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0187) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0185):     17.40   0.698     3.00    14.34
       + ID2= 2 (0642):     30.30   1.634     3.08    23.71
         ===============================================
         ID = 3 (0187):     47.70   2.095     3.00    20.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (6501) |   Area    (ha)=   6.90   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------  U.H. Tp(hrs)=   1.02

     Unit Hyd Qpeak  (cms)=   0.258

     PEAK FLOW       (cms)=   0.043 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)=   6.299
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT  =    0.157

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6502) |   Area    (ha)=   2.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
22.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.77         1.43
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     121.11        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        12.90
                over (min)       5.00        25.00
     Storage Coeff.  (min)=       3.47 (ii)   23.18 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.26         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.08         0.03
0.095 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03         7.82
13.58
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT  =       0.85         0.20
0.34

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0190) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (6501):      6.90   0.043     4.17     6.30
       + ID2= 2 (6502):      2.20   0.095     3.00    13.58
         ===============================================
         ID = 3 (0190):      9.10   0.099     3.00     8.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (6601) |   Area    (ha)=   2.00   Curve Number
(CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------  U.H. Tp(hrs)=   0.66

     Unit Hyd Qpeak  (cms)=   0.116

     PEAK FLOW       (cms)=   0.029 (i)
     TIME TO PEAK    (hrs)=   3.667
     RUNOFF VOLUME    (mm)=  10.306
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT  =    0.257

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6602) |   Area    (ha)=  11.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  41.00   Dir. Conn.(%)=
27.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.80         6.90
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     279.28        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        26.72
                over (min)       5.00        25.00
     Storage Coeff.  (min)=       5.73 (ii)   20.46 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.20         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.51         0.25
0.632 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03        12.78
18.52
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT  =       0.85         0.32
0.46


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0193) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (6601):      2.00   0.029     3.67    10.31
       + ID2= 2 (6602):     11.70   0.632     3.00    18.52
         ===============================================
         ID = 3 (0193):     13.70   0.639     3.00    17.32

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7302) |   Area    (ha)=   3.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=
20.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09         2.31
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     150.55        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        10.50
                over (min)       5.00        30.00
     Storage Coeff.  (min)=       3.96 (ii)   25.36 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.24         0.04

*TOTALS*
     PEAK FLOW       (cms)=       0.11         0.04
0.129 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      34.03         7.65
12.92
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT  =       0.85         0.19
0.32

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (7402) |   Area    (ha)=   3.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  40.00   Dir. Conn.(%)=
26.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.48         2.22
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     157.06        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        13.72
                over (min)       5.00        25.00
     Storage Coeff.  (min)=       4.06 (ii)   23.29 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.24         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.16         0.05
0.182 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03         8.06
14.81
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT  =       0.85         0.20
0.37

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| NASHYD    (7031) |   Area    (ha)=   3.70   Curve Number
(CN)= 63.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------  U.H. Tp(hrs)=   1.12

     Unit Hyd Qpeak  (cms)=   0.126

     PEAK FLOW       (cms)=   0.019 (i)
     TIME TO PEAK    (hrs)=   4.333
     RUNOFF VOLUME    (mm)=   5.662
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT  =    0.141

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (7032) |   Area    (ha)=  19.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.61         7.09
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     362.40        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        14.63
                over (min)       5.00        30.00
     Storage Coeff.  (min)=       6.70 (ii)   25.45 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.18         0.04

*TOTALS*
     PEAK FLOW       (cms)=       1.61         0.15
1.663 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      34.03         7.94
21.51
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT  =       0.85         0.20
0.54


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  63.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0213) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (7031):      3.70   0.019     4.33     5.66
       + ID2= 2 (7032):     19.70   1.663     3.00    21.51
         ===============================================
         ID = 3 (0213):     23.40   1.665     3.00    19.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (7101) |   Area    (ha)=  70.70   Curve Number
(CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------  U.H. Tp(hrs)=   0.78

     Unit Hyd Qpeak  (cms)=   3.471

     PEAK FLOW       (cms)=   0.322 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=   3.850
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT  =    0.096

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (7102) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
33.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.88         9.62
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     341.57        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93         6.11
                over (min)       5.00        35.00
     Storage Coeff.  (min)=       6.47 (ii)   33.04 (ii)
     Unit Hyd. Tpeak (min)=       5.00        35.00
     Unit Hyd. peak  (cms)=       0.18         0.03

*TOTALS*
     PEAK FLOW       (cms)=       0.91         0.09
0.939 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.50
3.00
     RUNOFF VOLUME    (mm)=      34.03         4.96
14.55
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT  =       0.85         0.12
0.36


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0218) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (7101):     70.70   0.322     3.83     3.85
       + ID2= 2 (7102):     17.50   0.939     3.00    14.55
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          ================================================
          ID = 3 (0218):    88.20   0.994     3.00     5.97

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0711) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1487.9) ------>
              Distance      Elevation       Manning
                 0.00         95.00         0.1100
                89.00         94.00         0.1100
               135.70         94.00     0.1100 /0.0700  Main
Channel
               137.20         93.50         0.0700      Main
Channel
               138.20         93.50         0.0700      Main
Channel
               139.70         94.00     0.0700 /0.1100  Main
Channel
               211.60         94.00         0.1100
               249.00         95.00         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    93.57    .969E+02       0.0          0.20
95.33
       0.14    93.64    .228E+03       0.1          0.29
64.56
       0.21    93.71    .393E+03       0.1          0.36
51.73
       0.29    93.79    .593E+03       0.2          0.42
44.23
       0.36    93.86    .826E+03       0.4          0.48
39.15
       0.43    93.93    .109E+04       0.5          0.53
35.40
       0.50    94.00    .140E+04       0.7          0.57
32.52
       0.58    94.08    .133E+05       2.6          0.22
84.59
       0.67    94.17    .262E+05       6.5          0.28
67.17
       0.75    94.25    .400E+05      12.0          0.33
55.64
       0.83    94.33    .549E+05      19.0          0.39
48.10
       0.92    94.42    .707E+05      27.5          0.43
42.81
       1.00    94.50    .875E+05      37.5          0.48
38.86
       1.08    94.58    .105E+06      49.0          0.52
35.80
       1.17    94.67    .124E+06      62.0          0.56
33.34
       1.25    94.75    .144E+06      76.6          0.59
31.30
       1.33    94.83    .165E+06      92.7          0.63
29.59
       1.42    94.92    .186E+06     110.4          0.66
28.12
       1.50    95.00    .209E+06     129.7          0.69
26.84

                                  <---- hydrograph ---->   <-
pipe / channel->
                             AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                             (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0218)   88.20     0.99    3.00   5.97
0.51      0.46
     OUTFLOW: ID= 1 (0711)   88.20     0.46    3.58   5.97
0.41      0.51

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| CALIB             |
| NASHYD    (7111) |   Area    (ha)=  49.10   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.43

     Unit Hyd Qpeak  (cms)=   1.311

     PEAK FLOW       (cms)=   0.278 (i)
     TIME TO PEAK    (hrs)=   4.750
     RUNOFF VOLUME    (mm)=   7.282
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.182

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (7112) |   Area    (ha)=  11.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  34.00   Dir. Conn.(%)=
22.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.81         7.39
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     273.25        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        14.47
                over (min)       5.00        25.00
     Storage Coeff.  (min)=       5.66 (ii)   24.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.20         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.40         0.16
0.469 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03         8.82
14.37
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.22
0.36


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0222) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7111):    49.10   0.278     4.75     7.28
        + ID2= 2 (7112):    11.20   0.469     3.00    14.37
          ================================================
          ID = 3 (0222):    60.30   0.486     3.00     8.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD   (0223) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0222):    60.30   0.486     3.00     8.60
        + ID2= 2 (0711):    88.20   0.465     3.58     5.97
          ================================================
          ID = 3 (0223):   148.50   0.808     3.00     7.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| NASHYD    (7011) |   Area    (ha)=  90.40   Curve Number
(CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.77

     Unit Hyd Qpeak  (cms)=   4.467

     PEAK FLOW       (cms)=   0.532 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=   4.920
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.123

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (7012) |   Area    (ha)=  25.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
25.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.54        15.56
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     409.06        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93         8.70
                over (min)       5.00        35.00
     Storage Coeff.  (min)=       7.21 (ii)   30.28 (ii)
     Unit Hyd. Tpeak (min)=       5.00        35.00
     Unit Hyd. peak  (cms)=       0.17         0.04

*TOTALS*
     PEAK FLOW       (cms)=       0.97         0.20
1.030 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.50
3.00
     RUNOFF VOLUME    (mm)=      34.03         6.23
13.18
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.16
0.33


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  59.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0205) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7011):    90.40   0.532     3.83     4.92
        + ID2= 2 (7012):    25.10   1.030     3.00    13.18
          ================================================
          ID = 3 (0205):   115.50   1.123     3.00     6.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0702) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1184.6) ------>
              Distance      Elevation       Manning
                 0.00         93.00         0.1100
                56.00         92.00         0.1100
                65.40         92.00         0.1100
                74.80         91.50     0.1100 /0.0700  Main
Channel
                75.80         91.50         0.0700      Main
Channel
                77.30         92.00     0.0700 /0.1100  Main
Channel
               144.00         92.00         0.1100
               186.00         93.00         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.08    91.58    .236E+03       0.0          0.13
200.27
       0.16    91.66    .689E+03       0.1          0.18
146.52
       0.24    91.74    .136E+04       0.2          0.22
121.67
       0.32    91.82    .225E+04       0.4          0.25
105.99
       0.39    91.89    .336E+04       0.6          0.28
94.79
       0.47    91.97    .468E+04       0.9          0.31
86.24
       0.55    92.05    .128E+05       1.5          0.19
142.36
       0.63    92.13    .251E+05       3.4          0.22
123.43
       0.71    92.21    .384E+05       6.1          0.26
104.46
       0.79    92.29    .526E+05       9.6          0.29
90.95
       0.87    92.37    .678E+05      13.9          0.33
81.16
       0.95    92.45    .840E+05      19.0          0.36
73.76
       1.03    92.53    .101E+06      24.8          0.39
67.97
       1.11    92.61    .119E+06      31.4          0.42
63.30
       1.18    92.68    .139E+06      38.8          0.45
59.44
       1.26    92.76    .159E+06      47.1          0.48
56.18
       1.34    92.84    .180E+06      56.1          0.50
53.38
       1.42    92.92    .202E+06      66.0          0.52
50.95
       1.50    93.00    .225E+06      76.8          0.55
48.81

                                  <---- hydrograph ---->   <-
pipe / channel->
                             AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
```

```
                             (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0205)  115.50     1.12    3.00   6.71
0.50      0.25
     OUTFLOW: ID= 1 (0702)  115.50     0.50    4.50   6.70
0.36      0.27


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-------------------
| CALIB             |
| NASHYD    (7021) |   Area    (ha)=  16.10   Curve Number
(CN)= 64.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.72

     Unit Hyd Qpeak  (cms)=   0.358

     PEAK FLOW       (cms)=   0.064 (i)
     TIME TO PEAK    (hrs)=   5.167
     RUNOFF VOLUME    (mm)=   5.866
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.147

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7022) |   Area    (ha)=  26.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  36.00   Dir. Conn.(%)=
24.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.50        16.90
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     419.52        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93         9.97
                over (min)       5.00        30.00
     Storage Coeff.  (min)=       7.32 (ii)   29.16 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.17         0.04

*TOTALS*
     PEAK FLOW       (cms)=       0.98         0.26
1.071 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      34.03         7.22
13.65
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.18
0.34


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  64.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0209) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7021):    16.10   0.064     5.17     5.87
        + ID2= 2 (7022):    26.40   1.071     3.00    13.65
          ================================================
          ID = 3 (0209):    42.50   1.074     3.00    10.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0210) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0209):    42.50   1.074     3.00    10.70
        + ID2= 2 (0702):   115.50   0.498     4.50     6.70
          ================================================
          ID = 3 (0210):   158.00   1.214     3.00     7.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0224) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0210):   158.00   1.214     3.00     7.78
        + ID2= 2 (0223):   148.50   0.808     3.00     7.04
          ================================================
          ID = 3 (0224):   306.50   2.022     3.00     7.42

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0703) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (2329.2) ------>
              Distance      Elevation       Manning
                 0.00         88.00         0.1100
                37.50         87.00         0.1100
                51.30         86.00         0.1100
                82.80         86.00         0.1100
               107.50         87.00         0.1100
               117.30         86.00         0.1100
               125.90         86.00     0.1100 /0.0700  Main
Channel
               127.40         85.50         0.0700      Main
Channel
               128.40         85.50         0.0700      Main
Channel
               129.90         86.00     0.0700 /0.1100  Main
Channel
               133.00         86.00         0.1100
               149.00         87.00         0.1100
               193.00         88.00         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12    85.62    .787E+02       0.0          0.19
40.30
       0.25    85.75    .200E+03       0.1          0.28
27.58
       0.37    85.88    .365E+03       0.3          0.35
22.10
       0.50    86.00    .572E+03       0.5          0.41
18.84
       0.63    86.13    .372E+04       1.8          0.22
34.16
       0.77    86.27    .738E+04       4.4          0.27
28.02
       0.90    86.40    .116E+05       8.1          0.32
23.77
       1.03    86.53    .163E+05      13.0          0.37
20.89
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       1.17    86.67    .215E+05       19.1          0.41
18.82
       1.30    86.80    .273E+05       26.4          0.44
17.24
       1.43    86.93    .336E+05       35.0          0.48
15.99
       1.57    87.07    .404E+05       44.9          0.51
15.00
       1.70    87.20    .479E+05       56.3          0.54
14.18
       1.83    87.33    .560E+05       69.3          0.57
13.47
       1.97    87.47    .648E+05       84.0          0.59
12.85
       2.10    87.60    .743E+05      100.6          0.62
12.31
       2.23    87.73    .844E+05      119.0          0.65
11.82
       2.37    87.87    .952E+05      139.3          0.67
11.39
       2.50    88.00    .107E+06      161.7          0.69
11.00

                                     <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0224)  306.50     2.02    3.00   7.42
0.64      0.23
     OUTFLOW: ID= 1 (0703)  306.50     1.45    4.67   7.42
0.60      0.26


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| ADD HYD   (0215) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0213):    23.40   1.665     3.00    19.00
        + ID2= 2 (0703):   306.50   1.449     4.67     7.42
          ===============================================
          ID = 3 (0215):   329.90   2.433     3.00     8.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0704) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (2755.4) ------>
               Distance      Elevation       Manning
                   0.00         85.00        0.1100
                  25.00         84.00        0.1100
                  32.00         84.00    0.1100 /0.0700  Main
Channel
                  33.50         83.50        0.0700      Main
Channel
                  34.50         83.50        0.0700      Main
Channel
                  36.00         84.00    0.0700 /0.1100  Main
Channel
                  65.00         84.00        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.03    83.53    .121E+02        0.0          0.12
61.52
       0.05    83.55    .259E+02        0.0          0.19
40.35
       0.08    83.58    .414E+02        0.0          0.24
31.84
       0.10    83.60    .585E+02        0.0          0.28
27.04
       0.13    83.63    .774E+02        0.1          0.31
23.87
       0.15    83.65    .979E+02        0.1          0.35
21.59
       0.18    83.68    .120E+03        0.1          0.38
19.84
       0.20    83.70    .144E+03        0.1          0.41
18.45
       0.23    83.73    .170E+03        0.2          0.43
17.31
       0.25    83.75    .197E+03        0.2          0.46
16.34
       0.28    83.78    .226E+03        0.2          0.48
15.52
       0.30    83.80    .257E+03        0.3          0.51
14.80
       0.33    83.83    .289E+03        0.3          0.53
14.16
       0.35    83.85    .323E+03        0.4          0.55
13.60
       0.38    83.88    .359E+03        0.5          0.57
13.09
       0.40    83.90    .396E+03        0.5          0.59
12.64
       0.43    83.93    .435E+03        0.6          0.61
12.22
       0.45    83.95    .476E+03        0.7          0.63
11.84
       0.48    83.98    .518E+03        0.8          0.65
11.49

     **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                     <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0215)  329.90     2.43    3.00   8.24
0.47      0.65
     OUTFLOW: ID= 1 (0704)  329.90     1.70    3.17   8.24
0.48      0.65


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--------------------
| CALIB            |
| NASHYD    (7041) |   Area    (ha)=   9.20   Curve Number
(CN)= 61.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.82

     Unit Hyd Qpeak  (cms)=   0.431

     PEAK FLOW       (cms)=   0.056 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=   5.277
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.132

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7042) |   Area    (ha)=  14.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        9.72         4.78
     Dep. Storage     (mm)=        6.00         8.00
```

```
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      310.91        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=       61.93        14.32
                over (min)        5.00        30.00
     Storage Coeff.  (min)=        6.11 (ii)   25.02 (ii)
     Unit Hyd. Tpeak (min)=        5.00        30.00
     Unit Hyd. peak  (cms)=        0.19         0.04

*TOTALS*
     PEAK FLOW       (cms)=        1.27         0.10
1.308 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=       34.03         7.62
22.14
     TOTAL RAINFALL   (mm)=       40.03        40.03
40.03
     RUNOFF COEFFICIENT   =        0.85         0.19
0.55


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  61.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0227) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (7041):     9.20   0.056     3.92     5.28
        + ID2= 2 (7042):    14.50   1.308     3.00    22.14
          ===============================================
          ID = 3 (0227):    23.70   1.317     3.00    15.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0229) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0227):    23.70   1.317     3.00    15.60
        + ID2= 2 (0704):   329.90   1.704     3.17     8.24
          ===============================================
          ID = 3 (0229):   353.60   2.762     3.00     8.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (7201) |   Area    (ha)=  14.00   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.98

     Unit Hyd Qpeak  (cms)=   0.548

     PEAK FLOW       (cms)=   0.090 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=   6.299
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.157

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7202) |   Area    (ha)=   8.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=
43.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        4.68         3.83
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      238.05        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=       61.93        14.55
                over (min)        5.00        25.00
     Storage Coeff.  (min)=        5.21 (ii)   23.99 (ii)
     Unit Hyd. Tpeak (min)=        5.00        25.00
     Unit Hyd. peak  (cms)=        0.21         0.05

*TOTALS*
     PEAK FLOW       (cms)=        0.60         0.08
0.634 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=       34.03         8.30
19.36
     TOTAL RAINFALL   (mm)=       40.03        40.03
40.03
     RUNOFF COEFFICIENT   =        0.85         0.21
0.48


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0232) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (7201):    14.00   0.090     4.08     6.30
        + ID2= 2 (7202):     8.50   0.634     3.00    19.36
          ===============================================
          ID = 3 (0232):    22.50   0.645     3.00    11.23

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0721) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 920.0) ------>
               Distance      Elevation       Manning
                   0.00         82.00        0.1100
                  41.00         82.00        0.1100
                  50.70         82.00        0.1100
                  57.80         81.00    0.1100 /0.0700  Main
Channel
                  59.30         79.84        0.0700      Main
Channel
                  60.30         79.84        0.0700      Main
Channel
                  61.80         81.00    0.0700 /0.1100  Main
Channel
                  63.30         81.00        0.1100
                  85.90         81.00        0.1100
                 100.00         82.00        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
```

```
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.11    79.95    .515E+02        0.0          0.20
35.58
       0.21    80.05    .115E+03        0.1          0.30
24.20
       0.32    80.16    .192E+03        0.2          0.37
19.53
       0.42    80.26    .280E+03        0.3          0.43
16.82
       0.53    80.37    .381E+03        0.4          0.48
15.00
       0.63    80.47    .494E+03        0.6          0.53
13.65
       0.74    80.58    .620E+03        0.8          0.57
12.60
       0.84    80.68    .758E+03        1.1          0.61
11.75
       0.95    80.79    .908E+03        1.4          0.65
11.04
       1.05    80.89    .107E+04        1.7          0.69
10.44
       1.16    81.00    .125E+04        2.1          0.72
9.92
       1.28    81.12    .283E+04        3.2          0.49
14.61
       1.41    81.25    .455E+04        5.0          0.48
15.04
       1.53    81.37    .642E+04        7.4          0.50
14.36
       1.66    81.50    .843E+04       10.4          0.53
13.50
       1.78    81.62    .106E+05       13.9          0.57
12.67
       1.91    81.75    .129E+05       18.0          0.60
11.93
       2.03    81.87    .153E+05       22.6          0.63
11.29
       2.16    82.00    .179E+05       27.8          0.67
10.73
                                     <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0232)   22.50     0.64    3.00  11.23
0.65      0.53
     OUTFLOW: ID= 1 (0721)   22.50     0.43    3.08  11.23
0.53      0.48


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--------------------
| CALIB            |
| NASHYD    (7211) |   Area    (ha)=   8.70   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.06

     Unit Hyd Qpeak  (cms)=   0.312

     PEAK FLOW       (cms)=   0.052 (i)
     TIME TO PEAK    (hrs)=   4.250
     RUNOFF VOLUME    (mm)=   6.299
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.157

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7212) |   Area    (ha)=   9.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        5.95         3.35
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      249.00        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=       61.93        16.27
                over (min)        5.00        25.00
     Storage Coeff.  (min)=        5.35 (ii)   23.32 (ii)
     Unit Hyd. Tpeak (min)=        5.00        25.00
     Unit Hyd. peak  (cms)=        0.21         0.05

*TOTALS*
     PEAK FLOW       (cms)=        0.79         0.08
0.825 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=       34.03         8.76
21.90
     TOTAL RAINFALL   (mm)=       40.03        40.03
40.03
     RUNOFF COEFFICIENT   =        0.85         0.22
0.55


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0236) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (7211):     8.70   0.052     4.25     6.30
        + ID2= 2 (7212):     9.30   0.825     3.00    21.90
          ===============================================
          ID = 3 (0236):    18.00   0.830     3.00    14.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0237) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0236):    18.00   0.830     3.00    14.36
        + ID2= 2 (0721):    22.50   0.432     3.08    11.23
          ===============================================
          ID = 3 (0237):    40.50   1.251     3.00    12.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0238) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0229):   353.60   2.762     3.00     8.73
        + ID2= 2 (0237):    40.50   1.251     3.00    12.62
          ===============================================
          ID = 3 (0238):   394.10   4.012     3.00     9.13

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0705) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (3276.8) ------>
              Distance      Elevation       Manning
                 0.00         80.50          0.1100
                 5.70         80.00          0.1100
                14.00         79.00          0.1100
                22.00         79.00    0.1100 /0.0700  Main
Channel
                23.50         78.50          0.0700      Main
Channel
                24.50         78.50          0.0700      Main
Channel
                26.00         79.00    0.0700 /0.1100  Main
Channel
                28.00         79.00          0.1100
                41.00         80.00          0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    78.57    .248E+02       0.0          0.26
18.45
       0.14    78.64    .584E+02       0.1          0.38
12.49
       0.21    78.71    .101E+03       0.2          0.48
10.01
       0.29    78.79    .152E+03       0.3          0.56
8.56
       0.36    78.86    .212E+03       0.5          0.63
7.58
       0.43    78.93    .280E+03       0.7          0.70
6.85
       0.50    79.00    .358E+03       0.9          0.76
6.29
       0.58    79.08    .712E+03       1.6          0.64
7.50
       0.67    79.17    .111E+04       2.5          0.65
7.35
       0.75    79.25    .155E+04       3.7          0.69
6.94
       0.83    79.33    .203E+04       5.2          0.73
6.52
       0.92    79.42    .255E+04       6.9          0.78
6.14
       1.00    79.50    .312E+04       9.0          0.82
5.81
       1.08    79.58    .373E+04      11.3          0.86
5.52
       1.17    79.67    .438E+04      13.9          0.90
5.27
       1.25    79.75    .507E+04      16.7          0.94
5.05
       1.33    79.83    .581E+04      20.0          0.98
4.85
       1.42    79.92    .659E+04      23.5          1.02
4.68
       1.50    80.00    .741E+04      27.3          1.06
4.52

                                        <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0238)  394.10     4.01    3.00   9.13
0.77     0.70
     OUTFLOW: ID= 1 (0705)  394.10     3.37    3.08   9.13
0.72     0.68


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| CALIB            |
| NASHYD    (7051) |   Area    (ha)=   2.10   Curve Number
(CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.60

     Unit Hyd Qpeak  (cms)=   0.133

     PEAK FLOW       (cms)=   0.011 (i)
     TIME TO PEAK    (hrs)=   3.667
     RUNOFF VOLUME    (mm)=   3.716
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.093

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (7052) |   Area    (ha)=   4.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  40.00   Dir. Conn.(%)=
26.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.88         2.82
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     177.01        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93         6.07
                over (min)        5.00        35.00
     Storage Coeff.  (min)=       4.36 (ii)   31.01 (ii)
     Unit Hyd. Tpeak (min)=       5.00        35.00
     Unit Hyd. peak  (cms)=       0.23         0.03

*TOTALS*
     PEAK FLOW       (cms)=       0.20         0.03
0.211 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.50
3.00
     RUNOFF VOLUME    (mm)=      34.03         4.86
12.44
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.12
0.31

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  51.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0241) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (7051):      2.10   0.011     3.67      3.72
       + ID2= 2 (7052):      4.70   0.211     3.00     12.44
         ===============================================
         ID = 3 (0241):      6.80   0.214     3.00      9.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0243) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0241):      6.80   0.214     3.00      9.75
       + ID2= 2 (0705):    394.10   3.366     3.08      9.13
         ===============================================
         ID = 3 (0243):    400.90   3.468     3.08      9.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (7502) |   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  34.00   Dir. Conn.(%)=
21.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.87         3.63
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     191.49        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        12.83
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       4.57 (ii)   24.33 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.23         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.19         0.07
0.222 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03         7.80
13.30
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.19
0.33

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   3 **
  ****************************


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|    READ STORM    |    Filename: C:\Users\Jenny\AppD
|                  |              ata\Local\Temp\
|                  |              a8b7002d-931f-4bdf-82e5-
bad09a870f5a\8fba93f2
| Ptotal= 56.50 mm |    Comments: Mount Hope-6 hour SCS
Distribution Desig
--------------------
                  TIME    RAIN |   TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                   hrs   mm/hr |    hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                  0.17    2.26 |   1.67    5.65 |   3.17   12.43 |
4.67    3.39
                  0.33    2.26 |   1.83    5.65 |   3.33   12.43 |
4.83    3.39
                  0.50    2.26 |   2.00    5.65 |   3.50   12.43 |
5.00    3.39
                  0.67    3.39 |   2.17    6.78 |   3.67    5.65 |
5.17    2.26
                  0.83    3.39 |   2.33    6.78 |   3.83    5.65 |
5.33    2.26
                  1.00    3.39 |   2.50    6.78 |   4.00    5.65 |
5.50    2.26
                  1.17    3.39 |   2.67   33.90 |   4.17    4.52 |
5.67    2.26
                  1.33    3.39 |   2.83   61.02 |   4.33    4.52 |
5.83    2.26
                  1.50    3.39 |   3.00   88.14 |   4.50    4.52 |
6.00    2.26

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| CALIB            |
| NASHYD    (5071) |   Area    (ha)=   8.40   Curve Number
(CN)= 74.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.72

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                 0.083    2.26 | 1.583    5.65 | 3.083   12.43 |
4.58    3.39
                 0.167    2.26 | 1.667    5.65 | 3.167   12.43 |
4.67    3.39
                 0.250    2.26 | 1.750    5.65 | 3.250   12.43 |
4.75    3.39
                 0.333    2.26 | 1.833    5.65 | 3.333   12.43 |
4.83    3.39
                 0.417    2.26 | 1.917    5.65 | 3.417   12.43 |
4.92    3.39
                 0.500    2.26 | 2.000    5.65 | 3.500   12.43 |
5.00    3.39
                 0.583    3.39 | 2.083    6.78 | 3.583    5.65 |
5.08    2.26
                 0.667    3.39 | 2.167    6.78 | 3.667    5.65 |
5.17    2.26
                 0.750    3.39 | 2.250    6.78 | 3.750    5.65 |
5.25    2.26
                 0.833    3.39 | 2.333    6.78 | 3.833    5.65 |
5.33    2.26
                 0.917    3.39 | 2.417    6.78 | 3.917    5.65 |
5.42    2.26
                 1.000    3.39 | 2.500    6.78 | 4.000    5.65 |
5.50    2.26
                 1.083    3.39 | 2.583   33.90 | 4.083    4.52 |
5.58    2.26
                 1.167    3.39 | 2.667   33.90 | 4.167    4.52 |
5.67    2.26
                 1.250    3.39 | 2.750   61.02 | 4.250    4.52 |
5.75    2.26
                 1.333    3.39 | 2.833   61.02 | 4.333    4.52 |
5.83    2.26
                 1.417    3.39 | 2.917   88.14 | 4.417    4.52 |
5.92    2.26
                 1.500    3.39 | 3.000   88.14 | 4.500    4.52 |
6.00    2.26

     Unit Hyd Qpeak  (cms)=   0.187

     PEAK FLOW       (cms)=   0.101 (i)
     TIME TO PEAK    (hrs)=   5.000
     RUNOFF VOLUME    (mm)=  17.077
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.302

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5072) |   Area    (ha)=  40.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
30.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      18.23        22.28
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     519.62        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        45.45
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       7.22 (ii)   19.13 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.17         0.06

*TOTALS*
     PEAK FLOW       (cms)=       2.67         1.51
3.672 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50        20.95
29.82
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.37
0.53


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  74.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0121) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (5071):      8.40   0.101     5.00     17.08
       + ID2= 2 (5072):     40.50   3.672     3.00     29.82
         ===============================================
         ID = 3 (0121):     48.90   3.677     3.00     27.63

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5121) |   Area    (ha)=   0.70   Curve Number
(CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.14

     Unit Hyd Qpeak  (cms)=   0.023

     PEAK FLOW       (cms)=   0.010 (i)
     TIME TO PEAK    (hrs)=   4.250
     RUNOFF VOLUME    (mm)=  15.447
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.273

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5122) |   Area    (ha)=   3.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=
47.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.92         1.28
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     146.06        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        44.41
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.37 (ii)   15.39 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.26         0.07

*TOTALS*
     PEAK FLOW       (cms)=       0.36         0.09
0.425 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        19.78
34.21
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.35
0.61

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  71.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0118) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (5121):      0.70   0.010     4.25     15.45
       + ID2= 2 (5122):      3.20   0.425     3.00     34.21
         ===============================================
         ID = 3 (0118):      3.90   0.427     3.00     30.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5111) |   Area    (ha)=   1.90   Curve Number
(CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.56

     Unit Hyd Qpeak  (cms)=   0.129

     PEAK FLOW       (cms)=   0.041 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  13.548
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.240

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5112) |   Area    (ha)=   1.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.55         0.55
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      85.63        40.00
     Mannings n          =       0.013        0.250
```

```
     Max.Eff.Inten.(mm/hr)=      88.14        42.91
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.45 (ii)   14.64 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.30         0.08

*TOTALS*
    PEAK FLOW       (cms)=       0.09         0.04
0.127 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=      50.50        19.48
30.33
    TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
    RUNOFF COEFFICIENT   =       0.89         0.34
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0116) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5111):     1.90   0.041     3.58    13.55
        + ID2= 2 (5112):     1.10   0.127     3.00    30.33
          ==================================================
          ID = 3 (0116):     3.00   0.142     3.00    19.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (5101) |   Area    (ha)=   0.80   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.42

     Unit Hyd Qpeak  (cms)=   0.022

     PEAK FLOW       (cms)=   0.008 (i)
     TIME TO PEAK    (hrs)=   4.667
     RUNOFF VOLUME    (mm)=  13.112
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.232

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5102) |   Area    (ha)=   0.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.45         0.45
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      77.46        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        36.65
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       2.31 (ii)   15.29 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.30         0.07

*TOTALS*
    PEAK FLOW       (cms)=       0.08         0.03
0.095 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=      50.50        16.79
28.58
    TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
    RUNOFF COEFFICIENT   =       0.89         0.30
0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0115) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5101):     0.80   0.008     4.67    13.11
        + ID2= 2 (5102):     0.90   0.095     3.00    28.58
          ==================================================
          ID = 3 (0115):     1.70   0.096     3.00    21.30

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0511) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation       Manning
                  0.00          81.24        0.1100
                 33.01          80.98        0.1100
                 49.97          81.27        0.1100
                 54.18          80.35        0.1100
                 60.88          81.23    0.1100 /0.0700  Main
Channel
                 69.13          79.02        0.0700      Main
Channel
                 92.42          79.04        0.0700      Main
Channel
                 98.70          80.89    0.0700 /0.1100  Main
Channel
                128.88          81.13        0.1100
                199.00          81.23        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12    79.13    .361E+03       0.6          0.24
9.91
       0.23    79.25    .776E+03       2.1          0.40
6.09
       0.35    79.37    .121E+04       4.3          0.52
4.65
       0.47    79.48    .165E+04       7.1          0.63
3.85
       0.59    79.60    .211E+04      10.5          0.72
3.34
       0.70    79.72    .258E+04      14.4          0.81
2.98
       0.82    79.84    .307E+04      18.8          0.89
2.71
       0.94    79.95    .357E+04      23.8          0.97
2.50
       1.05    80.07    .408E+04      29.2          1.04
2.33
       1.17    80.19    .461E+04      35.1          1.10
2.19
       1.29    80.30    .515E+04      41.5          1.17
2.07
       1.41    80.42    .571E+04      48.4          1.23
1.97
       1.52    80.54    .631E+04      55.8          1.28
1.88
       1.64    80.66    .695E+04      63.8          1.33
1.81
       1.76    80.77    .762E+04      72.3          1.38
1.76
       1.87    80.89    .833E+04      81.4          1.42
1.71
       2.00    81.02    .931E+04      92.4          1.44
1.68
       2.13    81.14    .109E+05     104.8          1.39
1.74
       2.25    81.27    .140E+05     120.9          1.25
1.93

                                     <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0115)    1.70     0.10    3.00  21.30
0.02     0.24
    OUTFLOW: ID= 1 (0511)    1.70     0.07    3.08  21.30
0.01     0.24

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| ADD HYD   (0117) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0116):     3.00   0.142     3.00    19.70
        + ID2= 2 (0511):     1.70   0.068     3.08    21.30
          ==================================================
          ID = 3 (0117):     4.70   0.210     3.00    20.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0512) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 484.2) ------>
               Distance      Elevation       Manning
                  0.00          80.80        0.0900
                  9.73          80.46        0.0900
                 14.10          82.04        0.0900
                 17.18          82.28        0.0900
                 41.13          82.12    0.0900 /0.0700  Main
Channel
                 46.88          79.71        0.0700      Main
Channel
                 51.41          80.90    0.0700 /0.0900  Main
Channel
                 94.29          80.56        0.0900
                175.64          80.72        0.0900
                192.09          80.85        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.13    79.84    .255E+02       0.0          0.14
54.71
       0.26    79.98    .102E+03       0.0          0.23
34.47
       0.40    80.11    .229E+03       0.1          0.30
26.30
       0.53    80.24    .408E+03       0.3          0.36
21.71
       0.66    80.37    .637E+03       0.6          0.42
18.71
       0.79    80.51    .934E+03       0.9          0.46
16.84
       0.93    80.64    .245E+04       1.6          0.31
24.96
       1.06    80.77    .873E+04       4.6          0.25
31.51
       1.19    80.90    .179E+05      11.4          0.30
26.08
       1.32    81.04    .278E+05      22.6          0.38
20.45
       1.46    81.17    .381E+05      37.5          0.46
16.91
       1.60    81.31    .484E+05      55.4          0.54
14.57
       1.74    81.45    .588E+05      76.0          0.61
12.90
       1.87    81.59    .693E+05      99.3          0.67
11.63
       2.01    81.72    .798E+05     125.0          0.73
10.64
       2.15    81.86    .903E+05     153.1          0.80
9.83
       2.29    82.00    .101E+06     183.5          0.85
9.16
       2.42    82.14    .112E+06     214.3          0.90
8.68
       2.56    82.27    .123E+06     244.4          0.93
8.40

                                     <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0117)    4.70     0.21    3.00  20.28
0.45     0.32
    OUTFLOW: ID= 1 (0512)    4.70     0.11    3.33  20.27
0.35     0.27


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| ADD HYD   (0119) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0118):     3.90   0.427     3.00    30.84
        + ID2= 2 (0512):     4.70   0.115     3.33    20.27
          ==================================================
          ID = 3 (0119):     8.60   0.513     3.00    25.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (5061) |   Area    (ha)=   3.90   Curve Number
(CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.239

     PEAK FLOW       (cms)=   0.090 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  15.450
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.273

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5062) |   Area    (ha)=   7.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.07         2.73
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     228.04        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        45.50
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.41 (ii)   16.31 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.23         0.06

*TOTALS*
    PEAK FLOW       (cms)=       0.98         0.20
1.110 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=      50.50        19.99
36.16
    TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
    RUNOFF COEFFICIENT   =       0.89         0.35
0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0109) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5061):     3.90   0.090     3.58    15.45
        + ID2= 2 (5062):     7.80   1.110     3.00    36.16
          ==================================================
          ID = 3 (0109):    11.70   1.138     3.00    29.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (5051) |   Area    (ha)=   1.30   Curve Number
(CN)= 68.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.080

     PEAK FLOW       (cms)=   0.027 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  13.998
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.248

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (5052) |   Area    (ha)=  14.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.64         4.96
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     311.98        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        42.02
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.32 (ii)   17.61 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.21         0.06

*TOTALS*
    PEAK FLOW       (cms)=       1.82         0.32
2.038 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=      50.50        18.42
35.74
    TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
    RUNOFF COEFFICIENT   =       0.89         0.33
0.63

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0107) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5051):     1.30   0.027     3.58    14.00
        + ID2= 2 (5052):    14.60   2.038     3.00    35.74
          ==================================================
          ID = 3 (0107):    15.90   2.046     3.00    33.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (5211) |   Area    (ha)=   1.90   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   0.076

     PEAK FLOW       (cms)=   0.040 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  18.912
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.335

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| CALIB              |
| STANDHYD  (5212) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  52.00   Dir. Conn.(%)=
40.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.18          6.62
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     303.32         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         48.55
                over (min)        5.00         20.00
     Storage Coeff.  (min)=       5.23 (ii)    16.83 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.21          0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.28          0.51
1.624 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50         22.65
33.79
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.40
0.60


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0112) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5211):      1.90   0.040     4.00    18.91
        + ID2= 2 (5212):     13.80   1.624     3.00    33.79
          ===============================================
          ID = 3 (0112):     15.70   1.631     3.00    31.99

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB              |
| NASHYD    (5201) |   Area    (ha)=  22.80   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.31

     Unit Hyd Qpeak  (cms)=   0.663

     PEAK FLOW       (cms)=   0.314 (i)
     TIME TO PEAK    (hrs)=   4.500
     RUNOFF VOLUME    (mm)=  15.971
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.283

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| STANDHYD  (5202) |   Area    (ha)=   6.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  23.00   Dir. Conn.(%)=
12.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.59          5.31
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     214.48         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         34.94
                over (min)        5.00         20.00
     Storage Coeff.  (min)=       4.25 (ii)    17.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.24          0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.20          0.29
0.383 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50         18.03
21.92
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.32
0.39

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0111) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5201):     22.80   0.314     4.50    15.97
        + ID2= 2 (5202):      6.90   0.383     3.00    21.92
          ===============================================
          ID = 3 (0111):     29.70   0.415     3.25    17.35

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0521) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 815.4) ------>
              Distance      Elevation       Manning
                415.18         83.86        0.0900
                461.15         83.40        0.0900
                501.83         83.53    0.0900 /0.0700  Main
Channel
                513.93         82.96        0.0700      Main
Channel
                526.85         83.23    0.0700 /0.0900  Main
Channel
                569.63         83.21        0.0900
                610.76         83.63        0.0900
                663.54         83.88        0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.05    83.00    .378E+02       0.0          0.11
83.81
      0.09    83.05    .151E+03       0.0          0.17
52.79
      0.14    83.09    .340E+03       0.1          0.22
40.29
      0.18    83.14    .605E+03       0.3          0.27
33.26
      0.23    83.18    .946E+03       0.5          0.32
28.66
      0.27    83.23    .151E+04       0.9          0.33
27.77
      0.32    83.27    .323E+04       1.8          0.31
29.51
      0.37    83.32    .510E+04       3.2          0.34
26.44
      0.42    83.37    .713E+04       5.0          0.38
23.61
      0.46    83.42    .934E+04       7.3          0.42
21.44
      0.51    83.47    .121E+05      10.0          0.45
20.23
      0.56    83.52    .156E+05      13.4          0.47
19.44
      0.61    83.57    .196E+05      17.7          0.49
18.52
      0.66    83.61    .240E+05      22.8          0.52
17.49
      0.71    83.66    .286E+05      28.4          0.54
16.75
      0.75    83.71    .336E+05      34.7          0.56
16.14
      0.80    83.76    .390E+05      41.8          0.58
15.55
      0.85    83.81    .448E+05      49.8          0.60
14.99
      0.90    83.86    .510E+05      58.8          0.63
14.46

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0111)   29.70     0.41    3.25  17.35
0.20      0.29
     OUTFLOW: ID= 1 (0521)   29.70     0.37    4.58  17.34
0.19      0.28


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| ADD HYD   (0113) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0112):     15.70   1.631     3.00    31.99
        + ID2= 2 (0521):     29.70   0.368     4.58    17.34
          ===============================================
          ID = 3 (0113):     45.40   1.747     3.00    22.41

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB              |
| NASHYD    (5041) |   Area    (ha)=   0.30   Curve Number
(CN)= 68.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.89

     Unit Hyd Qpeak  (cms)=   0.013

     PEAK FLOW       (cms)=   0.005 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=  13.992
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.248

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| STANDHYD  (5042) |   Area    (ha)=   7.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.88          2.52
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     222.11         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         42.02
                over (min)        5.00         20.00
     Storage Coeff.  (min)=       4.34 (ii)    16.63 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.23          0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.95          0.17
1.057 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50         18.42
35.74
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.33
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0105) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5041):      0.30   0.005     3.92    13.99
        + ID2= 2 (5042):      7.40   1.057     3.00    35.74
          ===============================================
          ID = 3 (0105):      7.70   1.058     3.00    34.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB              |
| NASHYD    (5031) |   Area    (ha)=   1.70   Curve Number
(CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.82

     Unit Hyd Qpeak  (cms)=   0.079

     PEAK FLOW       (cms)=   0.032 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  15.449
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.273

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (5032) |   Area    (ha)=  12.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  59.00   Dir. Conn.(%)=
47.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.20          5.00
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     285.19         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         42.47
                over (min)        5.00         20.00
     Storage Coeff.  (min)=       5.04 (ii)    17.28 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.21          0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.34          0.33
1.556 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50         19.39
34.01
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.34
0.60


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0103) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5031):      1.70   0.032     3.83    15.45
        + ID2= 2 (5032):     12.20   1.556     3.00    34.01
          ===============================================
          ID = 3 (0103):     13.90   1.562     3.00    31.74

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB              |
| NASHYD    (5021) |   Area    (ha)=  25.20   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.46

     Unit Hyd Qpeak  (cms)=   0.662

     PEAK FLOW       (cms)=   0.230 (i)
     TIME TO PEAK    (hrs)=   4.750
     RUNOFF VOLUME    (mm)=  11.521
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.204

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (5022) |   Area    (ha)=  25.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  42.00   Dir. Conn.(%)=
30.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.88         15.02
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     415.53         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         27.97
                over (min)        5.00         25.00
     Storage Coeff.  (min)=       6.32 (ii)    20.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.19          0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.75          0.57
2.049 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=      50.50         13.91
24.88
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.25
0.44


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0101) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5021):     25.20   0.230     4.75    11.52
        + ID2= 2 (5022):     25.90   2.049     3.00    24.88
          ===============================================
          ID = 3 (0101):     51.10   2.066     3.00    18.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB              |
| NASHYD    (5011) |   Area    (ha)=  80.20   Curve Number
(CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.85

     Unit Hyd Qpeak  (cms)=   3.621

     PEAK FLOW       (cms)=   1.208 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=  12.696
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.225

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (5012) |   Area    (ha)=  39.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
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                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.97        24.43
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     512.51        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        31.75
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       7.16 (ii)   20.91 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.17         0.05

*TOTALS*
     PEAK FLOW       (cms)=       2.08         1.06
2.636 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      50.50        15.46
23.87
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.27
0.42

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  65.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0100) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (5011):      80.20   1.208     3.92    12.70
      + ID2= 2 (5012):      39.40   2.636     3.00    23.87
        ===============================================
        ID = 3 (0100):     119.60   2.865     3.00    16.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0502) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1537.5) ------>
               Distance      Elevation       Manning
                  0.00         89.30         0.1100
                  4.20         89.28         0.1100
                  9.03         88.80         0.1100
                 21.55         88.78         0.1100
                 29.06         88.24         0.1100
                 39.87         87.83         0.1100
                 55.54         87.84     0.1100 /0.0700  Main
Channel
                 57.54         86.84         0.0700      Main
Channel
                 59.04         86.84         0.0700      Main
Channel
                 61.04         87.84     0.0700 /0.1100  Main
Channel
                 74.10         87.86         0.1100
                 87.72         88.07         0.1100
                101.34         88.18         0.1100
                113.53         88.23         0.1100
                128.57         88.32         0.1100
                142.19         88.61         0.1100
                155.81         88.53         0.1100
                183.05         88.85         0.1100
                187.19         88.84         0.1100
                211.21         88.88         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.10    86.94    .202E+03       0.0          0.25
78.80
     0.20    87.04    .452E+03       0.1          0.37
52.91
     0.30    87.14    .749E+03       0.3          0.47
42.34
     0.40    87.24    .109E+04       0.5          0.55
36.26
     0.50    87.34    .149E+04       0.8          0.62
32.18
     0.60    87.44    .193E+04       1.1          0.68
29.19
     0.70    87.54    .241E+04       1.5          0.74
26.87
     0.80    87.64    .295E+04       2.0          0.79
25.01
     0.90    87.74    .353E+04       2.5          0.84
23.46
     1.00    87.84    .421E+04       3.1          0.89
22.39
     1.10    87.94    .849E+04       4.5          0.63
31.56
     1.21    88.05    .150E+05       7.1          0.56
35.43
     1.33    88.17    .233E+05      10.6          0.54
36.49
     1.44    88.28    .346E+05      15.5          0.53
37.18
     1.56    88.40    .484E+05      22.8          0.56
35.35
     1.67    88.51    .634E+05      32.1          0.60
32.90
     1.79    88.63    .807E+05      41.2          0.61
32.65
     1.90    88.74    .101E+06      54.6          0.64
30.77
     2.02    88.86    .124E+06      64.7          0.62
31.85

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0100)  119.60     2.86    3.00  16.38
0.96     0.87
     OUTFLOW: ID= 1 (0502)  119.60     2.02    3.58  16.37
0.81     0.80

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| ADD HYD   (0102) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0101):      51.10   2.066     3.00    18.29
      + ID2= 2 (0502):     119.60   2.022     3.58    16.37
        ===============================================
        ID = 3 (0102):     170.70   3.272     3.00    16.95

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0503) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1157.9) ------>
               Distance      Elevation       Manning
                  0.00         86.78         0.0900
                 25.34         87.17         0.0900
                 68.44         87.04         0.0900
                117.13         86.81         0.0900
                125.36         85.21     0.0900 /0.0700  Main
Channel
                127.36         84.21         0.0700      Main
Channel
                128.86         84.21         0.0700      Main
Channel
                130.86         85.21     0.0700 /0.0900  Main
Channel
                131.88         86.36         0.0900
                140.63         86.77         0.0900
                168.26         86.90         0.0900
                169.81         87.10         0.0900
                202.11         87.50         0.0900
                239.06         87.35         0.0900
                270.29         87.83         0.0900
                283.90         87.90         0.0900
                297.51         87.86         0.0900
                324.73         87.89         0.0900
                351.95         87.78         0.0900
                388.59         87.46         0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.17    84.38    .114E+03       0.1          0.34
18.34
     0.33    84.54    .269E+03       0.4          0.50
12.51
     0.50    84.71    .465E+03       0.8          0.62
10.07
     0.67    84.88    .703E+03       1.4          0.72
8.63
     0.83    85.04    .982E+03       2.1          0.81
7.65
     1.00    85.21    .130E+04       3.1          0.89
6.93
     1.21    85.42    .177E+04       5.0          1.06
5.87
     1.41    85.62    .234E+04       7.4          1.17
5.28
     1.62    85.83    .300E+04      10.2          1.27
4.89
     1.83    86.04    .376E+04      13.6          1.35
4.60
     2.03    86.24    .462E+04      17.6          1.42
4.37
     2.24    86.45    .560E+04      22.1          1.47
4.22
     2.45    86.66    .695E+04      27.6          1.48
4.20
     2.66    86.87    .925E+04      31.2          1.25
4.94
     2.86    87.07    .168E+05      43.1          0.96
6.48
     3.07    87.28    .297E+05      67.7          0.85
7.30
     3.28    87.49    .456E+05     103.1          0.84
7.38
     3.48    87.69    .663E+05     159.6          0.89
6.93
     3.69    87.90    .907E+05     223.4          0.92
6.77

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0102)  170.70     3.27    3.00  16.95
1.02     0.91
     OUTFLOW: ID= 1 (0503)  170.70     2.85    3.08  16.95
0.95     0.87

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| ADD HYD   (0104) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0103):      13.90   1.562     3.00    31.74
      + ID2= 2 (0503):     170.70   2.855     3.08    16.95
        ===============================================
        ID = 3 (0104):     184.60   4.058     3.00    18.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0504) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 815.4) ------>
               Distance      Elevation       Manning
                 19.10         82.03         0.0900
                 29.01         83.14         0.0900
                 40.83         82.56         0.0900
                 81.51         82.27         0.0900
                122.18         82.68         0.0900
                169.31         82.61         0.0900
                217.10         82.90         0.0900
                229.61         83.66     0.0900 /0.0700  Main
Channel
                232.80         81.85         0.0700      Main
Channel
                243.24         83.87         0.0700      Main
Channel
                257.77         84.06         0.0900
                312.01         83.52         0.0900
                415.18         83.86         0.0900
                461.15         83.40         0.0900
                501.83         83.53         0.0900
                513.93         82.96         0.0900
                526.85         83.23         0.0900
                569.63         83.21         0.0900
                610.76         83.63         0.0900
                663.54         83.88         0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.11    81.96    .117E+02       0.0          0.18
23.95
     0.23    82.08    .492E+02       0.1          0.28
15.67
     0.34    82.19    .135E+03       0.2          0.34
13.00
     0.45    82.30    .312E+03       0.4          0.32
13.44
     0.57    82.42    .116E+04       1.2          0.28
15.74
     0.68    82.53    .287E+04       3.5          0.32
13.85
     0.79    82.64    .549E+04       7.0          0.33
13.13
     0.91    82.76    .101E+05      14.9          0.39
11.28
     1.02    82.87    .155E+05      27.5          0.47
9.38
     1.13    82.98    .214E+05      45.2          0.55
7.89
     1.25    83.10    .277E+05      67.2          0.64
6.87
     1.36    83.21    .344E+05      93.6          0.71
6.12
     1.47    83.32    .426E+05     125.3          0.77
5.67
     1.59    83.44    .516E+05     162.2          0.82
5.30
     1.70    83.55    .620E+05     204.2          0.86
5.06
     1.81    83.66    .747E+05     254.0          0.89
4.90
     1.95    83.80    .924E+05     324.9          0.92
4.74
     2.08    83.93    .113E+06     411.3          0.95
4.59
     2.21    84.06    .135E+06     515.5          1.00
4.37

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0104)  184.60     4.06    3.00  18.06
0.70     0.32
     OUTFLOW: ID= 1 (0504)  184.60     3.25    3.50  18.06
0.67     0.31

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| ADD HYD   (0106) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0105):       7.70   1.058     3.00    34.89
      + ID2= 2 (0504):     184.60   3.255     3.50    18.06
        ===============================================
        ID = 3 (0106):     192.30   3.505     3.42    18.74

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0114) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0106):     192.30   3.505     3.42    18.74
      + ID2= 2 (0113):      45.40   1.747     3.00    22.41
        ===============================================
        ID = 3 (0114):     237.70   4.980     3.00    19.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0505) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation       Manning
                  0.00         81.24         0.1100
                 33.01         80.98         0.1100
                 49.97         81.27         0.1100
                 54.18         80.35         0.1100
                 60.88         81.23         0.1100
                 69.13         79.02         0.1100
                 92.42         79.04         0.1100
                 98.70         80.89         0.1100
                128.88         81.13         0.1100
                199.00         81.23         0.1100
                266.11         81.68         0.1100
                306.94         81.73         0.1100
                331.74         81.55     0.1100 /0.0700  Main
Channel
                336.74         80.15         0.0700      Main
Channel
                346.34         81.64     0.0700 /0.0900  Main
Channel
                394.77         81.68         0.0900
                431.64         81.44         0.0900
                477.44         82.08         0.0900
                481.25         82.81         0.0900
                501.51         83.16         0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.12    79.13    .418E+03       0.4          0.15
18.59
     0.23    79.25    .899E+03       1.3          0.25
11.41
     0.35    79.36    .140E+04       2.7          0.33
8.70
     0.46    79.48    .191E+04       4.4          0.39
7.22
     0.58    79.59    .244E+04       6.5          0.46
6.26
     0.69    79.71    .299E+04       8.9          0.51
5.58
     0.81    79.82    .355E+04      11.7          0.56
5.08
     0.92    79.94    .413E+04      14.7          0.61
4.68
     1.04    80.05    .472E+04      18.1          0.65
4.36
     1.15    80.17    .533E+04      21.7          0.70
4.09
     1.27    80.28    .598E+04      25.7          0.74
3.88
     1.38    80.40    .666E+04      29.7          0.76
3.74
     1.50    80.51    .740E+04      33.7          0.78
3.67
     1.61    80.63    .822E+04      38.1          0.79
3.59
     1.73    80.74    .909E+04      43.1          0.81
3.52
     1.84    80.86    .100E+05      48.6          0.83
3.45
     1.96    80.97    .111E+05      48.4          0.74
3.83
     2.07    81.09    .128E+05      43.8          0.59
4.86
     2.19    81.21    .155E+05      40.6          0.45
6.35

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0114)  237.70     4.98    3.00  19.44
0.49     0.41
     OUTFLOW: ID= 1 (0505)  237.70     4.48    3.08  19.44
0.46     0.40

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| ADD HYD   (0108) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0107):      15.90   2.046     3.00    33.96
      + ID2= 2 (0505):     237.70   4.477     3.08    19.44
        ===============================================
        ID = 3 (0108):     253.60   5.957     3.00    20.35

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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-------------------
| ROUTE CHN (0506) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 304.1) ------>
              Distance      Elevation      Manning
                 0.00         81.42        0.0900
                 7.45         81.36        0.0900
                32.34         80.38        0.0900
                45.97         80.05        0.0900
                65.23         79.93        0.0900
                84.49         80.35        0.0900
               113.49         80.02        0.0900
               136.48         80.07        0.0900
               188.81         79.81        0.0900
               197.86         79.25    0.0900 /0.0700  Main
Channel
               200.70         78.22        0.0700      Main
Channel
               203.29         79.35    0.0700 /0.0900  Main
Channel
               204.01         79.67        0.0900
               236.47         80.40        0.0900
               277.80         80.48        0.0900
               305.35         80.37        0.0900
               346.67         80.41        0.0900
               387.99         80.33        0.0900
               415.54         80.53        0.0900
               447.88         80.49        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.11    78.34    .979E+01       0.0          0.23
21.53
     0.23    78.45    .392E+02       0.0          0.37
13.56
     0.34    78.56    .881E+02       0.1          0.48
10.35
     0.46    78.68    .157E+03       0.3          0.58
8.54
     0.57    78.79    .245E+03       0.6          0.67
7.36
     0.68    78.91    .352E+03       0.9          0.76
6.52
     0.80    79.02    .480E+03       1.4          0.84
5.88
     0.91    79.13    .627E+03       1.9          0.92
5.38
     1.03    79.25    .793E+03       2.7          0.99
4.98
     1.15    79.37    .103E+04       3.8          1.09
4.55
     1.28    79.50    .135E+04       5.2          1.16
4.28
     1.40    79.62    .175E+04       7.1          1.20
4.12
     1.52    79.75    .228E+04       9.3          1.21
4.08
     1.65    79.87    .318E+04      11.7          1.10
4.52
     1.77    80.00    .524E+04      15.8          0.90
5.52
     1.90    80.12    .973E+04      24.3          0.74
6.69
     2.02    80.24    .158E+05      39.7          0.75
6.62
     2.15    80.37    .230E+05      59.2          0.77
6.46
     2.27    80.49    .349E+05      90.3          0.77
6.44

                                      <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
   INFLOW : ID= 2 (0108)  253.60     5.96    3.00  20.35
1.32      1.17
   OUTFLOW: ID= 1 (0506)  253.60     5.67    3.08  20.35
1.30      1.17


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| ADD HYD   (0110) |
|   1 +  2 =  3   |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0109):     11.70   1.138     3.00    29.26
      + ID2= 2 (0506):    253.60   5.670     3.08    20.35
        ================================================
        ID = 3 (0110):    265.30   6.297     3.08    20.74

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0120) |
|   1 +  2 =  3   |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0110):    265.30   6.297     3.08    20.74
      + ID2= 2 (0119):      8.60   0.513     3.00    25.07
        ================================================
        ID = 3 (0120):    273.90   6.640     3.00    20.88

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (5302) |   Area    (ha)=   5.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=
48.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.48         2.32
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     196.64        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        36.65
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.03 (ii)   17.01 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.24         0.06

*TOTALS*
    PEAK FLOW       (cms)=       0.66         0.13
0.750 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=      50.50        16.79
32.97
    TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
    RUNOFF COEFFICIENT   =       0.89         0.30
0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| CALIB             |
| NASHYD    (6051) |   Area    (ha)=   0.40   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.31

     Unit Hyd Qpeak  (cms)=   0.012

     PEAK FLOW       (cms)=   0.005 (i)
     TIME TO PEAK    (hrs)=   4.500
     RUNOFF VOLUME    (mm)=  13.108
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.232

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6052) |   Area    (ha)=  15.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.23         5.27
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     321.46        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        39.50
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.41 (ii)   18.01 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.20         0.06

*TOTALS*
    PEAK FLOW       (cms)=       1.93         0.32
2.141 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.25
3.00
    RUNOFF VOLUME    (mm)=      50.50        17.37
35.26
    TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
    RUNOFF COEFFICIENT   =       0.89         0.31
0.62


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0131) |
|   1 +  2 =  3   |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (6051):      0.40   0.005     4.50    13.11
      + ID2= 2 (6052):     15.50   2.141     3.00    35.26
        ================================================
        ID = 3 (0131):     15.90   2.141     3.00    34.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6111) |   Area    (ha)=   0.60   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.08

     Unit Hyd Qpeak  (cms)=   0.021

     PEAK FLOW       (cms)=   0.011 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)=  18.909
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.335

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6112) |   Area    (ha)=  10.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  62.00   Dir. Conn.(%)=
50.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.70         4.10
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     268.33        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        49.77
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.86 (ii)   16.34 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.22         0.06

*TOTALS*
    PEAK FLOW       (cms)=       1.26         0.33
1.486 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=      50.50        22.15
36.32
    TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
    RUNOFF COEFFICIENT   =       0.89         0.39
0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0137) |
|   1 +  2 =  3   |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (6111):      0.60   0.011     4.17    18.91
      + ID2= 2 (6112):     10.80   1.486     3.00    36.32
        ================================================
        ID = 3 (0137):     11.40   1.487     3.00    35.41

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6101) |   Area    (ha)=   9.00   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.23
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     Unit Hyd Qpeak  (cms)=   0.279

     PEAK FLOW       (cms)=   0.121 (i)
     TIME TO PEAK    (hrs)=   4.417
     RUNOFF VOLUME    (mm)=  14.948
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.265

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6102) |   Area    (ha)=  12.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  27.00   Dir. Conn.(%)=
16.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.27         8.83
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     284.02        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        33.10
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.03 (ii)   18.55 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.21         0.06

*TOTALS*
    PEAK FLOW       (cms)=       0.45         0.44
0.733 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.25
3.00
    RUNOFF VOLUME    (mm)=      50.50        17.03
22.38
    TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
    RUNOFF COEFFICIENT   =       0.89         0.30
0.40

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0136) |
|   1 +  2 =  3   |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (6101):      9.00   0.121     4.42    14.95
      + ID2= 2 (6102):     12.10   0.733     3.00    22.38
        ================================================
        ID = 3 (0136):     21.10   0.746     3.00    19.21

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0611) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 940.0) ------>
              Distance      Elevation      Manning
                 0.00         83.36        0.0900
                12.33         84.54        0.0900
                21.95         84.33    0.0900 /0.0700  Main
Channel
                25.80         83.10        0.0700      Main
Channel
                39.87         83.58    0.0700 /0.0900  Main
Channel
                95.01         83.67        0.0900
               132.30         84.45        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.07    83.17    .442E+02       0.0          0.13
76.06
     0.14    83.24    .177E+03       0.1          0.20
47.91
     0.21    83.31    .398E+03       0.2          0.26
36.56
     0.28    83.38    .709E+03       0.4          0.32
30.22
     0.35    83.44    .113E+04       0.7          0.36
26.38
     0.41    83.51    .167E+04       1.2          0.41
23.66
     0.48    83.58    .232E+04       1.8          0.45
21.54
     0.56    83.66    .431E+04       3.1          0.42
23.06
     0.64    83.74    .779E+04       5.6          0.42
23.11
     0.72    83.82    .115E+05       9.1          0.46
20.97
     0.80    83.90    .154E+05      13.6          0.51
18.96
     0.88    83.98    .196E+05      18.9          0.55
17.31
     0.96    84.06    .240E+05      25.0          0.60
15.97
     1.04    84.14    .286E+05      32.1          0.65
14.88
     1.12    84.22    .334E+05      39.9          0.69
13.96
     1.20    84.30    .385E+05      48.6          0.73
13.19
     1.28    84.38    .438E+05      58.0          0.76
12.59
     1.36    84.46    .495E+05      68.4          0.80
12.06
     1.44    84.54    .555E+05      81.0          0.84
11.40

                                      <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
   INFLOW : ID= 2 (0136)   21.10     0.75    3.00  19.21
0.35      0.37
   OUTFLOW: ID= 1 (0611)   21.10     0.44    3.42  19.20
0.29      0.32


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-------------------
| ADD HYD   (0138) |
|   1 +  2 =  3   |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0137):     11.40   1.487     3.00    35.41
      + ID2= 2 (0611):     21.10   0.438     3.42    19.20
        ================================================
        ID = 3 (0138):     32.50   1.757     3.00    24.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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-------------------
| CALIB             |
| NASHYD    (6041) |   Area    (ha)=   1.70   Curve Number
(CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   4.12

     Unit Hyd Qpeak  (cms)=   0.016

     PEAK FLOW       (cms)=   0.012 (i)
     TIME TO PEAK    (hrs)=   7.583
     RUNOFF VOLUME    (mm)=  20.270
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.359

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6042) |   Area    (ha)=  22.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       14.49         7.81
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      385.57        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=       88.14        58.52
                over (min)         5.00        20.00
     Storage Coeff.  (min)=        6.04 (ii)   16.80 (ii)
     Unit Hyd. Tpeak (min)=        5.00        20.00
     Unit Hyd. peak  (cms)=        0.19         0.06

*TOTALS*
     PEAK FLOW       (cms)=        2.69         0.73
3.189 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=       50.50        25.34
38.67
     TOTAL RAINFALL   (mm)=       56.50        56.50
56.50
     RUNOFF COEFFICIENT   =        0.89         0.45
0.68


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0129) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6041):      1.70   0.012     7.58    20.27
        + ID2= 2 (6042):     22.30   3.189     3.00    38.67
          ==================================================
          ID = 3 (0129):     24.00   3.189     3.00    37.37

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| NASHYD    (6031) |   Area    (ha)=  19.00   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.32

     Unit Hyd Qpeak  (cms)=   0.550

     PEAK FLOW       (cms)=   0.261 (i)
     TIME TO PEAK    (hrs)=   4.500
     RUNOFF VOLUME    (mm)=  15.971
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.283

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (6032) |   Area    (ha)=  15.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
15.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        4.40        11.30
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      323.52        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=       88.14        37.12
                over (min)         5.00        20.00
     Storage Coeff.  (min)=        5.44 (ii)   18.35 (ii)
     Unit Hyd. Tpeak (min)=        5.00        20.00
     Unit Hyd. peak  (cms)=        0.20         0.06

*TOTALS*
     PEAK FLOW       (cms)=        0.54         0.63
0.956 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=       50.50        18.53
23.33
     TOTAL RAINFALL   (mm)=       56.50        56.50
56.50
     RUNOFF COEFFICIENT   =        0.89         0.33
0.41

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0127) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6031):     19.00   0.261     4.50    15.97
        + ID2= 2 (6032):     15.70   0.956     3.00    23.33
          ==================================================
          ID = 3 (0127):     34.70   0.981     3.00    19.30

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| NASHYD    (6011) |   Area    (ha)=  44.10   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.83

     Unit Hyd Qpeak  (cms)=   2.027

     PEAK FLOW       (cms)=   0.608 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=  11.521
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.204

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (6012) |   Area    (ha)=  11.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
16.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        3.08         7.92
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      270.80        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=       88.14        26.15
                over (min)         5.00        20.00
     Storage Coeff.  (min)=        4.88 (ii)   19.74 (ii)
     Unit Hyd. Tpeak (min)=        5.00        20.00
     Unit Hyd. peak  (cms)=        0.22         0.06

*TOTALS*
     PEAK FLOW       (cms)=        0.41         0.30
0.600 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=       50.50        13.46
19.39
     TOTAL RAINFALL   (mm)=       56.50        56.50
56.50
     RUNOFF COEFFICIENT   =        0.89         0.24
0.34

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0124) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6011):     44.10   0.608     3.92    11.52
        + ID2= 2 (6012):     11.00   0.600     3.00    19.39
          ==================================================
          ID = 3 (0124):     55.10   0.784     3.50    13.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| NASHYD    (6021) |   Area    (ha)=  43.60   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   1.753

     PEAK FLOW       (cms)=   0.545 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  11.521
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.204

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6022) |   Area    (ha)=  12.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
23.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        4.51         8.39
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      293.26        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=       88.14        26.96
                over (min)         5.00        20.00
     Storage Coeff.  (min)=        5.12 (ii)   19.80 (ii)
     Unit Hyd. Tpeak (min)=        5.00        20.00
     Unit Hyd. peak  (cms)=        0.21         0.06

*TOTALS*
     PEAK FLOW       (cms)=        0.69         0.33
0.896 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=       50.50        13.66
22.13
     TOTAL RAINFALL   (mm)=       56.50        56.50
56.50
     RUNOFF COEFFICIENT   =        0.89         0.24
0.39


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0125) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6021):     43.60   0.545     4.00    11.52
        + ID2= 2 (6022):     12.90   0.896     3.00    22.13
          ==================================================
          ID = 3 (0125):     56.50   0.981     3.00    13.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0126) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0124):     55.10   0.784     3.50    13.09
        + ID2= 2 (0125):     56.50   0.981     3.00    13.94
          ==================================================
          ID = 3 (0126):    111.60   1.699     3.00    13.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0603) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (2135.9) ------>
               Distance      Elevation        Manning
                   0.00          92.58         0.1400
                   8.54          92.59         0.1400
                  22.11          92.47         0.1400
                  48.74          91.83         0.1400
                  67.59          91.58         0.1400
                  86.45          91.21         0.1400
                 103.50          90.80         0.1400
                 118.09          90.23         0.1400
                 127.84          90.09    0.1400 /0.0700  Main
Channel
                 129.84          89.59         0.0700     Main
Channel
                 130.34          90.09    0.0700 /0.1400  Main
Channel
                 140.57          90.14         0.1400
                 161.87          90.11         0.1400
                 177.03          90.04         0.1400
                 188.67          89.87         0.1400
                 199.59          90.31         0.1400
                 212.02          90.96         0.1400
                 225.58          91.35         0.1400
                 252.71          91.66         0.1400
                 274.11          91.86         0.1400

         <-------------------- TRAVEL TIME TABLE -----------------
---->
   DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
     (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
    0.12   89.71   .358E+02       0.0          0.19
81.29
    0.25   89.84   .143E+03       0.0          0.30
51.21
    0.37   89.96   .689E+03       0.2          0.23
67.44
    0.50   90.09   .278E+04       0.6          0.20
77.83
    0.67   90.26   .132E+05       3.4          0.23
65.31
    0.83   90.42   .262E+05       9.3          0.33
46.76
    1.00   90.59   .403E+05      17.9          0.41
37.64
    1.17   90.76   .556E+05      28.8          0.48
32.17
    1.33   90.92   .721E+05      42.0          0.53
28.63
    1.50   91.09   .903E+05      57.1          0.58
26.37
    1.67   91.26   .110E+06      74.7          0.62
24.65
    1.83   91.42   .133E+06      93.4          0.64
23.71
    2.00   91.59   .159E+06     113.6          0.66
23.26
    2.17   91.76   .188E+06     136.6          0.67
22.96
    2.33   91.92   .222E+06     168.5          0.70
21.97
    2.50   92.09   .258E+06     211.3          0.75
20.33
    2.67   92.26   .294E+06     258.5          0.81
18.98
    2.83   92.42   .332E+06     310.1          0.86
17.85
    3.00   92.59   .371E+06     358.0          0.88
17.29

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
   INFLOW : ID= 2 (0126)  111.60     1.70    3.00  13.52
0.57      0.21
   OUTFLOW: ID= 1 (0603)  111.60     1.06    4.67  13.52
0.53      0.20


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| ADD HYD   (0128) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0127):     34.70   0.981     3.00    19.30
        + ID2= 2 (0603):    111.60   1.061     4.67    13.52
          ==================================================
          ID = 3 (0128):    146.30   1.464     4.50    14.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0604) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1414.9) ------>
               Distance      Elevation        Manning
                   0.00          86.75         0.0900
                   3.09          87.40         0.0900
                  18.33          87.41         0.0900
                  35.33          86.99         0.0900
                  73.84          86.75         0.0900
                 103.33          86.41         0.0900
                 120.33          86.11         0.0900
                 129.46          86.13         0.0900
                 143.37          85.32         0.0900
                 154.33          85.02         0.0900
                 161.57          85.09         0.0900
                 163.05          84.78    0.0900 /0.0700  Main
Channel
                 166.55          83.78         0.0700     Main
Channel
                 168.05          84.78    0.0700 /0.1100  Main
Channel
                 172.02          85.29         0.1100
                 191.39          86.19         0.1100
                 270.18          85.78         0.1100
                 296.33          86.36         0.1100
                 324.34          86.68         0.1100
                 368.56          87.05         0.1100

         <-------------------- TRAVEL TIME TABLE -----------------
---->
   DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
     (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
    0.17   83.95   .465E+02       0.0          0.03
432.88
    0.33   84.11   .186E+03       0.0          0.04
272.70
    0.50   84.28   .418E+03       0.0          0.05
208.11
    0.67   84.45   .743E+03       0.1          0.06
171.79
    0.83   84.61   .116E+04       0.1          0.08
148.04
    1.00   84.78   .167E+04       0.2          0.09
131.10
    1.20   84.98   .252E+04       0.4          0.10
110.62
    1.41   85.19   .469E+04       0.6          0.09
121.59
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        1.61    85.39    .842E+04       1.1          0.09
126.63
        1.81    85.59    .133E+05       1.8          0.09
121.99
        2.01    85.79    .192E+05       2.7          0.10
116.68
        2.22    86.00    .298E+05       4.0          0.09
125.45
        2.42    86.20    .487E+05       5.6          0.08
143.80
        2.62    86.40    .736E+05       9.0          0.08
137.02
        2.82    86.60    .102E+06      13.1          0.09
130.82
        3.03    86.81    .136E+06      18.1          0.09
125.42
        3.23    87.01    .178E+06      24.4          0.09
121.07
        3.43    87.21    .224E+06      34.2          0.10
108.80
        3.63    87.41    .271E+06      44.8          0.11
100.89

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
      INFLOW : ID= 2 (0128)  146.30     1.46    4.50  14.89
1.71      0.09
      OUTFLOW: ID= 1 (0604)  146.30     1.05    4.83  14.88
1.59      0.09

      **** WARNING:  COMPUTATIONS FAILED TO CONVERGE.

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| ADD HYD   (0130) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0129):    24.00   3.189     3.00    37.37
        + ID2= 2 (0604):   146.30   1.048     4.83    14.88
          ===============================================
          ID = 3 (0130):   170.30   3.542     3.00    18.05

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0605) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 801.4) ------>
               Distance      Elevation       Manning
                   0.00          82.95        0.1100
                   3.78          82.95        0.1100
                   9.24          82.49        0.1100
                  50.67          82.10        0.1100
                 105.12          82.17        0.1100
                 119.34          81.56        0.1100
                 150.67          81.66        0.1100
                 157.23          82.37        0.1100
                 190.03          82.57        0.1100
                 223.75          82.27        0.1100
                 252.32          82.50        0.1100
                 254.65          81.95    0.1100 /0.0700  Main
Channel
                 258.15          80.95        0.0700      Main
Channel
                 259.65          81.95    0.0700 /0.1100  Main
Channel
                 263.15          82.90        0.1100
                 278.14          82.80        0.1100
                 282.35          81.68        0.1100
                 285.02          82.19        0.1100
                 336.56          82.53        0.1100
                 404.40          82.68        0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
        DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.08    81.03    .125E+02       0.0          0.11
104.30
        0.17    81.12    .499E+02       0.0          0.18
65.70
        0.25    81.20    .112E+03       0.0          0.24
50.14
        0.33    81.28    .199E+03       0.1          0.29
41.39
        0.42    81.37    .312E+03       0.1          0.34
35.67
        0.50    81.45    .449E+03       0.2          0.38
31.59
        0.58    81.53    .611E+03       0.4          0.42
28.50
        0.67    81.62    .117E+04       0.5          0.33
36.10
        0.75    81.70    .316E+04       1.1          0.24
49.12
        0.83    81.78    .560E+04       2.1          0.27
45.15
        0.92    81.87    .827E+04       3.4          0.30
40.03
        1.00    81.95    .112E+05       5.2          0.33
35.88
        1.10    82.05    .151E+05       8.0          0.38
31.68
        1.21    82.16    .207E+05       8.8          0.30
39.37
        1.31    82.26    .306E+05      14.0          0.33
36.36
        1.41    82.36    .433E+05      20.3          0.34
35.59
        1.52    82.47    .606E+05      28.4          0.34
35.57
        1.62    82.57    .828E+05      41.0          0.36
33.68
        1.73    82.68    .109E+06      60.1          0.39
30.35

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
      INFLOW : ID= 2 (0130)  170.30     3.54    3.00  18.05
0.92      0.30
      OUTFLOW: ID= 1 (0605)  170.30     1.40    3.50  18.05
0.78      0.25


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| ADD HYD   (0139) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0138):    32.50   1.757     3.00    24.89
        + ID2= 2 (0605):   170.30   1.396     3.50    18.05
          ===============================================
          ID = 3 (0139):   202.80   2.806     3.00    19.14

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0132) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0131):    15.90   2.141     3.00    34.70
        + ID2= 2 (0139):   202.80   2.806     3.00    19.14
          ===============================================
          ID = 3 (0132):   218.70   4.947     3.00    20.27

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0530) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 350.0) ------>
               Distance      Elevation       Manning
                   0.00          81.70        0.1100
                   3.84          81.72        0.1100
                   5.87          80.72        0.1100
                   9.38          81.42        0.1100
                  49.64          81.07        0.1100
                  80.61          80.72        0.1100
                  85.61          81.14        0.1100
                  93.32          80.00        0.1100
                  95.04          80.45        0.1100
                 102.72          80.66        0.1100
                 110.13          78.93    0.1100 /0.0700  Main
Channel
                 118.05          78.63        0.0700      Main
Channel
                 124.40          78.89    0.0700 /0.1100  Main
Channel
                 132.18          79.61        0.1100
                 139.34          79.23        0.1100
                 144.67          79.43        0.1100
                 149.63          79.98        0.1100
                 153.42          79.79        0.1100
                 158.56          80.58        0.1100
                 176.89          81.15        0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
        DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.13    78.76    .190E+03       0.1          0.19
38.41
        0.26    78.89    .758E+03       0.5          0.31
24.20
        0.43    79.05    .189E+04       2.1          0.50
14.77
        0.59    79.22    .321E+04       4.7          0.65
11.35
        0.76    79.39    .498E+04       8.2          0.73
10.10
        0.93    79.55    .743E+04      13.1          0.78
9.48
        1.09    79.72    .103E+05      19.5          0.84
8.84
        1.26    79.89    .135E+05      27.1          0.89
8.29
        1.43    80.05    .171E+05      36.3          0.94
7.85
        1.59    80.22    .209E+05      47.2          1.00
7.39
        1.76    80.39    .251E+05      59.8          1.06
6.99
        1.93    80.56    .296E+05      73.5          1.10
6.70
        2.10    80.72    .348E+05      87.6          1.12
6.61
        2.26    80.89    .412E+05     102.8          1.11
6.68
        2.43    81.06    .495E+05     122.0          1.09
6.77
        2.60    81.22    .596E+05     146.2          1.09
6.80
        2.76    81.39    .714E+05     176.9          1.10
6.72
        2.93    81.56    .841E+05     215.0          1.13
6.52
        3.10    81.72    .970E+05     256.7          1.18
6.30

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
      INFLOW : ID= 2 (0132)  218.70     4.95    3.00  20.27
0.60      0.66
      OUTFLOW: ID= 1 (0530)  218.70     3.74    3.08  20.27
0.53      0.58


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| ADD HYD   (0134) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0530):   218.70   3.743     3.08    20.27
        + ID2= 2 (5302):     5.80   0.750     3.00    32.97
          ===============================================
          ID = 3 (0134):   224.50   4.173     3.00    20.60

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0135) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0120):   273.90   6.640     3.00    20.88
        + ID2= 2 (0134):   224.50   4.173     3.00    20.60
          ===============================================
          ID = 3 (0135):   498.40  10.813     3.00    20.75

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0507) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (  40.0) ------>
               Distance      Elevation       Manning
                   0.00          79.36        0.0900
                   7.45          79.32        0.0900
                  13.77          79.27        0.0900
                  20.24          79.24        0.0900
                  27.28          79.26        0.0900
                  34.16          79.13        0.0900
                  40.79          79.05        0.0900
                  47.58          79.05        0.0900
                  54.30          79.07        0.0900
                  60.87          79.24        0.0900
                  71.39          79.48        0.0900
                  73.53          78.96        0.0900
                  76.96          78.07        0.0900
                  82.21          77.08    0.0900 /0.0700  Main
Channel
                  85.82          76.28        0.0700      Main
Channel
                  89.97          76.89        0.0700      Main
Channel
                  91.35          77.38    0.0700 /0.0900  Main
Channel
                  95.27          78.68        0.0900
                  98.44          79.63        0.0900
                 102.89          79.89        0.0900

      <--------------------- TRAVEL TIME TABLE ------------------
---->
        DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.16    76.44    .113E+03       0.0          0.14
88.10
        0.32    76.60    .451E+03       0.1          0.23
55.50
        0.49    76.76    .101E+04       0.4          0.30
42.35
        0.65    76.92    .180E+04       0.9          0.37
34.57
        0.81    77.09    .276E+04       1.6          0.44
28.86
        0.97    77.25    .388E+04       2.7          0.52
24.37
        1.14    77.41    .516E+04       4.0          0.59
21.56
        1.30    77.57    .660E+04       5.7          0.66
19.26
        1.46    77.74    .822E+04       7.8          0.72
17.67
        1.62    77.90    .100E+05      10.1          0.77
16.48
        1.79    78.06    .120E+05      12.8          0.82
15.54
        1.95    78.22    .141E+05      15.9          0.87
14.74
        2.11    78.39    .163E+05      19.4          0.91
14.06
        2.27    78.55    .187E+05      23.2          0.95
13.47
        2.44    78.71    .212E+05      27.3          0.99
12.95
        2.60    78.87    .239E+05      31.9          1.02
12.50
        2.76    79.04    .267E+05      36.8          1.06
12.10
        2.92    79.20    .320E+05      39.4          0.94
13.56
        3.09    79.36    .409E+05      45.7          0.85
14.94

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
      INFLOW : ID= 2 (0135)  498.40    10.81    3.00  20.75
1.66      0.79
      OUTFLOW: ID= 1 (0507)  498.40     8.58    3.42  20.75
1.51      0.74


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| ADD HYD   (0122) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0121):    48.90   3.677     3.00    27.63
        + ID2= 2 (0507):   498.40   8.577     3.42    20.75
          ===============================================
          ID = 3 (0122):   547.30  10.609     3.25    21.37

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (5401) |   Area    (ha)=   3.40   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.99

      Unit Hyd Qpeak  (cms)=   0.131

      PEAK FLOW       (cms)=   0.047 (i)
      TIME TO PEAK    (hrs)=   4.083
      RUNOFF VOLUME    (mm)=  13.115
      TOTAL RAINFALL   (mm)=  56.500
      RUNOFF COEFFICIENT   =   0.232

      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (5402) |   Area    (ha)=   6.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  33.00   Dir. Conn.(%)=
20.00
--------------------
                                 IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=        1.98          4.02
      Dep. Storage     (mm)=        6.00          8.00
      Average Slope     (%)=        1.00          1.00
      Length            (m)=      200.00         40.00
      Mannings n          =        0.013         0.250

      Max.Eff.Inten.(mm/hr)=       88.14         31.17
                 over (min)        5.00         20.00
      Storage Coeff.  (min)=        4.07 (ii)    17.92 (ii)
      Unit Hyd. Tpeak (min)=        5.00         20.00
      Unit Hyd. peak  (cms)=        0.24          0.06

*TOTALS*
      PEAK FLOW       (cms)=        0.29          0.19
0.408 (iii)
      TIME TO PEAK    (hrs)=        3.00          3.25
3.00
      RUNOFF VOLUME    (mm)=       50.50         15.56
22.55
      TOTAL RAINFALL   (mm)=       56.50         56.50
56.50
      RUNOFF COEFFICIENT   =        0.89          0.28
0.40

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0123) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5401):     3.40   0.047     4.08    13.11
        + ID2= 2 (5402):     6.00   0.408     3.00    22.55
          ===============================================
          ID = 3 (0123):     9.40   0.415     3.00    19.14

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| STORE HYD (1505) |   AREA       (ha)= 253.60
| ID= 1 DT= 5.0min |   QPEAK     (cms)=   0.78
--------------------   TPEAK     (hrs)=  15.58
                       VOLUME     (mm)=  47.57
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TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
hrs	cms	hrs	cms	hrs	cms	hrs	cms	hrs	cms
0.00	0.00	31.33	0.10	62.67	0.25	94.00	0.26	125.33	0.16
0.08	0.00	31.42	0.10	62.75	0.25	94.08	0.26	125.42	0.16
0.17	0.00	31.50	0.10	62.83	0.25	94.17	0.25	125.50	0.16
0.25	0.00	31.58	0.10	62.92	0.25	94.25	0.25	125.58	0.16
0.33	0.00	31.67	0.10	63.00	0.25	94.33	0.25	125.67	0.17
0.42	0.00	31.75	0.10	63.08	0.25	94.42	0.25	125.75	0.16
0.50	0.00	31.83	0.10	63.17	0.25	94.50	0.25	125.83	0.16
0.58	0.00	31.92	0.10	63.25	0.24	94.58	0.25	125.92	0.17
0.67	0.00	32.00	0.10	63.33	0.24	94.67	0.24	126.00	0.15
0.75	0.00	32.08	0.10	63.42	0.24	94.75	0.25	126.08	0.16
0.83	0.00	32.17	0.10	63.50	0.23	94.83	0.24	126.17	0.16
0.92	0.00	32.25	0.10	63.58	0.24	94.92	0.25	126.25	0.16
1.00	0.00	32.33	0.10	63.67	0.24	95.00	0.25	126.33	0.16
1.08	0.00	32.42	0.10	63.75	0.24	95.08	0.25	126.42	0.16
1.17	0.00	32.50	0.10	63.83	0.23	95.17	0.24	126.50	0.17
1.25	0.00	32.58	0.10	63.92	0.23	95.25	0.21	126.58	0.16
1.33	0.00	32.67	0.10	64.00	0.23	95.33	0.25	126.67	0.16
1.42	0.00	32.75	0.10	64.08	0.23	95.42	0.22	126.75	0.17
1.50	0.00	32.83	0.10	64.17	0.23	95.50	0.23	126.83	0.17
1.58	0.00	32.92	0.10	64.25	0.24	95.58	0.22	126.92	0.17
1.67	0.00	33.00	0.10	64.33	0.23	95.67	0.24	127.00	0.17
1.75	0.00	33.08	0.10	64.42	0.23	95.75	0.26	127.08	0.17
1.83	0.00	33.17	0.10	64.50	0.23	95.83	0.24	127.17	0.18
1.92	0.00	33.25	0.11	64.58	0.23	95.92	0.23	127.25	0.17
2.00	0.00	33.33	0.11	64.67	0.24	96.00	0.24	127.33	0.18
2.08	0.00	33.42	0.11	64.75	0.24	96.08	0.24	127.42	0.18
2.17	0.00	33.50	0.11	64.83	0.24	96.17	0.24	127.50	0.16
2.25	0.00	33.58	0.11	64.92	0.24	96.25	0.24	127.58	0.18
2.33	0.00	33.67	0.11	65.00	0.24	96.33	0.24	127.67	0.17
2.42	0.00	33.75	0.11	65.08	0.23	96.42	0.24	127.75	0.18
2.50	0.00	33.83	0.11	65.17	0.23	96.50	0.24	127.83	0.17
2.58	0.00	33.92	0.11	65.25	0.23	96.58	0.23	127.92	0.17
2.67	0.00	34.00	0.11	65.33	0.23	96.67	0.24	128.00	0.17
2.75	0.00	34.08	0.11	65.42	0.22	96.75	0.23	128.08	0.17
2.83	0.00	34.17	0.11	65.50	0.22	96.83	0.23	128.17	0.17
2.92	0.00	34.25	0.11	65.58	0.22	96.92	0.24	128.25	0.18
3.00	0.00	34.33	0.11	65.67	0.22	97.00	0.23	128.33	0.18
3.08	0.00	34.42	0.11	65.75	0.22	97.08	0.22	128.42	0.19
3.17	0.00	34.50	0.11	65.83	0.22	97.17	0.23	128.50	0.18
3.25	0.00	34.58	0.11	65.92	0.21	97.25	0.22	128.58	0.17
3.33	0.00	34.67	0.11	66.00	0.21	97.33	0.25	128.67	0.18
3.42	0.00	34.75	0.11	66.08	0.21	97.42	0.22	128.75	0.18
3.50	0.00	34.83	0.11	66.17	0.20	97.50	0.24	128.83	0.18
3.58	0.00	34.92	0.11	66.25	0.20	97.58	0.23	128.92	0.18
3.67	0.00	35.00	0.11	66.33	0.20	97.67	0.22	129.00	0.18
3.75	0.00	35.08	0.11	66.42	0.20	97.75	0.23	129.08	0.19
3.83	0.00	35.17	0.11	66.50	0.19	97.83	0.22	129.17	0.17
3.92	0.00	35.25	0.11	66.58	0.20	97.92	0.21	129.25	0.17
4.00	0.00	35.33	0.11	66.67	0.20	98.00	0.22	129.33	0.17
4.08	0.00	35.42	0.11	66.75	0.20	98.08	0.23	129.42	0.18
4.17	0.00	35.50	0.11	66.83	0.19	98.17	0.21	129.50	0.18
4.25	0.00	35.58	0.11	66.92	0.19	98.25	0.21	129.58	0.18
4.33	0.00	35.67	0.11	67.00	0.20	98.33	0.23	129.67	0.18
4.42	0.00	35.75	0.11	67.08	0.20	98.42	0.21	129.75	0.18
4.50	0.00	35.83	0.11	67.17	0.20	98.50	0.21	129.83	0.18
4.58	0.00	35.92	0.11	67.25	0.20	98.58	0.23	129.92	0.18
4.67	0.00	36.00	0.11	67.33	0.20	98.67	0.22	130.00	0.18
4.75	0.00	36.08	0.11	67.42	0.21	98.75	0.23	130.08	0.17
4.83	0.00	36.17	0.11	67.50	0.22	98.83	0.24	130.17	0.17
4.92	0.00	36.25	0.11	67.58	0.22	98.92	0.22	130.25	0.17
5.00	0.00	36.33	0.11	67.67	0.23	99.00	0.20	130.33	0.17
5.08	0.00	36.42	0.12	67.75	0.24	99.08	0.20	130.42	0.18
5.17	0.00	36.50	0.12	67.83	0.26	99.17	0.22	130.50	0.18
5.25	0.00	36.58	0.12	67.92	0.27	99.25	0.21	130.58	0.18
5.33	0.00	36.67	0.12	68.00	0.28	99.33	0.22	130.67	0.17
5.42	0.00	36.75	0.12	68.08	0.31	99.42	0.21	130.75	0.17
5.50	0.00	36.83	0.12	68.17	0.32	99.50	0.20	130.83	0.18
5.58	0.00	36.92	0.12	68.25	0.34	99.58	0.21	130.92	0.17
5.67	0.00	37.00	0.12	68.33	0.35	99.67	0.20	131.00	0.17
5.75	0.00	37.08	0.12	68.42	0.38	99.75	0.19	131.08	0.17
5.83	0.00	37.17	0.12	68.50	0.39	99.83	0.20	131.17	0.18
5.92	0.00	37.25	0.12	68.58	0.40	99.92	0.22	131.25	0.18
6.00	0.00	37.33	0.12	68.67	0.42	100.00	0.21	131.33	0.17
6.08	0.00	37.42	0.12	68.75	0.44	100.08	0.20	131.42	0.17
6.17	0.00	37.50	0.12	68.83	0.46	100.17	0.21	131.50	0.17
6.25	0.00	37.58	0.12	68.92	0.49	100.25	0.19	131.58	0.17
6.33	0.00	37.67	0.13	69.00	0.51	100.33	0.19	131.67	0.17
6.42	0.00	37.75	0.12	69.08	0.54	100.42	0.19	131.75	0.17
6.50	0.00	37.83	0.12	69.17	0.56	100.50	0.19	131.83	0.17
6.58	0.00	37.92	0.12	69.25	0.60	100.58	0.19	131.92	0.17
6.67	0.00	38.00	0.12	69.33	0.64	100.67	0.19	132.00	0.16
6.75	0.00	38.08	0.12	69.42	0.67	100.75	0.21	132.08	0.17
6.83	0.00	38.17	0.12	69.50	0.67	100.83	0.19	132.17	0.17
6.92	0.00	38.25	0.12	69.58	0.68	100.92	0.19	132.25	0.17
7.00	0.00	38.33	0.12	69.67	0.65	101.00	0.19	132.33	0.17
7.08	0.00	38.42	0.12	69.75	0.66	101.08	0.19	132.42	0.18
7.17	0.00	38.50	0.12	69.83	0.66	101.17	0.20	132.50	0.17
7.25	0.00	38.58	0.12	69.92	0.67	101.25	0.19	132.58	0.16
7.33	0.00	38.67	0.13	70.00	0.66	101.33	0.18	132.67	0.17
7.42	0.00	38.75	0.13	70.08	0.67	101.42	0.19	132.75	0.17
7.50	0.00	38.83	0.13	70.17	0.67	101.50	0.19	132.83	0.17
7.58	0.00	38.92	0.13	70.25	0.70	101.58	0.19	132.92	0.16
7.67	0.00	39.00	0.13	70.33	0.74	101.67	0.20	133.00	0.17
7.75	0.00	39.08	0.14	70.42	0.73	101.75	0.19	133.08	0.16
7.83	0.00	39.17	0.14	70.50	0.74	101.83	0.18	133.17	0.16
7.92	0.00	39.25	0.14	70.58	0.74	101.92	0.19	133.25	0.16
8.00	0.00	39.33	0.14	70.67	0.74	102.00	0.19	133.33	0.15
8.08	0.00	39.42	0.14	70.75	0.75	102.08	0.19	133.42	0.16
8.17	0.00	39.50	0.15	70.83	0.75	102.17	0.19	133.50	0.16
8.25	0.00	39.58	0.16	70.92	0.74	102.25	0.18	133.58	0.17
8.33	0.00	39.67	0.16	71.00	0.74	102.33	0.18	133.67	0.16
8.42	0.00	39.75	0.16	71.08	0.75	102.42	0.19	133.75	0.15
8.50	0.00	39.83	0.16	71.17	0.77	102.50	0.19	133.83	0.16
8.58	0.00	39.92	0.17	71.25	0.76	102.58	0.19	133.92	0.16
8.67	0.00	40.00	0.17	71.33	0.76	102.67	0.18	134.00	0.16
8.75	0.00	40.08	0.17	71.42	0.77	102.75	0.20	134.08	0.16
8.83	0.00	40.17	0.17	71.50	0.76	102.83	0.18	134.17	0.15
8.92	0.00	40.25	0.18	71.58	0.77	102.92	0.18	134.25	0.16
9.00	0.00	40.33	0.18	71.67	0.76	103.00	0.17	134.33	0.16
9.08	0.00	40.42	0.18	71.75	0.76	103.08	0.17	134.42	0.16
9.17	0.00	40.50	0.18	71.83	0.78	103.17	0.18	134.50	0.16
9.25	0.00	40.58	0.19	71.92	0.77	103.25	0.18	134.58	0.15
9.33	0.00	40.67	0.19	72.00	0.76	103.33	0.17	134.67	0.16
9.42	0.00	40.75	0.19	72.08	0.74	103.42	0.17	134.75	0.15
9.50	0.00	40.83	0.19	72.17	0.75	103.50	0.17	134.83	0.15
9.58	0.00	40.92	0.19	72.25	0.74	103.58	0.18	134.92	0.16
9.67	0.00	41.00	0.19	72.33	0.72	103.67	0.18	135.00	0.15
9.75	0.00	41.08	0.19	72.42	0.70	103.75	0.18	135.08	0.15
9.83	0.00	41.17	0.20	72.50	0.70	103.83	0.18	135.17	0.15
9.92	0.00	41.25	0.20	72.58	0.69	103.92	0.19	135.25	0.15
10.00	0.00	41.33	0.21	72.67	0.70	104.00	0.17	135.33	0.15
10.08	0.00	41.42	0.22	72.75	0.68	104.08	0.18	135.42	0.15
10.17	0.00	41.50	0.23	72.83	0.67	104.17	0.18	135.50	0.15
10.25	0.00	41.58	0.23	72.92	0.66	104.25	0.17	135.58	0.15
10.33	0.00	41.67	0.23	73.00	0.64	104.33	0.17	135.67	0.14
10.42	0.00	41.75	0.24	73.08	0.63	104.42	0.17	135.75	0.15
10.50	0.00	41.83	0.25	73.17	0.63	104.50	0.18	135.83	0.16
10.58	0.00	41.92	0.25	73.25	0.61	104.58	0.17	135.92	0.15
10.67	0.00	42.00	0.26	73.33	0.62	104.67	0.16	136.00	0.15
10.75	0.00	42.08	0.25	73.42	0.61	104.75	0.16	136.08	0.15
10.83	0.00	42.17	0.26	73.50	0.62	104.83	0.18	136.17	0.15
10.92	0.00	42.25	0.26	73.58	0.60	104.92	0.16	136.25	0.15
11.00	0.00	42.33	0.26	73.67	0.62	105.00	0.17	136.33	0.15
11.08	0.00	42.42	0.26	73.75	0.58	105.08	0.16	136.42	0.15
11.17	0.00	42.50	0.26	73.83	0.59	105.17	0.16	136.50	0.15
11.25	0.00	42.58	0.26	73.92	0.57	105.25	0.16	136.58	0.15
11.33	0.00	42.67	0.26	74.00	0.57	105.33	0.16	136.67	0.14
11.42	0.00	42.75	0.25	74.08	0.57	105.42	0.16	136.75	0.15
11.50	0.00	42.83	0.26	74.17	0.56	105.50	0.16	136.83	0.14
11.58	0.00	42.92	0.25	74.25	0.58	105.58	0.16	136.92	0.14
11.67	0.00	43.00	0.25	74.33	0.58	105.67	0.16	137.00	0.14
11.75	0.00	43.08	0.25	74.42	0.58	105.75	0.17	137.08	0.15
11.83	0.00	43.17	0.25	74.50	0.59	105.83	0.16	137.17	0.14
11.92	0.00	43.25	0.25	74.58	0.60	105.92	0.16	137.25	0.15
12.00	0.00	43.33	0.25	74.67	0.57	106.00	0.16	137.33	0.15
12.08	0.00	43.42	0.25	74.75	0.56	106.08	0.16	137.42	0.14
12.17	0.00	43.50	0.25	74.83	0.54	106.17	0.16	137.50	0.14
12.25	0.00	43.58	0.25	74.92	0.56	106.25	0.17	137.58	0.14
12.33	0.00	43.67	0.25	75.00	0.53	106.33	0.16	137.67	0.15
12.42	0.00	43.75	0.25	75.08	0.51	106.42	0.16	137.75	0.14
12.50	0.00	43.83	0.26	75.17	0.51	106.50	0.16	137.83	0.14
12.58	0.00	43.92	0.26	75.25	0.51	106.58	0.16	137.92	0.14
12.67	0.00	44.00	0.26	75.33	0.51	106.67	0.16	138.00	0.14
12.75	0.00	44.08	0.26	75.42	0.50	106.75	0.16	138.08	0.14
12.83	0.00	44.17	0.26	75.50	0.50	106.83	0.15	138.17	0.14
12.92	0.00	44.25	0.27	75.58	0.49	106.92	0.15	138.25	0.14
13.00	0.00	44.33	0.26	75.67	0.49	107.00	0.16	138.33	0.14
13.08	0.00	44.42	0.26	75.75	0.49	107.08	0.16	138.42	0.14
13.17	0.00	44.50	0.26	75.83	0.48	107.17	0.16	138.50	0.14
13.25	0.00	44.58	0.26	75.92	0.47	107.25	0.15	138.58	0.14
13.33	0.00	44.67	0.26	76.00	0.47	107.33	0.16	138.67	0.14
13.42	0.00	44.75	0.26	76.08	0.48	107.42	0.16	138.75	0.14
13.50	0.00	44.83	0.26	76.17	0.46	107.50	0.15	138.83	0.14
13.58	0.00	44.92	0.26	76.25	0.45	107.58	0.16	138.92	0.14
13.67	0.00	45.00	0.26	76.33	0.45	107.67	0.15	139.00	0.14
13.75	0.00	45.08	0.26	76.42	0.43	107.75	0.15	139.08	0.14
13.83	0.00	45.17	0.25	76.50	0.44	107.83	0.16	139.17	0.13
13.92	0.00	45.25	0.25	76.58	0.46	107.92	0.16	139.25	0.14
14.00	0.00	45.33	0.25	76.67	0.43	108.00	0.16	139.33	0.14
14.08	0.00	45.42	0.25	76.75	0.44	108.08	0.15	139.42	0.14
14.17	0.00	45.50	0.25	76.83	0.43	108.17	0.15	139.50	0.14
14.25	0.00	45.58	0.25	76.92	0.45	108.25	0.15	139.58	0.13
14.33	0.00	45.67	0.25	77.00	0.42	108.33	0.16	139.67	0.14
14.42	0.00	45.75	0.25	77.08	0.43	108.42	0.16	139.75	0.14
14.50	0.00	45.83	0.26	77.17	0.43	108.50	0.15	139.83	0.13
14.58	0.00	45.92	0.25	77.25	0.42	108.58	0.15	139.92	0.14
14.67	0.00	46.00	0.26	77.33	0.41	108.67	0.15	140.00	0.14
14.75	0.00	46.08	0.26	77.42	0.43	108.75	0.16	140.08	0.13
14.83	0.00	46.17	0.25	77.50	0.41	108.83	0.15	140.17	0.13
14.92	0.69	46.25	0.26	77.58	0.43	108.92	0.15	140.25	0.13
15.00	0.69	46.33	0.26	77.67	0.39	109.00	0.15	140.33	0.13
15.08	0.71	46.42	0.26	77.75	0.39	109.08	0.15	140.42	0.14
15.17	0.74	46.50	0.26	77.83	0.37	109.17	0.15	140.50	0.13
15.25	0.74	46.58	0.26	77.92	0.39	109.25	0.15	140.58	0.13
15.33	0.74	46.67	0.26	78.00	0.39	109.33	0.14	140.67	0.13
15.42	0.77	46.75	0.26	78.08	0.39	109.42	0.15	140.75	0.13
15.50	0.76	46.83	0.25	78.17	0.37	109.50	0.15	140.83	0.13
15.58	0.78	46.92	0.25	78.25	0.36	109.58	0.14	140.92	0.13
15.67	0.78	47.00	0.25	78.33	0.37	109.67	0.15	141.00	0.13
15.75	0.77	47.08	0.25	78.42	0.38	109.75	0.14	141.08	0.13
15.83	0.77	47.17	0.26	78.50	0.36	109.83	0.15	141.17	0.13
15.92	0.77	47.25	0.26	78.58	0.36	109.92	0.14	141.25	0.13
16.00	0.76	47.33	0.26	78.67	0.36	110.00	0.14	141.33	0.13
16.08	0.74	47.42	0.26	78.75	0.37	110.08	0.14	141.42	0.13
16.17	0.74	47.50	0.26	78.83	0.34	110.17	0.14	141.50	0.13
16.25	0.74	47.58	0.25	78.92	0.35	110.25	0.14	141.58	0.13
16.33	0.72	47.67	0.26	79.00	0.36	110.33	0.15	141.67	0.13
16.42	0.69	47.75	0.26	79.08	0.35	110.42	0.15	141.75	0.13
16.50	0.69	47.83	0.26	79.17	0.35	110.50	0.14	141.83	0.13
16.58	0.67	47.92	0.26	79.25	0.36	110.58	0.14	141.92	0.13
16.67	0.66	48.00	0.25	79.33	0.36	110.67	0.14	142.00	0.13
16.75	0.64	48.08	0.25	79.42	0.33	110.75	0.15	142.08	0.12
16.83	0.63	48.17	0.26	79.50	0.33	110.83	0.14	142.17	0.13
16.92	0.63	48.25	0.25	79.58	0.33	110.92	0.15	142.25	0.13
17.00	0.60	48.33	0.25	79.67	0.32	111.00	0.15	142.33	0.13
17.08	0.58	48.42	0.25	79.75	0.33	111.08	0.14	142.42	0.12
17.17	0.58	48.50	0.25	79.83	0.33	111.17	0.14	142.50	0.13
17.25	0.57	48.58	0.25	79.92	0.32	111.25	0.14	142.58	0.13
17.33	0.56	48.67	0.24	80.00	0.33	111.33	0.15	142.67	0.13
17.42	0.55	48.75	0.24	80.08	0.34	111.42	0.14	142.75	0.13
17.50	0.54	48.83	0.24	80.17	0.32	111.50	0.15	142.83	0.12
17.58	0.51	48.92	0.24	80.25	0.31	111.58	0.14	142.92	0.13
17.67	0.50	49.00	0.24	80.33	0.33	111.67	0.14	143.00	0.12
17.75	0.48	49.08	0.25	80.42	0.31	111.75	0.14	143.08	0.12
17.83	0.47	49.17	0.24	80.50	0.32	111.83	0.14	143.17	0.12
17.92	0.47	49.25	0.24	80.58	0.31	111.92	0.14	143.25	0.12
18.00	0.45	49.33	0.24	80.67	0.31	112.00	0.15	143.33	0.12
18.08	0.44	49.42	0.23	80.75	0.33	112.08	0.15	143.42	0.12
18.17	0.41	49.50	0.23	80.83	0.31	112.17	0.14	143.50	0.12
18.25	0.42	49.58	0.24	80.92	0.32	112.25	0.14	143.58	0.12
18.33	0.40	49.67	0.23	81.00	0.32	112.33	0.14	143.67	0.12
18.42	0.39	49.75	0.24	81.08	0.31	112.42	0.15	143.75	0.12
18.50	0.38	49.83	0.24	81.17	0.31	112.50	0.15	143.83	0.12
18.58	0.38	49.92	0.23	81.25	0.31	112.58	0.15	143.92	0.12
18.67	0.37	50.00	0.23	81.33	0.31	112.67	0.15	144.00	0.12
18.75	0.37	50.08	0.23	81.42	0.31	112.75	0.14	144.08	0.12
18.83	0.36	50.17	0.24	81.50	0.32	112.83	0.15	144.17	0.12
18.92	0.35	50.25	0.23	81.58	0.32	112.92	0.14	144.25	0.12
19.00	0.34	50.33	0.23	81.67	0.34	113.00	0.15	144.33	0.12
19.08	0.34	50.42	0.23	81.75	0.34	113.08	0.15	144.42	0.12
19.17	0.34	50.50	0.23	81.83	0.35	113.17	0.14	144.50	0.12
19.25	0.34	50.58	0.23	81.92	0.37	113.25	0.15	144.58	0.12
19.33	0.33	50.67	0.23	82.00	0.36	113.33	0.15	144.67	0.12
19.42	0.33	50.75	0.23	82.08	0.37	113.42	0.14	144.75	0.12
19.50	0.32	50.83	0.23	82.17	0.38	113.50	0.14	144.83	0.12

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 19.58   0.32 | 50.92   0.23 | 82.25   0.36 |113.58   0.14
|144.92   0.12
 19.67   0.32 | 51.00   0.23 | 82.33   0.35 |113.67   0.14
|145.00   0.12
 19.75   0.31 | 51.08   0.23 | 82.42   0.37 |113.75   0.14
|145.08   0.12
 19.83   0.30 | 51.17   0.23 | 82.50   0.37 |113.83   0.14
|145.17   0.12
 19.92   0.30 | 51.25   0.23 | 82.58   0.36 |113.92   0.14
|145.25   0.12
 20.00   0.29 | 51.33   0.23 | 82.67   0.38 |114.00   0.14
|145.33   0.12
 20.08   0.29 | 51.42   0.23 | 82.75   0.38 |114.08   0.14
|145.42   0.12
 20.17   0.28 | 51.50   0.23 | 82.83   0.41 |114.17   0.14
|145.50   0.12
 20.25   0.28 | 51.58   0.23 | 82.92   0.40 |114.25   0.14
|145.58   0.12
 20.33   0.28 | 51.67   0.23 | 83.00   0.40 |114.33   0.14
|145.67   0.12
 20.42   0.27 | 51.75   0.23 | 83.08   0.40 |114.42   0.14
|145.75   0.12
 20.50   0.27 | 51.83   0.23 | 83.17   0.44 |114.50   0.15
|145.83   0.12
 20.58   0.26 | 51.92   0.23 | 83.25   0.44 |114.58   0.14
|145.92   0.12
 20.67   0.27 | 52.00   0.23 | 83.33   0.42 |114.67   0.14
|146.00   0.12
 20.75   0.26 | 52.08   0.24 | 83.42   0.42 |114.75   0.14
|146.08   0.11
 20.83   0.26 | 52.17   0.24 | 83.50   0.42 |114.83   0.15
|146.17   0.11
 20.92   0.25 | 52.25   0.24 | 83.58   0.41 |114.92   0.14
|146.25   0.11
 21.00   0.25 | 52.33   0.25 | 83.67   0.41 |115.00   0.15
|146.33   0.12
 21.08   0.25 | 52.42   0.25 | 83.75   0.42 |115.08   0.14
|146.42   0.11
 21.17   0.24 | 52.50   0.25 | 83.83   0.41 |115.17   0.14
|146.50   0.12
 21.25   0.25 | 52.58   0.25 | 83.92   0.41 |115.25   0.14
|146.58   0.12
 21.33   0.24 | 52.67   0.25 | 84.00   0.43 |115.33   0.15
|146.67   0.11
 21.42   0.24 | 52.75   0.25 | 84.08   0.40 |115.42   0.14
|146.75   0.12
 21.50   0.24 | 52.83   0.25 | 84.17   0.42 |115.50   0.15
|146.83   0.11
 21.58   0.23 | 52.92   0.25 | 84.25   0.41 |115.58   0.14
|146.92   0.12
 21.67   0.23 | 53.00   0.27 | 84.33   0.42 |115.67   0.14
|147.00   0.11
 21.75   0.23 | 53.08   0.27 | 84.42   0.42 |115.75   0.14
|147.08   0.12
 21.83   0.23 | 53.17   0.28 | 84.50   0.43 |115.83   0.14
|147.17   0.11
 21.92   0.23 | 53.25   0.28 | 84.58   0.44 |115.92   0.14
|147.25   0.12
 22.00   0.23 | 53.33   0.28 | 84.67   0.42 |116.00   0.15
|147.33   0.12
 22.08   0.22 | 53.42   0.28 | 84.75   0.44 |116.08   0.14
|147.42   0.11
 22.17   0.22 | 53.50   0.28 | 84.83   0.45 |116.17   0.15
|147.50   0.11
 22.25   0.22 | 53.58   0.29 | 84.92   0.45 |116.25   0.14
|147.58   0.11
 22.33   0.22 | 53.67   0.29 | 85.00   0.46 |116.33   0.14
|147.67   0.11
 22.42   0.21 | 53.75   0.29 | 85.08   0.47 |116.42   0.14
|147.75   0.11
 22.50   0.21 | 53.83   0.30 | 85.17   0.46 |116.50   0.14
|147.83   0.11
 22.58   0.21 | 53.92   0.30 | 85.25   0.46 |116.58   0.14
|147.92   0.11
 22.67   0.21 | 54.00   0.30 | 85.33   0.44 |116.67   0.14
|148.00   0.11
 22.75   0.21 | 54.08   0.30 | 85.42   0.45 |116.75   0.14
|148.08   0.11
 22.83   0.20 | 54.17   0.31 | 85.50   0.45 |116.83   0.14
|148.17   0.11
 22.92   0.20 | 54.25   0.30 | 85.58   0.45 |116.92   0.14
|148.25   0.11
 23.00   0.20 | 54.33   0.31 | 85.67   0.45 |117.00   0.14
|148.33   0.11
 23.08   0.20 | 54.42   0.30 | 85.75   0.46 |117.08   0.14
|148.42   0.11
 23.17   0.20 | 54.50   0.31 | 85.83   0.45 |117.17   0.14
|148.50   0.11
 23.25   0.20 | 54.58   0.32 | 85.92   0.47 |117.25   0.14
|148.58   0.11
 23.33   0.19 | 54.67   0.32 | 86.00   0.44 |117.33   0.14
|148.67   0.11
 23.42   0.19 | 54.75   0.32 | 86.08   0.45 |117.42   0.14
|148.75   0.11
 23.50   0.19 | 54.83   0.32 | 86.17   0.43 |117.50   0.14
|148.83   0.11
 23.58   0.19 | 54.92   0.32 | 86.25   0.43 |117.58   0.14
|148.92   0.11
 23.67   0.19 | 55.00   0.32 | 86.33   0.43 |117.67   0.13
|149.00   0.11
 23.75   0.18 | 55.08   0.32 | 86.42   0.43 |117.75   0.13
|149.08   0.11
 23.83   0.18 | 55.17   0.32 | 86.50   0.45 |117.83   0.14
|149.17   0.11
 23.92   0.18 | 55.25   0.33 | 86.58   0.42 |117.92   0.13
|149.25   0.11
 24.00   0.18 | 55.33   0.33 | 86.67   0.42 |118.00   0.13
|149.33   0.11
 24.08   0.18 | 55.42   0.33 | 86.75   0.43 |118.08   0.13
|149.42   0.11
 24.17   0.18 | 55.50   0.33 | 86.83   0.41 |118.17   0.13
|149.50   0.11
 24.25   0.17 | 55.58   0.32 | 86.92   0.40 |118.25   0.13
|149.58   0.11
 24.33   0.18 | 55.67   0.32 | 87.00   0.40 |118.33   0.13
|149.67   0.11
 24.42   0.17 | 55.75   0.32 | 87.08   0.39 |118.42   0.13
|149.75   0.11
 24.50   0.17 | 55.83   0.32 | 87.17   0.39 |118.50   0.13
|149.83   0.11
 24.58   0.17 | 55.92   0.32 | 87.25   0.39 |118.58   0.13
|149.92   0.11
 24.67   0.17 | 56.00   0.32 | 87.33   0.37 |118.67   0.13
|150.00   0.11
 24.75   0.16 | 56.08   0.32 | 87.42   0.37 |118.75   0.13
|150.08   0.11
 24.83   0.16 | 56.17   0.32 | 87.50   0.38 |118.83   0.13
|150.17   0.11
 24.92   0.16 | 56.25   0.32 | 87.58   0.37 |118.92   0.13
|150.25   0.11
 25.00   0.16 | 56.33   0.32 | 87.67   0.36 |119.00   0.13
|150.33   0.11
 25.08   0.16 | 56.42   0.32 | 87.75   0.38 |119.08   0.13
|150.42   0.11
 25.17   0.16 | 56.50   0.32 | 87.83   0.38 |119.17   0.13
|150.50   0.11
 25.25   0.16 | 56.58   0.31 | 87.92   0.34 |119.25   0.13
|150.58   0.11
 25.33   0.15 | 56.67   0.31 | 88.00   0.35 |119.33   0.13
|150.67   0.11
 25.42   0.16 | 56.75   0.32 | 88.08   0.34 |119.42   0.13
|150.75   0.11
 25.50   0.15 | 56.83   0.31 | 88.17   0.35 |119.50   0.13
|150.83   0.11
 25.58   0.15 | 56.92   0.31 | 88.25   0.34 |119.58   0.13
|150.92   0.11
 25.67   0.15 | 57.00   0.31 | 88.33   0.36 |119.67   0.13
|151.00   0.11
 25.75   0.15 | 57.08   0.31 | 88.42   0.33 |119.75   0.13
|151.08   0.11
 25.83   0.15 | 57.17   0.31 | 88.50   0.33 |119.83   0.13
|151.17   0.11
 25.92   0.15 | 57.25   0.31 | 88.58   0.34 |119.92   0.13
|151.25   0.11
 26.00   0.15 | 57.33   0.30 | 88.67   0.33 |120.00   0.13
|151.33   0.11
 26.08   0.15 | 57.42   0.30 | 88.75   0.33 |120.08   0.13
|151.42   0.11
 26.17   0.15 | 57.50   0.30 | 88.83   0.32 |120.17   0.13
|151.50   0.11
 26.25   0.14 | 57.58   0.30 | 88.92   0.30 |120.25   0.14
|151.58   0.11
 26.33   0.14 | 57.67   0.31 | 89.00   0.31 |120.33   0.14
|151.67   0.11
 26.42   0.14 | 57.75   0.30 | 89.08   0.31 |120.42   0.13
|151.75   0.11
 26.50   0.14 | 57.83   0.30 | 89.17   0.30 |120.50   0.14
|151.83   0.11
 26.58   0.14 | 57.92   0.30 | 89.25   0.31 |120.58   0.14
|151.92   0.11
 26.67   0.14 | 58.00   0.29 | 89.33   0.32 |120.67   0.14
|152.00   0.11
 26.75   0.14 | 58.08   0.29 | 89.42   0.31 |120.75   0.14
|152.08   0.11
 26.83   0.14 | 58.17   0.29 | 89.50   0.30 |120.83   0.14
|152.17   0.11
 26.92   0.14 | 58.25   0.29 | 89.58   0.29 |120.92   0.14
|152.25   0.11
 27.00   0.14 | 58.33   0.29 | 89.67   0.29 |121.00   0.14
|152.33   0.10
 27.08   0.13 | 58.42   0.29 | 89.75   0.29 |121.08   0.14
|152.42   0.11
 27.17   0.13 | 58.50   0.29 | 89.83   0.28 |121.17   0.14
|152.50   0.11
 27.25   0.13 | 58.58   0.29 | 89.92   0.30 |121.25   0.14
|152.58   0.10
 27.33   0.13 | 58.67   0.28 | 90.00   0.31 |121.33   0.14
|152.67   0.10
 27.42   0.13 | 58.75   0.28 | 90.08   0.31 |121.42   0.14
|152.75   0.10
 27.50   0.13 | 58.83   0.28 | 90.17   0.30 |121.50   0.14
|152.83   0.10
 27.58   0.13 | 58.92   0.29 | 90.25   0.30 |121.58   0.14
|152.92   0.10
 27.67   0.13 | 59.00   0.29 | 90.33   0.31 |121.67   0.14
|153.00   0.11
 27.75   0.13 | 59.08   0.29 | 90.42   0.30 |121.75   0.14
|153.08   0.10
 27.83   0.13 | 59.17   0.28 | 90.50   0.31 |121.83   0.14
|153.17   0.10
 27.92   0.12 | 59.25   0.28 | 90.58   0.31 |121.92   0.14
|153.25   0.11
 28.00   0.13 | 59.33   0.28 | 90.67   0.31 |122.00   0.15
|153.33   0.10
 28.08   0.12 | 59.42   0.27 | 90.75   0.31 |122.08   0.14
|153.42   0.11
 28.17   0.12 | 59.50   0.27 | 90.83   0.30 |122.17   0.14
|153.50   0.10
 28.25   0.12 | 59.58   0.27 | 90.92   0.31 |122.25   0.14
|153.58   0.10
 28.33   0.12 | 59.67   0.26 | 91.00   0.30 |122.33   0.14
|153.67   0.10
 28.42   0.12 | 59.75   0.26 | 91.08   0.30 |122.42   0.15
|153.75   0.11
 28.50   0.12 | 59.83   0.26 | 91.17   0.32 |122.50   0.15
|153.83   0.10
 28.58   0.12 | 59.92   0.26 | 91.25   0.30 |122.58   0.15
|153.92   0.10
 28.67   0.12 | 60.00   0.25 | 91.33   0.28 |122.67   0.14
|154.00   0.10
 28.75   0.12 | 60.08   0.25 | 91.42   0.30 |122.75   0.15
|154.08   0.10
 28.83   0.12 | 60.17   0.25 | 91.50   0.28 |122.83   0.14
|154.17   0.10
 28.92   0.12 | 60.25   0.25 | 91.58   0.31 |122.92   0.14
|154.25   0.10
 29.00   0.12 | 60.33   0.25 | 91.67   0.28 |123.00   0.15
|154.33   0.10
 29.08   0.12 | 60.42   0.24 | 91.75   0.30 |123.08   0.15
|154.42   0.10
 29.17   0.11 | 60.50   0.24 | 91.83   0.31 |123.17   0.15
|154.50   0.10
 29.25   0.11 | 60.58   0.24 | 91.92   0.27 |123.25   0.15
|154.58   0.10
 29.33   0.11 | 60.67   0.23 | 92.00   0.28 |123.33   0.15
|154.67   0.10
 29.42   0.11 | 60.75   0.24 | 92.08   0.29 |123.42   0.15
|154.75   0.10
 29.50   0.11 | 60.83   0.23 | 92.17   0.27 |123.50   0.15
|154.83   0.10
 29.58   0.11 | 60.92   0.23 | 92.25   0.28 |123.58   0.15
|154.92   0.10
 29.67   0.11 | 61.00   0.23 | 92.33   0.28 |123.67   0.15
|155.00   0.10
 29.75   0.11 | 61.08   0.23 | 92.42   0.31 |123.75   0.15
|155.08   0.10
 29.83   0.11 | 61.17   0.23 | 92.50   0.28 |123.83   0.15
|155.17   0.10
 29.92   0.11 | 61.25   0.22 | 92.58   0.28 |123.92   0.15
|155.25   0.10
 30.00   0.11 | 61.33   0.23 | 92.67   0.28 |124.00   0.15
|155.33   0.10
 30.08   0.11 | 61.42   0.23 | 92.75   0.28 |124.08   0.15
|155.42   0.10
 30.17   0.11 | 61.50   0.24 | 92.83   0.27 |124.17   0.15
|155.50   0.10
 30.25   0.11 | 61.58   0.24 | 92.92   0.28 |124.25   0.15
|155.58   0.10
 30.33   0.11 | 61.67   0.23 | 93.00   0.28 |124.33   0.14
|155.67   0.10
 30.42   0.11 | 61.75   0.23 | 93.08   0.27 |124.42   0.15
|155.75   0.10
 30.50   0.11 | 61.83   0.23 | 93.17   0.29 |124.50   0.15
|155.83   0.10
 30.58   0.11 | 61.92   0.23 | 93.25   0.28 |124.58   0.16
|155.92   0.10
 30.67   0.11 | 62.00   0.23 | 93.33   0.26 |124.67   0.15
|156.00   0.10
 30.75   0.11 | 62.08   0.23 | 93.42   0.27 |124.75   0.15
|156.08   0.10
 30.83   0.11 | 62.17   0.23 | 93.50   0.27 |124.83   0.15
|156.17   0.10
 30.92   0.11 | 62.25   0.23 | 93.58   0.26 |124.92   0.17
|156.25   0.10
 31.00   0.11 | 62.33   0.24 | 93.67   0.26 |125.00   0.16 |
 31.08   0.10 | 62.42   0.25 | 93.75   0.28 |125.08   0.16 |
 31.17   0.10 | 62.50   0.25 | 93.83   0.25 |125.17   0.16 |
 31.25   0.10 | 62.58   0.26 | 93.92   0.28 |125.25   0.16 |
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--------------------
| STORE HYD (1605) |   AREA      (ha)= 218.70
| ID= 1 DT= 5.0min |   QPEAK    (cms)=   1.37
--------------------   TPEAK    (hrs)=  71.92
                       VOLUME    (mm)=  85.77

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |' TIME    FLOW |
TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |'  hrs     cms |
hrs     cms
  0.00    0.00 | 31.25   0.15 | 62.50   0.38 | 93.75   0.37
|125.00   0.20
  0.08    0.00 | 31.33   0.15 | 62.58   0.38 | 93.83   0.36
|125.08   0.20
  0.17    0.00 | 31.42   0.15 | 62.67   0.38 | 93.92   0.36
|125.17   0.20
  0.25    0.00 | 31.50   0.15 | 62.75   0.38 | 94.00   0.36
|125.25   0.20
  0.33    0.00 | 31.58   0.15 | 62.83   0.38 | 94.08   0.36
|125.33   0.20
  0.42    0.00 | 31.67   0.15 | 62.92   0.38 | 94.17   0.36
|125.42   0.20
  0.50    0.00 | 31.75   0.15 | 63.00   0.37 | 94.25   0.36
|125.50   0.20
  0.58    0.00 | 31.83   0.14 | 63.08   0.38 | 94.33   0.36
|125.58   0.20
  0.67    0.00 | 31.92   0.14 | 63.17   0.37 | 94.42   0.36
|125.67   0.21
  0.75    0.00 | 32.00   0.14 | 63.25   0.37 | 94.50   0.36
|125.75   0.21
  0.83    0.00 | 32.08   0.14 | 63.33   0.37 | 94.58   0.36
|125.83   0.21
  0.92    0.00 | 32.17   0.14 | 63.42   0.37 | 94.67   0.36
|125.92   0.21
  1.00    0.00 | 32.25   0.14 | 63.50   0.37 | 94.75   0.36
|126.00   0.21
  1.08    0.00 | 32.33   0.14 | 63.58   0.37 | 94.83   0.36
|126.08   0.21
  1.17    0.00 | 32.42   0.14 | 63.67   0.36 | 94.92   0.35
|126.17   0.21
  1.25    0.00 | 32.50   0.14 | 63.75   0.36 | 95.00   0.35
|126.25   0.21
  1.33    0.00 | 32.58   0.14 | 63.83   0.36 | 95.08   0.35
|126.33   0.21
  1.42    0.00 | 32.67   0.14 | 63.92   0.36 | 95.17   0.35
|126.42   0.22
  1.50    0.00 | 32.75   0.14 | 64.00   0.36 | 95.25   0.35
|126.50   0.22
  1.58    0.00 | 32.83   0.14 | 64.08   0.36 | 95.33   0.35
|126.58   0.22
  1.67    0.00 | 32.92   0.14 | 64.17   0.36 | 95.42   0.35
|126.67   0.22
  1.75    0.00 | 33.00   0.14 | 64.25   0.35 | 95.50   0.35
|126.75   0.22
  1.83    0.00 | 33.08   0.14 | 64.33   0.35 | 95.58   0.34
|126.83   0.22
  1.92    0.00 | 33.17   0.14 | 64.42   0.35 | 95.67   0.34
|126.92   0.23
  2.00    0.00 | 33.25   0.14 | 64.50   0.35 | 95.75   0.34
|127.00   0.23
  2.08    0.00 | 33.33   0.14 | 64.58   0.34 | 95.83   0.34
|127.08   0.23
  2.17    0.00 | 33.42   0.14 | 64.67   0.34 | 95.92   0.34
|127.17   0.23
  2.25    0.00 | 33.50   0.14 | 64.75   0.34 | 96.00   0.34
|127.25   0.23
  2.33    0.00 | 33.58   0.14 | 64.83   0.34 | 96.08   0.34
|127.33   0.24
  2.42    0.00 | 33.67   0.14 | 64.92   0.34 | 96.17   0.34
|127.42   0.24
  2.50    0.00 | 33.75   0.14 | 65.00   0.34 | 96.25   0.34
|127.50   0.24
  2.58    0.00 | 33.83   0.14 | 65.08   0.34 | 96.33   0.34
|127.58   0.24
  2.67    0.00 | 33.92   0.14 | 65.17   0.34 | 96.42   0.34
|127.67   0.24
  2.75    0.00 | 34.00   0.14 | 65.25   0.34 | 96.50   0.34
|127.75   0.24
  2.83    0.00 | 34.08   0.14 | 65.33   0.34 | 96.58   0.34
|127.83   0.25
  2.92    0.00 | 34.17   0.14 | 65.42   0.34 | 96.67   0.34
|127.92   0.25
  3.00    0.00 | 34.25   0.14 | 65.50   0.34 | 96.75   0.33
|128.00   0.25
  3.08    0.00 | 34.33   0.14 | 65.58   0.33 | 96.83   0.33
|128.08   0.25
  3.17    0.00 | 34.42   0.14 | 65.67   0.34 | 96.92   0.33
|128.17   0.25
  3.25    0.00 | 34.50   0.14 | 65.75   0.33 | 97.00   0.33
|128.25   0.25
  3.33    0.00 | 34.58   0.14 | 65.83   0.33 | 97.08   0.33
|128.33   0.25
  3.42    0.00 | 34.67   0.14 | 65.92   0.33 | 97.17   0.33
|128.42   0.25
  3.50    0.00 | 34.75   0.14 | 66.00   0.33 | 97.25   0.33
|128.50   0.25
  3.58    0.00 | 34.83   0.14 | 66.08   0.32 | 97.33   0.33
|128.58   0.26
  3.67    0.00 | 34.92   0.14 | 66.17   0.33 | 97.42   0.33
|128.67   0.26
  3.75    0.00 | 35.00   0.14 | 66.25   0.33 | 97.50   0.33
|128.75   0.26
  3.83    0.00 | 35.08   0.14 | 66.33   0.32 | 97.58   0.33
|128.83   0.26
  3.92    0.00 | 35.17   0.14 | 66.42   0.32 | 97.67   0.33
|128.92   0.26
  4.00    0.00 | 35.25   0.14 | 66.50   0.33 | 97.75   0.33
|129.00   0.26
  4.08    0.00 | 35.33   0.14 | 66.58   0.32 | 97.83   0.33
|129.08   0.26
  4.17    0.00 | 35.42   0.14 | 66.67   0.32 | 97.92   0.33
|129.17   0.26
  4.25    0.00 | 35.50   0.14 | 66.75   0.32 | 98.00   0.32
|129.25   0.27
  4.33    0.00 | 35.58   0.14 | 66.83   0.32 | 98.08   0.32
|129.33   0.27
  4.42    0.00 | 35.67   0.14 | 66.92   0.32 | 98.17   0.32
|129.42   0.27
  4.50    0.00 | 35.75   0.14 | 67.00   0.32 | 98.25   0.32
|129.50   0.27
  4.58    0.00 | 35.83   0.14 | 67.08   0.32 | 98.33   0.32
|129.58   0.28
  4.67    0.00 | 35.92   0.14 | 67.17   0.32 | 98.42   0.32
|129.67   0.28
  4.75    0.00 | 36.00   0.14 | 67.25   0.32 | 98.50   0.32
|129.75   0.28
  4.83    0.00 | 36.08   0.14 | 67.33   0.33 | 98.58   0.32
|129.83   0.29
  4.92    0.00 | 36.17   0.14 | 67.42   0.34 | 98.67   0.32
|129.92   0.29
  5.00    0.00 | 36.25   0.14 | 67.50   0.34 | 98.75   0.32
|130.00   0.29
  5.08    0.00 | 36.33   0.15 | 67.58   0.35 | 98.83   0.32
|130.08   0.29
  5.17    0.00 | 36.42   0.15 | 67.67   0.35 | 98.92   0.32
|130.17   0.29
  5.25    0.00 | 36.50   0.15 | 67.75   0.36 | 99.00   0.32
|130.25   0.29
  5.33    0.00 | 36.58   0.15 | 67.83   0.37 | 99.08   0.32
|130.33   0.29
  5.42    0.00 | 36.67   0.15 | 67.92   0.38 | 99.17   0.32
|130.42   0.29
  5.50    0.00 | 36.75   0.15 | 68.00   0.40 | 99.25   0.32
|130.50   0.29
  5.58    0.00 | 36.83   0.15 | 68.08   0.41 | 99.33   0.32
|130.58   0.29
  5.67    0.00 | 36.92   0.15 | 68.17   0.42 | 99.42   0.32
|130.67   0.29
  5.75    0.00 | 37.00   0.15 | 68.25   0.43 | 99.50   0.32
|130.75   0.29
  5.83    0.00 | 37.08   0.15 | 68.33   0.45 | 99.58   0.31
|130.83   0.29
  5.92    0.00 | 37.17   0.15 | 68.42   0.47 | 99.67   0.31
|130.92   0.29
  6.00    0.00 | 37.25   0.15 | 68.50   0.48 | 99.75   0.31
|131.00   0.29
  6.08    0.00 | 37.33   0.15 | 68.58   0.50 | 99.83   0.31
|131.08   0.29
  6.17    0.00 | 37.42   0.15 | 68.67   0.52 | 99.92   0.31
|131.17   0.29
  6.25    0.00 | 37.50   0.15 | 68.75   0.53 |100.00   0.31
|131.25   0.29
  6.33    0.00 | 37.58   0.15 | 68.83   0.56 |100.08   0.31
|131.33   0.29
  6.42    0.00 | 37.67   0.15 | 68.92   0.57 |100.17   0.31
|131.42   0.29
  6.50    0.00 | 37.75   0.16 | 69.00   0.58 |100.25   0.31
|131.50   0.29
  6.58    0.00 | 37.83   0.16 | 69.08   0.60 |100.33   0.31
|131.58   0.28
  6.67    0.00 | 37.92   0.16 | 69.17   0.61 |100.42   0.31
|131.67   0.28
  6.75    0.00 | 38.00   0.16 | 69.25   0.63 |100.50   0.30
|131.75   0.28
  6.83    0.00 | 38.08   0.16 | 69.33   0.63 |100.58   0.30
|131.83   0.28
  6.92    0.00 | 38.17   0.16 | 69.42   0.64 |100.67   0.30
|131.92   0.28
  7.00    0.00 | 38.25   0.16 | 69.50   0.66 |100.75   0.30
|132.00   0.28
  7.08    0.00 | 38.33   0.16 | 69.58   0.68 |100.83   0.30
|132.08   0.28
  7.17    0.00 | 38.42   0.16 | 69.67   0.70 |100.92   0.30
|132.17   0.28
  7.25    0.00 | 38.50   0.16 | 69.75   0.71 |101.00   0.30
|132.25   0.28
  7.33    0.00 | 38.58   0.16 | 69.83   0.74 |101.08   0.30
|132.33   0.28
  7.42    0.00 | 38.67   0.17 | 69.92   0.76 |101.17   0.30
|132.42   0.28
  7.50    0.00 | 38.75   0.17 | 70.00   0.78 |101.25   0.30
|132.50   0.27
  7.58    0.00 | 38.83   0.17 | 70.08   0.80 |101.33   0.29
|132.58   0.27
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7.67	0.00	38.92	0.17	70.17	0.82	101.42	0.29	132.67	0.27
7.75	0.00	39.00	0.17	70.25	0.84	101.50	0.29	132.75	0.27
7.83	0.00	39.08	0.17	70.33	0.87	101.58	0.29	132.83	0.27
7.92	0.00	39.17	0.17	70.42	0.91	101.67	0.29	132.92	0.27
8.00	0.00	39.25	0.18	70.50	0.94	101.75	0.28	133.00	0.27
8.08	0.00	39.33	0.18	70.58	0.98	101.83	0.28	133.08	0.27
8.17	0.00	39.42	0.18	70.67	1.01	101.92	0.28	133.17	0.27
8.25	0.00	39.50	0.18	70.75	1.04	102.00	0.28	133.25	0.26
8.33	0.00	39.58	0.19	70.83	1.09	102.08	0.28	133.33	0.26
8.42	0.00	39.67	0.19	70.92	1.14	102.17	0.28	133.42	0.26
8.50	0.00	39.75	0.19	71.00	1.20	102.25	0.28	133.50	0.26
8.58	0.00	39.83	0.19	71.08	1.23	102.33	0.28	133.58	0.26
8.67	0.00	39.92	0.20	71.17	1.25	102.42	0.27	133.67	0.26
8.75	0.00	40.00	0.20	71.25	1.30	102.50	0.27	133.75	0.26
8.83	0.00	40.08	0.20	71.33	1.32	102.58	0.27	133.83	0.25
8.92	0.00	40.17	0.21	71.42	1.33	102.67	0.27	133.92	0.25
9.00	0.00	40.25	0.21	71.50	1.34	102.75	0.27	134.00	0.25
9.08	0.00	40.33	0.21	71.58	1.36	102.83	0.27	134.08	0.25
9.17	0.00	40.42	0.22	71.67	1.36	102.92	0.27	134.17	0.25
9.25	0.00	40.50	0.22	71.75	1.36	103.00	0.27	134.25	0.25
9.33	0.00	40.58	0.22	71.83	1.37	103.08	0.27	134.33	0.25
9.42	0.00	40.67	0.23	71.92	1.37	103.17	0.27	134.42	0.25
9.50	0.00	40.75	0.23	72.00	1.36	103.25	0.26	134.50	0.25
9.58	0.00	40.83	0.24	72.08	1.35	103.33	0.26	134.58	0.24
9.67	0.00	40.92	0.24	72.17	1.35	103.42	0.26	134.67	0.24
9.75	0.00	41.00	0.24	72.25	1.33	103.50	0.26	134.75	0.24
9.83	0.00	41.08	0.25	72.33	1.32	103.58	0.26	134.83	0.24
9.92	0.00	41.17	0.25	72.42	1.31	103.67	0.26	134.92	0.24
10.00	0.00	41.25	0.26	72.50	1.29	103.75	0.25	135.00	0.24
10.08	0.00	41.33	0.27	72.58	1.27	103.83	0.25	135.08	0.24
10.17	0.00	41.42	0.27	72.67	1.26	103.92	0.25	135.17	0.24
10.25	0.00	41.50	0.28	72.75	1.23	104.00	0.25	135.25	0.24
10.33	0.00	41.58	0.29	72.83	1.23	104.08	0.25	135.33	0.23
10.42	0.00	41.67	0.29	72.92	1.21	104.17	0.25	135.42	0.23
10.50	0.00	41.75	0.30	73.00	1.20	104.25	0.25	135.50	0.23
10.58	0.00	41.83	0.30	73.08	1.17	104.33	0.25	135.58	0.23
10.67	0.00	41.92	0.31	73.17	1.17	104.42	0.24	135.67	0.23
10.75	0.00	42.00	0.32	73.25	1.16	104.50	0.24	135.75	0.23
10.83	0.00	42.08	0.32	73.33	1.15	104.58	0.24	135.83	0.23
10.92	0.00	42.17	0.33	73.42	1.12	104.67	0.24	135.92	0.23
11.00	0.00	42.25	0.33	73.50	1.12	104.75	0.24	136.00	0.22
11.08	0.00	42.33	0.34	73.58	1.11	104.83	0.24	136.08	0.22
11.17	0.00	42.42	0.34	73.67	1.09	104.92	0.24	136.17	0.22
11.25	0.00	42.50	0.35	73.75	1.08	105.00	0.24	136.25	0.22
11.33	0.00	42.58	0.36	73.83	1.06	105.08	0.24	136.33	0.22
11.42	0.00	42.67	0.36	73.92	1.05	105.17	0.23	136.42	0.22
11.50	0.00	42.75	0.37	74.00	1.03	105.25	0.23	136.50	0.22
11.58	0.00	42.83	0.38	74.08	1.03	105.33	0.23	136.58	0.22
11.67	0.00	42.92	0.39	74.17	1.02	105.42	0.23	136.67	0.21
11.75	0.00	43.00	0.40	74.25	1.00	105.50	0.23	136.75	0.21
11.83	0.00	43.08	0.40	74.33	0.99	105.58	0.23	136.83	0.21
11.92	0.00	43.17	0.42	74.42	0.97	105.67	0.23	136.92	0.21
12.00	0.00	43.25	0.42	74.50	0.96	105.75	0.23	137.00	0.21
12.08	0.00	43.33	0.43	74.58	0.95	105.83	0.23	137.08	0.21
12.17	0.00	43.42	0.44	74.67	0.94	105.92	0.23	137.17	0.21
12.25	0.00	43.50	0.45	74.75	0.92	106.00	0.22	137.25	0.21
12.33	0.00	43.58	0.46	74.83	0.91	106.08	0.22	137.33	0.21
12.42	0.00	43.67	0.47	74.92	0.89	106.17	0.22	137.42	0.21
12.50	0.00	43.75	0.48	75.00	0.88	106.25	0.22	137.50	0.20
12.58	0.00	43.83	0.49	75.08	0.87	106.33	0.22	137.58	0.20
12.67	0.00	43.92	0.50	75.17	0.85	106.42	0.22	137.67	0.20
12.75	0.00	44.00	0.50	75.25	0.84	106.50	0.22	137.75	0.20
12.83	0.00	44.08	0.51	75.33	0.83	106.58	0.22	137.83	0.20
12.92	0.00	44.17	0.51	75.42	0.81	106.67	0.22	137.92	0.20
13.00	0.00	44.25	0.52	75.50	0.80	106.75	0.21	138.00	0.20
13.08	0.00	44.33	0.52	75.58	0.79	106.83	0.21	138.08	0.20
13.17	0.00	44.42	0.53	75.67	0.77	106.92	0.21	138.17	0.20
13.25	0.00	44.50	0.53	75.75	0.77	107.00	0.21	138.25	0.19
13.33	0.00	44.58	0.53	75.83	0.76	107.08	0.21	138.33	0.19
13.42	0.00	44.67	0.54	75.92	0.74	107.17	0.21	138.42	0.19
13.50	0.00	44.75	0.54	76.00	0.74	107.25	0.21	138.50	0.19
13.58	0.00	44.83	0.54	76.08	0.72	107.33	0.21	138.58	0.19
13.67	0.00	44.92	0.55	76.17	0.72	107.42	0.21	138.67	0.19
13.75	0.00	45.00	0.55	76.25	0.71	107.50	0.21	138.75	0.19
13.83	0.00	45.08	0.55	76.33	0.70	107.58	0.21	138.83	0.19
13.92	0.00	45.17	0.55	76.42	0.69	107.67	0.21	138.92	0.19
14.00	0.00	45.25	0.55	76.50	0.68	107.75	0.20	139.00	0.19
14.08	0.00	45.33	0.55	76.58	0.68	107.83	0.20	139.08	0.19
14.17	0.00	45.42	0.55	76.67	0.68	107.92	0.20	139.17	0.18
14.25	0.00	45.50	0.55	76.75	0.66	108.00	0.20	139.25	0.18
14.33	0.00	45.58	0.55	76.83	0.65	108.08	0.20	139.33	0.18
14.42	0.00	45.67	0.55	76.92	0.65	108.17	0.20	139.42	0.18
14.50	0.00	45.75	0.55	77.00	0.64	108.25	0.20	139.50	0.18
14.58	0.00	45.83	0.55	77.08	0.63	108.33	0.20	139.58	0.18
14.67	0.00	45.92	0.55	77.17	0.63	108.42	0.20	139.67	0.18
14.75	0.99	46.00	0.54	77.25	0.63	108.50	0.20	139.75	0.18
14.83	0.99	46.08	0.54	77.33	0.62	108.58	0.20	139.83	0.18
14.92	1.00	46.17	0.54	77.42	0.61	108.67	0.20	139.92	0.18
15.00	1.00	46.25	0.54	77.50	0.60	108.75	0.19	140.00	0.18
15.08	1.01	46.33	0.53	77.58	0.60	108.83	0.19	140.08	0.18
15.17	1.01	46.42	0.53	77.67	0.59	108.92	0.19	140.17	0.18
15.25	1.02	46.50	0.53	77.75	0.59	109.00	0.19	140.25	0.18
15.33	1.03	46.58	0.52	77.83	0.58	109.08	0.19	140.33	0.18
15.42	1.04	46.67	0.52	77.92	0.58	109.17	0.19	140.42	0.17
15.50	1.05	46.75	0.52	78.00	0.58	109.25	0.19	140.50	0.17
15.58	1.06	46.83	0.52	78.08	0.58	109.33	0.19	140.58	0.17
15.67	1.07	46.92	0.51	78.17	0.57	109.42	0.19	140.67	0.17
15.75	1.08	47.00	0.51	78.25	0.56	109.50	0.19	140.75	0.17
15.83	1.08	47.08	0.51	78.33	0.56	109.58	0.19	140.83	0.17
15.92	1.08	47.17	0.51	78.42	0.55	109.67	0.18	140.92	0.17
16.00	1.09	47.25	0.51	78.50	0.55	109.75	0.18	141.00	0.17
16.08	1.09	47.33	0.51	78.58	0.55	109.83	0.18	141.08	0.17
16.17	1.09	47.42	0.51	78.67	0.55	109.92	0.18	141.17	0.17
16.25	1.09	47.50	0.50	78.75	0.54	110.00	0.18	141.25	0.17
16.33	1.09	47.58	0.50	78.83	0.54	110.08	0.18	141.33	0.17
16.42	1.09	47.67	0.50	78.92	0.54	110.17	0.18	141.42	0.17
16.50	1.09	47.75	0.50	79.00	0.54	110.25	0.18	141.50	0.16
16.58	1.10	47.83	0.50	79.08	0.53	110.33	0.18	141.58	0.16
16.67	1.09	47.92	0.50	79.17	0.52	110.42	0.18	141.67	0.16
16.75	1.09	48.00	0.50	79.25	0.52	110.50	0.18	141.75	0.16
16.83	1.08	48.08	0.50	79.33	0.51	110.58	0.18	141.83	0.16
16.92	1.09	48.17	0.49	79.42	0.50	110.67	0.18	141.92	0.16
17.00	1.08	48.25	0.49	79.50	0.50	110.75	0.18	142.00	0.16
17.08	1.07	48.33	0.49	79.58	0.49	110.83	0.18	142.08	0.16
17.17	1.06	48.42	0.49	79.67	0.49	110.92	0.18	142.17	0.16
17.25	1.06	48.50	0.49	79.75	0.48	111.00	0.18	142.25	0.16
17.33	1.05	48.58	0.49	79.83	0.48	111.08	0.18	142.33	0.16
17.42	1.04	48.67	0.48	79.92	0.48	111.17	0.18	142.42	0.16
17.50	1.04	48.75	0.48	80.00	0.47	111.25	0.18	142.50	0.16
17.58	1.03	48.83	0.48	80.08	0.47	111.33	0.18	142.58	0.16
17.67	1.02	48.92	0.48	80.17	0.46	111.42	0.18	142.67	0.16
17.75	1.01	49.00	0.47	80.25	0.46	111.50	0.18	142.75	0.16
17.83	1.00	49.08	0.47	80.33	0.46	111.58	0.18	142.83	0.16
17.92	0.99	49.17	0.47	80.42	0.45	111.67	0.18	142.92	0.16
18.00	0.98	49.25	0.47	80.50	0.45	111.75	0.18	143.00	0.16
18.08	0.97	49.33	0.47	80.58	0.45	111.83	0.17	143.08	0.15
18.17	0.96	49.42	0.46	80.67	0.45	111.92	0.17	143.17	0.15
18.25	0.95	49.50	0.46	80.75	0.44	112.00	0.17	143.25	0.15
18.33	0.93	49.58	0.46	80.83	0.44	112.08	0.17	143.33	0.15
18.42	0.92	49.67	0.46	80.92	0.44	112.17	0.17	143.42	0.15
18.50	0.91	49.75	0.45	81.00	0.44	112.25	0.17	143.50	0.15
18.58	0.89	49.83	0.45	81.08	0.44	112.33	0.17	143.58	0.15
18.67	0.87	49.92	0.45	81.17	0.44	112.42	0.17	143.67	0.15
18.75	0.86	50.00	0.45	81.25	0.44	112.50	0.17	143.75	0.15
18.83	0.84	50.08	0.44	81.33	0.44	112.58	0.17	143.83	0.15
18.92	0.83	50.17	0.44	81.42	0.43	112.67	0.17	143.92	0.15
19.00	0.81	50.25	0.44	81.50	0.44	112.75	0.17	144.00	0.15
19.08	0.79	50.33	0.44	81.58	0.45	112.83	0.17	144.08	0.15
19.17	0.78	50.42	0.44	81.67	0.46	112.92	0.17	144.17	0.15
19.25	0.76	50.50	0.44	81.75	0.45	113.00	0.17	144.25	0.15
19.33	0.74	50.58	0.44	81.83	0.46	113.08	0.17	144.33	0.15
19.42	0.72	50.67	0.44	81.92	0.46	113.17	0.16	144.42	0.15
19.50	0.71	50.75	0.43	82.00	0.47	113.25	0.16	144.50	0.15
19.58	0.69	50.83	0.43	82.08	0.47	113.33	0.16	144.58	0.15
19.67	0.68	50.92	0.43	82.17	0.47	113.42	0.16	144.67	0.15
19.75	0.66	51.00	0.43	82.25	0.48	113.50	0.16	144.75	0.15
19.83	0.65	51.08	0.43	82.33	0.49	113.58	0.16	144.83	0.14
19.92	0.64	51.17	0.43	82.42	0.49	113.67	0.16	144.92	0.14
20.00	0.62	51.25	0.43	82.50	0.49	113.75	0.16	145.00	0.14
20.08	0.61	51.33	0.43	82.58	0.49	113.83	0.16	145.08	0.14
20.17	0.60	51.42	0.43	82.67	0.50	113.92	0.16	145.17	0.14
20.25	0.58	51.50	0.43	82.75	0.50	114.00	0.16	145.25	0.14
20.33	0.58	51.58	0.43	82.83	0.50	114.08	0.16	145.33	0.14
20.42	0.56	51.67	0.43	82.92	0.50	114.17	0.16	145.42	0.14
20.50	0.55	51.75	0.43	83.00	0.50	114.25	0.16	145.50	0.14
20.58	0.54	51.83	0.43	83.08	0.50	114.33	0.16	145.58	0.14
20.67	0.53	51.92	0.43	83.17	0.51	114.42	0.16	145.67	0.14
20.75	0.52	52.00	0.43	83.25	0.51	114.50	0.16	145.75	0.14
20.83	0.51	52.08	0.43	83.33	0.51	114.58	0.16	145.83	0.14
20.92	0.50	52.17	0.43	83.42	0.51	114.67	0.16	145.92	0.14
21.00	0.49	52.25	0.43	83.50	0.52	114.75	0.16	146.00	0.14
21.08	0.49	52.33	0.43	83.58	0.52	114.83	0.16	146.08	0.14
21.17	0.48	52.42	0.43	83.67	0.53	114.92	0.16	146.17	0.14
21.25	0.47	52.50	0.43	83.75	0.53	115.00	0.16	146.25	0.14
21.33	0.47	52.58	0.43	83.83	0.54	115.08	0.16	146.33	0.14
21.42	0.46	52.67	0.43	83.92	0.55	115.17	0.16	146.42	0.14
21.50	0.45	52.75	0.43	84.00	0.56	115.25	0.16	146.50	0.14
21.58	0.45	52.83	0.43	84.08	0.57	115.33	0.16	146.58	0.14
21.67	0.44	52.92	0.44	84.17	0.58	115.42	0.16	146.67	0.14
21.75	0.43	53.00	0.44	84.25	0.60	115.50	0.16	146.75	0.14
21.83	0.43	53.08	0.44	84.33	0.62	115.58	0.16	146.83	0.14
21.92	0.42	53.17	0.44	84.42	0.64	115.67	0.16	146.92	0.13
22.00	0.42	53.25	0.44	84.50	0.66	115.75	0.16	147.00	0.13
22.08	0.41	53.33	0.45	84.58	0.69	115.83	0.16	147.08	0.13
22.17	0.41	53.42	0.45	84.67	0.72	115.92	0.16	147.17	0.13
22.25	0.40	53.50	0.45	84.75	0.74	116.00	0.16	147.25	0.13
22.33	0.40	53.58	0.45	84.83	0.77	116.08	0.15	147.33	0.13
22.42	0.39	53.67	0.46	84.92	0.79	116.17	0.15	147.42	0.13
22.50	0.39	53.75	0.46	85.00	0.81	116.25	0.16	147.50	0.13
22.58	0.38	53.83	0.46	85.08	0.82	116.33	0.16	147.58	0.13
22.67	0.38	53.92	0.46	85.17	0.84	116.42	0.16	147.67	0.13
22.75	0.37	54.00	0.47	85.25	0.85	116.50	0.16	147.75	0.13
22.83	0.37	54.08	0.47	85.33	0.85	116.58	0.16	147.83	0.13
22.92	0.36	54.17	0.47	85.42	0.86	116.67	0.16	147.92	0.13
23.00	0.36	54.25	0.48	85.50	0.87	116.75	0.16	148.00	0.13
23.08	0.36	54.33	0.48	85.58	0.86	116.83	0.16	148.08	0.13
23.17	0.35	54.42	0.49	85.67	0.87	116.92	0.16	148.17	0.13
23.25	0.35	54.50	0.49	85.75	0.86	117.00	0.16	148.25	0.13
23.33	0.34	54.58	0.50	85.83	0.85	117.08	0.16	148.33	0.13
23.42	0.34	54.67	0.50	85.92	0.85	117.17	0.16	148.42	0.13
23.50	0.34	54.75	0.51	86.00	0.84	117.25	0.16	148.50	0.13
23.58	0.33	54.83	0.52	86.08	0.83	117.33	0.16	148.58	0.13
23.67	0.33	54.92	0.53	86.17	0.82	117.42	0.16	148.67	0.13
23.75	0.32	55.00	0.53	86.25	0.81	117.50	0.16	148.75	0.13
23.83	0.32	55.08	0.54	86.33	0.81	117.58	0.16	148.83	0.13
23.92	0.32	55.17	0.55	86.42	0.79	117.67	0.16	148.92	0.13
24.00	0.31	55.25	0.55	86.50	0.78	117.75	0.16	149.00	0.13
24.08	0.31	55.33	0.55	86.58	0.77	117.83	0.16	149.08	0.13
24.17	0.30	55.42	0.56	86.67	0.76	117.92	0.16	149.17	0.13
24.25	0.30	55.50	0.56	86.75	0.74	118.00	0.16	149.25	0.12
24.33	0.30	55.58	0.57	86.83	0.74	118.08	0.16	149.33	0.12
24.42	0.30	55.67	0.57	86.92	0.73	118.17	0.16	149.42	0.12
24.50	0.29	55.75	0.58	87.00	0.71	118.25	0.16	149.50	0.12
24.58	0.29	55.83	0.58	87.08	0.71	118.33	0.16	149.58	0.12
24.67	0.29	55.92	0.58	87.17	0.70	118.42	0.16	149.67	0.12
24.75	0.28	56.00	0.58	87.25	0.68	118.50	0.16	149.75	0.12
24.83	0.28	56.08	0.58	87.33	0.68	118.58	0.15	149.83	0.12
24.92	0.28	56.17	0.58	87.42	0.66	118.67	0.15	149.92	0.12
25.00	0.27	56.25	0.58	87.50	0.66	118.75	0.15	150.00	0.12
25.08	0.27	56.33	0.58	87.58	0.65	118.83	0.15	150.08	0.12
25.17	0.27	56.42	0.58	87.67	0.64	118.92	0.15	150.17	0.12
25.25	0.27	56.50	0.59	87.75	0.63	119.00	0.15	150.25	0.12
25.33	0.26	56.58	0.59	87.83	0.62	119.08	0.15	150.33	0.12
25.42	0.26	56.67	0.59	87.92	0.62	119.17	0.15	150.42	0.12
25.50	0.26	56.75	0.59	88.00	0.61	119.25	0.15	150.50	0.12
25.58	0.25	56.83	0.59	88.08	0.60	119.33	0.15	150.58	0.12
25.67	0.25	56.92	0.59	88.17	0.59	119.42	0.15	150.67	0.12
25.75	0.25	57.00	0.59	88.25	0.58	119.50	0.15	150.75	0.12
25.83	0.25	57.08	0.59	88.33	0.58	119.58	0.15	150.83	0.12
25.92	0.25	57.17	0.59	88.42	0.57	119.67	0.15	150.92	0.12
26.00	0.24	57.25	0.59	88.50	0.57	119.75	0.15	151.00	0.12
26.08	0.24	57.33	0.59	88.58	0.56	119.83	0.15	151.08	0.12
26.17	0.24	57.42	0.59	88.67	0.55	119.92	0.16	151.17	0.12
26.25	0.24	57.50	0.59	88.75	0.55	120.00	0.16	151.25	0.12
26.33	0.23	57.58	0.58	88.83	0.54	120.08	0.16	151.33	0.12
26.42	0.23	57.67	0.58	88.92	0.53	120.17	0.16	151.42	0.12
26.50	0.23	57.75	0.58	89.00	0.53	120.25	0.16	151.50	0.12
26.58	0.23	57.83	0.57	89.08	0.52	120.33	0.16	151.58	0.12
26.67	0.23	57.92	0.57	89.17	0.51	120.42	0.16	151.67	0.12
26.75	0.22	58.00	0.57	89.25	0.51	120.50	0.16	151.75	0.12
26.83	0.22	58.08	0.57	89.33	0.50	120.58	0.16	151.83	0.12
26.92	0.22	58.17	0.56	89.42	0.50	120.67	0.16	151.92	0.12
27.00	0.22	58.25	0.56	89.50	0.49	120.75	0.16	152.00	0.12
27.08	0.22	58.33	0.56	89.58	0.48	120.83	0.16	152.08	0.12
27.17	0.21	58.42	0.55	89.67	0.48	120.92	0.16	152.17	0.12
27.25	0.21	58.50	0.55	89.75	0.47	121.00	0.16	152.25	0.12
27.33	0.21	58.58	0.54	89.83	0.47	121.08	0.16	152.33	0.11

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 27.42    0.21 | 58.67    0.54 | 89.92    0.47 |121.17    0.17
|152.42    0.11
 27.50    0.21 | 58.75    0.53 | 90.00    0.47 |121.25    0.17
|152.50    0.11
 27.58    0.21 | 58.83    0.53 | 90.08    0.46 |121.33    0.17
|152.58    0.11
 27.67    0.20 | 58.92    0.52 | 90.17    0.46 |121.42    0.17
|152.67    0.11
 27.75    0.20 | 59.00    0.52 | 90.25    0.45 |121.50    0.17
|152.75    0.11
 27.83    0.20 | 59.08    0.52 | 90.33    0.45 |121.58    0.17
|152.83    0.11
 27.92    0.20 | 59.17    0.51 | 90.42    0.44 |121.67    0.17
|152.92    0.11
 28.00    0.19 | 59.25    0.51 | 90.50    0.44 |121.75    0.17
|153.00    0.11
 28.08    0.19 | 59.33    0.50 | 90.58    0.44 |121.83    0.17
|153.08    0.11
 28.17    0.19 | 59.42    0.50 | 90.67    0.43 |121.92    0.17
|153.17    0.11
 28.25    0.19 | 59.50    0.49 | 90.75    0.43 |122.00    0.17
|153.25    0.11
 28.33    0.19 | 59.58    0.49 | 90.83    0.43 |122.08    0.17
|153.33    0.11
 28.42    0.19 | 59.67    0.49 | 90.92    0.43 |122.17    0.17
|153.42    0.11
 28.50    0.19 | 59.75    0.48 | 91.00    0.42 |122.25    0.18
|153.50    0.11
 28.58    0.18 | 59.83    0.48 | 91.08    0.42 |122.33    0.18
|153.58    0.11
 28.67    0.18 | 59.92    0.47 | 91.17    0.42 |122.42    0.18
|153.67    0.11
 28.75    0.18 | 60.00    0.47 | 91.25    0.42 |122.50    0.18
|153.75    0.11
 28.83    0.18 | 60.08    0.47 | 91.33    0.41 |122.58    0.18
|153.83    0.11
 28.92    0.18 | 60.17    0.46 | 91.42    0.41 |122.67    0.18
|153.92    0.11
 29.00    0.18 | 60.25    0.46 | 91.50    0.41 |122.75    0.18
|154.00    0.11
 29.08    0.18 | 60.33    0.45 | 91.58    0.41 |122.83    0.18
|154.08    0.11
 29.17    0.18 | 60.42    0.45 | 91.67    0.41 |122.92    0.18
|154.17    0.11
 29.25    0.17 | 60.50    0.44 | 91.75    0.41 |123.00    0.18
|154.25    0.11
 29.33    0.17 | 60.58    0.44 | 91.83    0.40 |123.08    0.18
|154.33    0.11
 29.42    0.17 | 60.67    0.44 | 91.92    0.40 |123.17    0.18
|154.42    0.11
 29.50    0.17 | 60.75    0.43 | 92.00    0.40 |123.25    0.18
|154.50    0.11
 29.58    0.17 | 60.83    0.43 | 92.08    0.40 |123.33    0.18
|154.58    0.11
 29.67    0.17 | 60.92    0.42 | 92.17    0.40 |123.42    0.18
|154.67    0.11
 29.75    0.17 | 61.00    0.42 | 92.25    0.39 |123.50    0.18
|154.75    0.11
 29.83    0.17 | 61.08    0.42 | 92.33    0.39 |123.58    0.18
|154.83    0.11
 29.92    0.16 | 61.17    0.42 | 92.42    0.39 |123.67    0.18
|154.92    0.11
 30.00    0.16 | 61.25    0.41 | 92.50    0.39 |123.75    0.18
|155.00    0.11
 30.08    0.16 | 61.33    0.41 | 92.58    0.38 |123.83    0.18
|155.08    0.11
 30.17    0.16 | 61.42    0.40 | 92.67    0.38 |123.92    0.18
|155.17    0.11
 30.25    0.16 | 61.50    0.40 | 92.75    0.38 |124.00    0.18
|155.25    0.11
 30.33    0.16 | 61.58    0.40 | 92.83    0.38 |124.08    0.18
|155.33    0.11
 30.42    0.16 | 61.67    0.40 | 92.92    0.38 |124.17    0.18
|155.42    0.11
 30.50    0.16 | 61.75    0.39 | 93.00    0.37 |124.25    0.18
|155.50    0.11
 30.58    0.16 | 61.83    0.39 | 93.08    0.37 |124.33    0.19
|155.58    0.11
 30.67    0.16 | 61.92    0.39 | 93.17    0.37 |124.42    0.19
|155.67    0.11
 30.75    0.16 | 62.00    0.38 | 93.25    0.37 |124.50    0.19
|155.75    0.11
 30.83    0.15 | 62.08    0.38 | 93.33    0.37 |124.58    0.19
|155.83    0.10
 30.92    0.15 | 62.17    0.38 | 93.42    0.37 |124.67    0.20
|155.92    0.11
 31.00    0.15 | 62.25    0.38 | 93.50    0.37 |124.75    0.20
|156.00    0.10
 31.08    0.15 | 62.33    0.39 | 93.58    0.37 |124.83    0.20 |
 31.17    0.15 | 62.42    0.39 | 93.67    0.37 |124.92    0.20 |
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| CALIB             |
| NASHYD    (6201) |   Area    (ha)=   9.60   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.04

     Unit Hyd Qpeak  (cms)=   0.352

     PEAK FLOW       (cms)=   0.188 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)= 18.913
     TOTAL RAINFALL   (mm)= 56.500
     RUNOFF COEFFICIENT   =   0.335

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6202) |   Area    (ha)=   2.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.50         0.81
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     123.83        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        54.92
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.05 (ii)   14.10 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.29         0.08
0.360 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      50.50        23.86
37.98
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.42
0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0140) |
|   1 + 2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (6201):     9.60   0.188     4.17    18.91
        + ID2= 2 (6202):     2.30   0.360     3.00    37.98
          ==================================================
          ID = 3 (0140):    11.90   0.387     3.00    22.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0621) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1549.0) ------>
               Distance      Elevation       Manning
                   0.00          87.56         0.0900
                   3.37          87.60         0.0900
                  16.78          87.21         0.0900
                  31.08          87.29         0.0900
                  43.62          87.28         0.0900
                  62.88          87.41         0.0900
                  68.00          87.22         0.0900
                  96.20          87.43         0.0900
                 112.60          86.39    0.0900 /0.0700  Main
Channel
                 113.70          86.10         0.0700      Main
Channel
                 114.40          86.51    0.0700 /0.0900  Main
Channel
                 114.60          86.67         0.0900
                 131.60          87.07         0.0900
                 156.70          87.16         0.0900
                 184.59          87.41         0.0900
                 194.09          87.56         0.0900
                 202.66          87.64         0.0900
                 221.43          87.69         0.0900
                 230.63          87.86         0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    86.17    .898E+01       0.0          0.13
79.55
       0.14    86.24    .359E+02       0.0          0.21
50.11
       0.21    86.31    .808E+02       0.0          0.28
38.24
       0.29    86.39    .144E+03       0.1          0.33
31.57
       0.36    86.46    .256E+03       0.2          0.39
27.10
       0.44    86.54    .435E+03       0.3          0.42
25.03
       0.52    86.62    .680E+03       0.5          0.46
23.12
       0.60    86.70    .998E+03       0.8          0.48
21.78
       0.68    86.78    .150E+04       1.2          0.48
21.76
       0.76    86.85    .223E+04       1.7          0.48
21.78
       0.83    86.93    .319E+04       2.5          0.49
21.41
       0.91    87.01    .437E+04       3.5          0.51
20.74
       0.99    87.09    .580E+04       4.7          0.51
20.64
       1.07    87.17    .811E+04       6.2          0.48
21.90
       1.15    87.25    .113E+05       7.8          0.44
24.18
       1.23    87.32    .165E+05      10.6          0.41
26.00
       1.30    87.40    .239E+05      16.0          0.42
24.97
       1.38    87.48    .327E+05      24.3          0.47
22.45
       1.46    87.56    .419E+05      34.6          0.52
20.16

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
      INFLOW : ID= 2 (0140)   11.90     0.39    3.00  22.60
0.48     0.44
      OUTFLOW: ID= 1 (0621)   11.90     0.21    4.25  22.57
0.40     0.40

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| CALIB             |
| NASHYD    (6211) |   Area    (ha)=   4.60   Curve Number
(CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.08

     Unit Hyd Qpeak  (cms)=   0.162

     PEAK FLOW       (cms)=   0.098 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)= 21.002
     TOTAL RAINFALL   (mm)= 56.500
     RUNOFF COEFFICIENT   =   0.372

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (6212) |   Area    (ha)=  17.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.39         5.61
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     336.65        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        72.90
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.57 (ii)   15.43 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.20         0.07

*TOTALS*
     PEAK FLOW       (cms)=       2.15         0.58
2.555 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        26.38
39.64
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.47
0.70

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0141) |
|   1 + 2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (6211):     4.60   0.098     4.17    21.00
        + ID2= 2 (6212):    17.00   2.555     3.00    39.64
          ==================================================
          ID = 3 (0141):    21.60   2.568     3.00    35.67

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0142) |
|   1 + 2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0141):    21.60   2.568     3.00    35.67
        + ID2= 2 (0621):    11.90   0.213     4.25    22.57
          ==================================================
          ID = 3 (0142):    33.50   2.744     3.00    31.02

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0622) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 953.0) ------>
               Distance      Elevation       Manning
                  16.75          82.21         0.1100
                  30.34          82.03         0.1100
                  44.96          81.97         0.1100
                  58.95          81.94         0.1100
                  71.21          81.85         0.1100
                 100.74          81.58         0.1100
                 112.29          81.50         0.1100
                 121.63          81.56         0.1100
                 127.04          81.66    0.1100 /0.0700  Main
Channel
                 129.04          80.66         0.0700      Main
Channel
                 130.04          80.66         0.0700      Main
Channel
                 131.04          80.66         0.0700      Main
Channel
                 133.04          81.66    0.0700 /0.1100  Main
Channel
                 134.58          82.08         0.1100
                 135.14          82.01         0.1100
                 139.68          81.73         0.1100
                 151.74          81.75         0.1100
                 153.37          81.71         0.1100
                 167.06          81.83         0.1100
                 187.62          81.87         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.06    80.72    .649E+02       0.0          0.17
49.00
       0.12    80.79    .138E+03       0.1          0.25
32.10
       0.19    80.85    .218E+03       0.1          0.32
25.32
       0.25    80.91    .306E+03       0.2          0.38
21.50
       0.31    80.97    .401E+03       0.4          0.43
18.99
       0.37    81.04    .504E+03       0.5          0.47
17.19
       0.44    81.10    .615E+03       0.6          0.52
15.81
       0.50    81.16    .733E+03       0.8          0.55
14.71
       0.56    81.22    .860E+03       1.0          0.59
13.81
       0.62    81.29    .993E+03       1.3          0.62
13.06
       0.69    81.35    .113E+04       1.5          0.66
12.41
       0.75    81.41    .128E+04       1.8          0.69
11.84
       0.81    81.47    .144E+04       2.1          0.72
11.35
       0.87    81.54    .170E+04       2.5          0.71
11.50
       0.94    81.60    .245E+04       3.0          0.59
13.80
       1.00    81.66    .355E+04       3.7          0.51
16.06
       1.07    81.73    .511E+04       4.9          0.47
17.27
       1.14    81.80    .759E+04       6.7          0.43
18.98
       1.21    81.87    .109E+05       9.0          0.40
20.28

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
      INFLOW : ID= 2 (0142)   33.50     2.74    3.00  31.02
0.91     0.64
      OUTFLOW: ID= 1 (0622)   33.50     1.99    3.08  31.01
0.79     0.71

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| CALIB             |
| STANDHYD  (6222) |   Area    (ha)=  16.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=
57.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.29         5.31
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     332.67        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        40.23
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.53 (ii)   18.03 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.20         0.06

*TOTALS*
     PEAK FLOW       (cms)=       2.18         0.33
2.393 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50        17.79
36.43
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.31
0.64

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| NASHYD    (6221) |   Area    (ha)=   0.30   Curve Number
(CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.03

     Unit Hyd Qpeak  (cms)=   0.011

     PEAK FLOW       (cms)=   0.004 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)=  13.542
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.240

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0143) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6221):     0.30   0.004     4.17    13.54
        + ID2= 2 (6222):    16.60   2.393     3.00    36.43
          ================================================
          ID = 3 (0143):    16.90   2.393     3.00    36.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0144) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0143):    16.90   2.393     3.00    36.03
        + ID2= 2 (0622):    33.50   1.989     3.08    31.01
          ================================================
          ID = 3 (0144):    50.40   4.242     3.00    32.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB              |
| NASHYD    (6231) |   Area    (ha)=   5.10   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.12

     Unit Hyd Qpeak  (cms)=   0.175

     PEAK FLOW       (cms)=   0.065 (i)
     TIME TO PEAK    (hrs)=   4.250
     RUNOFF VOLUME    (mm)=  13.115
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.232

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6232) |   Area    (ha)=  15.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.89          9.61
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     321.46         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         32.78
               over (min)        5.00         20.00
     Storage Coeff.  (min)=       5.41 (ii)    18.99 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.20          0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.86          0.47
1.159 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50         15.94
24.23
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.28
0.43


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0145) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6231):     5.10   0.065     4.25    13.12
        + ID2= 2 (6232):    15.50   1.159     3.00    24.23
          ================================================
          ID = 3 (0145):    20.60   1.167     3.00    21.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0146) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0144):    50.40   4.242     3.00    32.69
        + ID2= 2 (0145):    20.60   1.167     3.00    21.48
          ================================================
          ID = 3 (0146):    71.00   5.409     3.00    29.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB              |
| STANDHYD  (6302) |   Area    (ha)=   2.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=
50.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.64          0.96
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     131.66         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         71.86
               over (min)        5.00         15.00
     Storage Coeff.  (min)=       3.17 (ii)    13.09 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.27          0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.31          0.11
0.405 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      50.50         26.22
38.36
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.46
0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0631) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 788.2) ------>
               Distance      Elevation       Manning
                  0.00         81.00         0.1100
                 15.70         81.00         0.1100
                 17.50         80.50    0.1100 /0.0700  Main
Channel
                 18.50         80.50         0.0700      Main
Channel
                 20.00         81.00    0.0700 /0.1100  Main
Channel
                 24.00         81.00         0.1100
                 38.00         81.50         0.1100

        <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.03    80.53    .174E+02       0.0          0.10
100.96
       0.05    80.55    .375E+02       0.0          0.15
66.64
       0.08    80.58    .604E+02       0.0          0.19
52.98
       0.11    80.61    .861E+02       0.0          0.22
45.34
       0.13    80.63    .115E+03       0.0          0.25
40.34
       0.16    80.66    .146E+03       0.1          0.28
36.75
       0.18    80.68    .180E+03       0.1          0.30
34.02
       0.21    80.71    .217E+03       0.1          0.32
31.85
       0.24    80.74    .256E+03       0.1          0.34
30.07
       0.26    80.76    .298E+03       0.2          0.35
28.57
       0.29    80.79    .344E+03       0.2          0.37
27.28
       0.32    80.82    .391E+03       0.2          0.39
26.15
       0.34    80.84    .442E+03       0.3          0.40
25.16
       0.37    80.87    .495E+03       0.3          0.42
24.27
       0.39    80.89    .552E+03       0.4          0.43
23.48
       0.42    80.92    .611E+03       0.4          0.44
22.75
       0.45    80.95    .672E+03       0.5          0.46
22.09
       0.47    80.97    .737E+03       0.6          0.47
21.48
       0.50    81.00    .804E+03       0.6          0.48
20.91

                                   <---- hydrograph ---->   <-
pipe / channel->
                            AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6302)    2.60     0.41     3.00  38.36
0.40     0.43
     OUTFLOW: ID= 1 (0631)    2.60     0.21     3.08  38.14
0.29     0.37


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--------------------
| CALIB              |
| STANDHYD  (6312) |   Area    (ha)=   8.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=
51.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.54          3.26
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     242.21         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         39.15
               over (min)        5.00         20.00
     Storage Coeff.  (min)=       4.57 (ii)    17.21 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.23          0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.06          0.20
1.188 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50         17.57
34.36
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.31
0.61

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0149) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0631):     2.60   0.207     3.08    38.14
        + ID2= 2 (6312):     8.80   1.188     3.00    34.36
          ================================================
          ID = 3 (0149):    11.40   1.376     3.00    35.22

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0632) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 924.2) ------>
               Distance      Elevation       Manning
                  0.00         82.50         0.1100
                  6.00         82.00         0.1100
                 11.00         81.00         0.1100
                 12.00         80.00         0.1100
                 13.50         79.50    0.1100 /0.0700  Main
Channel
                 14.50         79.50         0.0700      Main
Channel
                 16.00         80.00    0.0700 /0.1100  Main
Channel
                 18.00         80.00         0.1100
                 29.70         80.00         0.1100
                 37.00         80.50         0.1100

        <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.05    79.55    .330E+02       0.0          0.17
52.00
       0.11    79.61    .749E+02       0.0          0.26
35.21
       0.16    79.66    .126E+03       0.1          0.32
28.45
       0.21    79.71    .186E+03       0.1          0.37
24.60
       0.26    79.76    .255E+03       0.2          0.41
22.04
       0.32    79.82    .333E+03       0.3          0.45
20.16
       0.37    79.87    .420E+03       0.4          0.48
18.69
       0.42    79.92    .515E+03       0.5          0.51
17.51
       0.47    79.97    .620E+03       0.6          0.55
16.53
       0.53    80.03    .931E+03       0.8          0.48
18.86
       0.58    80.08    .146E+04       1.2          0.43
20.73
       0.63    80.13    .201E+04       1.6          0.44
20.51
       0.68    80.18    .258E+04       2.2          0.46
19.66
       0.74    80.24    .318E+04       2.8          0.48
18.66
       0.79    80.29    .380E+04       3.6          0.51
17.70
       0.84    80.34    .445E+04       4.4          0.54
16.82
       0.89    80.39    .511E+04       5.3          0.56
16.03
       0.95    80.45    .580E+04       6.3          0.59
15.32
       1.00    80.50    .652E+04       7.4          0.61
14.69

                                   <---- hydrograph ---->   <-
pipe / channel->
                            AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0149)   11.40     1.38     3.00  35.22
0.60     0.44
     OUTFLOW: ID= 1 (0632)   11.40     0.82     3.17  35.20
0.52     0.48


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--------------------
| CALIB              |
| NASHYD    (6321) |   Area    (ha)=   1.10   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   0.044

     PEAK FLOW       (cms)=   0.016 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  13.114
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.232

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6322) |   Area    (ha)=   4.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  42.00   Dir. Conn.(%)=
28.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.81          2.49
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     169.31         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         33.58
               over (min)        5.00         20.00
     Storage Coeff.  (min)=       3.69 (ii)    17.13 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.25          0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.29          0.13
0.374 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50         16.12
25.74
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.29
0.46

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0173) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6321):     1.10   0.016     4.00    13.11
        + ID2= 2 (6322):     4.30   0.374     3.00    25.74
          ================================================
          ID = 3 (0173):     5.40   0.376     3.00    23.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0174) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0173):     5.40   0.376     3.00    23.17
        + ID2= 2 (0632):    11.40   0.815     3.17    35.20
          ================================================
          ID = 3 (0174):    16.80   1.099     3.00    31.33

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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-------------------
| CALIB             |
| NASHYD    (6401) |   Area    (ha)=   0.70   Curve Number
(CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.36

     Unit Hyd Qpeak  (cms)=   0.020

     PEAK FLOW       (cms)=   0.013 (i)
     TIME TO PEAK    (hrs)=   4.500
     RUNOFF VOLUME    (mm)=  20.998
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.372

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6402) |   Area    (ha)=  16.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.72         5.28
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     326.60        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        72.90
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       5.47 (ii)   15.33 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.20         0.07

*TOTALS*
     PEAK FLOW       (cms)=       2.03         0.55
2.411 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        26.38
39.64
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.47
0.70


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0177) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6401):     0.70   0.013     4.50    21.00
        + ID2= 2 (6402):    16.00   2.411     3.00    39.64
          =================================================
          ID = 3 (0177):    16.70   2.412     3.00    38.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0641) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 910.0) ------>
               Distance      Elevation       Manning
                   0.00          83.92        0.1100
                   1.93          83.93        0.1100
                   3.02          83.94        0.1100
                   5.01          83.96        0.1100
                   6.81          83.80        0.1100
                   7.33          83.77        0.1100
                   8.42          83.41    0.1100 /0.0700  Main
Channel
                  10.42          82.41        0.0700      Main
Channel
                  11.17          82.41        0.0700      Main
Channel
                  11.92          82.41        0.0700      Main
Channel
                  13.92          83.41    0.0700 /0.1100  Main
Channel
                  21.33          84.40        0.1100
                  23.85          84.09        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.10    82.51    .768E+02       0.0          0.24
32.02
      0.20    82.61    .172E+03       0.1          0.35
21.50
      0.30    82.71    .285E+03       0.3          0.44
17.20
      0.40    82.81    .416E+03       0.5          0.51
14.73
      0.50    82.91    .565E+03       0.7          0.58
13.08
      0.60    83.01    .732E+03       1.0          0.64
11.86
      0.70    83.11    .918E+03       1.4          0.69
10.92
      0.80    83.21    .112E+04       1.8          0.74
10.16
      0.90    83.31    .134E+04       2.3          0.79
9.53
      1.00    83.41    .158E+04       2.9          0.84
9.00
      1.11    83.52    .188E+04       3.8          0.92
8.20
      1.22    83.63    .224E+04       4.8          0.98
7.72
      1.33    83.74    .266E+04       6.0          1.02
7.39
      1.44    83.85    .315E+04       7.3          1.05
7.20
      1.55    83.96    .379E+04       8.7          1.04
7.24
      1.66    84.07    .471E+04      10.6          1.02
7.41
      1.77    84.18    .567E+04      12.7          1.01
7.46
      1.88    84.29    .673E+04      15.1          1.01
7.43
      1.99    84.40    .787E+04      17.8          1.02
7.36

                               <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0177)   16.70     2.41    3.00  38.86
0.91     0.80
    OUTFLOW: ID= 1 (0641)   16.70     1.82    3.08  38.86
0.80     0.74
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-------------------
| CALIB             |
| NASHYD    (6411) |   Area    (ha)=   1.00   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.97

     Unit Hyd Qpeak  (cms)=   0.039

     PEAK FLOW       (cms)=   0.017 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  15.969
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.283

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6412) |   Area    (ha)=  12.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
56.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.44         4.16
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     289.83        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        46.35
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       5.09 (ii)   16.91 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.21         0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.64         0.30
1.846 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        20.47
37.29
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.36
0.66


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0181) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6411):     1.00   0.017     4.08    15.97
        + ID2= 2 (6412):    12.60   1.846     3.00    37.29
          =================================================
          ID = 3 (0181):    13.60   1.848     3.00    35.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0184) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0181):    13.60   1.848     3.00    35.72
        + ID2= 2 (0641):    16.70   1.824     3.08    38.86
          =================================================
          ID = 3 (0184):    30.30   3.641     3.00    37.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0642) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1099.5) ------>
               Distance      Elevation       Manning
                   0.00          85.00        0.1100
                  14.50          80.00        0.1100
                  15.30          80.00        0.1100
                  16.80          79.50    0.1100 /0.0700  Main
Channel
                  17.80          79.50        0.0700      Main
Channel
                  19.30          80.00    0.0700 /0.1100  Main
Channel
                  20.30          80.00        0.1100
                  27.30          81.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.08    79.58    .520E+02       0.0          0.24
36.74
      0.16    79.66    .124E+03       0.1          0.35
25.35
      0.24    79.74    .216E+03       0.2          0.43
20.68
      0.32    79.82    .328E+03       0.3          0.49
17.96
      0.39    79.89    .460E+03       0.5          0.55
16.11
      0.47    79.97    .611E+03       0.7          0.60
14.73
      0.55    80.05    .836E+03       1.0          0.62
14.31
      0.63    80.13    .112E+04       1.4          0.66
13.40
      0.71    80.21    .143E+04       1.9          0.70
12.62
      0.79    80.29    .178E+04       2.5          0.74
11.97
      0.87    80.37    .216E+04       3.2          0.78
11.42
      0.95    80.45    .258E+04       3.9          0.81
10.93
      1.03    80.53    .302E+04       4.8          0.85
10.51
      1.11    80.61    .350E+04       5.8          0.88
10.14
      1.18    80.68    .402E+04       6.8          0.91
9.80
      1.26    80.76    .456E+04       8.0          0.94
9.49
      1.34    80.84    .514E+04       9.3          0.96
9.21
      1.42    80.92    .575E+04      10.7          0.99
8.96
      1.50    81.00    .640E+04      12.2          1.02
8.72

                               <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
```

```
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0184)   30.30     3.64    3.00  37.45
0.92     0.80
    OUTFLOW: ID= 1 (0642)   30.30     2.70    3.08  37.45
0.81     0.75


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-------------------
| CALIB             |
| NASHYD    (6421) |   Area    (ha)=   3.60   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.88

     Unit Hyd Qpeak  (cms)=   0.156

     PEAK FLOW       (cms)=   0.054 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=  13.115
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.232

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6422) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  41.00   Dir. Conn.(%)=
27.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.66         8.14
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     303.32        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        40.48
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       5.23 (ii)   17.70 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.21         0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.86         0.51
1.199 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        19.28
27.71
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.34
0.49


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0185) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6421):     3.60   0.054     3.92    13.11
        + ID2= 2 (6422):    13.80   1.199     3.00    27.71
          =================================================
          ID = 3 (0185):    17.40   1.209     3.00    24.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0187) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0185):    17.40   1.209     3.00    24.69
        + ID2= 2 (0642):    30.30   2.701     3.08    37.45
          =================================================
          ID = 3 (0187):    47.70   3.565     3.08    32.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6501) |   Area    (ha)=   6.90   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.02

     Unit Hyd Qpeak  (cms)=   0.258

     PEAK FLOW       (cms)=   0.093 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)=  13.115
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.232

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6502) |   Area    (ha)=   2.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
22.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.77         1.43
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     121.11        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        31.47
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       3.01 (ii)   16.81 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.28         0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.12         0.07
0.163 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        15.63
23.30
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.28
0.41

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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-------------------
| ADD HYD   (0190) |
|   1 +  2 =  3   |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6501):     6.90   0.093     4.17    13.12
        + ID2= 2 (6502):     2.20   0.163     3.00    23.30
          ==================================================
          ID = 3 (0190):     9.10   0.176     3.00    15.58

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (6601) |   Area    (ha)=   2.00   Curve Number
(CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.66

     Unit Hyd Qpeak  (cms)=   0.116

     PEAK FLOW      (cms)=   0.060 (i)
     TIME TO PEAK   (hrs)=   3.667
     RUNOFF VOLUME   (mm)= 20.274
     TOTAL RAINFALL  (mm)= 56.500
     RUNOFF COEFFICIENT  =   0.359

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6602) |   Area    (ha)=  11.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  41.00   Dir. Conn.(%)=
27.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.80          6.90
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     279.28         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         50.99
                over (min)       5.00         20.00
     Storage Coeff.  (min)=       4.98 (ii)   16.35 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.22          0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.74          0.57
1.123 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50         23.93
31.10
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.42
0.55

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0193) |
|   1 +  2 =  3   |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6601):     2.00   0.060     3.67    20.27
        + ID2= 2 (6602):    11.70   1.123     3.00    31.10
          ==================================================
          ID = 3 (0193):    13.70   1.141     3.00    29.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7302) |   Area    (ha)=   3.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=
20.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09          2.31
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     150.55         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         30.28
                over (min)       5.00         20.00
     Storage Coeff.  (min)=       3.43 (ii)   17.45 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.26          0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.16          0.11
0.233 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50         15.35
22.38
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.27
0.40

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7402) |   Area    (ha)=   3.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  40.00   Dir. Conn.(%)=
26.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.48          2.22
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     157.06         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         33.17
                over (min)       5.00         20.00
     Storage Coeff.  (min)=       3.52 (ii)   17.03 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.26          0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.23          0.11
0.306 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
```

```
     RUNOFF VOLUME    (mm)=      50.50         16.02
24.98
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.28
0.44

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| NASHYD    (7031) |   Area    (ha)=   3.70   Curve Number
(CN)= 63.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.12

     Unit Hyd Qpeak  (cms)=   0.126

     PEAK FLOW      (cms)=   0.042 (i)
     TIME TO PEAK   (hrs)=   4.250
     RUNOFF VOLUME   (mm)= 11.899
     TOTAL RAINFALL  (mm)= 56.500
     RUNOFF COEFFICIENT  =   0.211

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7032) |   Area    (ha)=  19.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.61          7.09
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     362.40         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         35.01
                over (min)       5.00         20.00
     Storage Coeff.  (min)=       5.82 (ii)   19.04 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.20          0.06

*TOTALS*
     PEAK FLOW       (cms)=       2.34          0.37
2.580 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50         15.71
33.80
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.28
0.60


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  63.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0213) |
|   1 +  2 =  3   |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7031):     3.70   0.042     4.25    11.90
        + ID2= 2 (7032):    19.70   2.580     3.00    33.80
          ==================================================
          ID = 3 (0213):    23.40   2.585     3.00    30.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (7101) |   Area    (ha)=  70.70   Curve Number
(CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.78

     Unit Hyd Qpeak  (cms)=   3.471

     PEAK FLOW      (cms)=   0.731 (i)
     TIME TO PEAK   (hrs)=   3.833
     RUNOFF VOLUME   (mm)=  8.313
     TOTAL RAINFALL  (mm)= 56.500
     RUNOFF COEFFICIENT  =   0.147

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7102) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
33.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.88          9.62
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     341.57         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         17.61
                over (min)       5.00         25.00
     Storage Coeff.  (min)=       5.62 (ii)   23.02 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.20          0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.33          0.26
1.455 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=      50.50         10.29
23.56
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.18
0.42


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0218) |
|   1 +  2 =  3   |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7101):    70.70   0.731     3.83     8.31
        + ID2= 2 (7102):    17.50   1.455     3.00    23.56
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          ==================================================
          ID = 3 (0218):    88.20   1.607     3.00    11.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0711) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1487.9) ------>
               Distance      Elevation       Manning
                   0.00          95.00        0.1100
                  89.00          94.00        0.1100
                 135.70          94.00    0.1100 /0.0700  Main
Channel
                 137.20          93.50        0.0700      Main
Channel
                 138.20          93.50        0.0700      Main
Channel
                 139.70          94.00    0.0700 /0.1100  Main
Channel
                 211.60          94.00        0.1100
                 249.00          95.00        0.1100

         <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH     ELEV      VOLUME      FLOW RATE     VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)       (cms)         (m/s)
(min)
       0.07    93.57    .969E+02        0.0           0.20
95.33
       0.14    93.64    .228E+03        0.1           0.29
64.56
       0.21    93.71    .393E+03        0.1           0.36
51.73
       0.29    93.79    .593E+03        0.2           0.42
44.23
       0.36    93.86    .826E+03        0.4           0.48
39.15
       0.43    93.93    .109E+04        0.5           0.53
35.40
       0.50    94.00    .140E+04        0.7           0.57
32.52
       0.58    94.08    .133E+05        2.6           0.22
84.59
       0.67    94.17    .262E+05        6.5           0.28
67.17
       0.75    94.25    .400E+05       12.0           0.33
55.64
       0.83    94.33    .549E+05       19.0           0.39
48.10
       0.92    94.42    .707E+05       27.5           0.43
42.81
       1.00    94.50    .875E+05       37.5           0.48
38.86
       1.08    94.58    .105E+06       49.0           0.52
35.80
       1.17    94.67    .124E+06       62.0           0.56
33.34
       1.25    94.75    .144E+06       76.6           0.59
31.30
       1.33    94.83    .165E+06       92.7           0.63
29.59
       1.42    94.92    .186E+06      110.4           0.66
28.12
       1.50    95.00    .209E+06      129.7           0.69
26.84

                                     <---- hydrograph ---->   <-
pipe / channel->
                               AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                               (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0218)   88.20      1.61    3.00  11.34
0.54     0.33
     OUTFLOW: ID= 1 (0711)   88.20      0.92    4.17  11.33
0.51     0.49


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-------------------
| CALIB            |
| NASHYD    (7111) |   Area    (ha)=  49.10   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.43

     Unit Hyd Qpeak  (cms)=   1.311

     PEAK FLOW      (cms)=   0.592 (i)
     TIME TO PEAK   (hrs)=   4.667
     RUNOFF VOLUME   (mm)= 14.948
     TOTAL RAINFALL  (mm)= 56.500
     RUNOFF COEFFICIENT  =   0.265

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7112) |   Area    (ha)=  11.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  34.00   Dir. Conn.(%)=
22.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.81          7.39
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     273.25         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         34.82
                over (min)       5.00         20.00
     Storage Coeff.  (min)=       4.91 (ii)   18.16 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.22          0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.58          0.39
0.829 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50         17.44
24.71
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.31
0.44

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0222) |
|   1 +  2 =  3   |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7111):    49.10   0.592     4.67    14.95
        + ID2= 2 (7112):    11.20   0.829     3.00    24.71
          ==================================================
          ID = 3 (0222):    60.30   0.876     3.00    16.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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-------------------
| ADD HYD   (0223) |
|   1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0222):    60.30   0.876    3.00    16.76
      + ID2= 2 (0711):    88.20   0.918    4.17    11.33
        ==================================================
        ID = 3 (0223):   148.50   1.599    4.25    13.54

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB           |
| NASHYD    (7011) |   Area    (ha)=  90.40   Curve Number
(CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.77

     Unit Hyd Qpeak  (cms)=   4.467

     PEAK FLOW       (cms)=   1.190 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  10.454
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.185

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| STANDHYD  (7012) |   Area    (ha)=  25.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
25.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.54        15.56
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     409.06        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        21.88
               over (min)        5.00        25.00
     Storage Coeff.  (min)=       6.26 (ii)   22.21 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.19         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.42         0.53
1.684 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      50.50        12.71
22.16
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.22
0.39


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  59.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0205) |
|   1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (7011):    90.40   1.190    3.83    10.45
      + ID2= 2 (7012):    25.10   1.684    3.00    22.16
        ==================================================
        ID = 3 (0205):   115.50   1.938    3.00    13.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0702) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1184.6) ------>
              Distance      Elevation       Manning
                 0.00          93.00        0.1100
                56.00          92.00        0.1100
                65.40          92.00        0.1100
                74.80          91.50    0.1100 /0.0700  Main
Channel
                75.80          91.50        0.0700      Main
Channel
                77.30          92.00    0.0700 /0.1100  Main
Channel
               144.00          92.00        0.1100
               186.00          93.00        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.08    91.58    .236E+03       0.0          0.13
200.27
      0.16    91.66    .689E+03       0.1          0.18
146.52
      0.24    91.74    .136E+04       0.2          0.22
121.67
      0.32    91.82    .225E+04       0.4          0.25
105.99
      0.39    91.89    .336E+04       0.6          0.28
94.79
      0.47    91.97    .468E+04       0.9          0.31
86.24
      0.55    92.05    .128E+05       1.5          0.19
142.36
      0.63    92.13    .251E+05       3.4          0.22
123.43
      0.71    92.21    .384E+05       6.1          0.26
104.46
      0.79    92.29    .526E+05       9.6          0.29
90.95
      0.87    92.37    .678E+05      13.9          0.33
81.16
      0.95    92.45    .840E+05      19.0          0.36
73.76
      1.03    92.53    .101E+06      24.8          0.39
67.97
      1.11    92.61    .119E+06      31.4          0.42
63.30
      1.18    92.68    .139E+06      38.8          0.45
59.44
      1.26    92.76    .159E+06      47.1          0.48
56.18
      1.34    92.84    .180E+06      56.1          0.50
53.38
      1.42    92.92    .202E+06      66.0          0.52
50.95
      1.50    93.00    .225E+06      76.8          0.55
48.81

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0205)  115.50     1.94     3.00  13.00
0.57      0.19
     OUTFLOW: ID= 1 (0702)  115.50     1.08     4.83  12.99
0.50      0.26


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| CALIB           |
| NASHYD    (7021) |   Area    (ha)=  16.10   Curve Number
(CN)= 64.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.72

     Unit Hyd Qpeak  (cms)=   0.358

     PEAK FLOW       (cms)=   0.139 (i)
     TIME TO PEAK    (hrs)=   5.083
     RUNOFF VOLUME    (mm)=  12.291
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.218

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| STANDHYD  (7022) |   Area    (ha)=  26.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  36.00   Dir. Conn.(%)=
24.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.50        16.90
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     419.52        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        28.90
               over (min)        5.00        25.00
     Storage Coeff.  (min)=       6.35 (ii)   20.63 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.19         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.43         0.67
1.774 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      50.50        14.56
23.19
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.26
0.41


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  64.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0209) |
|   1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (7021):    16.10   0.139    5.08    12.29
      + ID2= 2 (7022):    26.40   1.774    3.00    23.19
        ==================================================
        ID = 3 (0209):    42.50   1.781    3.00    19.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0210) |
|   1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0209):    42.50   1.781    3.00    19.06
      + ID2= 2 (0702):   115.50   1.075    4.83    12.99
        ==================================================
        ID = 3 (0210):   158.00   2.002    3.00    14.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0224) |
|   1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0210):   158.00   2.002    3.00    14.62
      + ID2= 2 (0223):   148.50   1.599    4.25    13.54
        ==================================================
        ID = 3 (0224):   306.50   3.340    3.00    14.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0703) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (2329.2) ------>
              Distance      Elevation       Manning
                 0.00          88.00        0.1100
                37.50          87.00        0.1100
                51.30          86.00        0.1100
                82.80          86.00        0.1100
               107.50          87.00        0.1100
               117.30          86.00        0.1100
               125.90          86.00    0.1100 /0.0700  Main
Channel
               127.40          85.50        0.0700      Main
Channel
               128.40          85.50        0.0700      Main
Channel
               129.90          86.00    0.0700 /0.1100  Main
Channel
               133.00          86.00        0.1100
               149.00          87.00        0.1100
               193.00          88.00        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.12    85.62    .787E+02       0.0          0.19
40.30
      0.25    85.75    .200E+03       0.1          0.28
27.58
      0.37    85.88    .365E+03       0.3          0.35
22.10
      0.50    86.00    .572E+03       0.5          0.41
18.84
      0.63    86.13    .372E+04       1.8          0.22
34.16
      0.77    86.27    .738E+04       4.4          0.27
28.02
      0.90    86.40    .116E+05       8.1          0.32
23.77
      1.03    86.53    .163E+05      13.0          0.37
20.89
      1.17    86.67    .215E+05      19.1          0.41
18.82
      1.30    86.80    .273E+05      26.4          0.44
17.24
      1.43    86.93    .336E+05      35.0          0.48
15.99
      1.57    87.07    .404E+05      44.9          0.51
15.00
      1.70    87.20    .479E+05      56.3          0.54
14.18
      1.83    87.33    .560E+05      69.3          0.57
13.47
      1.97    87.47    .648E+05      84.0          0.59
12.85
      2.10    87.60    .743E+05     100.6          0.62
12.31
      2.23    87.73    .844E+05     119.0          0.65
11.82
      2.37    87.87    .952E+05     139.3          0.67
11.39
      2.50    88.00    .107E+06     161.7          0.69
11.00

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0224)  306.50     3.34     3.00  14.09
0.71      0.25
     OUTFLOW: ID= 1 (0703)  306.50     2.84     4.75  14.09
0.69      0.24


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| ADD HYD   (0215) |
|   1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0213):    23.40   2.585    3.00    30.34
      + ID2= 2 (0703):   306.50   2.842    4.75    14.09
        ==================================================
        ID = 3 (0215):   329.90   3.850    3.00    15.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0704) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (2755.4) ------>
              Distance      Elevation       Manning
                 0.00          85.00        0.1100
                25.00          84.00        0.1100
                32.00          84.00    0.1100 /0.0700  Main
Channel
                33.50          83.50        0.0700      Main
Channel
                34.50          83.50        0.0700      Main
Channel
                36.00          84.00    0.0700 /0.1100  Main
Channel
                65.00          84.00        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.03    83.53    .121E+02       0.0          0.12
61.52
      0.05    83.55    .259E+02       0.0          0.19
40.35
      0.08    83.58    .414E+02       0.0          0.24
31.84
      0.10    83.60    .585E+02       0.0          0.28
27.04
      0.13    83.63    .774E+02       0.1          0.31
23.87
      0.15    83.65    .979E+02       0.1          0.35
21.59
      0.18    83.68    .120E+03       0.1          0.38
19.84
      0.20    83.70    .144E+03       0.1          0.41
18.45
      0.23    83.73    .170E+03       0.2          0.43
17.31
      0.25    83.75    .197E+03       0.2          0.46
16.34
      0.28    83.78    .226E+03       0.2          0.48
15.52
      0.30    83.80    .257E+03       0.3          0.51
14.80
      0.33    83.83    .289E+03       0.3          0.53
14.16
      0.35    83.85    .323E+03       0.4          0.55
13.60
      0.38    83.88    .359E+03       0.5          0.57
13.09
      0.40    83.90    .396E+03       0.5          0.59
12.64
      0.43    83.93    .435E+03       0.6          0.61
12.22
      0.45    83.95    .476E+03       0.7          0.63
11.84
      0.48    83.98    .518E+03       0.8          0.65
11.49

     **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0215)  329.90     3.85     3.00  15.25
0.47      0.65
     OUTFLOW: ID= 1 (0704)  329.90     3.02     4.92  15.25
0.48      0.65


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-------------------
| CALIB           |
| NASHYD    (7041) |   Area    (ha)=   9.20   Curve Number
(CN)= 61.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.82

     Unit Hyd Qpeak  (cms)=   0.431

     PEAK FLOW       (cms)=   0.124 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  11.153
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.197

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| STANDHYD  (7042) |   Area    (ha)=  14.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.72         4.78
     Dep. Storage     (mm)=       6.00         8.00
```

```
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     310.91        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        34.34
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       5.31 (ii)   18.63 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.21         0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.85         0.25
2.005 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50        15.11
34.57
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.27
0.61

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  61.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0227) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7041):     9.20   0.124     3.83    11.15
        + ID2= 2 (7042):    14.50   2.005     3.00    34.57
          ===============================================
          ID = 3 (0227):    23.70   2.030     3.00    25.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0229) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0227):    23.70   2.030     3.00    25.48
        + ID2= 2 (0704):   329.90   3.022     4.92    15.25
          ===============================================
          ID = 3 (0229):   353.60   4.270     3.00    15.93

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (7201) |   Area    (ha)=  14.00   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.98

     Unit Hyd Qpeak  (cms)=   0.548

     PEAK FLOW       (cms)=   0.196 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  13.115
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.232

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7202) |   Area    (ha)=   8.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=
43.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=       4.68         3.83
     Dep. Storage      (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     238.05        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        34.90
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       4.52 (ii)   17.76 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.23         0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.86         0.20
0.995 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50        16.41
31.07
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.29
0.55

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0232) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7201):    14.00   0.196     4.08    13.12
        + ID2= 2 (7202):     8.50   0.995     3.00    31.07
          ===============================================
          ID = 3 (0232):    22.50   1.024     3.00    19.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0721) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 920.0) ------>
               Distance      Elevation       Manning
                   0.00          82.00        0.1100
                  41.00          82.00        0.1100
                  50.70          82.00        0.1100
                  57.80          81.00    0.1100 /0.0700  Main
Channel
                  59.30          79.84        0.0700      Main
Channel
                  60.30          79.84        0.0700      Main
Channel
                  61.80          81.00    0.0700 /0.1100  Main
Channel
                  63.30          81.00        0.1100
                  85.90          81.00        0.1100
                 100.00          82.00        0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.11    79.95    .515E+02       0.0          0.20
35.58
       0.21    80.05    .115E+03       0.1          0.30
24.20
       0.32    80.16    .192E+03       0.2          0.37
19.53
       0.42    80.26    .280E+03       0.3          0.43
16.82
       0.53    80.37    .381E+03       0.4          0.48
15.00
       0.63    80.47    .494E+03       0.6          0.53
13.65
       0.74    80.58    .620E+03       0.8          0.57
12.60
       0.84    80.68    .758E+03       1.1          0.61
11.75
       0.95    80.79    .908E+03       1.4          0.65
11.04
       1.05    80.89    .107E+04       1.7          0.69
10.44
       1.16    81.00    .125E+04       2.1          0.72
9.92
       1.28    81.12    .283E+04       3.2          0.49
14.61
       1.41    81.25    .455E+04       5.0          0.48
15.04
       1.53    81.37    .642E+04       7.4          0.50
14.36
       1.66    81.50    .843E+04      10.4          0.53
13.50
       1.78    81.62    .106E+05      13.9          0.57
12.67
       1.91    81.75    .129E+05      18.0          0.60
11.93
       2.03    81.87    .153E+05      22.6          0.63
11.29
       2.16    82.00    .179E+05      27.8          0.67
10.73

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0232)   22.50     1.02    3.00  19.90
0.82     0.60
     OUTFLOW: ID= 1 (0721)   22.50     0.72    3.08  19.90
0.69     0.55


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--------------------
| CALIB            |
| NASHYD    (7211) |   Area    (ha)=   8.70   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.06

     Unit Hyd Qpeak  (cms)=   0.312

     PEAK FLOW       (cms)=   0.114 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)=  13.115
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.232

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7212) |   Area    (ha)=   9.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=       5.95         3.35
     Dep. Storage      (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     249.00        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        38.44
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       4.65 (ii)   17.38 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.22         0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.14         0.20
1.268 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        17.16
34.49
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.30
0.61

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0236) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7211):     8.70   0.114     4.17    13.12
        + ID2= 2 (7212):     9.30   1.268     3.00    34.49
          ===============================================
          ID = 3 (0236):    18.00   1.283     3.00    24.16

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0237) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0236):    18.00   1.283     3.00    24.16
        + ID2= 2 (0721):    22.50   0.717     3.08    19.90
          ===============================================
          ID = 3 (0237):    40.50   1.984     3.00    21.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0238) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0229):   353.60   4.270     3.00    15.93
        + ID2= 2 (0237):    40.50   1.984     3.00    21.79
          ===============================================
          ID = 3 (0238):   394.10   6.254     3.00    16.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0705) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (3276.8) ------>
               Distance      Elevation       Manning
                   0.00          80.50        0.1100
                   5.70          80.00        0.1100
                  14.00          79.00        0.1100
                  22.00          79.00    0.1100 /0.0700  Main
Channel
                  23.50          78.50        0.0700      Main
Channel
                  24.50          78.50        0.0700      Main
Channel
                  26.00          79.00    0.0700 /0.1100  Main
Channel
                  28.00          79.00        0.1100
                  41.00          80.00        0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.07    78.57    .248E+02       0.0          0.26
18.45
       0.14    78.64    .584E+02       0.1          0.38
12.49
       0.21    78.71    .101E+03       0.2          0.48
10.01
       0.29    78.79    .152E+03       0.3          0.56
8.56
       0.36    78.86    .212E+03       0.5          0.63
7.58
       0.43    78.93    .280E+03       0.7          0.70
6.85
       0.50    79.00    .358E+03       0.9          0.76
6.29
       0.58    79.08    .712E+03       1.6          0.64
7.50
       0.67    79.17    .111E+04       2.5          0.65
7.35
       0.75    79.25    .155E+04       3.7          0.69
6.94
       0.83    79.33    .203E+04       5.2          0.73
6.52
       0.92    79.42    .255E+04       6.9          0.78
6.14
       1.00    79.50    .312E+04       9.0          0.82
5.81
       1.08    79.58    .373E+04      11.3          0.86
5.52
       1.17    79.67    .438E+04      13.9          0.90
5.27
       1.25    79.75    .507E+04      16.7          0.94
5.05
       1.33    79.83    .581E+04      20.0          0.98
4.85
       1.42    79.92    .659E+04      23.5          1.02
4.68
       1.50    80.00    .741E+04      27.3          1.06
4.52

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0238)  394.10     6.25    3.00  16.53
0.88     0.76
     OUTFLOW: ID= 1 (0705)  394.10     5.40    3.08  16.53
0.84     0.74


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| CALIB            |
| NASHYD    (7051) |   Area    (ha)=   2.10   Curve Number
(CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.60

     Unit Hyd Qpeak  (cms)=   0.133

     PEAK FLOW       (cms)=   0.025 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=   8.040
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.142

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (7052) |   Area    (ha)=   4.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  40.00   Dir. Conn.(%)=
26.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=       1.88         2.82
     Dep. Storage      (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     177.01        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        17.47
                over (min)       5.00        25.00
     Storage Coeff.  (min)=       3.79 (ii)   21.25 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.25         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.29         0.08
0.331 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      50.50        10.09
20.59
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.18
0.36

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  51.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0241) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7051):     2.10   0.025     3.58     8.04
        + ID2= 2 (7052):     4.70   0.331     3.00    20.59
          ===============================================
          ID = 3 (0241):     6.80   0.339     3.00    16.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0243) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0241):     6.80   0.339     3.00    16.72
       + ID2= 2 (0705):   394.10   5.401     3.08    16.53
         ===============================================
         ID = 3 (0243):   400.90   5.577     3.08    16.54

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (7502) |   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  34.00   Dir. Conn.(%)=
21.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.87         3.63
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     191.49        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        31.31
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.97 (ii)   17.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.24         0.06

*TOTALS*
    PEAK FLOW       (cms)=        0.28         0.17
0.387 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.25
3.00
    RUNOFF VOLUME    (mm)=       50.50        15.60
22.92
    TOTAL RAINFALL   (mm)=       56.50        56.50
56.50
    RUNOFF COEFFICIENT   =        0.89         0.28
0.41

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   4 **
  ****************************


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|    READ STORM    |    Filename: C:\Users\Jenny\AppD
|                  |              ata\Local\Temp\
|                  |              a8b7002d-931f-4bdf-82e5-
bad09a870f5a\d70ee19b
| Ptotal= 67.60 mm |    Comments: Mount Hope-6 hour SCS
Distribution Desig
-------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                 0.17    2.70 |  1.67    6.76 |  3.17   14.87 |
4.67    4.06
                 0.33    2.70 |  1.83    6.76 |  3.33   14.87 |
4.83    4.06
                 0.50    2.70 |  2.00    6.76 |  3.50   14.87 |
5.00    4.06
                 0.67    4.06 |  2.17    8.11 |  3.67    6.76 |
5.17    2.70
                 0.83    4.06 |  2.33    8.11 |  3.83    6.76 |
5.33    2.70
                 1.00    4.06 |  2.50    8.11 |  4.00    6.76 |
5.50    2.70
                 1.17    4.06 |  2.67   40.56 |  4.17    5.41 |
5.67    2.70
                 1.33    4.06 |  2.83   73.01 |  4.33    5.41 |
5.83    2.70
                 1.50    4.06 |  3.00  105.46 |  4.50    5.41 |
6.00    2.70

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| CALIB            |
| NASHYD    (5071) |   Area    (ha)=   8.40   Curve Number
(CN)= 74.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.72

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                               ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                0.083    2.70 | 1.583    6.76 | 3.083   14.87 |
4.58    4.06
                0.167    2.70 | 1.667    6.76 | 3.167   14.87 |
4.67    4.06
                0.250    2.70 | 1.750    6.76 | 3.250   14.87 |
4.75    4.06
                0.333    2.70 | 1.833    6.76 | 3.333   14.87 |
4.83    4.06
                0.417    2.70 | 1.917    6.76 | 3.417   14.87 |
4.92    4.06
                0.500    2.70 | 2.000    6.76 | 3.500   14.87 |
5.00    4.06
                0.583    4.06 | 2.083    8.11 | 3.583    6.76 |
5.08    2.70
                0.667    4.06 | 2.167    8.11 | 3.667    6.76 |
5.17    2.70
                0.750    4.06 | 2.250    8.11 | 3.750    6.76 |
5.25    2.70
                0.833    4.06 | 2.333    8.11 | 3.833    6.76 |
5.33    2.70
                0.917    4.06 | 2.417    8.11 | 3.917    6.76 |
5.42    2.70
                1.000    4.06 | 2.500    8.11 | 4.000    6.76 |
5.50    2.70
                1.083    4.06 | 2.583   40.56 | 4.083    5.41 |
5.58    2.70
                1.167    4.06 | 2.667   40.56 | 4.167    5.41 |
5.67    2.70
                1.250    4.06 | 2.750   73.01 | 4.250    5.41 |
5.75    2.70
                1.333    4.06 | 2.833   73.01 | 4.333    5.41 |
5.83    2.70
                1.417    4.06 | 2.917  105.46 | 4.417    5.41 |
5.92    2.70
                1.500    4.06 | 3.000  105.46 | 4.500    5.41 |
6.00    2.70

     Unit Hyd Qpeak  (cms)=    0.187

     PEAK FLOW       (cms)=    0.142 (i)
     TIME TO PEAK    (hrs)=    5.000
     RUNOFF VOLUME    (mm)=   23.865
     TOTAL RAINFALL   (mm)=   67.600
     RUNOFF COEFFICIENT   =    0.353

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (5072) |   Area    (ha)=  40.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
30.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      18.23        22.28
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     519.62        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        73.24
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       6.72 (ii)   16.56 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.18         0.06

*TOTALS*
    PEAK FLOW       (cms)=        3.24         2.22
4.780 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=       61.60        28.60
38.50
    TOTAL RAINFALL   (mm)=       67.60        67.60
67.60
    RUNOFF COEFFICIENT   =        0.91         0.42
0.57


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  74.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0121) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (5071):     8.40   0.142     5.00    23.86
       + ID2= 2 (5072):    40.50   4.780     3.00    38.50
         ===============================================
         ID = 3 (0121):    48.90   4.790     3.00    35.99

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (5121) |   Area    (ha)=   0.70   Curve Number
(CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.14

     Unit Hyd Qpeak  (cms)=    0.023

     PEAK FLOW       (cms)=    0.015 (i)
     TIME TO PEAK    (hrs)=    4.250
     RUNOFF VOLUME    (mm)=   21.742
     TOTAL RAINFALL   (mm)=   67.600
     RUNOFF COEFFICIENT   =    0.322

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5122) |   Area    (ha)=   3.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=
47.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.92         1.28
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     146.06        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        72.02
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.14 (ii)   13.05 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.08

*TOTALS*
    PEAK FLOW       (cms)=        0.43         0.15
0.555 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=       61.60        27.10
43.31
    TOTAL RAINFALL   (mm)=       67.60        67.60
67.60
    RUNOFF COEFFICIENT   =        0.91         0.40
0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  71.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0118) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (5121):     0.70   0.015     4.25    21.74
       + ID2= 2 (5122):     3.20   0.555     3.00    43.31
         ===============================================
         ID = 3 (0118):     3.90   0.557     3.00    39.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (5111) |   Area    (ha)=   1.90   Curve Number
(CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.56

     Unit Hyd Qpeak  (cms)=    0.129

     PEAK FLOW       (cms)=    0.059 (i)
     TIME TO PEAK    (hrs)=    3.500
     RUNOFF VOLUME    (mm)=   19.230
     TOTAL RAINFALL   (mm)=   67.600
     RUNOFF COEFFICIENT   =    0.284

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5112) |   Area    (ha)=   1.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.55         0.55
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
```

```
     Length            (m)=      85.63        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        58.91
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.28 (ii)   13.02 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.30         0.08

*TOTALS*
    PEAK FLOW       (cms)=        0.11         0.06
0.162 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=       61.60        26.73
38.93
    TOTAL RAINFALL   (mm)=       67.60        67.60
67.60
    RUNOFF COEFFICIENT   =        0.91         0.40
0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  71.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0116) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (5111):     1.90   0.059     3.50    19.23
       + ID2= 2 (5112):     1.10   0.162     3.00    38.93
         ===============================================
         ID = 3 (0116):     3.00   0.184     3.00    26.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (5101) |   Area    (ha)=   0.80   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.42

     Unit Hyd Qpeak  (cms)=    0.022

     PEAK FLOW       (cms)=    0.012 (i)
     TIME TO PEAK    (hrs)=    4.583
     RUNOFF VOLUME    (mm)=   18.648
     TOTAL RAINFALL   (mm)=   67.600
     RUNOFF COEFFICIENT   =    0.276

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5102) |   Area    (ha)=   0.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.45         0.45
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      77.46        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        50.94
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.15 (ii)   13.53 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.31         0.08

*TOTALS*
    PEAK FLOW       (cms)=        0.09         0.04
0.126 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=       61.60        23.29
36.69
    TOTAL RAINFALL   (mm)=       67.60        67.60
67.60
    RUNOFF COEFFICIENT   =        0.91         0.34
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0115) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (5101):     0.80   0.012     4.58    18.65
       + ID2= 2 (5102):     0.90   0.126     3.00    36.69
         ===============================================
         ID = 3 (0115):     1.70   0.127     3.00    28.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0511) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation       Manning
                  0.00         81.24         0.1100
                 33.01         80.98         0.1100
                 49.97         81.27         0.1100
                 54.18         80.35         0.1100
                 60.88         81.23    0.1100 /0.0700  Main
Channel
                 69.13         79.02         0.0700      Main
Channel
                 92.42         79.04         0.0700      Main
Channel
                 98.70         80.89    0.0700 /0.1100  Main
Channel
                128.88         81.13         0.1100
                199.00         81.23         0.1100

       <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH     ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.12    79.13    .361E+03       0.6          0.24
9.91
      0.23    79.25    .776E+03       2.1          0.40
6.09
      0.35    79.37    .121E+04       4.3          0.52
4.65
      0.47    79.48    .165E+04       7.1          0.63
3.85
      0.59    79.60    .211E+04      10.5          0.72
3.34
```

```
       0.70    79.72    .258E+04      14.4          0.81
2.98
       0.82    79.84    .307E+04      18.8          0.89
2.71
       0.94    79.95    .357E+04      23.8          0.97
2.50
       1.05    80.07    .408E+04      29.2          1.04
2.33
       1.17    80.19    .461E+04      35.1          1.10
2.19
       1.29    80.30    .515E+04      41.5          1.17
2.07
       1.41    80.42    .571E+04      48.4          1.23
1.97
       1.52    80.54    .631E+04      55.8          1.28
1.88
       1.64    80.66    .695E+04      63.8          1.33
1.81
       1.76    80.77    .762E+04      72.3          1.38
1.76
       1.87    80.89    .833E+04      81.4          1.42
1.71
       2.00    81.02    .931E+04      92.4          1.44
1.68
       2.13    81.14    .109E+05     104.8          1.39
1.74
       2.25    81.27    .140E+05     120.9          1.25
1.93

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0115)    1.70     0.13    3.00  28.20
0.02     0.24
    OUTFLOW: ID= 1 (0511)     1.70     0.09    3.08  28.20
0.02     0.24

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| ADD HYD   (0117) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0116):     3.00   0.184     3.00    26.45
        + ID2= 2 (0511):     1.70   0.092     3.08    28.20
          ================================================
          ID = 3 (0117):     4.70   0.274     3.00    27.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0512) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 484.2) ------>
               Distance      Elevation       Manning
                   0.00          80.80         0.0900
                   9.73          80.46         0.0900
                  14.10          82.04         0.0900
                  17.18          82.28         0.0900
                  41.13          82.12      0.0900 /0.0700  Main
Channel
                  46.88          79.71         0.0700      Main
Channel
                  51.41          80.90      0.0700 /0.0900  Main
Channel
                  94.29          80.56         0.0900
                 175.64          80.72         0.0900
                 192.09          80.85         0.0900

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.13    79.84    .255E+02       0.0          0.14
54.71
       0.26    79.98    .102E+03       0.0          0.23
34.47
       0.40    80.11    .229E+03       0.1          0.30
26.30
       0.53    80.24    .408E+03       0.3          0.36
21.71
       0.66    80.37    .637E+03       0.6          0.42
18.71
       0.79    80.51    .934E+03       0.9          0.46
16.84
       0.93    80.64    .245E+04       1.6          0.31
24.96
       1.06    80.77    .873E+04       4.6          0.25
31.51
       1.19    80.90    .179E+05      11.4          0.30
26.08
       1.32    81.04    .278E+05      22.6          0.38
20.45
       1.46    81.17    .381E+05      37.5          0.46
16.91
       1.60    81.31    .484E+05      55.4          0.54
14.57
       1.74    81.45    .588E+05      76.0          0.61
12.90
       1.87    81.59    .693E+05      99.3          0.67
11.63
       2.01    81.72    .798E+05     125.0          0.73
10.64
       2.15    81.86    .903E+05     153.1          0.80
9.83
       2.29    82.00    .101E+06     183.5          0.85
9.16
       2.42    82.14    .112E+06     214.3          0.90
8.68
       2.56    82.27    .123E+06     244.4          0.93
8.40

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0117)    4.70     0.27    3.00  27.08
0.50     0.34
    OUTFLOW: ID= 1 (0512)     4.70     0.16    3.33  27.08
0.41     0.30

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--------------------
| ADD HYD   (0119) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0118):     3.90   0.557     3.00    39.44
        + ID2= 2 (0512):     4.70   0.160     3.33    27.08
          ================================================
          ID = 3 (0119):     8.60   0.674     3.00    32.68

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5061) |   Area    (ha)=   3.90   Curve Number
(CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.62
```

```
     Unit Hyd Qpeak  (cms)=   0.239

     PEAK FLOW       (cms)=   0.129 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  21.745
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.322

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5062) |   Area    (ha)=   7.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.07         2.73
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     228.04        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        73.65
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.10 (ii)   13.92 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.18          0.31
1.430 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60         27.36
45.50
     TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
     RUNOFF COEFFICIENT   =       0.91          0.40
0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0109) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5061):     3.90   0.129     3.58    21.75
        + ID2= 2 (5062):     7.80   1.430     3.00    45.50
          ================================================
          ID = 3 (0109):    11.70   1.472     3.00    37.58

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5051) |   Area    (ha)=   1.30   Curve Number
(CN)= 68.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.080

     PEAK FLOW       (cms)=   0.039 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  19.829
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.293

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5052) |   Area    (ha)=  14.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.64         4.96
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     311.98        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        57.91
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       4.95 (ii)   15.76 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.22         0.07

*TOTALS*
     PEAK FLOW       (cms)=       2.20          0.47
2.526 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60         25.36
44.93
     TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
     RUNOFF COEFFICIENT   =       0.91          0.38
0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0107) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5051):     1.30   0.039     3.58    19.83
        + ID2= 2 (5052):    14.60   2.526     3.00    44.93
          ================================================
          ID = 3 (0107):    15.90   2.538     3.00    42.88

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5211) |   Area    (ha)=   1.90   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   0.076

     PEAK FLOW       (cms)=   0.056 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  26.220
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.388
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     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5212) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  52.00   Dir. Conn.(%)=
40.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.18         6.62
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     303.32        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        77.38
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.87 (ii)   14.49 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.54          0.78
2.189 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60         30.73
43.08
     TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
     RUNOFF COEFFICIENT   =       0.91          0.45
0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0112) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5211):     1.90   0.056     4.00    26.22
        + ID2= 2 (5212):    13.80   2.189     3.00    43.08
          ================================================
          ID = 3 (0112):    15.70   2.199     3.00    41.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5201) |   Area    (ha)=  22.80   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.31

     Unit Hyd Qpeak  (cms)=   0.663

     PEAK FLOW       (cms)=   0.444 (i)
     TIME TO PEAK    (hrs)=   4.500
     RUNOFF VOLUME    (mm)=  22.428
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.332

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5202) |   Area    (ha)=   6.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  23.00   Dir. Conn.(%)=
12.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.59         5.31
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     214.48        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        48.48
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       3.95 (ii)   15.56 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.24         0.07

*TOTALS*
     PEAK FLOW       (cms)=       0.24          0.42
0.524 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60         24.98
29.37
     TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
     RUNOFF COEFFICIENT   =       0.91          0.37
0.43

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0111) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5201):    22.80   0.444     4.50    22.43
        + ID2= 2 (5202):     6.90   0.524     3.00    29.37
          ================================================
          ID = 3 (0111):    29.70   0.597     3.25    24.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0521) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 815.4) ------>
               Distance      Elevation       Manning
                 415.18          83.86         0.0900
                 461.15          83.40         0.0900
                 501.83          83.53      0.0900 /0.0700  Main
Channel
                 513.93          82.96         0.0700      Main
Channel
                 526.85          83.23      0.0700 /0.0900  Main
Channel
                 569.63          83.21         0.0900
                 610.76          83.63         0.0900
                 663.54          83.88         0.0900

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
```

```
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.05    83.00    .378E+02       0.0          0.11
83.81
     0.09    83.05    .151E+03       0.0          0.17
52.79
     0.14    83.09    .340E+03       0.1          0.22
40.29
     0.18    83.14    .605E+03       0.3          0.27
33.26
     0.23    83.18    .946E+03       0.5          0.32
28.66
     0.27    83.23    .151E+04       0.9          0.33
27.77
     0.32    83.27    .323E+04       1.8          0.31
29.51
     0.37    83.32    .510E+04       3.2          0.34
26.44
     0.42    83.37    .713E+04       5.0          0.38
23.61
     0.46    83.42    .934E+04       7.3          0.42
21.44
     0.51    83.47    .121E+05      10.0          0.45
20.23
     0.56    83.52    .156E+05      13.4          0.47
19.44
     0.61    83.57    .196E+05      17.7          0.49
18.52
     0.66    83.61    .240E+05      22.8          0.52
17.49
     0.71    83.66    .286E+05      28.4          0.54
16.75
     0.75    83.71    .336E+05      34.7          0.56
16.14
     0.80    83.76    .390E+05      41.8          0.58
15.55
     0.85    83.81    .448E+05      49.8          0.60
14.99
     0.90    83.86    .510E+05      58.8          0.63
14.46

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0111)   29.70     0.60    3.25  24.04
0.23      0.32
    OUTFLOW: ID= 1 (0521)   29.70     0.52    4.50  24.03
0.22      0.31


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--------------------
| ADD HYD   (0113) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0112):    15.70   2.199     3.00    41.04
       + ID2= 2 (0521):    29.70   0.517     4.50    24.03
         ===============================================
         ID = 3 (0113):    45.40   2.371     3.00    29.91

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----------------------------------------------------------------
-------------
--------------------
| CALIB            |
| NASHYD    (5041) |   Area    (ha)=   0.30   Curve Number
(CN)= 68.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.89

     Unit Hyd Qpeak  (cms)=   0.013

     PEAK FLOW       (cms)=   0.007 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=  19.823
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.293

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5042) |   Area    (ha)=   7.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.88         2.52
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     222.11        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        57.91
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.04 (ii)   14.85 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.14         0.26
1.347 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        25.36
44.93
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.38
0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0105) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (5041):     0.30   0.007     3.92    19.82
       + ID2= 2 (5042):     7.40   1.347     3.00    44.93
         ===============================================
         ID = 3 (0105):     7.70   1.348     3.00    43.95

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------
--------------------
| CALIB            |
| NASHYD    (5031) |   Area    (ha)=   1.70   Curve Number
(CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.82

     Unit Hyd Qpeak  (cms)=   0.079

     PEAK FLOW       (cms)=   0.046 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  21.745
     TOTAL RAINFALL   (mm)=  67.600
```

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     RUNOFF COEFFICIENT   =   0.322

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-----------------------------------------------------------------
-------------
--------------------
| CALIB            |
| STANDHYD  (5032) |   Area    (ha)=  12.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  59.00   Dir. Conn.(%)=
47.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.20         5.00
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     285.19        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        58.34
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.69 (ii)   15.47 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.22         0.07

*TOTALS*
     PEAK FLOW       (cms)=       1.61         0.48
1.944 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        26.62
43.06
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.39
0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0103) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (5031):     1.70   0.046     3.83    21.75
       + ID2= 2 (5032):    12.20   1.944     3.00    43.06
         ===============================================
         ID = 3 (0103):    13.90   1.954     3.00    40.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------
--------------------
| CALIB            |
| NASHYD    (5021) |   Area    (ha)=  25.20   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.46

     Unit Hyd Qpeak  (cms)=   0.662

     PEAK FLOW       (cms)=   0.331 (i)
     TIME TO PEAK    (hrs)=   4.667
     RUNOFF VOLUME    (mm)=  16.500
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.244

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------
--------------------
| CALIB            |
| STANDHYD  (5022) |   Area    (ha)=  25.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  42.00   Dir. Conn.(%)=
30.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.88        15.02
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     415.53        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        39.47
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.88 (ii)   18.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.19         0.06

*TOTALS*
     PEAK FLOW       (cms)=       2.12         0.90
2.709 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      61.60        19.57
32.18
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.29
0.48


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0101) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (5021):    25.20   0.331     4.67    16.50
       + ID2= 2 (5022):    25.90   2.709     3.00    32.18
         ===============================================
         ID = 3 (0101):    51.10   2.737     3.00    24.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5011) |   Area    (ha)=  80.20   Curve Number
(CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.85

     Unit Hyd Qpeak  (cms)=   3.621

     PEAK FLOW       (cms)=   1.741 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=  18.089
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.268

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5012) |   Area    (ha)=  39.40
```

```
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.97        24.43
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     512.51        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        44.47
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       6.67 (ii)   18.68 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.18         0.06

*TOTALS*
     PEAK FLOW       (cms)=       2.53         1.64
3.612 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      61.60        21.60
31.20
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.32
0.46


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  65.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0100) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (5011):    80.20   1.741     3.92    18.09
       + ID2= 2 (5012):    39.40   3.612     3.00    31.20
         ===============================================
         ID = 3 (0100):   119.60   3.973     3.00    22.41

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0502) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
                 <------ DATA FOR SECTION (1537.5) ------>
               Distance      Elevation       Manning
                  0.00         89.30         0.1100
                  4.20         89.28         0.1100
                  9.03         88.80         0.1100
                 21.55         88.78         0.1100
                 29.06         88.24         0.1100
                 39.87         87.83         0.1100
                 55.54         87.84    0.1100 /0.0700  Main
Channel
                 57.54         86.84         0.0700     Main
Channel
                 59.04         86.84         0.0700     Main
Channel
                 61.04         87.84    0.0700 /0.1100  Main
Channel
                 74.10         87.86         0.1100
                 87.72         88.07         0.1100
                101.34         88.18         0.1100
                113.53         88.23         0.1100
                128.57         88.32         0.1100
                142.19         88.61         0.1100
                155.81         88.53         0.1100
                183.05         88.85         0.1100
                187.19         88.84         0.1100
                211.21         88.88         0.1100

        <-------------------- TRAVEL TIME TABLE -----------------
---->
    DEPTH    ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.10    86.94    .202E+03       0.0          0.25
78.80
     0.20    87.04    .452E+03       0.1          0.37
52.91
     0.30    87.14    .749E+03       0.3          0.47
42.34
     0.40    87.24    .109E+04       0.5          0.55
36.26
     0.50    87.34    .149E+04       0.8          0.62
32.18
     0.60    87.44    .193E+04       1.1          0.68
29.19
     0.70    87.54    .241E+04       1.5          0.74
26.87
     0.80    87.64    .295E+04       2.0          0.79
25.01
     0.90    87.74    .353E+04       2.5          0.84
23.46
     1.00    87.84    .421E+04       3.1          0.89
22.39
     1.10    87.94    .849E+04       4.5          0.63
31.56
     1.21    88.05    .150E+05       7.1          0.56
35.43
     1.33    88.17    .233E+05      10.6          0.54
36.49
     1.44    88.28    .346E+05      15.5          0.53
37.18
     1.56    88.40    .484E+05      22.8          0.56
35.35
     1.67    88.51    .634E+05      32.1          0.60
32.90
     1.79    88.63    .807E+05      41.2          0.61
32.65
     1.90    88.74    .101E+06      54.6          0.64
30.77
     2.02    88.86    .124E+06      64.7          0.62
31.85

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0100)  119.60     3.97    3.00  22.41
1.06      0.71
    OUTFLOW: ID= 1 (0502)  119.60     2.86    3.58  22.41
0.96      0.87


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--------------------
| ADD HYD   (0102) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0101):    51.10   2.737     3.00    24.45
       + ID2= 2 (0502):   119.60   2.858     3.58    22.41
         ===============================================
         ID = 3 (0102):   170.70   4.356     3.00    23.02

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0503) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
```

```
-------------------
             <------ DATA FOR SECTION (1157.9) ------>
             Distance      Elevation       Manning
                 0.00         86.78         0.0900
                25.34         87.17         0.0900
                68.44         87.04         0.0900
               117.13         86.81         0.0900
               125.36         85.21    0.0900 /0.0700  Main
Channel
               127.36         84.21         0.0700     Main
Channel
               128.86         84.21         0.0700     Main
Channel
               130.86         85.21    0.0700 /0.0900  Main
Channel
               131.88         86.36         0.0900
               140.63         86.77         0.0900
               168.26         86.90         0.0900
               169.81         87.10         0.0900
               202.11         87.50         0.0900
               239.06         87.35         0.0900
               270.29         87.83         0.0900
               283.90         87.90         0.0900
               297.51         87.86         0.0900
               324.73         87.89         0.0900
               351.95         87.78         0.0900
               388.59         87.46         0.0900

     <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.17    84.38    .114E+03       0.1          0.34
18.34
      0.33    84.54    .269E+03       0.4          0.50
12.51
      0.50    84.71    .465E+03       0.8          0.62
10.07
      0.67    84.88    .703E+03       1.4          0.72
8.63
      0.83    85.04    .982E+03       2.1          0.81
7.65
      1.00    85.21    .130E+04       3.1          0.89
6.93
      1.21    85.42    .177E+04       5.0          1.06
5.87
      1.41    85.62    .234E+04       7.4          1.17
5.28
      1.62    85.83    .300E+04      10.2          1.27
4.89
      1.83    86.04    .376E+04      13.6          1.35
4.60
      2.03    86.24    .462E+04      17.6          1.42
4.37
      2.24    86.45    .560E+04      22.1          1.47
4.22
      2.45    86.66    .695E+04      27.6          1.48
4.20
      2.66    86.87    .925E+04      31.2          1.25
4.94
      2.86    87.07    .168E+05      43.1          0.96
6.48
      3.07    87.28    .297E+05      67.7          0.85
7.30
      3.28    87.49    .456E+05     103.1          0.84
7.38
      3.48    87.69    .663E+05     159.6          0.89
6.93
      3.69    87.90    .907E+05     223.4          0.92
6.77

                                  <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0102)  170.70     4.36    3.00  23.02
1.13      0.99
     OUTFLOW: ID= 1 (0503)  170.70     4.02    3.33  23.02
1.09      0.96


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-------------------
| ADD HYD   (0104) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0103):    13.90   1.954     3.00    40.45
        + ID2= 2 (0503):   170.70   4.020     3.33    23.02
          ===============================================
          ID = 3 (0104):   184.60   5.376     3.00    24.33

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0504) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
             <------ DATA FOR SECTION ( 815.4) ------>
             Distance      Elevation       Manning
                19.10         82.03         0.0900
                29.01         83.14         0.0900
                40.83         82.56         0.0900
                81.51         82.27         0.0900
               122.18         82.68         0.0900
               169.31         82.61         0.0900
               217.10         82.90         0.0900
               229.61         83.66    0.0900 /0.0700  Main
Channel
               232.80         81.85         0.0700     Main
Channel
               243.24         83.87         0.0700     Main
Channel
               257.77         84.06         0.0900
               312.01         83.52         0.0900
               415.18         83.86         0.0900
               461.15         83.40         0.0900
               501.83         83.53         0.0900
               513.93         82.96         0.0900
               526.85         83.23         0.0900
               569.63         83.21         0.0900
               610.76         83.63         0.0900
               663.54         83.88         0.0900

     <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.11    81.96    .117E+02       0.0          0.18
23.95
      0.23    82.08    .492E+02       0.1          0.28
15.67
      0.34    82.19    .135E+03       0.2          0.34
13.00
      0.45    82.30    .312E+03       0.4          0.32
13.44
      0.57    82.42    .116E+04       1.2          0.28
15.74
      0.68    82.53    .287E+04       3.5          0.32
13.85
      0.79    82.64    .549E+04       7.0          0.33
13.13
      0.91    82.76    .101E+05      14.9          0.39
11.28
      1.02    82.87    .155E+05      27.5          0.47
9.38
      1.13    82.98    .214E+05      45.2          0.55
7.89
      1.25    83.10    .277E+05      67.2          0.64
6.87
      1.36    83.21    .344E+05      93.6          0.71
6.12
      1.47    83.32    .426E+05     125.3          0.77
5.67
      1.59    83.44    .516E+05     162.2          0.82
5.30
      1.70    83.55    .620E+05     204.2          0.86
5.06
      1.81    83.66    .747E+05     254.0          0.89
4.90
      1.95    83.80    .924E+05     324.9          0.92
4.74
      2.08    83.93    .113E+06     411.3          0.95
4.59
      2.21    84.06    .135E+06     515.5          1.00
4.37

                                  <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0104)  184.60     5.38    3.00  24.33
0.74      0.32
     OUTFLOW: ID= 1 (0504)  184.60     4.51    3.50  24.33
0.71      0.32


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| ADD HYD   (0106) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0105):     7.70   1.348     3.00    43.95
        + ID2= 2 (0504):   184.60   4.513     3.50    24.33
          ===============================================
          ID = 3 (0106):   192.30   4.813     3.42    25.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0114) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0106):   192.30   4.813     3.42    25.12
        + ID2= 2 (0113):    45.40   2.371     3.00    29.91
          ===============================================
          ID = 3 (0114):   237.70   6.667     3.00    26.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0505) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
             <------ DATA FOR SECTION ( 553.6) ------>
             Distance      Elevation       Manning
                 0.00         81.24         0.1100
                33.01         80.98         0.1100
                49.97         81.27         0.1100
                54.18         80.35         0.1100
                60.88         81.23         0.1100
                69.13         79.02         0.1100
                92.42         79.04         0.1100
                98.70         80.89         0.1100
               128.88         81.13         0.1100
               199.00         81.23         0.1100
               266.11         81.68         0.1100
               306.94         81.73         0.1100
               331.74         81.55    0.1100 /0.0700  Main
Channel
               336.74         80.15         0.0700     Main
Channel
               346.34         81.64    0.0700 /0.0900  Main
Channel
               394.77         81.68         0.0900
               431.64         81.44         0.0900
               477.44         82.08         0.0900
               481.25         82.81         0.0900
               501.51         83.16         0.0900

     <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.12    79.13    .418E+03       0.4          0.15
18.59
      0.23    79.25    .899E+03       1.3          0.25
11.41
      0.35    79.36    .140E+04       2.7          0.33
8.70
      0.46    79.48    .191E+04       4.4          0.39
7.22
      0.58    79.59    .244E+04       6.5          0.46
6.26
      0.69    79.71    .299E+04       8.9          0.51
5.58
      0.81    79.82    .355E+04      11.7          0.56
5.08
      0.92    79.94    .413E+04      14.7          0.61
4.68
      1.04    80.05    .472E+04      18.1          0.65
4.36
      1.15    80.17    .533E+04      21.7          0.70
4.09
      1.27    80.28    .598E+04      25.7          0.74
3.88
      1.38    80.40    .666E+04      29.7          0.76
3.74
      1.50    80.51    .740E+04      33.7          0.78
3.67
      1.61    80.63    .822E+04      38.1          0.79
3.59
      1.73    80.74    .909E+04      43.1          0.81
3.52
      1.84    80.86    .100E+05      48.6          0.83
3.45
      1.96    80.97    .111E+05      48.4          0.74
3.83
      2.07    81.09    .128E+05      43.8          0.59
4.86
      2.19    81.21    .155E+05      40.6          0.45
6.35

                                  <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0114)  237.70     6.67    3.00  26.03
0.58      0.46
     OUTFLOW: ID= 1 (0505)  237.70     6.12    3.08  26.03
0.55      0.44


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| ADD HYD   (0108) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0107):    15.90   2.538     3.00    42.88
        + ID2= 2 (0505):   237.70   6.121     3.08    26.03
          ===============================================
          ID = 3 (0108):   253.60   7.885     3.00    27.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0506) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
             <------ DATA FOR SECTION ( 304.1) ------>
             Distance      Elevation       Manning
                 0.00         81.42         0.0900
                 7.45         81.36         0.0900
                32.34         80.38         0.0900
                45.97         80.05         0.0900
                65.23         79.93         0.0900
                84.49         80.35         0.0900
               113.49         80.02         0.0900
               136.48         80.07         0.0900
               188.81         79.81         0.0900
               197.86         79.25    0.0900 /0.0700  Main
Channel
               200.70         78.22         0.0700     Main
Channel
               203.29         79.35    0.0700 /0.0900  Main
Channel
               204.01         79.67         0.0900
               236.47         80.40         0.0900
               277.80         80.48         0.0900
               305.35         80.37         0.0900
               346.67         80.41         0.0900
               387.99         80.33         0.0900
               415.54         80.53         0.0900
               447.88         80.49         0.0900

     <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.11    78.34    .979E+01       0.0          0.23
21.53
      0.23    78.45    .392E+02       0.0          0.37
13.56
      0.34    78.56    .881E+02       0.1          0.48
10.35
      0.46    78.68    .157E+03       0.3          0.58
8.54
      0.57    78.79    .245E+03       0.6          0.67
7.36
      0.68    78.91    .352E+03       0.9          0.76
6.52
      0.80    79.02    .480E+03       1.4          0.84
5.88
      0.91    79.13    .627E+03       1.9          0.92
5.38
      1.03    79.25    .793E+03       2.7          0.99
4.98
      1.15    79.37    .103E+04       3.8          1.09
4.55
      1.28    79.50    .135E+04       5.2          1.16
4.28
      1.40    79.62    .175E+04       7.1          1.20
4.12
      1.52    79.75    .228E+04       9.3          1.21
4.08
      1.65    79.87    .318E+04      11.7          1.10
4.52
      1.77    80.00    .524E+04      15.8          0.90
5.52
      1.90    80.12    .973E+04      24.3          0.74
6.69
      2.02    80.24    .158E+05      39.7          0.75
6.62
      2.15    80.37    .230E+05      59.2          0.77
6.46
      2.27    80.49    .349E+05      90.3          0.77
6.44

                                  <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0108)  253.60     7.89    3.00  27.09
1.45      1.21
     OUTFLOW: ID= 1 (0506)  253.60     7.51    3.08  27.09
1.42      1.20


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| ADD HYD   (0110) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0109):    11.70   1.472     3.00    37.58
        + ID2= 2 (0506):   253.60   7.512     3.08    27.09
          ===============================================
          ID = 3 (0110):   265.30   8.352     3.08    27.55

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0120) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0110):   265.30   8.352     3.08    27.55
        + ID2= 2 (0119):     8.60   0.674     3.00    32.68
          ===============================================
          ID = 3 (0120):   273.90   8.783     3.08    27.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5302) |   Area    (ha)=   5.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=
48.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.48         2.32
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     196.64        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        50.94
               over (min)       5.00        20.00
     Storage Coeff.  (min)=       3.75 (ii)   15.13 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.25         0.07

*TOTALS*
     PEAK FLOW       (cms)=       0.80         0.20
0.931 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        23.29
41.68
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.34
0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
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     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| NASHYD    (6051) |   Area    (ha)=   0.40   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.31

     Unit Hyd Qpeak  (cms)=   0.012

     PEAK FLOW       (cms)=   0.006 (i)
     TIME TO PEAK    (hrs)=   4.500
     RUNOFF VOLUME    (mm)=  18.645
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.276

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6052) |   Area    (ha)=  15.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area    (ha)=       10.23         5.27
     Dep. Storage    (mm)=        6.00         8.00
     Average Slope    (%)=        1.00         1.00
     Length           (m)=      321.46        40.00
     Mannings n         =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        54.69
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.04 (ii)   16.10 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.21         0.06

*TOTALS*
     PEAK FLOW       (cms)=       2.33         0.47
2.651 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        24.02
44.31
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.36
0.66


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0131) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
-------------------           (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (6051):       0.40   0.006     4.50    18.64
       + ID2= 2 (6052):      15.50   2.651     3.00    44.31
         ================================================
         ID = 3 (0131):      15.90   2.652     3.00    43.67

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (6111) |   Area    (ha)=   0.60   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.08

     Unit Hyd Qpeak  (cms)=   0.021

     PEAK FLOW       (cms)=   0.016 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)=  26.217
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.388

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6112) |   Area    (ha)=  10.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  62.00   Dir. Conn.(%)=
50.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area    (ha)=        6.70         4.10
     Dep. Storage    (mm)=        6.00         8.00
     Average Slope    (%)=        1.00         1.00
     Length           (m)=      268.33        40.00
     Mannings n         =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        79.47
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.52 (ii)   14.05 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.52         0.50
1.939 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60        30.07
45.83
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.44
0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0137) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
-------------------           (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (6111):       0.60   0.016     4.17    26.22
       + ID2= 2 (6112):      10.80   1.939     3.00    45.83
         ================================================
         ID = 3 (0137):      11.40   1.941     3.00    44.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (6101) |   Area    (ha)=   9.00   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.23

     Unit Hyd Qpeak  (cms)=   0.279

     PEAK FLOW       (cms)=   0.173 (i)
     TIME TO PEAK    (hrs)=   4.333
     RUNOFF VOLUME    (mm)=  21.086
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.312

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6102) |   Area    (ha)=  12.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  27.00   Dir. Conn.(%)=
16.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area    (ha)=        3.27         8.83
     Dep. Storage    (mm)=        6.00         8.00
     Average Slope    (%)=        1.00         1.00
     Length           (m)=      284.02        40.00
     Mannings n         =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        46.13
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.68 (ii)   16.52 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.22         0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.54         0.65
0.982 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        23.69
29.76
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.35
0.44

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  70.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0136) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
-------------------           (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (6101):       9.00   0.173     4.33    21.09
       + ID2= 2 (6102):      12.10   0.982     3.00    29.76
         ================================================
         ID = 3 (0136):      21.10   1.002     3.00    26.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0611) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 940.0) ------>
               Distance      Elevation       Manning
                  0.00         83.36         0.0900
                 12.33         84.54         0.0900
                 21.95         84.33    0.0900 /0.0700  Main
Channel
                 25.80         83.10         0.0700      Main
Channel
                 39.87         83.58    0.0700 /0.0900  Main
Channel
                 95.01         83.67         0.0900
                132.30         84.45         0.0900

         <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)       (m/s)
(min)
       0.07    83.17    .442E+02       0.0         0.13
76.06
       0.14    83.24    .177E+03       0.1         0.20
47.91
       0.21    83.31    .398E+03       0.2         0.26
36.56
       0.28    83.38    .709E+03       0.4         0.32
30.22
       0.35    83.44    .113E+04       0.7         0.36
26.38
       0.41    83.51    .167E+04       1.2         0.41
23.66
       0.48    83.58    .232E+04       1.8         0.45
21.54
       0.56    83.66    .431E+04       3.1         0.42
23.06
       0.64    83.74    .779E+04       5.6         0.42
23.11
       0.72    83.82    .115E+05       9.1         0.46
20.97
       0.80    83.90    .154E+05      13.6         0.51
18.96
       0.88    83.98    .196E+05      18.9         0.55
17.31
       0.96    84.06    .240E+05      25.0         0.60
15.97
       1.04    84.14    .286E+05      32.1         0.65
14.88
       1.12    84.22    .334E+05      39.9         0.69
13.96
       1.20    84.30    .385E+05      48.6         0.73
13.19
       1.28    84.38    .438E+05      58.0         0.76
12.59
       1.36    84.46    .495E+05      68.4         0.80
12.06
       1.44    84.54    .555E+05      81.0         0.84
11.40

                                   <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0136)   21.10     1.00    3.00  26.06
0.39     0.39
     OUTFLOW: ID= 1 (0611)   21.10     0.62    3.33  26.04
0.33     0.35


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-------------------
| ADD HYD   (0138) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
-------------------           (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0137):      11.40   1.941     3.00    44.80
       + ID2= 2 (0611):      21.10   0.624     3.33    26.04
         ================================================
         ID = 3 (0138):      32.50   2.320     3.00    32.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (6041) |   Area    (ha)=   1.70   Curve Number
(CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   4.12

     Unit Hyd Qpeak  (cms)=   0.016

     PEAK FLOW       (cms)=   0.017 (i)
     TIME TO PEAK    (hrs)=   7.583
     RUNOFF VOLUME    (mm)=  27.939
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.413

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (6042) |   Area    (ha)=  22.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area    (ha)=       14.49         7.81
     Dep. Storage    (mm)=        6.00         8.00
     Average Slope    (%)=        1.00         1.00
     Length           (m)=      385.57        40.00
     Mannings n         =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        91.39
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       5.62 (ii)   14.63 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.20         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.25         1.10
4.162 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60        33.95
48.60
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.50
0.72


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  79.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0129) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
-------------------           (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (6041):       1.70   0.017     7.58    27.94
       + ID2= 2 (6042):      22.30   4.162     3.00    48.60
         ================================================
         ID = 3 (0129):      24.00   4.162     3.00    47.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (6031) |   Area    (ha)=  19.00   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.32

     Unit Hyd Qpeak  (cms)=   0.550

     PEAK FLOW       (cms)=   0.369 (i)
     TIME TO PEAK    (hrs)=   4.500
     RUNOFF VOLUME    (mm)=  22.428
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.332

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (6032) |   Area    (ha)=  15.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
15.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area    (ha)=        4.40        11.30
     Dep. Storage    (mm)=        6.00         8.00
     Average Slope    (%)=        1.00         1.00
     Length           (m)=      323.52        40.00
     Mannings n         =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        51.33
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.06 (ii)   16.40 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.21         0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.66         0.93
1.290 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        25.60
31.00
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.38
0.46

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  72.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0127) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
-------------------           (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (6031):      19.00   0.369     4.50    22.43
       + ID2= 2 (6032):      15.70   1.290     3.00    31.00
         ================================================
         ID = 3 (0127):      34.70   1.329     3.00    26.31

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB              |
| NASHYD    (6011) |   Area    (ha)=  44.10   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------  U.H. Tp(hrs)=   0.83

     Unit Hyd Qpeak  (cms)=   2.027

     PEAK FLOW       (cms)=   0.881 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  16.500
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.244

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| STANDHYD  (6012) |   Area    (ha)=  11.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
16.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.08          7.92
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     270.80         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     105.46         37.03
                over (min)       5.00         20.00
     Storage Coeff.  (min)=       4.55 (ii)   17.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.23          0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.50          0.45
0.795 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60         19.00
25.82
     TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
     RUNOFF COEFFICIENT   =       0.91          0.28
0.38

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
                YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0124) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6011):    44.10   0.881     3.83    16.50
        + ID2= 2 (6012):    11.00   0.795     3.00    25.82
          ==================================================
          ID = 3 (0124):    55.10   1.120     3.50    18.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB              |
| NASHYD    (6021) |   Area    (ha)=  43.60   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------  U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   1.753

     PEAK FLOW       (cms)=   0.789 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  16.500
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.244

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6022) |   Area    (ha)=  12.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
23.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.51          8.39
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     293.26         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     105.46         38.11
                over (min)       5.00         20.00
     Storage Coeff.  (min)=       4.77 (ii)   17.55 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.22          0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.83          0.49
1.157 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60         19.26
28.99
     TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
     RUNOFF COEFFICIENT   =       0.91          0.28
0.43

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0125) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6021):    43.60   0.789     4.00    16.50
        + ID2= 2 (6022):    12.90   1.157     3.00    28.99
          ==================================================
          ID = 3 (0125):    56.50   1.292     3.00    19.35

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0126) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0124):    55.10   1.120     3.50    18.36
        + ID2= 2 (0125):    56.50   1.292     3.00    19.35
          ==================================================
          ID = 3 (0126):   111.60   2.273     3.00    18.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0603) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (2135.9) ------>
               Distance      Elevation       Manning
                   0.00         92.58         0.1400
                   8.54         92.59         0.1400
                  22.11         92.47         0.1400
                  48.74         91.83         0.1400
                  67.59         91.58         0.1400
                  86.45         91.21         0.1400
                 103.50         90.80         0.1400
                 118.09         90.23         0.1400
                 127.84         90.09     0.1400 /0.0700  Main
Channel
                 129.84         89.59         0.0700      Main
Channel
                 130.34         90.09     0.0700 /0.1400  Main
Channel
                 140.57         90.14         0.1400
                 161.87         90.11         0.1400
                 177.03         90.04         0.1400
                 188.67         89.87         0.1400
                 199.59         90.31         0.1400
                 212.02         90.96         0.1400
                 225.58         91.35         0.1400
                 252.71         91.66         0.1400
                 274.11         91.86         0.1400

      <--------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12    89.71    .358E+02       0.0          0.19
81.29
       0.25    89.84    .143E+03       0.0          0.30
51.21
       0.37    89.96    .689E+03       0.2          0.23
67.44
       0.50    90.09    .278E+04       0.6          0.20
77.83
       0.67    90.26    .132E+05       3.4          0.23
65.31
       0.83    90.42    .262E+05       9.3          0.33
46.76
       1.00    90.59    .403E+05      17.9          0.41
37.64
       1.17    90.76    .556E+05      28.8          0.48
32.17
       1.33    90.92    .721E+05      42.0          0.53
28.63
       1.50    91.09    .903E+05      57.1          0.58
26.37
       1.67    91.26    .110E+06      74.7          0.62
24.65
       1.83    91.42    .133E+06      93.4          0.64
23.71
       2.00    91.59    .159E+06     113.6          0.66
23.26
       2.17    91.76    .188E+06     136.6          0.67
22.96
       2.33    91.92    .222E+06     168.5          0.70
21.97
       2.50    92.09    .258E+06     211.3          0.75
20.33
       2.67    92.26    .294E+06     258.5          0.81
18.98
       2.83    92.42    .332E+06     310.1          0.86
17.85
       3.00    92.59    .371E+06     358.0          0.88
17.29

                              <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0126)  111.60     2.27    3.00  18.86
0.60      0.22
     OUTFLOW: ID= 1 (0603)  111.60     1.51    4.58  18.86
0.55      0.21


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| ADD HYD   (0128) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0127):    34.70   1.329     3.00    26.31
        + ID2= 2 (0603):   111.60   1.507     4.58    18.86
          ==================================================
          ID = 3 (0128):   146.30   2.058     4.50    20.63

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0604) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1414.9) ------>
               Distance      Elevation       Manning
                   0.00         86.75         0.0900
                   3.09         87.40         0.0900
                  18.33         87.41         0.0900
                  35.33         86.99         0.0900
                  73.84         86.75         0.0900
                 103.33         86.41         0.0900
                 120.33         86.11         0.0900
                 129.46         86.13         0.0900
                 143.37         85.32         0.0900
                 154.33         85.02         0.0900
                 161.57         85.09         0.0900
                 163.05         84.78     0.0900 /0.0700  Main
Channel
                 166.55         83.78         0.0700      Main
Channel
                 168.05         84.78     0.0700 /0.1100  Main
Channel
                 172.02         85.29         0.1100
                 191.39         86.19         0.1100
                 270.18         85.78         0.1100
                 296.33         86.36         0.1100
                 324.34         86.68         0.1100
                 368.56         87.05         0.1100

      <--------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.17    83.95    .465E+02       0.0          0.03
432.88
       0.33    84.11    .186E+03       0.0          0.04
272.70
       0.50    84.28    .418E+03       0.0          0.05
208.11
       0.67    84.45    .743E+03       0.1          0.06
171.79
       0.83    84.61    .116E+04       0.1          0.08
148.04
       1.00    84.78    .167E+04       0.2          0.09
131.10
       1.20    84.98    .252E+04       0.4          0.10
110.62
       1.41    85.19    .469E+04       0.6          0.09
121.59
       1.61    85.39    .842E+04       1.1          0.09
126.63
       1.81    85.59    .133E+05       1.8          0.09
121.99
       2.01    85.79    .192E+05       2.7          0.10
116.68
       2.22    86.00    .298E+05       4.0          0.09
125.45
       2.42    86.20    .487E+05       5.6          0.08
143.80
       2.62    86.40    .736E+05       9.0          0.08
137.02
       2.82    86.60    .102E+06      13.1          0.09
130.82
       3.03    86.81    .136E+06      18.1          0.09
125.42
       3.23    87.01    .178E+06      24.4          0.09
121.07
       3.43    87.21    .224E+06      34.2          0.10
108.80
       3.63    87.41    .271E+06      44.8          0.11
100.89

                              <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0128)  146.30     2.06    4.50  20.63
1.86      0.09
     OUTFLOW: ID= 1 (0604)  146.30     1.51    5.00  20.61
1.72      0.09

     **** WARNING:  COMPUTATIONS FAILED TO CONVERGE.

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--------------------
| ADD HYD   (0130) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0129):    24.00   4.162     3.00    47.14
        + ID2= 2 (0604):   146.30   1.508     5.00    20.61
          ==================================================
          ID = 3 (0130):   170.30   4.651     3.00    24.35

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0605) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 801.4) ------>
               Distance      Elevation       Manning
                   0.00         82.95         0.1100
                   3.78         82.95         0.1100
                   9.24         82.49         0.1100
                  50.67         82.10         0.1100
                 105.12         82.17         0.1100
                 119.34         81.56         0.1100
                 150.67         81.66         0.1100
                 157.23         82.37         0.1100
                 190.03         82.57         0.1100
                 223.75         82.27         0.1100
                 252.32         82.50         0.1100
                 254.65         81.95     0.1100 /0.0700  Main
Channel
                 258.15         80.95         0.0700      Main
Channel
                 259.65         81.95     0.0700 /0.1100  Main
Channel
                 263.15         82.90         0.1100
                 278.14         82.80         0.1100
                 282.35         81.68         0.1100
                 285.02         82.19         0.1100
                 336.56         82.53         0.1100
                 404.40         82.68         0.1100

      <--------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.08    81.03    .125E+02       0.0          0.11
104.30
       0.17    81.12    .499E+02       0.0          0.18
65.70
       0.25    81.20    .112E+03       0.0          0.24
50.14
       0.33    81.28    .199E+03       0.1          0.29
41.39
       0.42    81.37    .312E+03       0.1          0.34
35.67
       0.50    81.45    .449E+03       0.2          0.38
31.59
       0.58    81.53    .611E+03       0.4          0.42
28.50
       0.67    81.62    .117E+04       0.5          0.33
36.10
       0.75    81.70    .316E+04       1.1          0.24
49.12
       0.83    81.78    .560E+04       2.1          0.27
45.15
       0.92    81.87    .827E+04       3.4          0.30
40.03
       1.00    81.95    .112E+05       5.2          0.33
35.88
       1.10    82.05    .151E+05       8.0          0.38
31.68
       1.21    82.16    .207E+05       8.8          0.30
39.37
       1.31    82.26    .306E+05      14.0          0.33
36.36
       1.41    82.36    .433E+05      20.3          0.34
35.59
       1.52    82.47    .606E+05      28.4          0.34
35.57
       1.62    82.57    .828E+05      41.0          0.36
33.68
       1.73    82.68    .109E+06      60.1          0.39
30.35

                              <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0130)  170.30     4.65    3.00  24.35
0.97      0.32
     OUTFLOW: ID= 1 (0605)  170.30     1.84    3.50  24.35
0.81      0.26


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--------------------
| ADD HYD   (0139) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0138):    32.50   2.320     3.00    32.62
        + ID2= 2 (0605):   170.30   1.842     3.50    24.35
          ==================================================
          ID = 3 (0139):   202.80   3.703     3.00    25.68

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

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--------------------
| ADD HYD   (0132) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0131):     15.90   2.652     3.00    43.67
       + ID2= 2 (0139):    202.80   3.703     3.00    25.68
         =================================================
         ID = 3 (0132):    218.70   6.355     3.00    26.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0530) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 350.0) ------>
               Distance      Elevation       Manning
                   0.00         81.70         0.1100
                   3.84         81.72         0.1100
                   5.87         80.72         0.1100
                   9.38         81.42         0.1100
                  49.64         81.07         0.1100
                  80.61         80.72         0.1100
                  85.61         81.14         0.1100
                  93.32         80.00         0.1100
                  95.04         80.45         0.1100
                 102.72         80.66         0.1100
                 110.13         78.93    0.1100 /0.0700  Main
Channel
                 118.05         78.63         0.0700      Main
Channel
                 124.40         78.89    0.0700 /0.1100  Main
Channel
                 132.18         79.61         0.1100
                 139.34         79.23         0.1100
                 144.67         79.43         0.1100
                 149.63         79.98         0.1100
                 153.42         79.79         0.1100
                 158.56         80.58         0.1100
                 176.89         81.15         0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.13    78.76    .190E+03       0.1          0.19
38.41
       0.26    78.89    .758E+03       0.5          0.31
24.20
       0.43    79.05    .189E+04       2.1          0.50
14.77
       0.59    79.22    .321E+04       4.7          0.65
11.35
       0.76    79.39    .498E+04       8.2          0.73
10.10
       0.93    79.55    .743E+04      13.1          0.78
9.48
       1.09    79.72    .103E+05      19.5          0.84
8.84
       1.26    79.89    .135E+05      27.1          0.89
8.29
       1.43    80.05    .171E+05      36.3          0.94
7.85
       1.59    80.22    .209E+05      47.2          1.00
7.39
       1.76    80.39    .251E+05      59.8          1.06
6.99
       1.93    80.56    .296E+05      73.5          1.10
6.70
       2.10    80.72    .348E+05      87.6          1.12
6.61
       2.26    80.89    .412E+05     102.8          1.11
6.68
       2.43    81.06    .495E+05     122.0          1.09
6.77
       2.60    81.22    .596E+05     146.2          1.09
6.80
       2.76    81.39    .714E+05     176.9          1.10
6.72
       2.93    81.56    .841E+05     215.0          1.13
6.52
       3.10    81.72    .970E+05     256.7          1.18
6.30

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0132)  218.70     6.36    3.00  26.98
0.67      0.69
     OUTFLOW: ID= 1 (0530)  218.70     4.98    3.08  26.98
0.60      0.66


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--------------------
| ADD HYD   (0134) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0530):    218.70   4.983     3.08    26.98
       + ID2= 2 (5302):      5.80   0.931     3.00    41.68
         =================================================
         ID = 3 (0134):    224.50   5.451     3.08    27.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0135) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0120):    273.90   8.783     3.08    27.71
       + ID2= 2 (0134):    224.50   5.451     3.08    27.36
         =================================================
         ID = 3 (0135):    498.40  14.234     3.08    27.55

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0507) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (  40.0) ------>
               Distance      Elevation       Manning
                   0.00         79.36         0.0900
                   7.45         79.32         0.0900
                  13.77         79.27         0.0900
                  20.24         79.24         0.0900
                  27.28         79.26         0.0900
                  34.16         79.13         0.0900
                  40.79         79.05         0.0900
                  47.58         79.05         0.0900
                  54.30         79.07         0.0900
                  60.87         79.24         0.0900
                  71.39         79.48         0.0900
                  73.53         78.96         0.0900
                  76.96         78.07         0.0900
                  82.21         77.08    0.0900 /0.0700  Main
Channel
                  85.82         76.28         0.0700      Main
Channel
                  89.97         76.89         0.0700      Main
Channel
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                  91.35         77.38    0.0700 /0.0900  Main
Channel
                  95.27         78.68         0.0900
                  98.44         79.63         0.0900
                 102.89         79.89         0.0900

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.16    76.44    .113E+03       0.0          0.14
88.10
       0.32    76.60    .451E+03       0.1          0.23
55.50
       0.49    76.76    .101E+04       0.4          0.30
42.35
       0.65    76.92    .180E+04       0.9          0.37
34.57
       0.81    77.09    .276E+04       1.6          0.44
28.86
       0.97    77.25    .388E+04       2.7          0.52
24.37
       1.14    77.41    .516E+04       4.0          0.59
21.56
       1.30    77.57    .660E+04       5.7          0.66
19.26
       1.46    77.74    .822E+04       7.8          0.72
17.67
       1.62    77.90    .100E+05      10.1          0.77
16.48
       1.79    78.06    .120E+05      12.8          0.82
15.54
       1.95    78.22    .141E+05      15.9          0.87
14.74
       2.11    78.39    .163E+05      19.4          0.91
14.06
       2.27    78.55    .187E+05      23.2          0.95
13.47
       2.44    78.71    .212E+05      27.3          0.99
12.95
       2.60    78.87    .239E+05      31.9          1.02
12.50
       2.76    79.04    .267E+05      36.8          1.06
12.10
       2.92    79.20    .320E+05      39.4          0.94
13.56
       3.09    79.36    .409E+05      45.7          0.85
14.94

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0135)  498.40    14.23    3.08  27.55
1.86      0.84
     OUTFLOW: ID= 1 (0507)  498.40    11.52    3.33  27.55
1.71      0.80


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--------------------
| ADD HYD   (0122) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0121):     48.90   4.790     3.00    35.99
       + ID2= 2 (0507):    498.40  11.516     3.33    27.55
         =================================================
         ID = 3 (0122):    547.30  14.404     3.25    28.31

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5401) |   Area    (ha)=   3.40   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.99

     Unit Hyd Qpeak  (cms)=   0.131

     PEAK FLOW      (cms)=   0.068 (i)
     TIME TO PEAK   (hrs)=   4.083
     RUNOFF VOLUME   (mm)=  18.651
     TOTAL RAINFALL  (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.276

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5402) |   Area    (ha)=   6.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  33.00   Dir. Conn.(%)=
20.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.98          4.02
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     200.00         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     105.46         43.67
               over (min)       5.00         20.00
     Storage Coeff.  (min)=       3.79 (ii)   15.89 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.25          0.07

*TOTALS*
     PEAK FLOW      (cms)=        0.34          0.28
0.535 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60         21.75
29.72
     TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
     RUNOFF COEFFICIENT   =       0.91          0.32
0.44

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0123) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (5401):      3.40   0.068     4.08    18.65
       + ID2= 2 (5402):      6.00   0.535     3.00    29.72
         =================================================
         ID = 3 (0123):      9.40   0.546     3.00    25.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| STORE HYD (1505) |   AREA       (ha)= 253.60
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| ID= 1 DT= 5.0min |   QPEAK     (cms)=   0.78
--------------------   TPEAK     (hrs)=  15.58
                       VOLUME     (mm)=  47.57

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |'  TIME    FLOW |
TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |'   hrs     cms |
hrs     cms
  0.00    0.00 | 31.33    0.10 | 62.67    0.25 | 94.00    0.26
|125.33    0.16
  0.08    0.00 | 31.42    0.10 | 62.75    0.25 | 94.08    0.26
|125.42    0.16
  0.17    0.00 | 31.50    0.10 | 62.83    0.25 | 94.17    0.25
|125.50    0.16
  0.25    0.00 | 31.58    0.10 | 62.92    0.25 | 94.25    0.25
|125.58    0.16
  0.33    0.00 | 31.67    0.10 | 63.00    0.25 | 94.33    0.25
|125.67    0.17
  0.42    0.00 | 31.75    0.10 | 63.08    0.25 | 94.42    0.25
|125.75    0.16
  0.50    0.00 | 31.83    0.10 | 63.17    0.25 | 94.50    0.25
|125.83    0.16
  0.58    0.00 | 31.92    0.10 | 63.25    0.24 | 94.58    0.25
|125.92    0.17
  0.67    0.00 | 32.00    0.10 | 63.33    0.24 | 94.67    0.24
|126.00    0.15
  0.75    0.00 | 32.08    0.10 | 63.42    0.24 | 94.75    0.25
|126.08    0.16
  0.83    0.00 | 32.17    0.10 | 63.50    0.23 | 94.83    0.24
|126.17    0.16
  0.92    0.00 | 32.25    0.10 | 63.58    0.24 | 94.92    0.25
|126.25    0.16
  1.00    0.00 | 32.33    0.10 | 63.67    0.24 | 95.00    0.25
|126.33    0.16
  1.08    0.00 | 32.42    0.10 | 63.75    0.24 | 95.08    0.25
|126.42    0.16
  1.17    0.00 | 32.50    0.10 | 63.83    0.23 | 95.17    0.24
|126.50    0.17
  1.25    0.00 | 32.58    0.10 | 63.92    0.23 | 95.25    0.21
|126.58    0.16
  1.33    0.00 | 32.67    0.10 | 64.00    0.23 | 95.33    0.25
|126.67    0.16
  1.42    0.00 | 32.75    0.10 | 64.08    0.23 | 95.42    0.22
|126.75    0.17
  1.50    0.00 | 32.83    0.10 | 64.17    0.23 | 95.50    0.23
|126.83    0.17
  1.58    0.00 | 32.92    0.10 | 64.25    0.24 | 95.58    0.22
|126.92    0.17
  1.67    0.00 | 33.00    0.10 | 64.33    0.23 | 95.67    0.24
|127.00    0.17
  1.75    0.00 | 33.08    0.10 | 64.42    0.23 | 95.75    0.26
|127.08    0.17
  1.83    0.00 | 33.17    0.10 | 64.50    0.23 | 95.83    0.24
|127.17    0.18
  1.92    0.00 | 33.25    0.11 | 64.58    0.23 | 95.92    0.23
|127.25    0.17
  2.00    0.00 | 33.33    0.11 | 64.67    0.24 | 96.00    0.24
|127.33    0.18
  2.08    0.00 | 33.42    0.11 | 64.75    0.24 | 96.08    0.24
|127.42    0.18
  2.17    0.00 | 33.50    0.11 | 64.83    0.24 | 96.17    0.24
|127.50    0.16
  2.25    0.00 | 33.58    0.11 | 64.92    0.24 | 96.25    0.24
|127.58    0.18
  2.33    0.00 | 33.67    0.11 | 65.00    0.24 | 96.33    0.24
|127.67    0.17
  2.42    0.00 | 33.75    0.11 | 65.08    0.23 | 96.42    0.24
|127.75    0.18
  2.50    0.00 | 33.83    0.11 | 65.17    0.23 | 96.50    0.24
|127.83    0.17
  2.58    0.00 | 33.92    0.11 | 65.25    0.23 | 96.58    0.23
|127.92    0.17
  2.67    0.00 | 34.00    0.11 | 65.33    0.23 | 96.67    0.24
|128.00    0.17
  2.75    0.00 | 34.08    0.11 | 65.42    0.22 | 96.75    0.23
|128.08    0.17
  2.83    0.00 | 34.17    0.11 | 65.50    0.22 | 96.83    0.23
|128.17    0.17
  2.92    0.00 | 34.25    0.11 | 65.58    0.22 | 96.92    0.24
|128.25    0.18
  3.00    0.00 | 34.33    0.11 | 65.67    0.22 | 97.00    0.23
|128.33    0.18
  3.08    0.00 | 34.42    0.11 | 65.75    0.22 | 97.08    0.22
|128.42    0.19
  3.17    0.00 | 34.50    0.11 | 65.83    0.22 | 97.17    0.23
|128.50    0.18
  3.25    0.00 | 34.58    0.11 | 65.92    0.21 | 97.25    0.22
|128.58    0.17
  3.33    0.00 | 34.67    0.11 | 66.00    0.21 | 97.33    0.25
|128.67    0.18
  3.42    0.00 | 34.75    0.11 | 66.08    0.21 | 97.42    0.22
|128.75    0.18
  3.50    0.00 | 34.83    0.11 | 66.17    0.20 | 97.50    0.24
|128.83    0.18
  3.58    0.00 | 34.92    0.11 | 66.25    0.20 | 97.58    0.23
|128.92    0.18
  3.67    0.00 | 35.00    0.11 | 66.33    0.20 | 97.67    0.22
|129.00    0.18
  3.75    0.00 | 35.08    0.11 | 66.42    0.20 | 97.75    0.23
|129.08    0.19
  3.83    0.00 | 35.17    0.11 | 66.50    0.19 | 97.83    0.22
|129.17    0.17
  3.92    0.00 | 35.25    0.11 | 66.58    0.20 | 97.92    0.21
|129.25    0.17
  4.00    0.00 | 35.33    0.11 | 66.67    0.20 | 98.00    0.22
|129.33    0.17
  4.08    0.00 | 35.42    0.11 | 66.75    0.20 | 98.08    0.23
|129.42    0.18
  4.17    0.00 | 35.50    0.11 | 66.83    0.19 | 98.17    0.21
|129.50    0.18
  4.25    0.00 | 35.58    0.11 | 66.92    0.19 | 98.25    0.21
|129.58    0.18
  4.33    0.00 | 35.67    0.11 | 67.00    0.20 | 98.33    0.23
|129.67    0.18
  4.42    0.00 | 35.75    0.11 | 67.08    0.20 | 98.42    0.21
|129.75    0.18
  4.50    0.00 | 35.83    0.11 | 67.17    0.20 | 98.50    0.21
|129.83    0.18
  4.58    0.00 | 35.92    0.11 | 67.25    0.20 | 98.58    0.23
|129.92    0.18
  4.67    0.00 | 36.00    0.11 | 67.33    0.20 | 98.67    0.22
|130.00    0.18
  4.75    0.00 | 36.08    0.11 | 67.42    0.21 | 98.75    0.23
|130.08    0.17
  4.83    0.00 | 36.17    0.11 | 67.50    0.22 | 98.83    0.24
|130.17    0.17
  4.92    0.00 | 36.25    0.11 | 67.58    0.22 | 98.92    0.22
|130.25    0.17
  5.00    0.00 | 36.33    0.11 | 67.67    0.23 | 99.00    0.20
|130.33    0.17
  5.08    0.00 | 36.42    0.12 | 67.75    0.24 | 99.08    0.20
|130.42    0.18
  5.17    0.00 | 36.50    0.12 | 67.83    0.26 | 99.17    0.22
|130.50    0.18
  5.25    0.00 | 36.58    0.12 | 67.92    0.27 | 99.25    0.21
|130.58    0.18
  5.33    0.00 | 36.67    0.12 | 68.00    0.28 | 99.33    0.22
|130.67    0.17
  5.42    0.00 | 36.75    0.12 | 68.08    0.31 | 99.42    0.21
|130.75    0.17
  5.50    0.00 | 36.83    0.12 | 68.17    0.32 | 99.50    0.20
|130.83    0.18
  5.58    0.00 | 36.92    0.12 | 68.25    0.34 | 99.58    0.21
|130.92    0.17
  5.67    0.00 | 37.00    0.12 | 68.33    0.35 | 99.67    0.20
|131.00    0.17
  5.75    0.00 | 37.08    0.12 | 68.42    0.38 | 99.75    0.19
|131.08    0.17
  5.83    0.00 | 37.17    0.12 | 68.50    0.39 | 99.83    0.20
|131.17    0.18
  5.92    0.00 | 37.25    0.12 | 68.58    0.40 | 99.92    0.22
|131.25    0.18
  6.00    0.00 | 37.33    0.12 | 68.67    0.42 |100.00    0.21
|131.33    0.17
  6.08    0.00 | 37.42    0.12 | 68.75    0.44 |100.08    0.20
|131.42    0.17
  6.17    0.00 | 37.50    0.12 | 68.83    0.46 |100.17    0.21
|131.50    0.17
```

6.25	0.00	37.58	0.12	68.92	0.49	100.25	0.19	131.58	0.17
6.33	0.00	37.67	0.13	69.00	0.51	100.33	0.19	131.67	0.17
6.42	0.00	37.75	0.12	69.08	0.54	100.42	0.19	131.75	0.17
6.50	0.00	37.83	0.12	69.17	0.56	100.50	0.19	131.83	0.17
6.58	0.00	37.92	0.12	69.25	0.60	100.58	0.19	131.92	0.17
6.67	0.00	38.00	0.12	69.33	0.64	100.67	0.19	132.00	0.16
6.75	0.00	38.08	0.12	69.42	0.67	100.75	0.21	132.08	0.17
6.83	0.00	38.17	0.12	69.50	0.67	100.83	0.19	132.17	0.17
6.92	0.00	38.25	0.12	69.58	0.68	100.92	0.19	132.25	0.17
7.00	0.00	38.33	0.12	69.67	0.65	101.00	0.19	132.33	0.17
7.08	0.00	38.42	0.12	69.75	0.66	101.08	0.19	132.42	0.18
7.17	0.00	38.50	0.12	69.83	0.66	101.17	0.20	132.50	0.17
7.25	0.00	38.58	0.12	69.92	0.67	101.25	0.19	132.58	0.16
7.33	0.00	38.67	0.13	70.00	0.66	101.33	0.18	132.67	0.17
7.42	0.00	38.75	0.13	70.08	0.67	101.42	0.19	132.75	0.17
7.50	0.00	38.83	0.13	70.17	0.67	101.50	0.19	132.83	0.17
7.58	0.00	38.92	0.13	70.25	0.70	101.58	0.19	132.92	0.16
7.67	0.00	39.00	0.13	70.33	0.74	101.67	0.20	133.00	0.17
7.75	0.00	39.08	0.14	70.42	0.73	101.75	0.19	133.08	0.16
7.83	0.00	39.17	0.14	70.50	0.74	101.83	0.18	133.17	0.16
7.92	0.00	39.25	0.14	70.58	0.74	101.92	0.19	133.25	0.16
8.00	0.00	39.33	0.14	70.67	0.74	102.00	0.19	133.33	0.15
8.08	0.00	39.42	0.14	70.75	0.75	102.08	0.19	133.42	0.16
8.17	0.00	39.50	0.15	70.83	0.75	102.17	0.19	133.50	0.16
8.25	0.00	39.58	0.16	70.92	0.74	102.25	0.18	133.58	0.17
8.33	0.00	39.67	0.16	71.00	0.74	102.33	0.18	133.67	0.16
8.42	0.00	39.75	0.16	71.08	0.75	102.42	0.19	133.75	0.15
8.50	0.00	39.83	0.16	71.17	0.77	102.50	0.19	133.83	0.16
8.58	0.00	39.92	0.17	71.25	0.76	102.58	0.19	133.92	0.16
8.67	0.00	40.00	0.17	71.33	0.76	102.67	0.18	134.00	0.16
8.75	0.00	40.08	0.17	71.42	0.77	102.75	0.20	134.08	0.16
8.83	0.00	40.17	0.17	71.50	0.76	102.83	0.18	134.17	0.15
8.92	0.00	40.25	0.18	71.58	0.77	102.92	0.18	134.25	0.16
9.00	0.00	40.33	0.18	71.67	0.76	103.00	0.17	134.33	0.16
9.08	0.00	40.42	0.18	71.75	0.76	103.08	0.17	134.42	0.16
9.17	0.00	40.50	0.18	71.83	0.78	103.17	0.18	134.50	0.16
9.25	0.00	40.58	0.19	71.92	0.77	103.25	0.18	134.58	0.15
9.33	0.00	40.67	0.19	72.00	0.76	103.33	0.17	134.67	0.16
9.42	0.00	40.75	0.19	72.08	0.74	103.42	0.17	134.75	0.15
9.50	0.00	40.83	0.19	72.17	0.75	103.50	0.17	134.83	0.15
9.58	0.00	40.92	0.19	72.25	0.74	103.58	0.18	134.92	0.16
9.67	0.00	41.00	0.19	72.33	0.72	103.67	0.18	135.00	0.15
9.75	0.00	41.08	0.19	72.42	0.70	103.75	0.18	135.08	0.15
9.83	0.00	41.17	0.20	72.50	0.70	103.83	0.18	135.17	0.15
9.92	0.00	41.25	0.20	72.58	0.69	103.92	0.19	135.25	0.15
10.00	0.00	41.33	0.21	72.67	0.70	104.00	0.17	135.33	0.15
10.08	0.00	41.42	0.22	72.75	0.68	104.08	0.18	135.42	0.15
10.17	0.00	41.50	0.23	72.83	0.67	104.17	0.18	135.50	0.15
10.25	0.00	41.58	0.23	72.92	0.66	104.25	0.17	135.58	0.15
10.33	0.00	41.67	0.23	73.00	0.64	104.33	0.17	135.67	0.14
10.42	0.00	41.75	0.24	73.08	0.63	104.42	0.17	135.75	0.15
10.50	0.00	41.83	0.25	73.17	0.63	104.50	0.18	135.83	0.16
10.58	0.00	41.92	0.25	73.25	0.61	104.58	0.17	135.92	0.15
10.67	0.00	42.00	0.26	73.33	0.62	104.67	0.16	136.00	0.15
10.75	0.00	42.08	0.25	73.42	0.61	104.75	0.16	136.08	0.15
10.83	0.00	42.17	0.26	73.50	0.62	104.83	0.18	136.17	0.15
10.92	0.00	42.25	0.26	73.58	0.60	104.92	0.16	136.25	0.15
11.00	0.00	42.33	0.26	73.67	0.62	105.00	0.17	136.33	0.15
11.08	0.00	42.42	0.26	73.75	0.58	105.08	0.16	136.42	0.15
11.17	0.00	42.50	0.26	73.83	0.59	105.17	0.16	136.50	0.15
11.25	0.00	42.58	0.26	73.92	0.57	105.25	0.16	136.58	0.15
11.33	0.00	42.67	0.26	74.00	0.57	105.33	0.16	136.67	0.14
11.42	0.00	42.75	0.25	74.08	0.57	105.42	0.16	136.75	0.15
11.50	0.00	42.83	0.26	74.17	0.56	105.50	0.16	136.83	0.14
11.58	0.00	42.92	0.25	74.25	0.58	105.58	0.16	136.92	0.14
11.67	0.00	43.00	0.25	74.33	0.58	105.67	0.16	137.00	0.14
11.75	0.00	43.08	0.25	74.42	0.58	105.75	0.17	137.08	0.15
11.83	0.00	43.17	0.25	74.50	0.59	105.83	0.16	137.17	0.14
11.92	0.00	43.25	0.25	74.58	0.60	105.92	0.16	137.25	0.15
12.00	0.00	43.33	0.25	74.67	0.57	106.00	0.16	137.33	0.15
12.08	0.00	43.42	0.25	74.75	0.56	106.08	0.16	137.42	0.14
12.17	0.00	43.50	0.25	74.83	0.54	106.17	0.16	137.50	0.14
12.25	0.00	43.58	0.25	74.92	0.56	106.25	0.17	137.58	0.14
12.33	0.00	43.67	0.25	75.00	0.53	106.33	0.16	137.67	0.15
12.42	0.00	43.75	0.25	75.08	0.51	106.42	0.16	137.75	0.14
12.50	0.00	43.83	0.26	75.17	0.51	106.50	0.16	137.83	0.14
12.58	0.00	43.92	0.26	75.25	0.51	106.58	0.16	137.92	0.14
12.67	0.00	44.00	0.26	75.33	0.51	106.67	0.16	138.00	0.14
12.75	0.00	44.08	0.26	75.42	0.50	106.75	0.16	138.08	0.14
12.83	0.00	44.17	0.26	75.50	0.50	106.83	0.15	138.17	0.14
12.92	0.00	44.25	0.27	75.58	0.49	106.92	0.15	138.25	0.14
13.00	0.00	44.33	0.26	75.67	0.49	107.00	0.16	138.33	0.14
13.08	0.00	44.42	0.26	75.75	0.49	107.08	0.16	138.42	0.14
13.17	0.00	44.50	0.26	75.83	0.48	107.17	0.16	138.50	0.14
13.25	0.00	44.58	0.26	75.92	0.47	107.25	0.15	138.58	0.14
13.33	0.00	44.67	0.26	76.00	0.47	107.33	0.16	138.67	0.14
13.42	0.00	44.75	0.26	76.08	0.48	107.42	0.16	138.75	0.14
13.50	0.00	44.83	0.26	76.17	0.46	107.50	0.15	138.83	0.14
13.58	0.00	44.92	0.26	76.25	0.45	107.58	0.16	138.92	0.14
13.67	0.00	45.00	0.26	76.33	0.45	107.67	0.15	139.00	0.14
13.75	0.00	45.08	0.26	76.42	0.43	107.75	0.15	139.08	0.14
13.83	0.00	45.17	0.25	76.50	0.44	107.83	0.16	139.17	0.13
13.92	0.00	45.25	0.25	76.58	0.46	107.92	0.16	139.25	0.14
14.00	0.00	45.33	0.25	76.67	0.43	108.00	0.16	139.33	0.14
14.08	0.00	45.42	0.25	76.75	0.44	108.08	0.15	139.42	0.14
14.17	0.00	45.50	0.25	76.83	0.43	108.17	0.15	139.50	0.14
14.25	0.00	45.58	0.25	76.92	0.45	108.25	0.15	139.58	0.13
14.33	0.00	45.67	0.25	77.00	0.42	108.33	0.16	139.67	0.14
14.42	0.00	45.75	0.25	77.08	0.43	108.42	0.16	139.75	0.14
14.50	0.00	45.83	0.26	77.17	0.43	108.50	0.15	139.83	0.13
14.58	0.00	45.92	0.25	77.25	0.42	108.58	0.15	139.92	0.14
14.67	0.00	46.00	0.26	77.33	0.41	108.67	0.15	140.00	0.14
14.75	0.00	46.08	0.26	77.42	0.43	108.75	0.16	140.08	0.13
14.83	0.00	46.17	0.25	77.50	0.41	108.83	0.15	140.17	0.13
14.92	0.69	46.25	0.26	77.58	0.43	108.92	0.15	140.25	0.13
15.00	0.69	46.33	0.26	77.67	0.39	109.00	0.15	140.33	0.13
15.08	0.71	46.42	0.26	77.75	0.39	109.08	0.15	140.42	0.14
15.17	0.74	46.50	0.26	77.83	0.37	109.17	0.15	140.50	0.13
15.25	0.74	46.58	0.26	77.92	0.39	109.25	0.15	140.58	0.13
15.33	0.74	46.67	0.26	78.00	0.39	109.33	0.14	140.67	0.13
15.42	0.77	46.75	0.26	78.08	0.39	109.42	0.15	140.75	0.13
15.50	0.76	46.83	0.25	78.17	0.37	109.50	0.15	140.83	0.13
15.58	0.78	46.92	0.25	78.25	0.36	109.58	0.14	140.92	0.13
15.67	0.78	47.00	0.25	78.33	0.37	109.67	0.15	141.00	0.13
15.75	0.77	47.08	0.25	78.42	0.38	109.75	0.14	141.08	0.13
15.83	0.77	47.17	0.26	78.50	0.36	109.83	0.15	141.17	0.13
15.92	0.77	47.25	0.26	78.58	0.36	109.92	0.14	141.25	0.13
16.00	0.76	47.33	0.26	78.67	0.36	110.00	0.14	141.33	0.13
16.08	0.74	47.42	0.26	78.75	0.37	110.08	0.14	141.42	0.13
16.17	0.74	47.50	0.26	78.83	0.34	110.17	0.14	141.50	0.13
16.25	0.74	47.58	0.25	78.92	0.35	110.25	0.14	141.58	0.13
16.33	0.72	47.67	0.26	79.00	0.36	110.33	0.15	141.67	0.13
16.42	0.69	47.75	0.26	79.08	0.35	110.42	0.14	141.75	0.13
16.50	0.69	47.83	0.26	79.17	0.35	110.50	0.14	141.83	0.13
16.58	0.67	47.92	0.26	79.25	0.36	110.58	0.14	141.92	0.13
16.67	0.66	48.00	0.25	79.33	0.36	110.67	0.14	142.00	0.13
16.75	0.64	48.08	0.25	79.42	0.33	110.75	0.15	142.08	0.12
16.83	0.63	48.17	0.26	79.50	0.33	110.83	0.14	142.17	0.13
16.92	0.63	48.25	0.25	79.58	0.33	110.92	0.15	142.25	0.13
17.00	0.60	48.33	0.25	79.67	0.32	111.00	0.15	142.33	0.13
17.08	0.58	48.42	0.25	79.75	0.33	111.08	0.14	142.42	0.12
17.17	0.58	48.50	0.25	79.83	0.33	111.17	0.14	142.50	0.13
17.25	0.57	48.58	0.25	79.92	0.32	111.25	0.14	142.58	0.13
17.33	0.56	48.67	0.24	80.00	0.33	111.33	0.15	142.67	0.13
17.42	0.55	48.75	0.24	80.08	0.34	111.42	0.14	142.75	0.13
17.50	0.54	48.83	0.24	80.17	0.32	111.50	0.15	142.83	0.12
17.58	0.51	48.92	0.24	80.25	0.31	111.58	0.14	142.92	0.13
17.67	0.50	49.00	0.24	80.33	0.33	111.67	0.14	143.00	0.12
17.75	0.48	49.08	0.25	80.42	0.31	111.75	0.14	143.08	0.12
17.83	0.47	49.17	0.24	80.50	0.32	111.83	0.14	143.17	0.12
17.92	0.47	49.25	0.24	80.58	0.31	111.92	0.14	143.25	0.12
18.00	0.45	49.33	0.24	80.67	0.31	112.00	0.15	143.33	0.12
18.08	0.44	49.42	0.23	80.75	0.33	112.08	0.15	143.42	0.12
18.17	0.41	49.50	0.23	80.83	0.31	112.17	0.14	143.50	0.12
18.25	0.42	49.58	0.24	80.92	0.32	112.25	0.14	143.58	0.12
18.33	0.40	49.67	0.23	81.00	0.32	112.33	0.14	143.67	0.12
18.42	0.39	49.75	0.24	81.08	0.31	112.42	0.15	143.75	0.12
18.50	0.38	49.83	0.24	81.17	0.31	112.50	0.15	143.83	0.12
18.58	0.38	49.92	0.23	81.25	0.31	112.58	0.15	143.92	0.12
18.67	0.37	50.00	0.23	81.33	0.31	112.67	0.15	144.00	0.12
18.75	0.37	50.08	0.23	81.42	0.31	112.75	0.14	144.08	0.12
18.83	0.36	50.17	0.24	81.50	0.32	112.83	0.15	144.17	0.12
18.92	0.35	50.25	0.23	81.58	0.32	112.92	0.14	144.25	0.12
19.00	0.34	50.33	0.23	81.67	0.34	113.00	0.15	144.33	0.12
19.08	0.34	50.42	0.23	81.75	0.34	113.08	0.15	144.42	0.12
19.17	0.34	50.50	0.23	81.83	0.35	113.17	0.14	144.50	0.12
19.25	0.34	50.58	0.23	81.92	0.37	113.25	0.15	144.58	0.12
19.33	0.33	50.67	0.23	82.00	0.36	113.33	0.15	144.67	0.12
19.42	0.33	50.75	0.23	82.08	0.37	113.42	0.14	144.75	0.12
19.50	0.32	50.83	0.23	82.17	0.38	113.50	0.14	144.83	0.12
19.58	0.32	50.92	0.23	82.25	0.36	113.58	0.14	144.92	0.12
19.67	0.32	51.00	0.23	82.33	0.35	113.67	0.14	145.00	0.12
19.75	0.31	51.08	0.23	82.42	0.37	113.75	0.14	145.08	0.12
19.83	0.30	51.17	0.23	82.50	0.37	113.83	0.14	145.17	0.12
19.92	0.30	51.25	0.23	82.58	0.36	113.92	0.14	145.25	0.12
20.00	0.29	51.33	0.23	82.67	0.38	114.00	0.14	145.33	0.12
20.08	0.29	51.42	0.23	82.75	0.38	114.08	0.14	145.42	0.12
20.17	0.28	51.50	0.23	82.83	0.41	114.17	0.14	145.50	0.12
20.25	0.28	51.58	0.23	82.92	0.40	114.25	0.14	145.58	0.12
20.33	0.28	51.67	0.23	83.00	0.40	114.33	0.14	145.67	0.12
20.42	0.27	51.75	0.23	83.08	0.40	114.42	0.14	145.75	0.12
20.50	0.27	51.83	0.23	83.17	0.44	114.50	0.15	145.83	0.12
20.58	0.26	51.92	0.23	83.25	0.44	114.58	0.14	145.92	0.12
20.67	0.27	52.00	0.23	83.33	0.42	114.67	0.14	146.00	0.12
20.75	0.26	52.08	0.24	83.42	0.42	114.75	0.14	146.08	0.11
20.83	0.26	52.17	0.24	83.50	0.42	114.83	0.15	146.17	0.11
20.92	0.25	52.25	0.24	83.58	0.41	114.92	0.14	146.25	0.11
21.00	0.25	52.33	0.25	83.67	0.41	115.00	0.15	146.33	0.12
21.08	0.25	52.42	0.25	83.75	0.42	115.08	0.14	146.42	0.11
21.17	0.24	52.50	0.25	83.83	0.41	115.17	0.14	146.50	0.12
21.25	0.25	52.58	0.25	83.92	0.41	115.25	0.14	146.58	0.12
21.33	0.24	52.67	0.25	84.00	0.43	115.33	0.15	146.67	0.11
21.42	0.24	52.75	0.25	84.08	0.40	115.42	0.14	146.75	0.12
21.50	0.24	52.83	0.25	84.17	0.42	115.50	0.15	146.83	0.11
21.58	0.23	52.92	0.25	84.25	0.41	115.58	0.14	146.92	0.12
21.67	0.23	53.00	0.27	84.33	0.42	115.67	0.14	147.00	0.11
21.75	0.23	53.08	0.27	84.42	0.42	115.75	0.14	147.08	0.12
21.83	0.23	53.17	0.28	84.50	0.43	115.83	0.14	147.17	0.11
21.92	0.23	53.25	0.28	84.58	0.44	115.92	0.14	147.25	0.12
22.00	0.23	53.33	0.28	84.67	0.42	116.00	0.15	147.33	0.12
22.08	0.22	53.42	0.28	84.75	0.44	116.08	0.14	147.42	0.11
22.17	0.22	53.50	0.28	84.83	0.45	116.17	0.15	147.50	0.11
22.25	0.22	53.58	0.29	84.92	0.45	116.25	0.14	147.58	0.11
22.33	0.22	53.67	0.29	85.00	0.46	116.33	0.14	147.67	0.11
22.42	0.21	53.75	0.29	85.08	0.47	116.42	0.14	147.75	0.11
22.50	0.21	53.83	0.30	85.17	0.46	116.50	0.14	147.83	0.11
22.58	0.21	53.92	0.30	85.25	0.46	116.58	0.14	147.92	0.11
22.67	0.21	54.00	0.30	85.33	0.44	116.67	0.14	148.00	0.11
22.75	0.21	54.08	0.30	85.42	0.45	116.75	0.14	148.08	0.11
22.83	0.20	54.17	0.31	85.50	0.45	116.83	0.14	148.17	0.11
22.92	0.20	54.25	0.30	85.58	0.45	116.92	0.14	148.25	0.11
23.00	0.20	54.33	0.31	85.67	0.45	117.00	0.14	148.33	0.11
23.08	0.20	54.42	0.30	85.75	0.46	117.08	0.14	148.42	0.11
23.17	0.20	54.50	0.31	85.83	0.45	117.17	0.14	148.50	0.11
23.25	0.20	54.58	0.32	85.92	0.47	117.25	0.14	148.58	0.11
23.33	0.19	54.67	0.32	86.00	0.44	117.33	0.14	148.67	0.11
23.42	0.19	54.75	0.32	86.08	0.45	117.42	0.14	148.75	0.11
23.50	0.19	54.83	0.32	86.17	0.43	117.50	0.14	148.83	0.11
23.58	0.19	54.92	0.32	86.25	0.43	117.58	0.14	148.92	0.11
23.67	0.19	55.00	0.32	86.33	0.43	117.67	0.13	149.00	0.11
23.75	0.18	55.08	0.32	86.42	0.43	117.75	0.13	149.08	0.11
23.83	0.18	55.17	0.32	86.50	0.45	117.83	0.14	149.17	0.11
23.92	0.18	55.25	0.33	86.58	0.42	117.92	0.13	149.25	0.11
24.00	0.18	55.33	0.33	86.67	0.42	118.00	0.13	149.33	0.11
24.08	0.18	55.42	0.33	86.75	0.43	118.08	0.13	149.42	0.11
24.17	0.18	55.50	0.33	86.83	0.41	118.17	0.13	149.50	0.11
24.25	0.17	55.58	0.32	86.92	0.40	118.25	0.13	149.58	0.11
24.33	0.18	55.67	0.32	87.00	0.40	118.33	0.13	149.67	0.11
24.42	0.17	55.75	0.32	87.08	0.39	118.42	0.13	149.75	0.11
24.50	0.17	55.83	0.32	87.17	0.39	118.50	0.13	149.83	0.11
24.58	0.17	55.92	0.32	87.25	0.39	118.58	0.13	149.92	0.11
24.67	0.17	56.00	0.32	87.33	0.37	118.67	0.13	150.00	0.11
24.75	0.16	56.08	0.32	87.42	0.37	118.75	0.13	150.08	0.11
24.83	0.16	56.17	0.32	87.50	0.38	118.83	0.13	150.17	0.11
24.92	0.16	56.25	0.32	87.58	0.37	118.92	0.13	150.25	0.11
25.00	0.16	56.33	0.32	87.67	0.36	119.00	0.13	150.33	0.11
25.08	0.16	56.42	0.32	87.75	0.38	119.08	0.13	150.42	0.11
25.17	0.16	56.50	0.32	87.83	0.38	119.17	0.13	150.50	0.11
25.25	0.16	56.58	0.31	87.92	0.34	119.25	0.13	150.58	0.11
25.33	0.15	56.67	0.31	88.00	0.35	119.33	0.13	150.67	0.11
25.42	0.16	56.75	0.32	88.08	0.34	119.42	0.13	150.75	0.11
25.50	0.15	56.83	0.31	88.17	0.35	119.50	0.13	150.83	0.11
25.58	0.15	56.92	0.31	88.25	0.34	119.58	0.13	150.92	0.11
25.67	0.15	57.00	0.31	88.33	0.36	119.67	0.13	151.00	0.11
25.75	0.15	57.08	0.31	88.42	0.33	119.75	0.13	151.08	0.11
25.83	0.15	57.17	0.31	88.50	0.33	119.83	0.13	151.17	0.11
25.92	0.15	57.25	0.31	88.58	0.34	119.92	0.13	151.25	0.11

```
  26.00    0.15 | 57.33    0.30 | 88.67    0.33 |120.00    0.13
|151.33    0.11
  26.08    0.15 | 57.42    0.30 | 88.75    0.33 |120.08    0.13
|151.42    0.11
  26.17    0.15 | 57.50    0.30 | 88.83    0.32 |120.17    0.13
|151.50    0.11
  26.25    0.14 | 57.58    0.30 | 88.92    0.30 |120.25    0.14
|151.58    0.11
  26.33    0.14 | 57.67    0.31 | 89.00    0.31 |120.33    0.14
|151.67    0.11
  26.42    0.14 | 57.75    0.30 | 89.08    0.31 |120.42    0.13
|151.75    0.11
  26.50    0.14 | 57.83    0.30 | 89.17    0.30 |120.50    0.14
|151.83    0.11
  26.58    0.14 | 57.92    0.30 | 89.25    0.31 |120.58    0.14
|151.92    0.11
  26.67    0.14 | 58.00    0.29 | 89.33    0.32 |120.67    0.14
|152.00    0.11
  26.75    0.14 | 58.08    0.29 | 89.42    0.31 |120.75    0.14
|152.08    0.11
  26.83    0.14 | 58.17    0.29 | 89.50    0.30 |120.83    0.14
|152.17    0.11
  26.92    0.14 | 58.25    0.29 | 89.58    0.29 |120.92    0.14
|152.25    0.11
  27.00    0.14 | 58.33    0.29 | 89.67    0.29 |121.00    0.14
|152.33    0.10
  27.08    0.13 | 58.42    0.29 | 89.75    0.29 |121.08    0.14
|152.42    0.11
  27.17    0.13 | 58.50    0.29 | 89.83    0.28 |121.17    0.14
|152.50    0.11
  27.25    0.13 | 58.58    0.29 | 89.92    0.30 |121.25    0.14
|152.58    0.10
  27.33    0.13 | 58.67    0.28 | 90.00    0.31 |121.33    0.14
|152.67    0.10
  27.42    0.13 | 58.75    0.28 | 90.08    0.31 |121.42    0.14
|152.75    0.10
  27.50    0.13 | 58.83    0.28 | 90.17    0.30 |121.50    0.14
|152.83    0.10
  27.58    0.13 | 58.92    0.29 | 90.25    0.30 |121.58    0.14
|152.92    0.10
  27.67    0.13 | 59.00    0.29 | 90.33    0.31 |121.67    0.14
|153.00    0.11
  27.75    0.13 | 59.08    0.29 | 90.42    0.30 |121.75    0.14
|153.08    0.10
  27.83    0.13 | 59.17    0.28 | 90.50    0.31 |121.83    0.14
|153.17    0.10
  27.92    0.12 | 59.25    0.28 | 90.58    0.31 |121.92    0.14
|153.25    0.11
  28.00    0.13 | 59.33    0.28 | 90.67    0.31 |122.00    0.15
|153.33    0.10
  28.08    0.12 | 59.42    0.27 | 90.75    0.31 |122.08    0.14
|153.42    0.11
  28.17    0.12 | 59.50    0.27 | 90.83    0.30 |122.17    0.14
|153.50    0.10
  28.25    0.12 | 59.58    0.27 | 90.92    0.31 |122.25    0.14
|153.58    0.10
  28.33    0.12 | 59.67    0.26 | 91.00    0.30 |122.33    0.14
|153.67    0.10
  28.42    0.12 | 59.75    0.26 | 91.08    0.30 |122.42    0.15
|153.75    0.11
  28.50    0.12 | 59.83    0.26 | 91.17    0.32 |122.50    0.15
|153.83    0.10
  28.58    0.12 | 59.92    0.26 | 91.25    0.30 |122.58    0.15
|153.92    0.10
  28.67    0.12 | 60.00    0.25 | 91.33    0.28 |122.67    0.14
|154.00    0.10
  28.75    0.12 | 60.08    0.25 | 91.42    0.30 |122.75    0.15
|154.08    0.10
  28.83    0.12 | 60.17    0.25 | 91.50    0.28 |122.83    0.14
|154.17    0.10
  28.92    0.12 | 60.25    0.25 | 91.58    0.31 |122.92    0.14
|154.25    0.10
  29.00    0.12 | 60.33    0.25 | 91.67    0.28 |123.00    0.15
|154.33    0.10
  29.08    0.12 | 60.42    0.24 | 91.75    0.30 |123.08    0.15
|154.42    0.10
  29.17    0.11 | 60.50    0.24 | 91.83    0.31 |123.17    0.15
|154.50    0.10
  29.25    0.11 | 60.58    0.24 | 91.92    0.27 |123.25    0.15
|154.58    0.10
  29.33    0.11 | 60.67    0.23 | 92.00    0.28 |123.33    0.15
|154.67    0.10
  29.42    0.11 | 60.75    0.24 | 92.08    0.29 |123.42    0.15
|154.75    0.10
  29.50    0.11 | 60.83    0.23 | 92.17    0.27 |123.50    0.15
|154.83    0.10
  29.58    0.11 | 60.92    0.23 | 92.25    0.28 |123.58    0.15
|154.92    0.10
  29.67    0.11 | 61.00    0.23 | 92.33    0.28 |123.67    0.15
|155.00    0.10
  29.75    0.11 | 61.08    0.23 | 92.42    0.31 |123.75    0.15
|155.08    0.10
  29.83    0.11 | 61.17    0.23 | 92.50    0.28 |123.83    0.15
|155.17    0.10
  29.92    0.11 | 61.25    0.22 | 92.58    0.28 |123.92    0.15
|155.25    0.10
  30.00    0.11 | 61.33    0.23 | 92.67    0.28 |124.00    0.15
|155.33    0.10
  30.08    0.11 | 61.42    0.23 | 92.75    0.28 |124.08    0.15
|155.42    0.10
  30.17    0.11 | 61.50    0.24 | 92.83    0.27 |124.17    0.15
|155.50    0.10
  30.25    0.11 | 61.58    0.24 | 92.92    0.28 |124.25    0.15
|155.58    0.10
  30.33    0.11 | 61.67    0.23 | 93.00    0.28 |124.33    0.14
|155.67    0.10
  30.42    0.11 | 61.75    0.23 | 93.08    0.27 |124.42    0.15
|155.75    0.10
  30.50    0.11 | 61.83    0.23 | 93.17    0.29 |124.50    0.15
|155.83    0.10
  30.58    0.11 | 61.92    0.23 | 93.25    0.28 |124.58    0.16
|155.92    0.10
  30.67    0.11 | 62.00    0.23 | 93.33    0.26 |124.67    0.15
|156.00    0.10
  30.75    0.11 | 62.08    0.23 | 93.42    0.27 |124.75    0.15
|156.08    0.10
  30.83    0.11 | 62.17    0.23 | 93.50    0.27 |124.83    0.15
|156.17    0.10
  30.92    0.11 | 62.25    0.23 | 93.58    0.26 |124.92    0.17
|156.25    0.10
  31.00    0.11 | 62.33    0.24 | 93.67    0.26 |125.00    0.16 |
  31.08    0.10 | 62.42    0.25 | 93.75    0.28 |125.08    0.16 |
  31.17    0.10 | 62.50    0.25 | 93.83    0.25 |125.17    0.16 |
  31.25    0.10 | 62.58    0.26 | 93.92    0.28 |125.25    0.16 |
-----------------------------------------------------------------------
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| STORE HYD (1605) |   AREA      (ha)= 218.70
| ID= 1 DT= 5.0min |   QPEAK     (cms)=   1.37
 -------------------   TPEAK     (hrs)=  71.92
                       VOLUME     (mm)=  85.77

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |'  TIME    FLOW |
TIME   FLOW
   hrs     cms |   hrs     cms |   hrs     cms |'   hrs     cms |
hrs    cms
   0.00    0.00 | 31.25    0.15 | 62.50    0.38 | 93.75    0.37
|125.00    0.20
   0.08    0.00 | 31.33    0.15 | 62.58    0.38 | 93.83    0.36
|125.08    0.20
   0.17    0.00 | 31.42    0.15 | 62.67    0.38 | 93.92    0.36
|125.17    0.20
   0.25    0.00 | 31.50    0.15 | 62.75    0.38 | 94.00    0.36
|125.25    0.20
   0.33    0.00 | 31.58    0.15 | 62.83    0.38 | 94.08    0.36
|125.33    0.20
   0.42    0.00 | 31.67    0.15 | 62.92    0.38 | 94.17    0.36
|125.42    0.20
   0.50    0.00 | 31.75    0.15 | 63.00    0.37 | 94.25    0.36
|125.50    0.20
   0.58    0.00 | 31.83    0.14 | 63.08    0.38 | 94.33    0.36
|125.58    0.20
   0.67    0.00 | 31.92    0.14 | 63.17    0.37 | 94.42    0.36
|125.67    0.21
   0.75    0.00 | 32.00    0.14 | 63.25    0.37 | 94.50    0.36
|125.75    0.21
   0.83    0.00 | 32.08    0.14 | 63.33    0.37 | 94.58    0.36
|125.83    0.21
   0.92    0.00 | 32.17    0.14 | 63.42    0.37 | 94.67    0.36
|125.92    0.21
   1.00    0.00 | 32.25    0.14 | 63.50    0.37 | 94.75    0.36
|126.00    0.21
   1.08    0.00 | 32.33    0.14 | 63.58    0.37 | 94.83    0.36
|126.08    0.21
   1.17    0.00 | 32.42    0.14 | 63.67    0.36 | 94.92    0.35
|126.17    0.21
   1.25    0.00 | 32.50    0.14 | 63.75    0.36 | 95.00    0.35
|126.25    0.21
   1.33    0.00 | 32.58    0.14 | 63.83    0.36 | 95.08    0.35
|126.33    0.21
   1.42    0.00 | 32.67    0.14 | 63.92    0.36 | 95.17    0.35
|126.42    0.22
   1.50    0.00 | 32.75    0.14 | 64.00    0.36 | 95.25    0.35
|126.50    0.22
   1.58    0.00 | 32.83    0.14 | 64.08    0.36 | 95.33    0.35
|126.58    0.22
   1.67    0.00 | 32.92    0.14 | 64.17    0.36 | 95.42    0.35
|126.67    0.22
   1.75    0.00 | 33.00    0.14 | 64.25    0.35 | 95.50    0.35
|126.75    0.22
   1.83    0.00 | 33.08    0.14 | 64.33    0.35 | 95.58    0.34
|126.83    0.22
   1.92    0.00 | 33.17    0.14 | 64.42    0.35 | 95.67    0.34
|126.92    0.23
   2.00    0.00 | 33.25    0.14 | 64.50    0.35 | 95.75    0.34
|127.00    0.23
   2.08    0.00 | 33.33    0.14 | 64.58    0.34 | 95.83    0.34
|127.08    0.23
   2.17    0.00 | 33.42    0.14 | 64.67    0.34 | 95.92    0.34
|127.17    0.23
   2.25    0.00 | 33.50    0.14 | 64.75    0.34 | 96.00    0.34
|127.25    0.23
   2.33    0.00 | 33.58    0.14 | 64.83    0.34 | 96.08    0.34
|127.33    0.24
   2.42    0.00 | 33.67    0.14 | 64.92    0.34 | 96.17    0.34
|127.42    0.24
   2.50    0.00 | 33.75    0.14 | 65.00    0.34 | 96.25    0.34
|127.50    0.24
   2.58    0.00 | 33.83    0.14 | 65.08    0.34 | 96.33    0.34
|127.58    0.24
   2.67    0.00 | 33.92    0.14 | 65.17    0.34 | 96.42    0.34
|127.67    0.24
   2.75    0.00 | 34.00    0.14 | 65.25    0.34 | 96.50    0.34
|127.75    0.24
   2.83    0.00 | 34.08    0.14 | 65.33    0.34 | 96.58    0.34
|127.83    0.25
   2.92    0.00 | 34.17    0.14 | 65.42    0.34 | 96.67    0.34
|127.92    0.25
   3.00    0.00 | 34.25    0.14 | 65.50    0.34 | 96.75    0.33
|128.00    0.25
   3.08    0.00 | 34.33    0.14 | 65.58    0.33 | 96.83    0.33
|128.08    0.25
   3.17    0.00 | 34.42    0.14 | 65.67    0.34 | 96.92    0.33
|128.17    0.25
   3.25    0.00 | 34.50    0.14 | 65.75    0.33 | 97.00    0.33
|128.25    0.25
   3.33    0.00 | 34.58    0.14 | 65.83    0.33 | 97.08    0.33
|128.33    0.25
   3.42    0.00 | 34.67    0.14 | 65.92    0.33 | 97.17    0.33
|128.42    0.25
   3.50    0.00 | 34.75    0.14 | 66.00    0.33 | 97.25    0.33
|128.50    0.25
   3.58    0.00 | 34.83    0.14 | 66.08    0.32 | 97.33    0.33
|128.58    0.26
   3.67    0.00 | 34.92    0.14 | 66.17    0.33 | 97.42    0.33
|128.67    0.26
   3.75    0.00 | 35.00    0.14 | 66.25    0.33 | 97.50    0.33
|128.75    0.26
   3.83    0.00 | 35.08    0.14 | 66.33    0.32 | 97.58    0.33
|128.83    0.26
   3.92    0.00 | 35.17    0.14 | 66.42    0.32 | 97.67    0.33
|128.92    0.26
   4.00    0.00 | 35.25    0.14 | 66.50    0.33 | 97.75    0.33
|129.00    0.26
   4.08    0.00 | 35.33    0.14 | 66.58    0.32 | 97.83    0.33
|129.08    0.26
   4.17    0.00 | 35.42    0.14 | 66.67    0.32 | 97.92    0.33
|129.17    0.26
   4.25    0.00 | 35.50    0.14 | 66.75    0.32 | 98.00    0.32
|129.25    0.27
   4.33    0.00 | 35.58    0.14 | 66.83    0.32 | 98.08    0.32
|129.33    0.27
   4.42    0.00 | 35.67    0.14 | 66.92    0.32 | 98.17    0.32
|129.42    0.27
   4.50    0.00 | 35.75    0.14 | 67.00    0.32 | 98.25    0.32
|129.50    0.27
   4.58    0.00 | 35.83    0.14 | 67.08    0.32 | 98.33    0.32
|129.58    0.28
   4.67    0.00 | 35.92    0.14 | 67.17    0.32 | 98.42    0.32
|129.67    0.28
   4.75    0.00 | 36.00    0.14 | 67.25    0.32 | 98.50    0.32
|129.75    0.28
   4.83    0.00 | 36.08    0.14 | 67.33    0.33 | 98.58    0.32
|129.83    0.29
   4.92    0.00 | 36.17    0.14 | 67.42    0.34 | 98.67    0.32
|129.92    0.29
   5.00    0.00 | 36.25    0.14 | 67.50    0.34 | 98.75    0.32
|130.00    0.29
   5.08    0.00 | 36.33    0.15 | 67.58    0.35 | 98.83    0.32
|130.08    0.29
   5.17    0.00 | 36.42    0.15 | 67.67    0.35 | 98.92    0.32
|130.17    0.29
   5.25    0.00 | 36.50    0.15 | 67.75    0.36 | 99.00    0.32
|130.25    0.29
   5.33    0.00 | 36.58    0.15 | 67.83    0.37 | 99.08    0.32
|130.33    0.29
   5.42    0.00 | 36.67    0.15 | 67.92    0.38 | 99.17    0.32
|130.42    0.29
   5.50    0.00 | 36.75    0.15 | 68.00    0.40 | 99.25    0.32
|130.50    0.29
   5.58    0.00 | 36.83    0.15 | 68.08    0.41 | 99.33    0.32
|130.58    0.29
   5.67    0.00 | 36.92    0.15 | 68.17    0.42 | 99.42    0.32
|130.67    0.29
   5.75    0.00 | 37.00    0.15 | 68.25    0.43 | 99.50    0.32
|130.75    0.29
   5.83    0.00 | 37.08    0.15 | 68.33    0.45 | 99.58    0.31
|130.83    0.29
   5.92    0.00 | 37.17    0.15 | 68.42    0.47 | 99.67    0.31
|130.92    0.29
   6.00    0.00 | 37.25    0.15 | 68.50    0.48 | 99.75    0.31
|131.00    0.29
   6.08    0.00 | 37.33    0.15 | 68.58    0.50 | 99.83    0.31
|131.08    0.29
   6.17    0.00 | 37.42    0.15 | 68.67    0.52 | 99.92    0.31
|131.17    0.29
   6.25    0.00 | 37.50    0.15 | 68.75    0.53 |100.00    0.31
|131.25    0.29
   6.33    0.00 | 37.58    0.15 | 68.83    0.56 |100.08    0.31
|131.33    0.29
   6.42    0.00 | 37.67    0.15 | 68.92    0.57 |100.17    0.31
|131.42    0.29
   6.50    0.00 | 37.75    0.16 | 69.00    0.58 |100.25    0.31
|131.50    0.29
   6.58    0.00 | 37.83    0.16 | 69.08    0.60 |100.33    0.31
|131.58    0.28
   6.67    0.00 | 37.92    0.16 | 69.17    0.61 |100.42    0.31
|131.67    0.28
   6.75    0.00 | 38.00    0.16 | 69.25    0.63 |100.50    0.30
|131.75    0.28
   6.83    0.00 | 38.08    0.16 | 69.33    0.63 |100.58    0.30
|131.83    0.28
   6.92    0.00 | 38.17    0.16 | 69.42    0.64 |100.67    0.30
|131.92    0.28
   7.00    0.00 | 38.25    0.16 | 69.50    0.66 |100.75    0.30
|132.00    0.28
   7.08    0.00 | 38.33    0.16 | 69.58    0.68 |100.83    0.30
|132.08    0.28
   7.17    0.00 | 38.42    0.16 | 69.67    0.70 |100.92    0.30
|132.17    0.28
   7.25    0.00 | 38.50    0.16 | 69.75    0.71 |101.00    0.30
|132.25    0.28
   7.33    0.00 | 38.58    0.16 | 69.83    0.74 |101.08    0.30
|132.33    0.28
   7.42    0.00 | 38.67    0.17 | 69.92    0.76 |101.17    0.30
|132.42    0.28
   7.50    0.00 | 38.75    0.17 | 70.00    0.78 |101.25    0.30
|132.50    0.27
   7.58    0.00 | 38.83    0.17 | 70.08    0.80 |101.33    0.29
|132.58    0.27
   7.67    0.00 | 38.92    0.17 | 70.17    0.82 |101.42    0.29
|132.67    0.27
   7.75    0.00 | 39.00    0.17 | 70.25    0.84 |101.50    0.29
|132.75    0.27
   7.83    0.00 | 39.08    0.17 | 70.33    0.87 |101.58    0.29
|132.83    0.27
   7.92    0.00 | 39.17    0.17 | 70.42    0.91 |101.67    0.29
|132.92    0.27
   8.00    0.00 | 39.25    0.18 | 70.50    0.94 |101.75    0.28
|133.00    0.27
   8.08    0.00 | 39.33    0.18 | 70.58    0.98 |101.83    0.28
|133.08    0.27
   8.17    0.00 | 39.42    0.18 | 70.67    1.01 |101.92    0.28
|133.17    0.27
   8.25    0.00 | 39.50    0.18 | 70.75    1.04 |102.00    0.28
|133.25    0.26
   8.33    0.00 | 39.58    0.19 | 70.83    1.09 |102.08    0.28
|133.33    0.26
   8.42    0.00 | 39.67    0.19 | 70.92    1.14 |102.17    0.28
|133.42    0.26
   8.50    0.00 | 39.75    0.19 | 71.00    1.20 |102.25    0.28
|133.50    0.26
   8.58    0.00 | 39.83    0.19 | 71.08    1.23 |102.33    0.28
|133.58    0.26
   8.67    0.00 | 39.92    0.20 | 71.17    1.25 |102.42    0.27
|133.67    0.26
   8.75    0.00 | 40.00    0.20 | 71.25    1.30 |102.50    0.27
|133.75    0.26
   8.83    0.00 | 40.08    0.20 | 71.33    1.32 |102.58    0.27
|133.83    0.25
   8.92    0.00 | 40.17    0.21 | 71.42    1.33 |102.67    0.27
|133.92    0.25
   9.00    0.00 | 40.25    0.21 | 71.50    1.34 |102.75    0.27
|134.00    0.25
   9.08    0.00 | 40.33    0.21 | 71.58    1.36 |102.83    0.27
|134.08    0.25
   9.17    0.00 | 40.42    0.22 | 71.67    1.36 |102.92    0.27
|134.17    0.25
   9.25    0.00 | 40.50    0.22 | 71.75    1.36 |103.00    0.27
|134.25    0.25
   9.33    0.00 | 40.58    0.22 | 71.83    1.37 |103.08    0.27
|134.33    0.25
   9.42    0.00 | 40.67    0.23 | 71.92    1.37 |103.17    0.27
|134.42    0.25
   9.50    0.00 | 40.75    0.23 | 72.00    1.36 |103.25    0.26
|134.50    0.25
   9.58    0.00 | 40.83    0.24 | 72.08    1.35 |103.33    0.26
|134.58    0.24
   9.67    0.00 | 40.92    0.24 | 72.17    1.35 |103.42    0.26
|134.67    0.24
   9.75    0.00 | 41.00    0.24 | 72.25    1.33 |103.50    0.26
|134.75    0.24
   9.83    0.00 | 41.08    0.25 | 72.33    1.32 |103.58    0.26
|134.83    0.24
   9.92    0.00 | 41.17    0.25 | 72.42    1.31 |103.67    0.26
|134.92    0.24
  10.00    0.00 | 41.25    0.26 | 72.50    1.29 |103.75    0.25
|135.00    0.24
  10.08    0.00 | 41.33    0.27 | 72.58    1.27 |103.83    0.25
|135.08    0.24
  10.17    0.00 | 41.42    0.27 | 72.67    1.26 |103.92    0.25
|135.17    0.24
  10.25    0.00 | 41.50    0.28 | 72.75    1.23 |104.00    0.25
|135.25    0.24
  10.33    0.00 | 41.58    0.29 | 72.83    1.23 |104.08    0.25
|135.33    0.23
  10.42    0.00 | 41.67    0.29 | 72.92    1.21 |104.17    0.25
|135.42    0.23
  10.50    0.00 | 41.75    0.30 | 73.00    1.20 |104.25    0.25
|135.50    0.23
  10.58    0.00 | 41.83    0.30 | 73.08    1.17 |104.33    0.25
|135.58    0.23
  10.67    0.00 | 41.92    0.31 | 73.17    1.17 |104.42    0.24
|135.67    0.23
  10.75    0.00 | 42.00    0.32 | 73.25    1.16 |104.50    0.24
|135.75    0.23
  10.83    0.00 | 42.08    0.32 | 73.33    1.15 |104.58    0.24
|135.83    0.23
  10.92    0.00 | 42.17    0.33 | 73.42    1.12 |104.67    0.24
|135.92    0.23
  11.00    0.00 | 42.25    0.33 | 73.50    1.12 |104.75    0.24
|136.00    0.22
  11.08    0.00 | 42.33    0.34 | 73.58    1.11 |104.83    0.24
|136.08    0.22
  11.17    0.00 | 42.42    0.34 | 73.67    1.09 |104.92    0.24
|136.17    0.22
  11.25    0.00 | 42.50    0.35 | 73.75    1.08 |105.00    0.24
|136.25    0.22
  11.33    0.00 | 42.58    0.36 | 73.83    1.06 |105.08    0.24
|136.33    0.22
  11.42    0.00 | 42.67    0.36 | 73.92    1.05 |105.17    0.23
|136.42    0.22
  11.50    0.00 | 42.75    0.37 | 74.00    1.03 |105.25    0.23
|136.50    0.22
  11.58    0.00 | 42.83    0.38 | 74.08    1.03 |105.33    0.23
|136.58    0.22
  11.67    0.00 | 42.92    0.39 | 74.17    1.02 |105.42    0.23
|136.67    0.21
  11.75    0.00 | 43.00    0.40 | 74.25    1.00 |105.50    0.23
|136.75    0.21
  11.83    0.00 | 43.08    0.40 | 74.33    0.99 |105.58    0.23
|136.83    0.21
  11.92    0.00 | 43.17    0.42 | 74.42    0.97 |105.67    0.23
|136.92    0.21
  12.00    0.00 | 43.25    0.42 | 74.50    0.96 |105.75    0.23
|137.00    0.21
  12.08    0.00 | 43.33    0.43 | 74.58    0.95 |105.83    0.23
|137.08    0.21
  12.17    0.00 | 43.42    0.44 | 74.67    0.94 |105.92    0.23
|137.17    0.21
  12.25    0.00 | 43.50    0.45 | 74.75    0.92 |106.00    0.22
|137.25    0.21
  12.33    0.00 | 43.58    0.46 | 74.83    0.91 |106.08    0.22
|137.33    0.21
  12.42    0.00 | 43.67    0.47 | 74.92    0.89 |106.17    0.22
|137.42    0.21
  12.50    0.00 | 43.75    0.48 | 75.00    0.88 |106.25    0.22
|137.50    0.20
  12.58    0.00 | 43.83    0.49 | 75.08    0.87 |106.33    0.22
|137.58    0.20
  12.67    0.00 | 43.92    0.50 | 75.17    0.85 |106.42    0.22
|137.67    0.20
  12.75    0.00 | 44.00    0.50 | 75.25    0.84 |106.50    0.22
|137.75    0.20
  12.83    0.00 | 44.08    0.51 | 75.33    0.83 |106.58    0.22
|137.83    0.20
  12.92    0.00 | 44.17    0.51 | 75.42    0.81 |106.67    0.22
|137.92    0.20
  13.00    0.00 | 44.25    0.52 | 75.50    0.80 |106.75    0.21
|138.00    0.20
  13.08    0.00 | 44.33    0.52 | 75.58    0.79 |106.83    0.21
|138.08    0.20
  13.17    0.00 | 44.42    0.53 | 75.67    0.77 |106.92    0.21
|138.17    0.20
  13.25    0.00 | 44.50    0.53 | 75.75    0.77 |107.00    0.21
|138.25    0.19
  13.33    0.00 | 44.58    0.53 | 75.83    0.76 |107.08    0.21
|138.33    0.19
  13.42    0.00 | 44.67    0.54 | 75.92    0.74 |107.17    0.21
|138.42    0.19
  13.50    0.00 | 44.75    0.54 | 76.00    0.74 |107.25    0.21
|138.50    0.19
  13.58    0.00 | 44.83    0.54 | 76.08    0.72 |107.33    0.21
|138.58    0.19
  13.67    0.00 | 44.92    0.55 | 76.17    0.72 |107.42    0.21
|138.67    0.19
  13.75    0.00 | 45.00    0.55 | 76.25    0.71 |107.50    0.21
|138.75    0.19
  13.83    0.00 | 45.08    0.55 | 76.33    0.70 |107.58    0.21
|138.83    0.19
  13.92    0.00 | 45.17    0.55 | 76.42    0.69 |107.67    0.21
|138.92    0.19
  14.00    0.00 | 45.25    0.55 | 76.50    0.68 |107.75    0.20
|139.00    0.19
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 14.08   0.00 | 45.33   0.55 | 76.58   0.68 |107.83   0.20
|139.08   0.19
 14.17   0.00 | 45.42   0.55 | 76.67   0.68 |107.92   0.20
|139.17   0.18
 14.25   0.00 | 45.50   0.55 | 76.75   0.66 |108.00   0.20
|139.25   0.18
 14.33   0.00 | 45.58   0.55 | 76.83   0.65 |108.08   0.20
|139.33   0.18
 14.42   0.00 | 45.67   0.55 | 76.92   0.65 |108.17   0.20
|139.42   0.18
 14.50   0.00 | 45.75   0.55 | 77.00   0.64 |108.25   0.20
|139.50   0.18
 14.58   0.00 | 45.83   0.55 | 77.08   0.63 |108.33   0.20
|139.58   0.18
 14.67   0.00 | 45.92   0.55 | 77.17   0.63 |108.42   0.20
|139.67   0.18
 14.75   0.99 | 46.00   0.54 | 77.25   0.63 |108.50   0.20
|139.75   0.18
 14.83   0.99 | 46.08   0.54 | 77.33   0.62 |108.58   0.20
|139.83   0.18
 14.92   1.00 | 46.17   0.54 | 77.42   0.61 |108.67   0.20
|139.92   0.18
 15.00   1.00 | 46.25   0.54 | 77.50   0.60 |108.75   0.19
|140.00   0.18
 15.08   1.01 | 46.33   0.53 | 77.58   0.60 |108.83   0.19
|140.08   0.18
 15.17   1.01 | 46.42   0.53 | 77.67   0.59 |108.92   0.19
|140.17   0.18
 15.25   1.02 | 46.50   0.53 | 77.75   0.59 |109.00   0.19
|140.25   0.18
 15.33   1.03 | 46.58   0.52 | 77.83   0.58 |109.08   0.19
|140.33   0.18
 15.42   1.04 | 46.67   0.52 | 77.92   0.58 |109.17   0.19
|140.42   0.17
 15.50   1.05 | 46.75   0.52 | 78.00   0.58 |109.25   0.19
|140.50   0.17
 15.58   1.06 | 46.83   0.52 | 78.08   0.58 |109.33   0.19
|140.58   0.17
 15.67   1.07 | 46.92   0.51 | 78.17   0.57 |109.42   0.19
|140.67   0.17
 15.75   1.08 | 47.00   0.51 | 78.25   0.56 |109.50   0.19
|140.75   0.17
 15.83   1.08 | 47.08   0.51 | 78.33   0.56 |109.58   0.19
|140.83   0.17
 15.92   1.08 | 47.17   0.51 | 78.42   0.55 |109.67   0.18
|140.92   0.17
 16.00   1.09 | 47.25   0.51 | 78.50   0.55 |109.75   0.18
|141.00   0.17
 16.08   1.09 | 47.33   0.51 | 78.58   0.55 |109.83   0.18
|141.08   0.17
 16.17   1.09 | 47.42   0.51 | 78.67   0.55 |109.92   0.18
|141.17   0.17
 16.25   1.09 | 47.50   0.50 | 78.75   0.54 |110.00   0.18
|141.25   0.17
 16.33   1.09 | 47.58   0.50 | 78.83   0.54 |110.08   0.18
|141.33   0.17
 16.42   1.09 | 47.67   0.50 | 78.92   0.54 |110.17   0.18
|141.42   0.17
 16.50   1.09 | 47.75   0.50 | 79.00   0.54 |110.25   0.18
|141.50   0.16
 16.58   1.10 | 47.83   0.50 | 79.08   0.53 |110.33   0.18
|141.58   0.16
 16.67   1.09 | 47.92   0.50 | 79.17   0.52 |110.42   0.18
|141.67   0.16
 16.75   1.09 | 48.00   0.50 | 79.25   0.52 |110.50   0.18
|141.75   0.16
 16.83   1.08 | 48.08   0.50 | 79.33   0.51 |110.58   0.18
|141.83   0.16
 16.92   1.09 | 48.17   0.49 | 79.42   0.50 |110.67   0.18
|141.92   0.16
 17.00   1.08 | 48.25   0.49 | 79.50   0.50 |110.75   0.18
|142.00   0.16
 17.08   1.07 | 48.33   0.49 | 79.58   0.49 |110.83   0.18
|142.08   0.16
 17.17   1.06 | 48.42   0.49 | 79.67   0.49 |110.92   0.18
|142.17   0.16
 17.25   1.06 | 48.50   0.49 | 79.75   0.48 |111.00   0.18
|142.25   0.16
 17.33   1.05 | 48.58   0.49 | 79.83   0.48 |111.08   0.18
|142.33   0.16
 17.42   1.04 | 48.67   0.48 | 79.92   0.48 |111.17   0.18
|142.42   0.16
 17.50   1.04 | 48.75   0.48 | 80.00   0.47 |111.25   0.18
|142.50   0.16
 17.58   1.03 | 48.83   0.48 | 80.08   0.47 |111.33   0.18
|142.58   0.16
 17.67   1.02 | 48.92   0.48 | 80.17   0.46 |111.42   0.18
|142.67   0.16
 17.75   1.01 | 49.00   0.47 | 80.25   0.46 |111.50   0.18
|142.75   0.16
 17.83   1.00 | 49.08   0.47 | 80.33   0.46 |111.58   0.18
|142.83   0.16
 17.92   0.99 | 49.17   0.47 | 80.42   0.45 |111.67   0.18
|142.92   0.16
 18.00   0.98 | 49.25   0.47 | 80.50   0.45 |111.75   0.18
|143.00   0.16
 18.08   0.97 | 49.33   0.47 | 80.58   0.45 |111.83   0.17
|143.08   0.15
 18.17   0.96 | 49.42   0.46 | 80.67   0.45 |111.92   0.17
|143.17   0.15
 18.25   0.95 | 49.50   0.46 | 80.75   0.44 |112.00   0.17
|143.25   0.15
 18.33   0.93 | 49.58   0.46 | 80.83   0.44 |112.08   0.17
|143.33   0.15
 18.42   0.92 | 49.67   0.46 | 80.92   0.44 |112.17   0.17
|143.42   0.15
 18.50   0.91 | 49.75   0.45 | 81.00   0.44 |112.25   0.17
|143.50   0.15
 18.58   0.89 | 49.83   0.45 | 81.08   0.44 |112.33   0.17
|143.58   0.15
 18.67   0.87 | 49.92   0.45 | 81.17   0.44 |112.42   0.17
|143.67   0.15
 18.75   0.86 | 50.00   0.45 | 81.25   0.44 |112.50   0.17
|143.75   0.15
 18.83   0.84 | 50.08   0.44 | 81.33   0.44 |112.58   0.17
|143.83   0.15
 18.92   0.83 | 50.17   0.44 | 81.42   0.43 |112.67   0.17
|143.92   0.15
 19.00   0.81 | 50.25   0.44 | 81.50   0.44 |112.75   0.17
|144.00   0.15
 19.08   0.79 | 50.33   0.44 | 81.58   0.45 |112.83   0.17
|144.08   0.15
 19.17   0.78 | 50.42   0.44 | 81.67   0.46 |112.92   0.17
|144.17   0.15
 19.25   0.76 | 50.50   0.44 | 81.75   0.45 |113.00   0.17
|144.25   0.15
 19.33   0.74 | 50.58   0.44 | 81.83   0.46 |113.08   0.17
|144.33   0.15
 19.42   0.72 | 50.67   0.44 | 81.92   0.46 |113.17   0.16
|144.42   0.15
 19.50   0.71 | 50.75   0.43 | 82.00   0.47 |113.25   0.16
|144.50   0.15
 19.58   0.69 | 50.83   0.43 | 82.08   0.47 |113.33   0.16
|144.58   0.15
 19.67   0.68 | 50.92   0.43 | 82.17   0.47 |113.42   0.16
|144.67   0.15
 19.75   0.66 | 51.00   0.43 | 82.25   0.48 |113.50   0.16
|144.75   0.15
 19.83   0.65 | 51.08   0.43 | 82.33   0.49 |113.58   0.16
|144.83   0.14
 19.92   0.64 | 51.17   0.43 | 82.42   0.49 |113.67   0.16
|144.92   0.14
 20.00   0.62 | 51.25   0.43 | 82.50   0.49 |113.75   0.16
|145.00   0.14
 20.08   0.61 | 51.33   0.43 | 82.58   0.49 |113.83   0.16
|145.08   0.14
 20.17   0.60 | 51.42   0.43 | 82.67   0.50 |113.92   0.16
|145.17   0.14
 20.25   0.58 | 51.50   0.43 | 82.75   0.50 |114.00   0.16
|145.25   0.14
 20.33   0.58 | 51.58   0.43 | 82.83   0.50 |114.08   0.16
|145.33   0.14
 20.42   0.56 | 51.67   0.43 | 82.92   0.50 |114.17   0.16
|145.42   0.14
 20.50   0.55 | 51.75   0.43 | 83.00   0.50 |114.25   0.16
|145.50   0.14
 20.58   0.54 | 51.83   0.43 | 83.08   0.50 |114.33   0.16
|145.58   0.14
 20.67   0.53 | 51.92   0.43 | 83.17   0.51 |114.42   0.16
|145.67   0.14
 20.75   0.52 | 52.00   0.43 | 83.25   0.51 |114.50   0.16
|145.75   0.14
 20.83   0.51 | 52.08   0.43 | 83.33   0.51 |114.58   0.16
|145.83   0.14
 20.92   0.50 | 52.17   0.43 | 83.42   0.51 |114.67   0.16
|145.92   0.14
 21.00   0.49 | 52.25   0.43 | 83.50   0.52 |114.75   0.16
|146.00   0.14
 21.08   0.49 | 52.33   0.43 | 83.58   0.52 |114.83   0.16
|146.08   0.14
 21.17   0.48 | 52.42   0.43 | 83.67   0.53 |114.92   0.16
|146.17   0.14
 21.25   0.47 | 52.50   0.43 | 83.75   0.53 |115.00   0.16
|146.25   0.14
 21.33   0.47 | 52.58   0.43 | 83.83   0.54 |115.08   0.16
|146.33   0.14
 21.42   0.46 | 52.67   0.43 | 83.92   0.55 |115.17   0.16
|146.42   0.14
 21.50   0.45 | 52.75   0.43 | 84.00   0.56 |115.25   0.16
|146.50   0.14
 21.58   0.45 | 52.83   0.43 | 84.08   0.57 |115.33   0.16
|146.58   0.14
 21.67   0.44 | 52.92   0.44 | 84.17   0.58 |115.42   0.16
|146.67   0.14
 21.75   0.43 | 53.00   0.44 | 84.25   0.60 |115.50   0.16
|146.75   0.14
 21.83   0.43 | 53.08   0.44 | 84.33   0.62 |115.58   0.16
|146.83   0.14
 21.92   0.42 | 53.17   0.44 | 84.42   0.64 |115.67   0.16
|146.92   0.13
 22.00   0.42 | 53.25   0.44 | 84.50   0.66 |115.75   0.16
|147.00   0.13
 22.08   0.41 | 53.33   0.45 | 84.58   0.69 |115.83   0.16
|147.08   0.13
 22.17   0.41 | 53.42   0.45 | 84.67   0.72 |115.92   0.16
|147.17   0.13
 22.25   0.40 | 53.50   0.45 | 84.75   0.74 |116.00   0.16
|147.25   0.13
 22.33   0.40 | 53.58   0.45 | 84.83   0.77 |116.08   0.15
|147.33   0.13
 22.42   0.39 | 53.67   0.46 | 84.92   0.79 |116.17   0.15
|147.42   0.13
 22.50   0.39 | 53.75   0.46 | 85.00   0.81 |116.25   0.16
|147.50   0.13
 22.58   0.38 | 53.83   0.46 | 85.08   0.82 |116.33   0.16
|147.58   0.13
 22.67   0.38 | 53.92   0.46 | 85.17   0.84 |116.42   0.16
|147.67   0.13
 22.75   0.37 | 54.00   0.47 | 85.25   0.85 |116.50   0.16
|147.75   0.13
 22.83   0.37 | 54.08   0.47 | 85.33   0.85 |116.58   0.16
|147.83   0.13
 22.92   0.36 | 54.17   0.47 | 85.42   0.86 |116.67   0.16
|147.92   0.13
 23.00   0.36 | 54.25   0.48 | 85.50   0.87 |116.75   0.16
|148.00   0.13
 23.08   0.36 | 54.33   0.48 | 85.58   0.86 |116.83   0.16
|148.08   0.13
 23.17   0.35 | 54.42   0.49 | 85.67   0.87 |116.92   0.16
|148.17   0.13
 23.25   0.35 | 54.50   0.49 | 85.75   0.86 |117.00   0.16
|148.25   0.13
 23.33   0.34 | 54.58   0.50 | 85.83   0.85 |117.08   0.16
|148.33   0.13
 23.42   0.34 | 54.67   0.50 | 85.92   0.85 |117.17   0.16
|148.42   0.13
 23.50   0.34 | 54.75   0.51 | 86.00   0.84 |117.25   0.16
|148.50   0.13
 23.58   0.33 | 54.83   0.52 | 86.08   0.83 |117.33   0.16
|148.58   0.13
 23.67   0.33 | 54.92   0.53 | 86.17   0.82 |117.42   0.16
|148.67   0.13
 23.75   0.32 | 55.00   0.53 | 86.25   0.81 |117.50   0.16
|148.75   0.13
 23.83   0.32 | 55.08   0.54 | 86.33   0.81 |117.58   0.16
|148.83   0.13
 23.92   0.32 | 55.17   0.55 | 86.42   0.79 |117.67   0.16
|148.92   0.13
 24.00   0.31 | 55.25   0.55 | 86.50   0.78 |117.75   0.16
|149.00   0.13
 24.08   0.31 | 55.33   0.55 | 86.58   0.77 |117.83   0.16
|149.08   0.13
 24.17   0.30 | 55.42   0.56 | 86.67   0.76 |117.92   0.16
|149.17   0.13
 24.25   0.30 | 55.50   0.56 | 86.75   0.74 |118.00   0.16
|149.25   0.12
 24.33   0.30 | 55.58   0.57 | 86.83   0.74 |118.08   0.16
|149.33   0.12
 24.42   0.30 | 55.67   0.57 | 86.92   0.73 |118.17   0.16
|149.42   0.12
 24.50   0.29 | 55.75   0.58 | 87.00   0.71 |118.25   0.16
|149.50   0.12
 24.58   0.29 | 55.83   0.58 | 87.08   0.71 |118.33   0.16
|149.58   0.12
 24.67   0.29 | 55.92   0.58 | 87.17   0.70 |118.42   0.16
|149.67   0.12
 24.75   0.28 | 56.00   0.58 | 87.25   0.68 |118.50   0.16
|149.75   0.12
 24.83   0.28 | 56.08   0.58 | 87.33   0.68 |118.58   0.15
|149.83   0.12
 24.92   0.28 | 56.17   0.58 | 87.42   0.66 |118.67   0.15
|149.92   0.12
 25.00   0.27 | 56.25   0.58 | 87.50   0.66 |118.75   0.15
|150.00   0.12
 25.08   0.27 | 56.33   0.58 | 87.58   0.65 |118.83   0.15
|150.08   0.12
 25.17   0.27 | 56.42   0.58 | 87.67   0.64 |118.92   0.15
|150.17   0.12
 25.25   0.27 | 56.50   0.59 | 87.75   0.63 |119.00   0.15
|150.25   0.12
 25.33   0.26 | 56.58   0.59 | 87.83   0.62 |119.08   0.15
|150.33   0.12
 25.42   0.26 | 56.67   0.59 | 87.92   0.62 |119.17   0.15
|150.42   0.12
 25.50   0.26 | 56.75   0.59 | 88.00   0.61 |119.25   0.15
|150.50   0.12
 25.58   0.25 | 56.83   0.59 | 88.08   0.60 |119.33   0.15
|150.58   0.12
 25.67   0.25 | 56.92   0.59 | 88.17   0.59 |119.42   0.15
|150.67   0.12
 25.75   0.25 | 57.00   0.59 | 88.25   0.58 |119.50   0.15
|150.75   0.12
 25.83   0.25 | 57.08   0.59 | 88.33   0.58 |119.58   0.15
|150.83   0.12
 25.92   0.25 | 57.17   0.59 | 88.42   0.57 |119.67   0.15
|150.92   0.12
 26.00   0.24 | 57.25   0.59 | 88.50   0.57 |119.75   0.15
|151.00   0.12
 26.08   0.24 | 57.33   0.59 | 88.58   0.56 |119.83   0.15
|151.08   0.12
 26.17   0.24 | 57.42   0.59 | 88.67   0.55 |119.92   0.15
|151.17   0.12
 26.25   0.24 | 57.50   0.59 | 88.75   0.55 |120.00   0.15
|151.25   0.12
 26.33   0.23 | 57.58   0.58 | 88.83   0.54 |120.08   0.15
|151.33   0.12
 26.42   0.23 | 57.67   0.58 | 88.92   0.53 |120.17   0.15
|151.42   0.12
 26.50   0.23 | 57.75   0.58 | 89.00   0.53 |120.25   0.16
|151.50   0.12
 26.58   0.23 | 57.83   0.57 | 89.08   0.52 |120.33   0.16
|151.58   0.12
 26.67   0.23 | 57.92   0.57 | 89.17   0.51 |120.42   0.16
|151.67   0.12
 26.75   0.22 | 58.00   0.57 | 89.25   0.51 |120.50   0.16
|151.75   0.12
 26.83   0.22 | 58.08   0.57 | 89.33   0.50 |120.58   0.16
|151.83   0.12
 26.92   0.22 | 58.17   0.56 | 89.42   0.50 |120.67   0.16
|151.92   0.12
 27.00   0.22 | 58.25   0.56 | 89.50   0.49 |120.75   0.16
|152.00   0.12
 27.08   0.22 | 58.33   0.56 | 89.58   0.48 |120.83   0.16
|152.08   0.12
 27.17   0.21 | 58.42   0.55 | 89.67   0.48 |120.92   0.16
|152.17   0.12
 27.25   0.21 | 58.50   0.55 | 89.75   0.47 |121.00   0.16
|152.25   0.12
 27.33   0.21 | 58.58   0.54 | 89.83   0.47 |121.08   0.16
|152.33   0.11
 27.42   0.21 | 58.67   0.54 | 89.92   0.47 |121.17   0.17
|152.42   0.11
 27.50   0.21 | 58.75   0.53 | 90.00   0.47 |121.25   0.17
|152.50   0.11
 27.58   0.21 | 58.83   0.53 | 90.08   0.46 |121.33   0.17
|152.58   0.11
 27.67   0.20 | 58.92   0.52 | 90.17   0.46 |121.42   0.17
|152.67   0.11
 27.75   0.20 | 59.00   0.52 | 90.25   0.45 |121.50   0.17
|152.75   0.11
 27.83   0.20 | 59.08   0.52 | 90.33   0.45 |121.58   0.17
|152.83   0.11
 27.92   0.20 | 59.17   0.51 | 90.42   0.44 |121.67   0.17
|152.92   0.11
 28.00   0.19 | 59.25   0.51 | 90.50   0.44 |121.75   0.17
|153.00   0.11
 28.08   0.19 | 59.33   0.50 | 90.58   0.44 |121.83   0.17
|153.08   0.11
 28.17   0.19 | 59.42   0.50 | 90.67   0.43 |121.92   0.17
|153.17   0.11
 28.25   0.19 | 59.50   0.49 | 90.75   0.43 |122.00   0.17
|153.25   0.11
 28.33   0.19 | 59.58   0.49 | 90.83   0.43 |122.08   0.17
|153.33   0.11
 28.42   0.19 | 59.67   0.49 | 90.92   0.43 |122.17   0.17
|153.42   0.11
 28.50   0.19 | 59.75   0.48 | 91.00   0.42 |122.25   0.18
|153.50   0.11
 28.58   0.18 | 59.83   0.48 | 91.08   0.42 |122.33   0.18
|153.58   0.11
 28.67   0.18 | 59.92   0.47 | 91.17   0.42 |122.42   0.18
|153.67   0.11
 28.75   0.18 | 60.00   0.47 | 91.25   0.42 |122.50   0.18
|153.75   0.11
 28.83   0.18 | 60.08   0.47 | 91.33   0.41 |122.58   0.18
|153.83   0.11
 28.92   0.18 | 60.17   0.46 | 91.42   0.41 |122.67   0.18
|153.92   0.11
 29.00   0.18 | 60.25   0.46 | 91.50   0.41 |122.75   0.18
|154.00   0.11
 29.08   0.18 | 60.33   0.45 | 91.58   0.41 |122.83   0.18
|154.08   0.11
 29.17   0.18 | 60.42   0.45 | 91.67   0.41 |122.92   0.18
|154.17   0.11
 29.25   0.17 | 60.50   0.44 | 91.75   0.41 |123.00   0.18
|154.25   0.11
 29.33   0.17 | 60.58   0.44 | 91.83   0.40 |123.08   0.18
|154.33   0.11
 29.42   0.17 | 60.67   0.44 | 91.92   0.40 |123.17   0.18
|154.42   0.11
 29.50   0.17 | 60.75   0.43 | 92.00   0.40 |123.25   0.18
|154.50   0.11
 29.58   0.17 | 60.83   0.43 | 92.08   0.40 |123.33   0.18
|154.58   0.11
 29.67   0.17 | 60.92   0.42 | 92.17   0.40 |123.42   0.18
|154.67   0.11
 29.75   0.17 | 61.00   0.42 | 92.25   0.39 |123.50   0.18
|154.75   0.11
 29.83   0.17 | 61.08   0.42 | 92.33   0.39 |123.58   0.18
|154.83   0.11
 29.92   0.16 | 61.17   0.42 | 92.42   0.39 |123.67   0.18
|154.92   0.11
 30.00   0.16 | 61.25   0.41 | 92.50   0.39 |123.75   0.18
|155.00   0.11
 30.08   0.16 | 61.33   0.41 | 92.58   0.38 |123.83   0.18
|155.08   0.11
 30.17   0.16 | 61.42   0.40 | 92.67   0.38 |123.92   0.18
|155.17   0.11
 30.25   0.16 | 61.50   0.40 | 92.75   0.38 |124.00   0.18
|155.25   0.11
 30.33   0.16 | 61.58   0.40 | 92.83   0.38 |124.08   0.18
|155.33   0.11
 30.42   0.16 | 61.67   0.40 | 92.92   0.38 |124.17   0.18
|155.42   0.11
 30.50   0.16 | 61.75   0.39 | 93.00   0.37 |124.25   0.18
|155.50   0.11
 30.58   0.16 | 61.83   0.39 | 93.08   0.37 |124.33   0.19
|155.58   0.11
 30.67   0.16 | 61.92   0.39 | 93.17   0.37 |124.42   0.19
|155.67   0.11
 30.75   0.16 | 62.00   0.38 | 93.25   0.37 |124.50   0.19
|155.75   0.11
 30.83   0.15 | 62.08   0.38 | 93.33   0.37 |124.58   0.19
|155.83   0.10
 30.92   0.15 | 62.17   0.38 | 93.42   0.37 |124.67   0.20
|155.92   0.11
 31.00   0.15 | 62.25   0.38 | 93.50   0.37 |124.75   0.20
|156.00   0.10
 31.08   0.15 | 62.33   0.39 | 93.58   0.37 |124.83   0.20 |
 31.17   0.15 | 62.42   0.39 | 93.67   0.37 |124.92   0.20 |
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| CALIB              |
| NASHYD    (6201) |   Area    (ha)=   9.60   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.04

    Unit Hyd Qpeak  (cms)=   0.352

    PEAK FLOW       (cms)=   0.264 (i)
    TIME TO PEAK    (hrs)=   4.083
    RUNOFF VOLUME    (mm)=  26.221
    TOTAL RAINFALL   (mm)=  67.600
    RUNOFF COEFFICIENT  =    0.388

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| STANDHYD  (6202) |   Area    (ha)=   2.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      1.50          0.81
    Dep. Storage     (mm)=      6.00          8.00
    Average Slope     (%)=      1.00          1.00
    Length            (m)=    123.83         40.00
    Mannings n          =      0.013         0.250

    Max.Eff.Inten.(mm/hr)=    105.46         86.64
               over (min)      5.00         15.00
    Storage Coeff.  (min)=      2.84 (ii)   12.05 (ii)
    Unit Hyd. Tpeak (min)=      5.00         15.00
    Unit Hyd. peak  (cms)=      0.28          0.09

*TOTALS*
    PEAK FLOW       (cms)=      0.35          0.12
0.451 (iii)
    TIME TO PEAK    (hrs)=      3.00          3.08
3.00
    RUNOFF VOLUME    (mm)=     61.60         32.16
47.76
    TOTAL RAINFALL   (mm)=     67.60         67.60
67.60
    RUNOFF COEFFICIENT  =       0.91          0.48
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  77.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD  (0140) |
|  1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------       (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (6201):     9.60   0.264     4.08    26.22
      + ID2= 2 (6202):     2.30   0.451     3.00    47.76
        ===============================================
        ID = 3 (0140):    11.90   0.494     3.00    30.38

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0621) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1549.0) ------>
               Distance      Elevation        Manning
                   0.00          87.56        0.0900
                   3.37          87.60        0.0900
                  16.78          87.21        0.0900
                  31.08          87.29        0.0900
                  43.62          87.28        0.0900
                  62.88          87.41        0.0900
                  68.00          87.22        0.0900
                  96.20          87.43        0.0900
                 112.60          86.39     0.0900 /0.0700  Main
Channel
                 113.70          86.10        0.0700      Main
Channel
                 114.40          86.51     0.0700 /0.0900  Main
Channel
                 114.60          86.67        0.0900
                 131.60          87.07        0.0900
                 156.70          87.16        0.0900
                 184.59          87.41        0.0900
                 194.09          87.56        0.0900
                 202.66          87.64        0.0900
                 221.43          87.69        0.0900
                 230.63          87.86        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH     ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)       (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    86.17    .898E+01       0.0          0.13
79.55
       0.14    86.24    .359E+02       0.0          0.21
50.11
       0.21    86.31    .808E+02       0.0          0.28
38.24
       0.29    86.39    .144E+03       0.1          0.33
31.57
       0.36    86.46    .256E+03       0.2          0.39
27.10
       0.44    86.54    .435E+03       0.3          0.42
25.03
       0.52    86.62    .680E+03       0.5          0.46
23.12
       0.60    86.70    .998E+03       0.8          0.48
21.78
       0.68    86.78    .150E+04       1.2          0.48
21.76
       0.76    86.85    .223E+04       1.7          0.48
21.78
       0.83    86.93    .319E+04       2.5          0.49
21.41
       0.91    87.01    .437E+04       3.5          0.51
20.74
       0.99    87.09    .580E+04       4.7          0.51
20.64
       1.07    87.17    .811E+04       6.2          0.48
21.90
       1.15    87.25    .113E+05       7.8          0.44
24.18
       1.23    87.32    .165E+05      10.6          0.41
26.00
       1.30    87.40    .239E+05      16.0          0.42
24.97
       1.38    87.48    .327E+05      24.3          0.47
22.45
       1.46    87.56    .419E+05      34.6          0.52
20.16

                                  <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0140)   11.90     0.49    3.00  30.38
0.52     0.46
     OUTFLOW: ID= 1 (0621)   11.90     0.29    4.25  30.36
0.44     0.42

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| CALIB            |
| NASHYD    (6211) |   Area    (ha)=   4.60   Curve Number
(CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.08

     Unit Hyd Qpeak  (cms)=   0.162

     PEAK FLOW      (cms)=   0.136 (i)
     TIME TO PEAK   (hrs)=   4.167
     RUNOFF VOLUME   (mm)=  28.855
     TOTAL RAINFALL  (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.427

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (6212) |   Area    (ha)=  17.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.39          5.61
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      336.65         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      105.46         96.03
               over (min)         5.00         15.00
     Storage Coeff.  (min)=        5.18 (ii)    14.01 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.21          0.08

*TOTALS*
     PEAK FLOW      (cms)=        2.60          0.85
3.309 (iii)
     TIME TO PEAK   (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       61.60         35.19
49.71
     TOTAL RAINFALL   (mm)=       67.60         67.60
67.60
     RUNOFF COEFFICIENT   =        0.91          0.52
0.74

          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
               CN*  =  80.0    Ia = Dep. Storage  (Above)
         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
               THAN THE STORAGE COEFFICIENT.
        (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| ADD HYD  (0141) |
|  1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------       (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (6211):     4.60   0.136     4.17    28.86
      + ID2= 2 (6212):    17.00   3.309     3.00    49.71
        ===============================================
        ID = 3 (0141):    21.60   3.330     3.00    45.27

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD  (0142) |
|  1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------       (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0141):    21.60   3.330     3.00    45.27
      + ID2= 2 (0621):    11.90   0.292     4.25    30.36
        ===============================================
        ID = 3 (0142):    33.50   3.559     3.00    39.97

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0622) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 953.0) ------>
               Distance      Elevation        Manning
                  16.75          82.21        0.1100
                  30.34          82.03        0.1100
                  44.96          81.97        0.1100
                  58.95          81.94        0.1100
                  71.21          81.85        0.1100
                 100.74          81.58        0.1100
                 112.29          81.50        0.1100
                 121.63          81.56        0.1100
                 127.04          81.66     0.1100 /0.0700  Main
Channel
                 129.04          80.66        0.0700      Main
Channel
                 130.04          80.66        0.0700      Main
Channel
                 131.04          80.66        0.0700      Main
Channel
                 133.04          81.66     0.0700 /0.1100  Main
Channel
                 134.58          82.08        0.1100
                 135.14          82.01        0.1100
                 139.68          81.73        0.1100
                 151.74          81.75        0.1100
                 153.37          81.71        0.1100
                 167.06          81.83        0.1100
                 187.62          81.87        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH     ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)       (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.06    80.72    .649E+02       0.0          0.17
49.00
       0.12    80.79    .138E+03       0.1          0.25
32.10
       0.19    80.85    .218E+03       0.1          0.32
25.32
       0.25    80.91    .306E+03       0.2          0.38
21.50
       0.31    80.97    .401E+03       0.4          0.43
18.99
       0.37    81.04    .504E+03       0.5          0.47
17.19
       0.44    81.10    .615E+03       0.6          0.52
15.81
       0.50    81.16    .733E+03       0.8          0.55
14.71
       0.56    81.22    .860E+03       1.0          0.59
13.81
       0.62    81.29    .993E+03       1.3          0.62
13.06
       0.69    81.35    .113E+04       1.5          0.66
12.41
       0.75    81.41    .128E+04       1.8          0.69
11.84
       0.81    81.47    .144E+04       2.1          0.72
11.35
       0.87    81.54    .170E+04       2.5          0.71
11.50
       0.94    81.60    .245E+04       3.0          0.59
13.80
       1.00    81.66    .355E+04       3.7          0.51
16.06
       1.07    81.73    .511E+04       4.9          0.47
17.27
       1.14    81.80    .759E+04       6.7          0.43
18.98
       1.21    81.87    .109E+05       9.0          0.40
20.28

                                  <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0142)   33.50     3.56    3.00  39.97
0.99     0.52
     OUTFLOW: ID= 1 (0622)   33.50     2.52    3.08  39.97
0.88     0.69

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-------------------
| CALIB            |
| STANDHYD  (6222) |   Area    (ha)=  16.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=
57.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.29          5.31
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      332.67         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      105.46         55.61
               over (min)         5.00         20.00
     Storage Coeff.  (min)=        5.14 (ii)    16.13 (ii)
     Unit Hyd. Tpeak (min)=        5.00         20.00
     Unit Hyd. peak  (cms)=        0.21          0.06

*TOTALS*
     PEAK FLOW      (cms)=        2.63          0.48
2.957 (iii)
     TIME TO PEAK   (hrs)=        3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=       61.60         24.56
45.67
     TOTAL RAINFALL   (mm)=       67.60         67.60
67.60
     RUNOFF COEFFICIENT   =        0.91          0.36
0.68

          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
               CN*  =  67.0    Ia = Dep. Storage  (Above)
         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
               THAN THE STORAGE COEFFICIENT.
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        (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| NASHYD    (6221) |   Area    (ha)=   0.30   Curve Number
(CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.03

     Unit Hyd Qpeak  (cms)=   0.011

     PEAK FLOW      (cms)=   0.006 (i)
     TIME TO PEAK   (hrs)=   4.083
     RUNOFF VOLUME   (mm)=  19.224
     TOTAL RAINFALL  (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.284

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD  (0143) |
|  1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------       (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (6221):     0.30   0.006     4.08    19.22
      + ID2= 2 (6222):    16.60   2.957     3.00    45.67
        ===============================================
        ID = 3 (0143):    16.90   2.958     3.00    45.20

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD  (0144) |
|  1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------       (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0143):    16.90   2.958     3.00    45.20
      + ID2= 2 (0622):    33.50   2.520     3.08    39.97
        ===============================================
        ID = 3 (0144):    50.40   5.154     3.00    41.72

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (6231) |   Area    (ha)=   5.10   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.12

     Unit Hyd Qpeak  (cms)=   0.175

     PEAK FLOW      (cms)=   0.093 (i)
     TIME TO PEAK   (hrs)=   4.250
     RUNOFF VOLUME   (mm)=  18.651
     TOTAL RAINFALL  (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.276

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6232) |   Area    (ha)=  15.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        5.89          9.61
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      321.46         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      105.46         45.82
               over (min)         5.00         20.00
     Storage Coeff.  (min)=        5.04 (ii)    16.91 (ii)
     Unit Hyd. Tpeak (min)=        5.00         20.00
     Unit Hyd. peak  (cms)=        0.21          0.06

*TOTALS*
     PEAK FLOW      (cms)=        1.04          0.70
1.503 (iii)
     TIME TO PEAK   (hrs)=        3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=       61.60         22.23
31.68
     TOTAL RAINFALL   (mm)=       67.60         67.60
67.60
     RUNOFF COEFFICIENT   =        0.91          0.33
0.47

          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
               CN*  =  66.0    Ia = Dep. Storage  (Above)
         (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
               THAN THE STORAGE COEFFICIENT.
        (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD  (0145) |
|  1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------       (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (6231):     5.10   0.093     4.25    18.65
      + ID2= 2 (6232):    15.50   1.503     3.00    31.68
        ===============================================
        ID = 3 (0145):    20.60   1.515     3.00    28.45

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD  (0146) |
|  1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------       (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0144):    50.40   5.154     3.00    41.72
      + ID2= 2 (0145):    20.60   1.515     3.00    28.45
        ===============================================
        ID = 3 (0146):    71.00   6.669     3.00    37.87

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6302) |   Area    (ha)=   2.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=
50.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.64          0.96
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      131.66         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      105.46         94.74
               over (min)         5.00         15.00
     Storage Coeff.  (min)=        2.95 (ii)    11.83 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.28          0.09
```

```
*TOTALS*
    PEAK FLOW       (cms)=       0.38          0.15
0.507 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.08
3.00
    RUNOFF VOLUME    (mm)=      61.60         35.01
48.30
    TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
    RUNOFF COEFFICIENT   =       0.91          0.52
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0631) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 788.2) ------>
               Distance      Elevation       Manning
                  0.00         81.00        0.1100
                 15.70         81.00        0.1100
                 17.50         80.50    0.1100 /0.0700  Main
Channel
                 18.50         80.50        0.0700      Main
Channel
                 20.00         81.00    0.0700 /0.1100  Main
Channel
                 24.00         81.00        0.1100
                 38.00         81.50        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.03    80.53    .174E+02       0.0          0.10
100.96
       0.05    80.55    .375E+02       0.0          0.15
66.64
       0.08    80.58    .604E+02       0.0          0.19
52.98
       0.11    80.61    .861E+02       0.0          0.22
45.34
       0.13    80.63    .115E+03       0.0          0.25
40.34
       0.16    80.66    .146E+03       0.1          0.28
36.75
       0.18    80.68    .180E+03       0.1          0.30
34.02
       0.21    80.71    .217E+03       0.1          0.32
31.85
       0.24    80.74    .256E+03       0.1          0.34
30.07
       0.26    80.76    .298E+03       0.2          0.35
28.57
       0.29    80.79    .344E+03       0.2          0.37
27.28
       0.32    80.82    .391E+03       0.2          0.39
26.15
       0.34    80.84    .442E+03       0.3          0.40
25.16
       0.37    80.87    .495E+03       0.3          0.42
24.27
       0.39    80.89    .552E+03       0.4          0.43
23.48
       0.42    80.92    .611E+03       0.4          0.44
22.75
       0.45    80.95    .672E+03       0.5          0.46
22.09
       0.47    80.97    .737E+03       0.6          0.47
21.48
       0.50    81.00    .804E+03       0.6          0.48
20.91

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (6302)    2.60     0.51    3.00  48.30
0.45     0.46
    OUTFLOW: ID= 1 (0631)    2.60     0.27    3.08  48.08
0.33     0.39


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--------------------
| CALIB            |
| STANDHYD  (6312) |   Area    (ha)=   8.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=
51.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       5.54          3.26
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     242.21         40.00
    Mannings n          =       0.013         0.250

    Max.Eff.Inten.(mm/hr)=     105.46         54.20
               over (min)        5.00         20.00
    Storage Coeff.  (min)=       4.25 (ii)    15.35 (ii)
    Unit Hyd. Tpeak (min)=       5.00         20.00
    Unit Hyd. peak  (cms)=       0.23          0.07

*TOTALS*
    PEAK FLOW       (cms)=       1.27          0.29
1.473 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.17
3.00
    RUNOFF VOLUME    (mm)=      61.60         24.29
43.32
    TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
    RUNOFF COEFFICIENT   =       0.91          0.36
0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  67.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0149) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0631):      2.60   0.269     3.08    48.08
        + ID2= 2 (6312):      8.80   1.473     3.00    43.32
          ================================================
          ID = 3 (0149):     11.40   1.719     3.00    44.40

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0632) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
```

```
                 <------ DATA FOR SECTION ( 924.2) ------>
                 Distance      Elevation       Manning
                    0.00         82.50        0.1100
                    6.00         82.00        0.1100
                   11.00         81.00        0.1100
                   12.00         80.00        0.1100
                   13.50         79.50    0.1100 /0.0700  Main
Channel
                   14.50         79.50        0.0700      Main
Channel
                   16.00         80.00    0.0700 /0.1100  Main
Channel
                   18.00         80.00        0.1100
                   29.70         80.00        0.1100
                   37.00         80.50        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.05    79.55    .330E+02       0.0          0.17
52.00
       0.11    79.61    .749E+02       0.0          0.26
35.21
       0.16    79.66    .126E+03       0.1          0.32
28.45
       0.21    79.71    .186E+03       0.1          0.37
24.60
       0.26    79.76    .255E+03       0.2          0.41
22.04
       0.32    79.82    .333E+03       0.3          0.45
20.16
       0.37    79.87    .420E+03       0.4          0.48
18.69
       0.42    79.92    .515E+03       0.5          0.51
17.51
       0.47    79.97    .620E+03       0.6          0.55
16.53
       0.53    80.03    .931E+03       0.8          0.48
18.86
       0.58    80.08    .146E+04       1.2          0.43
20.73
       0.63    80.13    .201E+04       1.6          0.44
20.51
       0.68    80.18    .258E+04       2.2          0.46
19.66
       0.74    80.24    .318E+04       2.8          0.48
18.66
       0.79    80.29    .380E+04       3.6          0.51
17.70
       0.84    80.34    .445E+04       4.4          0.54
16.82
       0.89    80.39    .511E+04       5.3          0.56
16.03
       0.95    80.45    .580E+04       6.3          0.59
15.32
       1.00    80.50    .652E+04       7.4          0.61
14.69

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0149)   11.40     1.72    3.00  44.40
0.64     0.44
    OUTFLOW: ID= 1 (0632)   11.40     0.97    3.08  44.38
0.55     0.46


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--------------------
| CALIB            |
| NASHYD    (6321) |   Area    (ha)=   1.10   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

    Unit Hyd Qpeak  (cms)=   0.044

    PEAK FLOW       (cms)=   0.023 (i)
    TIME TO PEAK    (hrs)=   4.000
    RUNOFF VOLUME    (mm)= 18.650
    TOTAL RAINFALL   (mm)= 67.600
    RUNOFF COEFFICIENT   =   0.276

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6322) |   Area    (ha)=   4.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  42.00   Dir. Conn.(%)=
28.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       1.81          2.49
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     169.31         40.00
    Mannings n          =       0.013         0.250

    Max.Eff.Inten.(mm/hr)=     105.46         46.88
               over (min)        5.00         20.00
    Storage Coeff.  (min)=       3.43 (ii)    15.19 (ii)
    Unit Hyd. Tpeak (min)=       5.00         20.00
    Unit Hyd. peak  (cms)=       0.26          0.07

*TOTALS*
    PEAK FLOW       (cms)=       0.35          0.19
0.478 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.17
3.00
    RUNOFF VOLUME    (mm)=      61.60         22.45
33.41
    TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
    RUNOFF COEFFICIENT   =       0.91          0.33
0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0173) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (6321):      1.10   0.023     4.00    18.65
        + ID2= 2 (6322):      4.30   0.478     3.00    33.41
          ================================================
          ID = 3 (0173):      5.40   0.482     3.00    30.41

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0174) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0173):      5.40   0.482     3.00    30.41
        + ID2= 2 (0632):     11.40   0.974     3.08    44.38
          ================================================
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```
          ID = 3 (0174):     16.80   1.367     3.00    39.89

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6401) |   Area    (ha)=   0.70   Curve Number
(CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.36

    Unit Hyd Qpeak  (cms)=   0.020

    PEAK FLOW       (cms)=   0.017 (i)
    TIME TO PEAK    (hrs)=   4.500
    RUNOFF VOLUME    (mm)= 28.852
    TOTAL RAINFALL   (mm)= 67.600
    RUNOFF COEFFICIENT   =   0.427

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6402) |   Area    (ha)=  16.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      10.72          5.28
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     326.60         40.00
    Mannings n          =       0.013         0.250

    Max.Eff.Inten.(mm/hr)=     105.46         96.03
               over (min)        5.00         15.00
    Storage Coeff.  (min)=       5.09 (ii)    13.92 (ii)
    Unit Hyd. Tpeak (min)=       5.00         15.00
    Unit Hyd. peak  (cms)=       0.21          0.08

*TOTALS*
    PEAK FLOW       (cms)=       2.45          0.80
3.122 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.08
3.00
    RUNOFF VOLUME    (mm)=      61.60         35.19
49.71
    TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
    RUNOFF COEFFICIENT   =       0.91          0.52
0.74


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  80.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0177) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (6401):      0.70   0.017     4.50    28.85
        + ID2= 2 (6402):     16.00   3.122     3.00    49.71
          ================================================
          ID = 3 (0177):     16.70   3.124     3.00    48.84

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0641) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 910.0) ------>
               Distance      Elevation       Manning
                  0.00         83.92        0.1100
                  1.93         83.93        0.1100
                  3.02         83.94        0.1100
                  5.01         83.96        0.1100
                  6.81         83.80        0.1100
                  7.33         83.77        0.1100
                  8.42         83.41    0.1100 /0.0700  Main
Channel
                 10.42         82.41        0.0700      Main
Channel
                 11.17         82.41        0.0700      Main
Channel
                 11.92         82.41        0.0700      Main
Channel
                 13.92         83.41    0.0700 /0.1100  Main
Channel
                 21.33         84.40        0.1100
                 23.85         84.09        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.10    82.51    .768E+02       0.0          0.24
32.02
       0.20    82.61    .172E+03       0.1          0.35
21.50
       0.30    82.71    .285E+03       0.3          0.44
17.20
       0.40    82.81    .416E+03       0.5          0.51
14.73
       0.50    82.91    .565E+03       0.7          0.58
13.08
       0.60    83.01    .732E+03       1.0          0.64
11.86
       0.70    83.11    .918E+03       1.4          0.69
10.92
       0.80    83.21    .112E+04       1.8          0.74
10.16
       0.90    83.31    .134E+04       2.3          0.79
9.53
       1.00    83.41    .158E+04       2.9          0.84
9.00
       1.11    83.52    .188E+04       3.8          0.92
8.20
       1.22    83.63    .224E+04       4.8          0.98
7.72
       1.33    83.74    .266E+04       6.0          1.02
7.39
       1.44    83.85    .315E+04       7.3          1.05
7.20
       1.55    83.96    .379E+04       8.7          1.04
7.24
       1.66    84.07    .471E+04      10.6          1.02
7.41
       1.77    84.18    .567E+04      12.7          1.01
7.46
       1.88    84.29    .673E+04      15.1          1.01
7.43
       1.99    84.40    .787E+04      17.8          1.02
7.36

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0177)   16.70     3.12    3.00  48.84
1.02     0.85
```

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     OUTFLOW: ID= 1 (0641)   16.70     2.40    3.08  48.84
0.91      0.79


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-------------------
| CALIB             |
| NASHYD    (6411) |   Area    (ha)=   1.00   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.97

     Unit Hyd Qpeak  (cms)=   0.039

     PEAK FLOW       (cms)=   0.025 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  22.426
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.332

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (6412) |   Area    (ha)=  12.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
56.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.44         4.16
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     289.83        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        74.80
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.74 (ii)   14.49 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.98         0.47
2.366 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60        27.97
46.80
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.41
0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0181) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6411):      1.00   0.025     4.00    22.43
        + ID2= 2 (6412):     12.60   2.366     3.00    46.80
          ===============================================
          ID = 3 (0181):     13.60   2.370     3.00    45.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0184) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0181):     13.60   2.370     3.00    45.01
        + ID2= 2 (0641):     16.70   2.398     3.08    48.84
          ===============================================
          ID = 3 (0184):     30.30   4.740     3.00    47.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0642) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
                 <------ DATA FOR SECTION (1099.5) ------>
               Distance      Elevation       Manning
                   0.00          85.00        0.1100
                  14.50          80.00        0.1100
                  15.30          80.00        0.1100
                  16.80          79.50    0.1100 /0.0700  Main
Channel
                  17.80          79.50        0.0700      Main
Channel
                  19.30          80.00    0.0700 /0.1100  Main
Channel
                  20.30          80.00        0.1100
                  27.30          81.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.08    79.58    .520E+02       0.0          0.24
36.74
       0.16    79.66    .124E+03       0.1          0.35
25.35
       0.24    79.74    .216E+03       0.2          0.43
20.68
       0.32    79.82    .328E+03       0.3          0.49
17.96
       0.39    79.89    .460E+03       0.5          0.55
16.11
       0.47    79.97    .611E+03       0.7          0.60
14.73
       0.55    80.05    .836E+03       1.0          0.62
14.31
       0.63    80.13    .112E+04       1.4          0.66
13.40
       0.71    80.21    .143E+04       1.9          0.70
12.62
       0.79    80.29    .178E+04       2.5          0.74
11.97
       0.87    80.37    .216E+04       3.2          0.78
11.42
       0.95    80.45    .258E+04       3.9          0.81
10.93
       1.03    80.53    .302E+04       4.8          0.85
10.51
       1.11    80.61    .350E+04       5.8          0.88
10.14
       1.18    80.68    .402E+04       6.8          0.91
9.80
       1.26    80.76    .456E+04       8.0          0.94
9.49
       1.34    80.84    .514E+04       9.3          0.96
9.21
       1.42    80.92    .575E+04      10.7          0.99
8.96
       1.50    81.00    .640E+04      12.2          1.02
8.72

                               <---- hydrograph ---->   <-
pipe / channel->
                          AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                          (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0184)   30.30     4.74    3.00  47.12
1.02      0.84
     OUTFLOW: ID= 1 (0642)   30.30     3.58    3.08  47.12
0.91      0.80


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| CALIB             |
| NASHYD    (6421) |   Area    (ha)=   3.60   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.88

     Unit Hyd Qpeak  (cms)=   0.156

     PEAK FLOW       (cms)=   0.078 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=  18.651
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.276

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6422) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  41.00   Dir. Conn.(%)=
27.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.66         8.14
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     303.32        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        55.70
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.87 (ii)   15.85 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.22         0.07

*TOTALS*
     PEAK FLOW       (cms)=       1.04         0.74
1.552 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        26.51
35.99
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.39
0.53

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0185) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6421):      3.60   0.078     3.92    18.65
        + ID2= 2 (6422):     13.80   1.552     3.00    35.99
          ===============================================
          ID = 3 (0185):     17.40   1.567     3.00    32.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0187) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0185):     17.40   1.567     3.00    32.40
        + ID2= 2 (0642):     30.30   3.582     3.08    47.12
          ===============================================
          ID = 3 (0187):     47.70   4.730     3.08    41.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6501) |   Area    (ha)=   6.90   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.02

     Unit Hyd Qpeak  (cms)=   0.258

     PEAK FLOW       (cms)=   0.134 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  18.651
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.276

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6502) |   Area    (ha)=   2.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
22.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.77         1.43
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     121.11        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        44.07
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.81 (ii)   14.86 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.14         0.11
0.229 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        21.84
30.59
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.32
0.45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0190) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6501):      6.90   0.134     4.08    18.65
        + ID2= 2 (6502):      2.20   0.229     3.00    30.59
          ===============================================
          ID = 3 (0190):      9.10   0.250     3.00    21.54

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6601) |   Area    (ha)=   2.00   Curve Number
(CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.66

     Unit Hyd Qpeak  (cms)=   0.116

     PEAK FLOW       (cms)=   0.083 (i)
     TIME TO PEAK    (hrs)=   3.667
     RUNOFF VOLUME    (mm)=  27.942
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.413

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6602) |   Area    (ha)=  11.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  41.00   Dir. Conn.(%)=
27.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.80         6.90
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     279.28        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        80.57
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.63 (ii)   14.11 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.89         0.86
1.604 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60        32.30
40.21
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.48
0.59

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0193) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6601):      2.00   0.083     3.67    27.94
        + ID2= 2 (6602):     11.70   1.604     3.00    40.21
          ===============================================
          ID = 3 (0193):     13.70   1.631     3.00    38.42

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| STANDHYD  (7302) |   Area    (ha)=   3.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=
20.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09         2.31
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     150.55        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        42.50
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.20 (ii)   15.43 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.27         0.07

*TOTALS*
     PEAK FLOW       (cms)=       0.20         0.16
0.305 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        21.49
29.51
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.32
0.44

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7402) |   Area    (ha)=   3.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  40.00   Dir. Conn.(%)=
26.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.48         2.22
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     157.06        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        46.33
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.28 (ii)   15.10 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.27         0.07

*TOTALS*
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    PEAK FLOW      (cms)=      0.28        0.17
0.394 (iii)
    TIME TO PEAK   (hrs)=      3.00        3.17
3.00
    RUNOFF VOLUME   (mm)=     61.60       22.34
32.54
    TOTAL RAINFALL  (mm)=     67.60       67.60
67.60
    RUNOFF COEFFICIENT  =      0.91        0.33
0.48

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| NASHYD    (7031) |   Area    (ha)=   3.70   Curve Number
(CN)= 63.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.12

    Unit Hyd Qpeak  (cms)=   0.126

    PEAK FLOW      (cms)=   0.061 (i)
    TIME TO PEAK   (hrs)=   4.250
    RUNOFF VOLUME   (mm)=  17.014
    TOTAL RAINFALL  (mm)=  67.600
    RUNOFF COEFFICIENT  =   0.252

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7032) |   Area    (ha)=  19.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      12.61        7.09
    Dep. Storage     (mm)=       6.00        8.00
    Average Slope     (%)=       1.00        1.00
    Length            (m)=     362.40       40.00
    Mannings n          =       0.013       0.250

    Max.Eff.Inten.(mm/hr)=     105.46       48.85
              over (min)        5.00       20.00
    Storage Coeff.  (min)=       5.42 (ii)  16.99 (ii)
    Unit Hyd. Tpeak (min)=       5.00       20.00
    Unit Hyd. peak  (cms)=       0.20        0.06

*TOTALS*
    PEAK FLOW      (cms)=      2.83        0.55
3.197 (iii)
    TIME TO PEAK   (hrs)=      3.00        3.17
3.00
    RUNOFF VOLUME   (mm)=     61.60       21.87
42.53
    TOTAL RAINFALL  (mm)=     67.60       67.60
67.60
    RUNOFF COEFFICIENT  =      0.91        0.32
0.63


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  63.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0213) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7031):     3.70   0.061     4.25    17.01
        + ID2= 2 (7032):    19.70   3.197     3.00    42.53
          ==============================================
          ID = 3 (0213):    23.40   3.205     3.00    38.50

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (7101) |   Area    (ha)=  70.70   Curve Number
(CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.78

    Unit Hyd Qpeak  (cms)=   3.471

    PEAK FLOW      (cms)=   1.074 (i)
    TIME TO PEAK   (hrs)=   3.833
    RUNOFF VOLUME   (mm)=  12.080
    TOTAL RAINFALL  (mm)=  67.600
    RUNOFF COEFFICIENT  =   0.179

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (7102) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
33.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       7.88        9.62
    Dep. Storage     (mm)=       6.00        8.00
    Average Slope     (%)=       1.00        1.00
    Length            (m)=     341.57       40.00
    Mannings n          =       0.013       0.250

    Max.Eff.Inten.(mm/hr)=     105.46       29.49
              over (min)        5.00       20.00
    Storage Coeff.  (min)=       5.23 (ii)  19.39 (ii)
    Unit Hyd. Tpeak (min)=       5.00       20.00
    Unit Hyd. peak  (cms)=       0.21        0.06

*TOTALS*
    PEAK FLOW      (cms)=      1.60        0.42
1.870 (iii)
    TIME TO PEAK   (hrs)=      3.00        3.25
3.00
    RUNOFF VOLUME   (mm)=     61.60       14.69
30.17
    TOTAL RAINFALL  (mm)=     67.60       67.60
67.60
    RUNOFF COEFFICIENT  =      0.91        0.22
0.45


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  52.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0218) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7101):    70.70   1.074     3.83    12.08
        + ID2= 2 (7102):    17.50   1.870     3.00    30.17
          ==============================================
          ID = 3 (0218):    88.20   2.112     3.00    15.67

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0711) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1487.9) ------>
               Distance      Elevation       Manning
                  0.00          95.00        0.1100
                 89.00          94.00        0.1100
                135.70          94.00     0.1100 /0.0700  Main
Channel
                137.20          93.50        0.0700      Main
Channel
                138.20          93.50        0.0700      Main
Channel
                139.70          94.00     0.0700 /0.1100  Main
Channel
                211.60          94.00        0.1100
                249.00          95.00        0.1100

     <-------------------- TRAVEL TIME TABLE -----------------
---->
    DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
     (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
    0.07    93.57    .969E+02       0.0          0.20
95.33
    0.14    93.64    .228E+03       0.1          0.29
64.56
    0.21    93.71    .393E+03       0.1          0.36
51.73
    0.29    93.79    .593E+03       0.2          0.42
44.23
    0.36    93.86    .826E+03       0.4          0.48
39.15
    0.43    93.93    .109E+04       0.5          0.53
35.40
    0.50    94.00    .140E+04       0.7          0.57
32.52
    0.58    94.08    .133E+05       2.6          0.22
84.59
    0.67    94.17    .262E+05       6.5          0.28
67.17
    0.75    94.25    .400E+05      12.0          0.33
55.64
    0.83    94.33    .549E+05      19.0          0.39
48.10
    0.92    94.42    .707E+05      27.5          0.43
42.81
    1.00    94.50    .875E+05      37.5          0.48
38.86
    1.08    94.58    .105E+06      49.0          0.52
35.80
    1.17    94.67    .124E+06      62.0          0.56
33.34
    1.25    94.75    .144E+06      76.6          0.59
31.30
    1.33    94.83    .165E+06      92.7          0.63
29.59
    1.42    94.92    .186E+06     110.4          0.66
28.12
    1.50    95.00    .209E+06     129.7          0.69
26.84

                                   <---- hydrograph ---->   <-
pipe / channel->
                         AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                         (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
   INFLOW : ID= 2 (0218)   88.20     2.11    3.00  15.67
0.56     0.26
   OUTFLOW: ID= 1 (0711)   88.20     1.22    4.33  15.66
0.52     0.40


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-------------------
| CALIB            |
| NASHYD    (7111) |   Area    (ha)=  49.10   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.43

    Unit Hyd Qpeak  (cms)=   1.311

    PEAK FLOW      (cms)=   0.842 (i)
    TIME TO PEAK   (hrs)=   4.583
    RUNOFF VOLUME   (mm)=  21.086
    TOTAL RAINFALL  (mm)=  67.600
    RUNOFF COEFFICIENT  =   0.312

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7112) |   Area    (ha)=  11.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  34.00   Dir. Conn.(%)=
22.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       3.81        7.39
    Dep. Storage     (mm)=       6.00        8.00
    Average Slope     (%)=       1.00        1.00
    Length            (m)=     273.25       40.00
    Mannings n          =       0.013       0.250

    Max.Eff.Inten.(mm/hr)=     105.46       48.39
              over (min)        5.00       20.00
    Storage Coeff.  (min)=       4.57 (ii)  16.19 (ii)
    Unit Hyd. Tpeak (min)=       5.00       20.00
    Unit Hyd. peak  (cms)=       0.23        0.06

*TOTALS*
    PEAK FLOW      (cms)=      0.69        0.58
1.085 (iii)
    TIME TO PEAK   (hrs)=      3.00        3.17
3.00
    RUNOFF VOLUME   (mm)=     61.60       24.19
32.42
    TOTAL RAINFALL  (mm)=     67.60       67.60
67.60
    RUNOFF COEFFICIENT  =      0.91        0.36
0.48

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  70.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0222) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7111):    49.10   0.842     4.58    21.09
        + ID2= 2 (7112):    11.20   1.085     3.00    32.42
          ==============================================
          ID = 3 (0222):    60.30   1.160     3.00    23.19

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0223) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0222):    60.30   1.160     3.00    23.19
        + ID2= 2 (0711):    88.20   1.220     4.33    15.66
          ==============================================
          ID = 3 (0223):   148.50   2.183     4.42    18.72

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (7011) |   Area    (ha)=  90.40   Curve Number
(CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.77

    Unit Hyd Qpeak  (cms)=   4.467

    PEAK FLOW      (cms)=   1.730 (i)
    TIME TO PEAK   (hrs)=   3.833
    RUNOFF VOLUME   (mm)=  15.044
    TOTAL RAINFALL  (mm)=  67.600
    RUNOFF COEFFICIENT  =   0.223

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7012) |   Area    (ha)=  25.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
25.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       9.54       15.56
    Dep. Storage     (mm)=       6.00        8.00
    Average Slope     (%)=       1.00        1.00
    Length            (m)=     409.06       40.00
    Mannings n          =       0.013       0.250

    Max.Eff.Inten.(mm/hr)=     105.46       36.17
              over (min)        5.00       20.00
    Storage Coeff.  (min)=       5.82 (ii)  18.87 (ii)
    Unit Hyd. Tpeak (min)=       5.00       20.00
    Unit Hyd. peak  (cms)=       0.20        0.06

*TOTALS*
    PEAK FLOW      (cms)=      1.72        0.84
2.263 (iii)
    TIME TO PEAK   (hrs)=      3.00        3.25
3.00
    RUNOFF VOLUME   (mm)=     61.60       17.98
28.88
    TOTAL RAINFALL  (mm)=     67.60       67.60
67.60
    RUNOFF COEFFICIENT  =      0.91        0.27
0.43


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  59.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0205) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7011):    90.40   1.730     3.83    15.04
        + ID2= 2 (7012):    25.10   2.263     3.00    28.88
          ==============================================
          ID = 3 (0205):   115.50   2.665     3.00    18.05

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0702) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1184.6) ------>
               Distance      Elevation       Manning
                  0.00          93.00        0.1100
                 56.00          92.00        0.1100
                 65.40          92.00        0.1100
                 74.80          91.50     0.1100 /0.0700  Main
Channel
                 75.80          91.50        0.0700      Main
Channel
                 77.30          92.00     0.0700 /0.1100  Main
Channel
                144.00          92.00        0.1100
                186.00          93.00        0.1100

     <-------------------- TRAVEL TIME TABLE -----------------
---->
    DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
     (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
    0.08    91.58    .236E+03       0.0          0.13
200.27
    0.16    91.66    .689E+03       0.1          0.18
146.52
    0.24    91.74    .136E+04       0.2          0.22
121.67
    0.32    91.82    .225E+04       0.4          0.25
105.99
    0.39    91.89    .336E+04       0.6          0.28
94.79
    0.47    91.97    .468E+04       0.9          0.31
86.24
    0.55    92.05    .128E+05       1.5          0.19
142.36
    0.63    92.13    .251E+05       3.4          0.22
123.43
    0.71    92.21    .384E+05       6.1          0.26
104.46
    0.79    92.29    .526E+05       9.6          0.29
90.95
    0.87    92.37    .678E+05      13.9          0.33
81.16
    0.95    92.45    .840E+05      19.0          0.36
73.76
    1.03    92.53    .101E+06      24.8          0.39
67.97
    1.11    92.61    .119E+06      31.4          0.42
63.30
    1.18    92.68    .139E+06      38.8          0.45
59.44
    1.26    92.76    .159E+06      47.1          0.48
56.18
    1.34    92.84    .180E+06      56.1          0.50
53.38
    1.42    92.92    .202E+06      66.0          0.52
50.95
    1.50    93.00    .225E+06      76.8          0.55
48.81
```

```
                                  <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0205)  115.50     2.66    3.00  18.05
0.60     0.20
     OUTFLOW: ID= 1 (0702)  115.50     1.34    5.25  18.04
0.53     0.21


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-------------------
| CALIB             |
| NASHYD    (7021) |   Area    (ha)=  16.10   Curve Number
(CN)= 64.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.72

     Unit Hyd Qpeak  (cms)=   0.358

     PEAK FLOW       (cms)=   0.199 (i)
     TIME TO PEAK    (hrs)=   5.000
     RUNOFF VOLUME    (mm)=  17.543
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.260

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7022) |   Area    (ha)=  26.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  36.00   Dir. Conn.(%)=
24.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.50         16.90
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     419.52         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     105.46         40.69
                over (min)        5.00         20.00
     Storage Coeff.  (min)=       5.91 (ii)    18.36 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.19          0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.73          1.04
2.414 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=      61.60         20.45
30.32
     TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
     RUNOFF COEFFICIENT   =       0.91          0.30
0.45


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  64.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0209) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7021):     16.10   0.199     5.00    17.54
        + ID2= 2 (7022):     26.40   2.414     3.00    30.32
          ===============================================
          ID = 3 (0209):     42.50   2.427     3.00    25.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0210) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0209):     42.50   2.427     3.00    25.48
        + ID2= 2 (0702):    115.50   1.339     5.25    18.04
          ===============================================
          ID = 3 (0210):    158.00   2.743     3.00    20.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0224) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0210):    158.00   2.743     3.00    20.04
        + ID2= 2 (0223):    148.50   2.183     4.42    18.72
          ===============================================
          ID = 3 (0224):    306.50   4.444     3.00    19.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0703) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (2329.2) ------>
              Distance      Elevation       Manning
                  0.00          88.00        0.1100
                 37.50          87.00        0.1100
                 51.30          86.00        0.1100
                 82.80          86.00        0.1100
                107.50          87.00        0.1100
                117.30          86.00        0.1100
                125.90          86.00    0.1100 /0.0700  Main
Channel
                127.40          85.50        0.0700      Main
Channel
                128.40          85.50        0.0700      Main
Channel
                129.90          86.00    0.0700 /0.1100  Main
Channel
                133.00          86.00        0.1100
                149.00          87.00        0.1100
                193.00          88.00        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.12    85.62    .787E+02        0.0          0.19
40.30
        0.25    85.75    .200E+03        0.1          0.28
27.58
        0.37    85.88    .365E+03        0.3          0.35
22.10
        0.50    86.00    .572E+03        0.5          0.41
18.84
        0.63    86.13    .372E+04        1.8          0.22
34.16
        0.77    86.27    .738E+04        4.4          0.27
28.02
        0.90    86.40    .116E+05        8.1          0.32
23.77
        1.03    86.53    .163E+05       13.0          0.37
20.89
        1.17    86.67    .215E+05       19.1          0.41
18.82
        1.30    86.80    .273E+05       26.4          0.44
17.24
        1.43    86.93    .336E+05       35.0          0.48
15.99
        1.57    87.07    .404E+05       44.9          0.51
15.00
        1.70    87.20    .479E+05       56.3          0.54
14.18
        1.83    87.33    .560E+05       69.3          0.57
13.47
        1.97    87.47    .648E+05       84.0          0.59
12.85
        2.10    87.60    .743E+05      100.6          0.62
12.31
        2.23    87.73    .844E+05      119.0          0.65
11.82
        2.37    87.87    .952E+05      139.3          0.67
11.39
        2.50    88.00    .107E+06      161.7          0.69
11.00

                                  <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0224)  306.50     4.44    3.00  19.40
0.77     0.27
     OUTFLOW: ID= 1 (0703)  306.50     3.76    4.83  19.40
0.73     0.26


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| ADD HYD   (0215) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0213):     23.40   3.205     3.00    38.50
        + ID2= 2 (0703):    306.50   3.757     4.83    19.40
          ===============================================
          ID = 3 (0215):    329.90   4.846     3.00    20.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0704) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (2755.4) ------>
              Distance      Elevation       Manning
                  0.00          85.00        0.1100
                 25.00          84.00        0.1100
                 32.00          84.00    0.1100 /0.0700  Main
Channel
                 33.50          83.50        0.0700      Main
Channel
                 34.50          83.50        0.0700      Main
Channel
                 36.00          84.00    0.0700 /0.1100  Main
Channel
                 65.00          84.00        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.03    83.53    .121E+02        0.0          0.12
61.52
        0.05    83.55    .259E+02        0.0          0.19
40.35
        0.08    83.58    .414E+02        0.0          0.24
31.84
        0.10    83.60    .585E+02        0.0          0.28
27.04
        0.13    83.63    .774E+02        0.1          0.31
23.87
        0.15    83.65    .979E+02        0.1          0.35
21.59
        0.18    83.68    .120E+03        0.1          0.38
19.84
        0.20    83.70    .144E+03        0.1          0.41
18.45
        0.23    83.73    .170E+03        0.2          0.43
17.31
        0.25    83.75    .197E+03        0.2          0.46
16.34
        0.28    83.78    .226E+03        0.2          0.48
15.52
        0.30    83.80    .257E+03        0.3          0.51
14.80
        0.33    83.83    .289E+03        0.3          0.53
14.16
        0.35    83.85    .323E+03        0.4          0.55
13.60
        0.38    83.88    .359E+03        0.5          0.57
13.09
        0.40    83.90    .396E+03        0.5          0.59
12.64
        0.43    83.93    .435E+03        0.6          0.61
12.22
        0.45    83.95    .476E+03        0.7          0.63
11.84
        0.48    83.98    .518E+03        0.8          0.65
11.49

     **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                  <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0215)  329.90     4.85    3.00  20.76
0.47     0.65
     OUTFLOW: ID= 1 (0704)  329.90     4.00    4.92  20.75
0.48     0.65


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| CALIB             |
| NASHYD    (7041) |   Area    (ha)=   9.20   Curve Number
(CN)= 61.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.82

     Unit Hyd Qpeak  (cms)=   0.431

     PEAK FLOW       (cms)=   0.181 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  16.001
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.237

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (7042) |   Area    (ha)=  14.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.72          4.78
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     310.91         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     105.46         48.01
                over (min)        5.00         20.00
     Storage Coeff.  (min)=       4.94 (ii)    16.59 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.22          0.06

*TOTALS*
     PEAK FLOW       (cms)=       2.23          0.37
2.474 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60         21.08
43.36
     TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
     RUNOFF COEFFICIENT   =       0.91          0.31
0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  61.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0227) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7041):      9.20   0.181     3.83    16.00
        + ID2= 2 (7042):     14.50   2.474     3.00    43.36
          ===============================================
          ID = 3 (0227):     23.70   2.513     3.00    32.74

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0229) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0227):     23.70   2.513     3.00    32.74
        + ID2= 2 (0704):    329.90   3.995     4.92    20.75
          ===============================================
          ID = 3 (0229):    353.60   5.450     3.00    21.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (7201) |   Area    (ha)=  14.00   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.98

     Unit Hyd Qpeak  (cms)=   0.548

     PEAK FLOW       (cms)=   0.282 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  18.651
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.276

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7202) |   Area    (ha)=   8.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=
43.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.68          3.83
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     238.05         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     105.46         48.62
                over (min)        5.00         20.00
     Storage Coeff.  (min)=       4.21 (ii)    15.80 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.24          0.07

*TOTALS*
     PEAK FLOW       (cms)=       1.04          0.30
1.243 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60         22.82
39.49
     TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
     RUNOFF COEFFICIENT   =       0.91          0.34
0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0232) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7201):     14.00   0.282     4.08    18.65
        + ID2= 2 (7202):      8.50   1.243     3.00    39.49
          ===============================================
          ID = 3 (0232):     22.50   1.290     3.00    26.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0721) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 920.0) ------>
              Distance      Elevation       Manning
                  0.00          82.00        0.1100
                 41.00          82.00        0.1100
                 50.70          82.00        0.1100
                 57.80          81.00    0.1100 /0.0700  Main
Channel
                 59.30          79.84        0.0700      Main
Channel
                 60.30          79.84        0.0700      Main
Channel
                 61.80          81.00    0.0700 /0.1100  Main
Channel
                 63.30          81.00        0.1100
                 85.90          81.00        0.1100
```

```
                100.00         82.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.11    79.95    .515E+02       0.0          0.20
35.58
       0.21    80.05    .115E+03       0.1          0.30
24.20
       0.32    80.16    .192E+03       0.2          0.37
19.53
       0.42    80.26    .280E+03       0.3          0.43
16.82
       0.53    80.37    .381E+03       0.4          0.48
15.00
       0.63    80.47    .494E+03       0.6          0.53
13.65
       0.74    80.58    .620E+03       0.8          0.57
12.60
       0.84    80.68    .758E+03       1.1          0.61
11.75
       0.95    80.79    .908E+03       1.4          0.65
11.04
       1.05    80.89    .107E+04       1.7          0.69
10.44
       1.16    81.00    .125E+04       2.1          0.72
9.92
       1.28    81.12    .283E+04       3.2          0.49
14.61
       1.41    81.25    .455E+04       5.0          0.48
15.04
       1.53    81.37    .642E+04       7.4          0.50
14.36
       1.66    81.50    .843E+04      10.4          0.53
13.50
       1.78    81.62    .106E+05      13.9          0.57
12.67
       1.91    81.75    .129E+05      18.0          0.60
11.93
       2.03    81.87    .153E+05      22.6          0.63
11.29
       2.16    82.00    .179E+05      27.8          0.67
10.73

                                      <---- hydrograph ---->   <-
pipe / channel->
                               AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0232)   22.50     1.29     3.00  26.53
0.92     0.64
    OUTFLOW: ID= 1 (0721)   22.50     0.92     3.08  26.52
0.78     0.58


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--------------------
| CALIB              |
| NASHYD    (7211) |   Area    (ha)=   8.70   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.06

     Unit Hyd Qpeak  (cms)=   0.312

     PEAK FLOW       (cms)=   0.164 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)= 18.651
     TOTAL RAINFALL   (mm)= 67.600
     RUNOFF COEFFICIENT   =   0.276

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (7212) |   Area    (ha)=   9.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        5.95         3.35
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      249.00        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      105.46        53.29
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.32 (ii)   15.50 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.23         0.07

*TOTALS*
     PEAK FLOW       (cms)=       1.37          0.29
1.570 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60         23.76
43.43
     TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
     RUNOFF COEFFICIENT   =       0.91          0.35
0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0236) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (7211):      8.70   0.164     4.17     18.65
       + ID2= 2 (7212):      9.30   1.570     3.00     43.43
         ===============================================
         ID = 3 (0236):     18.00   1.594     3.00     31.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0237) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0236):     18.00   1.594     3.00     31.46
       + ID2= 2 (0721):     22.50   0.918     3.08     26.52
         ===============================================
         ID = 3 (0237):     40.50   2.495     3.00     28.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0238) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0229):    353.60   5.450     3.00     21.56
       + ID2= 2 (0237):     40.50   2.495     3.00     28.72
         ===============================================
         ID = 3 (0238):    394.10   7.944     3.00    22.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0705) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                <------ DATA FOR SECTION (3276.8) ------>
                 Distance      Elevation       Manning
                     0.00          80.50        0.1100
                     5.70          80.00        0.1100
                    14.00          79.00        0.1100
                    22.00          79.00    0.1100 /0.0700  Main
Channel
                    23.50          78.50        0.0700      Main
Channel
                    24.50          78.50        0.0700      Main
Channel
                    26.00          79.00    0.0700 /0.1100  Main
Channel
                    28.00          79.00        0.1100
                    41.00          80.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    78.57    .248E+02       0.0          0.26
18.45
       0.14    78.64    .584E+02       0.1          0.38
12.49
       0.21    78.71    .101E+03       0.2          0.48
10.01
       0.29    78.79    .152E+03       0.3          0.56
8.56
       0.36    78.86    .212E+03       0.5          0.63
7.58
       0.43    78.93    .280E+03       0.7          0.70
6.85
       0.50    79.00    .358E+03       0.9          0.76
6.29
       0.58    79.08    .712E+03       1.6          0.64
7.50
       0.67    79.17    .111E+04       2.5          0.65
7.35
       0.75    79.25    .155E+04       3.7          0.69
6.94
       0.83    79.33    .203E+04       5.2          0.73
6.52
       0.92    79.42    .255E+04       6.9          0.78
6.14
       1.00    79.50    .312E+04       9.0          0.82
5.81
       1.08    79.58    .373E+04      11.3          0.86
5.52
       1.17    79.67    .438E+04      13.9          0.90
5.27
       1.25    79.75    .507E+04      16.7          0.94
5.05
       1.33    79.83    .581E+04      20.0          0.98
4.85
       1.42    79.92    .659E+04      23.5          1.02
4.68
       1.50    80.00    .741E+04      27.3          1.06
4.52

                                      <---- hydrograph ---->   <-
pipe / channel->
                               AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0238)  394.10     7.94     3.00  22.29
0.96     0.80
    OUTFLOW: ID= 1 (0705)  394.10     6.95     3.08  22.29
0.92     0.78


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--------------------
| CALIB              |
| NASHYD    (7051) |   Area    (ha)=   2.10   Curve Number
(CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.60

     Unit Hyd Qpeak  (cms)=   0.133

     PEAK FLOW       (cms)=   0.037 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)= 11.698
     TOTAL RAINFALL   (mm)= 67.600
     RUNOFF COEFFICIENT   =   0.173

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| STANDHYD  (7052) |   Area    (ha)=   4.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  40.00   Dir. Conn.(%)=
26.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.88         2.82
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      177.01        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      105.46        29.27
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.52 (ii)   17.73 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.26         0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.35          0.13
0.433 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=      61.60         14.42
26.69
     TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
     RUNOFF COEFFICIENT   =       0.91          0.21
0.39

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  51.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0241) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (7051):      2.10   0.037     3.58     11.70
       + ID2= 2 (7052):      4.70   0.433     3.00     26.69
         ===============================================
         ID = 3 (0241):      6.80   0.445     3.00     22.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0243) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0241):      6.80   0.445     3.00     22.06
       + ID2= 2 (0705):    394.10   6.947     3.08     22.29
         ===============================================
         ID = 3 (0243):    400.90   7.197     3.08     22.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (7502) |   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  34.00   Dir. Conn.(%)=
21.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.87         3.63
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      191.49        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      105.46        43.87
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.69 (ii)   15.77 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.25         0.07

*TOTALS*
     PEAK FLOW       (cms)=       0.33          0.26
0.505 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60         21.80
30.16
     TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
     RUNOFF COEFFICIENT   =       0.91          0.32
0.45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   5 **
  ****************************


--------------------
|    READ STORM      |     Filename: C:\Users\Jenny\AppD
|                    |               ata\Local\Temp\
|                    |               a8b7002d-931f-4bdf-82e5-
bad09a870f5a\133c6432
| Ptotal= 81.60 mm |     Comments: Mount Hope-6 hour SCS
Distribution Desig
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                 0.17    3.26 |  1.67    8.16 |  3.17   17.95 |
4.67    4.90
                 0.33    3.26 |  1.83    8.16 |  3.33   17.95 |
4.83    4.90
                 0.50    3.26 |  2.00    8.16 |  3.50   17.95 |
5.00    4.90
                 0.67    4.90 |  2.17    9.79 |  3.67    8.16 |
5.17    3.26
                 0.83    4.90 |  2.33    9.79 |  3.83    8.16 |
5.33    3.26
                 1.00    4.90 |  2.50    9.79 |  4.00    8.16 |
5.50    3.26
                 1.17    4.90 |  2.67   48.96 |  4.17    6.53 |
5.67    3.26
                 1.33    4.90 |  2.83   88.13 |  4.33    6.53 |
5.83    3.26
                 1.50    4.90 |  3.00  127.30 |  4.50    6.53 |
6.00    3.26

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| CALIB              |
| NASHYD    (5071) |   Area    (ha)=   8.40   Curve Number
(CN)= 74.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.72

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                                   ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                0.083    3.26 | 1.583    8.16 | 3.083   17.95 |
4.58    4.90
                0.167    3.26 | 1.667    8.16 | 3.167   17.95 |
4.67    4.90
                0.250    3.26 | 1.750    8.16 | 3.250   17.95 |
4.75    4.90
                0.333    3.26 | 1.833    8.16 | 3.333   17.95 |
4.83    4.90
                0.417    3.26 | 1.917    8.16 | 3.417   17.95 |
4.92    4.90
                0.500    3.26 | 2.000    8.16 | 3.500   17.95 |
5.00    4.90
                0.583    4.90 | 2.083    9.79 | 3.583    8.16 |
5.08    3.26
                0.667    4.90 | 2.167    9.79 | 3.667    8.16 |
5.17    3.26
                0.750    4.90 | 2.250    9.79 | 3.750    8.16 |
5.25    3.26
                0.833    4.90 | 2.333    9.79 | 3.833    8.16 |
5.33    3.26
                0.917    4.90 | 2.417    9.79 | 3.917    8.16 |
5.42    3.26
                1.000    4.90 | 2.500    9.79 | 4.000    8.16 |
5.50    3.26
                1.083    4.90 | 2.583   48.96 | 4.083    6.53 |
5.58    3.26
                1.167    4.90 | 2.667   48.96 | 4.167    6.53 |
5.67    3.26
                1.250    4.90 | 2.750   88.13 | 4.250    6.53 |
5.75    3.26
                1.333    4.90 | 2.833   88.13 | 4.333    6.53 |
5.83    3.26
                1.417    4.90 | 2.917  127.30 | 4.417    6.53 |
5.92    3.26
                1.500    4.90 | 3.000  127.30 | 4.500    6.53 |
6.00    3.26

     Unit Hyd Qpeak  (cms)=   0.187

     PEAK FLOW       (cms)=   0.200 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)= 33.264
     TOTAL RAINFALL   (mm)= 81.600
     RUNOFF COEFFICIENT   =   0.408

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| CALIB            |
| STANDHYD  (5072) |   Area    (ha)=  40.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
30.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       18.23        22.28
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      519.62        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      127.30        98.85
               over (min)        5.00        15.00
     Storage Coeff.  (min)=        6.23 (ii)   14.96 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.19         0.08

*TOTALS*
     PEAK FLOW       (cms)=        3.97         3.34
6.746 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       75.60        39.00
49.98
     TOTAL RAINFALL   (mm)=       81.60        81.60
81.60
     RUNOFF COEFFICIENT   =        0.93         0.48
0.61


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  74.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0121) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5071):      8.40   0.200     4.92    33.26
        + ID2= 2 (5072):     40.50   6.746     3.00    49.98
          ===============================================
          ID = 3 (0121):     48.90   6.761     3.00    47.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5121) |   Area    (ha)=   0.70   Curve Number
(CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.14

     Unit Hyd Qpeak  (cms)=   0.023

     PEAK FLOW       (cms)=   0.021 (i)
     TIME TO PEAK    (hrs)=   4.250
     RUNOFF VOLUME    (mm)=  30.541
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.374

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5122) |   Area    (ha)=   3.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=
47.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.92         1.28
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      146.06        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      127.30        97.76
               over (min)        5.00        15.00
     Storage Coeff.  (min)=        2.91 (ii)   11.68 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.28         0.09

*TOTALS*
     PEAK FLOW       (cms)=        0.53         0.21
0.703 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       75.60        37.11
55.20
     TOTAL RAINFALL   (mm)=       81.60        81.60
81.60
     RUNOFF COEFFICIENT   =        0.93         0.45
0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0118) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5121):      0.70   0.021     4.25    30.54
        + ID2= 2 (5122):      3.20   0.703     3.00    55.20
          ===============================================
          ID = 3 (0118):      3.90   0.706     3.00    50.77

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5111) |   Area    (ha)=   1.90   Curve Number
(CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.56

     Unit Hyd Qpeak  (cms)=   0.129

     PEAK FLOW       (cms)=   0.085 (i)
     TIME TO PEAK    (hrs)=   3.500
     RUNOFF VOLUME    (mm)=  27.260
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.334

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5112) |   Area    (ha)=   1.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        0.55         0.55
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=       85.63        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      127.30        94.85
               over (min)        5.00        15.00
     Storage Coeff.  (min)=        2.11 (ii)   10.99 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.31         0.09

*TOTALS*
     PEAK FLOW       (cms)=        0.14         0.09
0.211 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       75.60        36.66
50.28
     TOTAL RAINFALL   (mm)=       81.60        81.60
81.60
     RUNOFF COEFFICIENT   =        0.93         0.45
0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0116) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5111):      1.90   0.085     3.50    27.26
        + ID2= 2 (5112):      1.10   0.211     3.00    50.28
          ===============================================
          ID = 3 (0116):      3.00   0.245     3.00    35.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5101) |   Area    (ha)=   0.80   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.42

     Unit Hyd Qpeak  (cms)=   0.022

     PEAK FLOW       (cms)=   0.017 (i)
     TIME TO PEAK    (hrs)=   4.583
     RUNOFF VOLUME    (mm)=  26.492
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.325

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5102) |   Area    (ha)=   0.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        0.45         0.45
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=       77.46        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      127.30        83.58
               over (min)        5.00        15.00
     Storage Coeff.  (min)=        1.99 (ii)   11.33 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.31         0.09

*TOTALS*
     PEAK FLOW       (cms)=        0.11         0.06
0.164 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       75.60        32.32
47.46
     TOTAL RAINFALL   (mm)=       81.60        81.60
81.60
     RUNOFF COEFFICIENT   =        0.93         0.40
0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0115) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5101):      0.80   0.017     4.58    26.49
        + ID2= 2 (5102):      0.90   0.164     3.00    47.46
          ===============================================
          ID = 3 (0115):      1.70   0.166     3.00    37.59

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0511) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation       Manning
                   0.00          81.24        0.1100
                  33.01          80.98        0.1100
                  49.97          81.27        0.1100
                  54.18          80.35        0.1100
                  60.88          81.23    0.1100 /0.0700  Main
Channel
                  69.13          79.02        0.0700      Main
Channel
                  92.42          79.04        0.0700      Main
Channel
                  98.70          80.89    0.0700 /0.1100  Main
Channel
                 128.88          81.13        0.1100
                 199.00          81.23        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12    79.13    .361E+03       0.6          0.24
9.91
       0.23    79.25    .776E+03       2.1          0.40
6.09
       0.35    79.37    .121E+04       4.3          0.52
4.65
       0.47    79.48    .165E+04       7.1          0.63
3.85
       0.59    79.60    .211E+04      10.5          0.72
3.34
       0.70    79.72    .258E+04      14.4          0.81
2.98
       0.82    79.84    .307E+04      18.8          0.89
2.71
       0.94    79.95    .357E+04      23.8          0.97
2.50
       1.05    80.07    .408E+04      29.2          1.04
2.33
       1.17    80.19    .461E+04      35.1          1.10
2.19
       1.29    80.30    .515E+04      41.5          1.17
2.07
       1.41    80.42    .571E+04      48.4          1.23
1.97
       1.52    80.54    .631E+04      55.8          1.28
1.88
       1.64    80.66    .695E+04      63.8          1.33
1.81
       1.76    80.77    .762E+04      72.3          1.38
1.76
       1.87    80.89    .833E+04      81.4          1.42
1.71
       2.00    81.02    .931E+04      92.4          1.44
1.68
       2.13    81.14    .109E+05     104.8          1.39
1.74
       2.25    81.27    .140E+05     120.9          1.25
1.93

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0115)    1.70     0.17    3.00  37.59
0.03      0.24
     OUTFLOW: ID= 1 (0511)    1.70     0.12    3.08  37.59
0.02      0.24


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| ADD HYD   (0117) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0116):      3.00   0.245     3.00    35.70
        + ID2= 2 (0511):      1.70   0.120     3.08    37.59
          ===============================================
          ID = 3 (0117):      4.70   0.360     3.00    36.39

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0512) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 484.2) ------>
               Distance      Elevation       Manning
                   0.00          80.80        0.0900
                   9.73          80.46        0.0900
                  14.10          82.04        0.0900
                  17.18          82.28        0.0900
                  41.13          82.12    0.0900 /0.0700  Main
Channel
                  46.88          79.71        0.0700      Main
Channel
                  51.41          80.90    0.0700 /0.0900  Main
Channel
                  94.29          80.56        0.0900
                 175.64          80.72        0.0900
                 192.09          80.85        0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.13    79.84    .255E+02       0.0          0.14
54.71
       0.26    79.98    .102E+03       0.0          0.23
34.47
       0.40    80.11    .229E+03       0.1          0.30
26.30
       0.53    80.24    .408E+03       0.3          0.36
21.71
       0.66    80.37    .637E+03       0.6          0.42
18.71
       0.79    80.51    .934E+03       0.9          0.46
16.84
       0.93    80.64    .245E+04       1.6          0.31
24.96
       1.06    80.77    .873E+04       4.6          0.25
31.51
       1.19    80.90    .179E+05      11.4          0.30
26.08
       1.32    81.04    .278E+05      22.6          0.38
20.45
       1.46    81.17    .381E+05      37.5          0.46
16.91
       1.60    81.31    .484E+05      55.4          0.54
14.57
       1.74    81.45    .588E+05      76.0          0.61
12.90
       1.87    81.59    .693E+05      99.3          0.67
11.63
       2.01    81.72    .798E+05     125.0          0.73
10.64
       2.15    81.86    .903E+05     153.1          0.80
9.83
       2.29    82.00    .101E+06     183.5          0.85
9.16
       2.42    82.14    .112E+06     214.3          0.90
8.68
       2.56    82.27    .123E+06     244.4          0.93
8.40

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0117)    4.70     0.36    3.00  36.39
0.55      0.37
     OUTFLOW: ID= 1 (0512)    4.70     0.22    3.33  36.38
0.46      0.32


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| ADD HYD   (0119) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0118):      3.90   0.706     3.00    50.77
        + ID2= 2 (0512):      4.70   0.220     3.33    36.38
          ===============================================
          ID = 3 (0119):      8.60   0.870     3.00    42.91

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5061) |   Area    (ha)=   3.90   Curve Number
(CN)= 71.0
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|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.239

     PEAK FLOW       (cms)=   0.183 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  30.544
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.374

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5062) |   Area    (ha)=   7.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.07         2.73
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     228.04        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        99.84
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.80 (ii)   12.50 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.43         0.45
1.801 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        37.42
57.66
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.46
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0109) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5061):     3.90   0.183     3.58    30.54
        + ID2= 2 (5062):     7.80   1.801     3.00    57.66
          ===============================================
          ID = 3 (0109):    11.70   1.866     3.00    48.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5051) |   Area    (ha)=   1.30   Curve Number
(CN)= 68.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.080

     PEAK FLOW       (cms)=   0.056 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  28.047
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.344

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5052) |   Area    (ha)=  14.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.64         4.96
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     311.98        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        93.86
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.59 (ii)   13.50 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.68         0.73
3.288 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        34.92
56.89
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.43
0.70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0107) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5051):     1.30   0.056     3.58    28.05
        + ID2= 2 (5052):    14.60   3.288     3.00    56.89
          ===============================================
          ID = 3 (0107):    15.90   3.307     3.00    54.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5211) |   Area    (ha)=   1.90   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   0.076

     PEAK FLOW       (cms)=   0.078 (i)
     TIME TO PEAK    (hrs)=   4.000
```

```
     RUNOFF VOLUME    (mm)=  36.240
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.444

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5212) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  52.00   Dir. Conn.(%)=
40.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.18         6.62
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     303.32        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30       103.56
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.51 (ii)   13.08 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.88         1.11
2.816 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        41.61
55.21
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.51
0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0112) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5211):     1.90   0.078     4.00    36.24
        + ID2= 2 (5212):    13.80   2.816     3.00    55.21
          ===============================================
          ID = 3 (0112):    15.70   2.832     3.00    52.91

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5201) |   Area    (ha)=  22.80   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.31

     Unit Hyd Qpeak  (cms)=   0.663

     PEAK FLOW       (cms)=   0.628 (i)
     TIME TO PEAK    (hrs)=   4.417
     RUNOFF VOLUME    (mm)=  31.425
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.385

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5202) |   Area    (ha)=   6.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  23.00   Dir. Conn.(%)=
12.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.59         5.31
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     214.48        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        79.10
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.67 (ii)   13.21 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.29         0.66
0.837 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        34.56
39.48
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.42
0.48

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0111) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5201):    22.80   0.628     4.42    31.42
        + ID2= 2 (5202):     6.90   0.837     3.00    39.48
          ===============================================
          ID = 3 (0111):    29.70   0.912     3.00    33.30

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0521) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 815.4) ------>
                 Distance     Elevation       Manning
                   415.18         83.86        0.0900
                   461.15         83.40        0.0900
                   501.83         83.53    0.0900 /0.0700  Main
Channel
                   513.93         82.96        0.0700      Main
Channel
                   526.85         83.23    0.0700 /0.0900  Main
Channel
                   569.63         83.21        0.0900
                   610.76         83.63        0.0900
                   663.54         83.88        0.0900
```

```
     <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)      (cu.m.)     (cms)        (m/s)
(min)
      0.05    83.00    .378E+02       0.0         0.11
83.81
      0.09    83.05    .151E+03       0.0         0.17
52.79
      0.14    83.09    .340E+03       0.1         0.22
40.29
      0.18    83.14    .605E+03       0.3         0.27
33.26
      0.23    83.18    .946E+03       0.5         0.32
28.66
      0.27    83.23    .151E+04       0.9         0.33
27.77
      0.32    83.27    .323E+04       1.8         0.31
29.51
      0.37    83.32    .510E+04       3.2         0.34
26.44
      0.42    83.37    .713E+04       5.0         0.38
23.61
      0.46    83.42    .934E+04       7.3         0.42
21.44
      0.51    83.47    .121E+05      10.0         0.45
20.23
      0.56    83.52    .156E+05      13.4         0.47
19.44
      0.61    83.57    .196E+05      17.7         0.49
18.52
      0.66    83.61    .240E+05      22.8         0.52
17.49
      0.71    83.66    .286E+05      28.4         0.54
16.75
      0.75    83.71    .336E+05      34.7         0.56
16.14
      0.80    83.76    .390E+05      41.8         0.58
15.55
      0.85    83.81    .448E+05      49.8         0.60
14.99
      0.90    83.86    .510E+05      58.8         0.63
14.46

                                  <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
    INFLOW : ID= 2 (0111)   29.70     0.91    3.00  33.30
0.27    0.33
    OUTFLOW: ID= 1 (0521)   29.70     0.71    4.58  33.28
0.25    0.32

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--------------------
| ADD HYD   (0113) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0112):    15.70   2.832     3.00    52.91
        + ID2= 2 (0521):    29.70   0.709     4.58    33.28
          ===============================================
          ID = 3 (0113):    45.40   3.127     3.00    40.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------
--------------------
| CALIB            |
| NASHYD    (5041) |   Area    (ha)=   0.30   Curve Number
(CN)= 68.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.89

     Unit Hyd Qpeak  (cms)=   0.013

     PEAK FLOW       (cms)=   0.010 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=  28.042
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.344

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5042) |   Area    (ha)=   7.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.88         2.52
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     222.11        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        93.86
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.74 (ii)   12.66 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.38         0.38
1.699 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        34.92
56.89
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.43
0.70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0105) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5041):     0.30   0.010     3.92    28.04
        + ID2= 2 (5042):     7.40   1.699     3.00    56.89
          ===============================================
          ID = 3 (0105):     7.70   1.702     3.00    55.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5031) |   Area    (ha)=   1.70   Curve Number
(CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.82

     Unit Hyd Qpeak  (cms)=   0.079
```

```
     PEAK FLOW       (cms)=   0.065 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  30.543
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.374

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (5032) |   Area    (ha)=  12.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  59.00   Dir. Conn.(%)=
47.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.20         5.00
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     285.19        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        94.01
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.35 (ii)   13.26 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.96         0.75
2.582 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        36.53
54.89
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.45
0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0103) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5031):     1.70   0.065     3.83    30.54
        + ID2= 2 (5032):    12.20   2.582     3.00    54.89
          ================================================
          ID = 3 (0103):    13.90   2.598     3.00    51.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB              |
| NASHYD    (5021) |   Area    (ha)=  25.20   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.46

     Unit Hyd Qpeak  (cms)=   0.662

     PEAK FLOW       (cms)=   0.477 (i)
     TIME TO PEAK    (hrs)=   4.667
     RUNOFF VOLUME    (mm)=  23.626
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.290

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (5022) |   Area    (ha)=  25.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  42.00   Dir. Conn.(%)=
30.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.88        15.02
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     415.53        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        55.66
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.45 (ii)   16.44 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.20         0.06

*TOTALS*
     PEAK FLOW       (cms)=       2.59         1.35
3.503 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      75.60        27.56
41.97
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.34
0.51


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0101) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5021):    25.20   0.477     4.67    23.63
        + ID2= 2 (5022):    25.90   3.503     3.00    41.97
          ================================================
          ID = 3 (0101):    51.10   3.548     3.00    32.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB              |
| NASHYD    (5011) |   Area    (ha)=  80.20   Curve Number
(CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.85

     Unit Hyd Qpeak  (cms)=   3.621

     PEAK FLOW       (cms)=   2.505 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  25.750
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.316

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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--------------------
| CALIB              |
| STANDHYD  (5012) |   Area    (ha)=  39.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.97        24.43
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     512.51        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        73.75
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       6.18 (ii)   16.00 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.19         0.07

*TOTALS*
     PEAK FLOW       (cms)=       3.09         2.48
4.800 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      75.60        30.20
41.09
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.37
0.50


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  65.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0100) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5011):    80.20   2.505     3.83    25.75
        + ID2= 2 (5012):    39.40   4.800     3.00    41.09
          ================================================
          ID = 3 (0100):   119.60   5.365     3.00    30.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0502) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1537.5) ------>
               Distance      Elevation       Manning
                   0.00          89.30        0.1100
                   4.20          89.28        0.1100
                   9.03          88.80        0.1100
                  21.55          88.78        0.1100
                  29.06          88.24        0.1100
                  39.87          87.83        0.1100
                  55.54          87.84    0.1100 /0.0700  Main
Channel
                  57.54          86.84        0.0700      Main
Channel
                  59.04          86.84        0.0700      Main
Channel
                  61.04          87.84    0.0700 /0.1100  Main
Channel
                  74.10          87.86        0.1100
                  87.72          88.07        0.1100
                 101.34          88.18        0.1100
                 113.53          88.23        0.1100
                 128.57          88.32        0.1100
                 142.19          88.61        0.1100
                 155.81          88.53        0.1100
                 183.05          88.85        0.1100
                 187.19          88.84        0.1100
                 211.21          88.88        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.10    86.94    .202E+03       0.0          0.25
78.80
       0.20    87.04    .452E+03       0.1          0.37
52.91
       0.30    87.14    .749E+03       0.3          0.47
42.34
       0.40    87.24    .109E+04       0.5          0.55
36.26
       0.50    87.34    .149E+04       0.8          0.62
32.18
       0.60    87.44    .193E+04       1.1          0.68
29.19
       0.70    87.54    .241E+04       1.5          0.74
26.87
       0.80    87.64    .295E+04       2.0          0.79
25.01
       0.90    87.74    .353E+04       2.5          0.84
23.46
       1.00    87.84    .421E+04       3.1          0.89
22.39
       1.10    87.94    .849E+04       4.5          0.63
31.56
       1.21    88.05    .150E+05       7.1          0.56
35.43
       1.33    88.17    .233E+05      10.6          0.54
36.49
       1.44    88.28    .346E+05      15.5          0.53
37.18
       1.56    88.40    .484E+05      22.8          0.56
35.35
       1.67    88.51    .634E+05      32.1          0.60
32.90
       1.79    88.63    .807E+05      41.2          0.61
32.65
       1.90    88.74    .101E+06      54.6          0.64
30.77
       2.02    88.86    .124E+06      64.7          0.62
31.85

                                      <---- hydrograph ---->   <-
pipe / channel->
                                AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)     (cms)   (hrs)   (mm)
(m)       (m/s)
     INFLOW : ID= 2 (0100)  119.60      5.36     3.00  30.80
1.14       0.60
     OUTFLOW: ID= 1 (0502)  119.60      3.82     3.83  30.80
1.05       0.73


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--------------------
| ADD HYD   (0102) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0101):    51.10   3.548     3.00    32.92
        + ID2= 2 (0502):   119.60   3.820     3.83    30.80
          ================================================
          ID = 3 (0102):   170.70   5.539     3.00    31.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ROUTE CHN (0503) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1157.9) ------>
               Distance      Elevation       Manning
                   0.00          86.78        0.0900
                  25.34          87.17        0.0900
                  68.44          87.04        0.0900
                 117.13          86.81        0.0900
                 125.36          85.21    0.0900 /0.0700  Main
Channel
                 127.36          84.21        0.0700      Main
Channel
                 128.86          84.21        0.0700      Main
Channel
                 130.86          85.21    0.0700 /0.0900  Main
Channel
                 131.88          86.36        0.0900
                 140.63          86.77        0.0900
                 168.26          86.90        0.0900
                 169.81          87.10        0.0900
                 202.11          87.50        0.0900
                 239.06          87.35        0.0900
                 270.29          87.83        0.0900
                 283.90          87.90        0.0900
                 297.51          87.86        0.0900
                 324.73          87.89        0.0900
                 351.95          87.78        0.0900
                 388.59          87.46        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.17    84.38    .114E+03       0.1          0.34
18.34
       0.33    84.54    .269E+03       0.4          0.50
12.51
       0.50    84.71    .465E+03       0.8          0.62
10.07
       0.67    84.88    .703E+03       1.4          0.72
8.63
       0.83    85.04    .982E+03       2.1          0.81
7.65
       1.00    85.21    .130E+04       3.1          0.89
6.93
       1.21    85.42    .177E+04       5.0          1.06
5.87
       1.41    85.62    .234E+04       7.4          1.17
5.28
       1.62    85.83    .300E+04      10.2          1.27
4.89
       1.83    86.04    .376E+04      13.6          1.35
4.60
       2.03    86.24    .462E+04      17.6          1.42
4.37
       2.24    86.45    .560E+04      22.1          1.47
4.22
       2.45    86.66    .695E+04      27.6          1.48
4.20
       2.66    86.87    .925E+04      31.2          1.25
4.94
       2.86    87.07    .168E+05      43.1          0.96
6.48
       3.07    87.28    .297E+05      67.7          0.85
7.30
       3.28    87.49    .456E+05     103.1          0.84
7.38
       3.48    87.69    .663E+05     159.6          0.89
6.93
       3.69    87.90    .907E+05     223.4          0.92
6.77

                                      <---- hydrograph ---->   <-
pipe / channel->
                                AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)     (cms)   (hrs)   (mm)
(m)       (m/s)
     INFLOW : ID= 2 (0102)  170.70      5.54     3.00  31.44
1.25       1.08
     OUTFLOW: ID= 1 (0503)  170.70      5.15     3.33  31.44
1.22       1.06


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--------------------
| ADD HYD   (0104) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0103):    13.90   2.598     3.00    51.92
        + ID2= 2 (0503):   170.70   5.155     3.33    31.44
          ================================================
          ID = 3 (0104):   184.60   7.120     3.00    32.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0504) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 815.4) ------>
               Distance      Elevation       Manning
                  19.10          82.03        0.0900
                  29.01          83.14        0.0900
                  40.83          82.56        0.0900
                  81.51          82.27        0.0900
                 122.18          82.68        0.0900
                 169.31          82.61        0.0900
                 217.10          82.90        0.0900
                 229.61          83.66    0.0900 /0.0700  Main
Channel
                 232.80          81.85        0.0700      Main
Channel
                 243.24          83.87        0.0700      Main
Channel
                 257.77          84.06        0.0900
                 312.01          83.52        0.0900
                 415.18          83.86        0.0900
                 461.15          83.40        0.0900
                 501.83          83.53        0.0900
                 513.93          82.96        0.0900
                 526.85          83.23        0.0900
                 569.63          83.21        0.0900
                 610.76          83.63        0.0900
                 663.54          83.88        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.11    81.96    .117E+02       0.0          0.18
23.95
       0.23    82.08    .492E+02       0.1          0.28
15.67
       0.34    82.19    .135E+03       0.2          0.34
13.00
       0.45    82.30    .312E+03       0.4          0.32
13.44
       0.57    82.42    .116E+04       1.2          0.28
15.74
       0.68    82.53    .287E+04       3.5          0.32
13.85
       0.79    82.64    .549E+04       7.0          0.33
13.13
       0.91    82.76    .101E+05      14.9          0.39
11.28
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      1.02    82.87   .155E+05      27.5          0.47
9.38
      1.13    82.98   .214E+05      45.2          0.55
7.89
      1.25    83.10   .277E+05      67.2          0.64
6.87
      1.36    83.21   .344E+05      93.6          0.71
6.12
      1.47    83.32   .426E+05     125.3          0.77
5.67
      1.59    83.44   .516E+05     162.2          0.82
5.30
      1.70    83.55   .620E+05     204.2          0.86
5.06
      1.81    83.66   .747E+05     254.0          0.89
4.90
      1.95    83.80   .924E+05     324.9          0.92
4.74
      2.08    83.93   .113E+06     411.3          0.95
4.59
      2.21    84.06   .135E+06     515.5          1.00
4.37

                                    <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0104)  184.60     7.12    3.00  32.98
0.80     0.33
    OUTFLOW: ID= 1 (0504)  184.60     5.80    3.42  32.98
0.76     0.33


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-------------------
| ADD HYD   (0106) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0105):      7.70   1.702     3.00    55.76
      + ID2= 2 (0504):    184.60   5.799     3.42    32.98
        ===============================================
        ID = 3 (0106):    192.30   6.202     3.33    33.89

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0114) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0106):    192.30   6.202     3.33    33.89
      + ID2= 2 (0113):     45.40   3.127     3.00    40.07
        ===============================================
        ID = 3 (0114):    237.70   8.852     3.00    35.07

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0505) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 553.6) ------>
              Distance     Elevation      Manning
                 0.00        81.24        0.1100
                33.01        80.98        0.1100
                49.97        81.27        0.1100
                54.18        80.35        0.1100
                60.88        81.23        0.1100
                69.13        79.02        0.1100
                92.42        79.04        0.1100
                98.70        80.89        0.1100
               128.88        81.13        0.1100
               199.00        81.23        0.1100
               266.11        81.68        0.1100
               306.94        81.73        0.1100
               331.74        81.55    0.1100 /0.0700  Main
Channel
               336.74        80.15        0.0700      Main
Channel
               346.34        81.64    0.0700 /0.0900  Main
Channel
               394.77        81.68        0.0900
               431.64        81.44        0.0900
               477.44        82.08        0.0900
               481.25        82.81        0.0900
               501.51        83.16        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.12    79.13   .418E+03       0.4          0.15
18.59
      0.23    79.25   .899E+03       1.3          0.25
11.41
      0.35    79.36   .140E+04       2.7          0.33
8.70
      0.46    79.48   .191E+04       4.4          0.39
7.22
      0.58    79.59   .244E+04       6.5          0.46
6.26
      0.69    79.71   .299E+04       8.9          0.51
5.58
      0.81    79.82   .355E+04      11.7          0.56
5.08
      0.92    79.94   .413E+04      14.7          0.61
4.68
      1.04    80.05   .472E+04      18.1          0.65
4.36
      1.15    80.17   .533E+04      21.7          0.70
4.09
      1.27    80.28   .598E+04      25.7          0.74
3.88
      1.38    80.40   .666E+04      29.7          0.76
3.74
      1.50    80.51   .740E+04      33.7          0.78
3.67
      1.61    80.63   .822E+04      38.1          0.79
3.59
      1.73    80.74   .909E+04      43.1          0.81
3.52
      1.84    80.86   .100E+05      48.6          0.83
3.45
      1.96    80.97   .111E+05      48.4          0.74
3.83
      2.07    81.09   .128E+05      43.8          0.59
4.86
      2.19    81.21   .155E+05      40.6          0.45
6.35

                                    <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0114)  237.70     8.85    3.00  35.07
0.69     0.51
    OUTFLOW: ID= 1 (0505)  237.70     8.26    3.08  35.07
0.66     0.49


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| ADD HYD   (0108) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0107):     15.90   3.307     3.00    54.53
      + ID2= 2 (0505):    237.70   8.257     3.08    35.07
        ===============================================
        ID = 3 (0108):    253.60  10.593     3.00    36.29

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0506) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 304.1) ------>
              Distance     Elevation      Manning
                 0.00        81.42        0.0900
                 7.45        81.36        0.0900
                32.34        80.38        0.0900
                45.97        80.05        0.0900
                65.23        79.93        0.0900
                84.49        80.35        0.0900
               113.49        80.02        0.0900
               136.48        80.07        0.0900
               188.81        79.81        0.0900
               197.86        79.25    0.0900 /0.0700  Main
Channel
               200.70        78.22        0.0700      Main
Channel
               203.29        79.35    0.0700 /0.0900  Main
Channel
               204.01        79.67        0.0900
               236.47        80.40        0.0900
               277.80        80.48        0.0900
               305.35        80.37        0.0900
               346.67        80.41        0.0900
               387.99        80.33        0.0900
               415.54        80.53        0.0900
               447.88        80.49        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.11    78.34   .979E+01       0.0          0.23
21.53
      0.23    78.45   .392E+02       0.0          0.37
13.56
      0.34    78.56   .881E+02       0.1          0.48
10.35
      0.46    78.68   .157E+03       0.3          0.58
8.54
      0.57    78.79   .245E+03       0.6          0.67
7.36
      0.68    78.91   .352E+03       0.9          0.76
6.52
      0.80    79.02   .480E+03       1.4          0.84
5.88
      0.91    79.13   .627E+03       1.9          0.92
5.38
      1.03    79.25   .793E+03       2.7          0.99
4.98
      1.15    79.37   .103E+04       3.8          1.09
4.55
      1.28    79.50   .135E+04       5.2          1.16
4.28
      1.40    79.62   .175E+04       7.1          1.20
4.12
      1.52    79.75   .228E+04       9.3          1.21
4.08
      1.65    79.87   .318E+04      11.7          1.10
4.52
      1.77    80.00   .524E+04      15.8          0.90
5.52
      1.90    80.12   .973E+04      24.3          0.74
6.69
      2.02    80.24   .158E+05      39.7          0.75
6.62
      2.15    80.37   .230E+05      59.2          0.77
6.46
      2.27    80.49   .349E+05      90.3          0.77
6.44

                                    <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0108)  253.60    10.59    3.00  36.29
1.59     1.15
    OUTFLOW: ID= 1 (0506)  253.60     9.88    3.08  36.29
1.56     1.18


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| ADD HYD   (0110) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0109):     11.70   1.866     3.00    48.62
      + ID2= 2 (0506):    253.60   9.885     3.08    36.29
        ===============================================
        ID = 3 (0110):    265.30  10.960     3.08    36.83

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0120) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0110):    265.30  10.960     3.08    36.83
      + ID2= 2 (0119):      8.60   0.870     3.00    42.91
        ===============================================
        ID = 3 (0120):    273.90  11.531     3.08    37.02

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5302) |   Area    (ha)=   5.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=
48.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.48          2.32
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     196.64         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     127.30         83.58
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       3.48 (ii)    12.82 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.26          0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.97          0.31
1.223 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60         32.32
53.09
     TOTAL RAINFALL   (mm)=      81.60         81.60
81.60
     RUNOFF COEFFICIENT   =       0.93          0.40
0.65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| NASHYD    (6051) |   Area    (ha)=   0.40   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.31

     Unit Hyd Qpeak  (cms)=   0.012

     PEAK FLOW      (cms)=   0.009 (i)
     TIME TO PEAK   (hrs)=   4.417
     RUNOFF VOLUME   (mm)=  26.488
     TOTAL RAINFALL  (mm)=  81.600
     RUNOFF COEFFICIENT  =   0.325

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6052) |   Area    (ha)=  15.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.23          5.27
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     321.46         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     127.30         89.28
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       4.67 (ii)    13.77 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.22          0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.84          0.73
3.443 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60         33.23
56.11
     TOTAL RAINFALL   (mm)=      81.60         81.60
81.60
     RUNOFF COEFFICIENT   =       0.93          0.41
0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0131) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (6051):      0.40   0.009     4.42    26.49
      + ID2= 2 (6052):     15.50   3.443     3.00    56.11
        ===============================================
        ID = 3 (0131):     15.90   3.445     3.00    55.36

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (6111) |   Area    (ha)=   0.60   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.08

     Unit Hyd Qpeak  (cms)=   0.021

     PEAK FLOW      (cms)=   0.022 (i)
     TIME TO PEAK   (hrs)=   4.083
     RUNOFF VOLUME   (mm)=  36.237
     TOTAL RAINFALL  (mm)=  81.600
     RUNOFF COEFFICIENT  =   0.444

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6112) |   Area    (ha)=  10.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  62.00   Dir. Conn.(%)=
50.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.70          4.10
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     268.33         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     127.30        106.59
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       4.19 (ii)    12.66 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.24          0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.85          0.72
2.456 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60         40.78
58.19
     TOTAL RAINFALL   (mm)=      81.60         81.60
81.60
     RUNOFF COEFFICIENT   =       0.93          0.50
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0137) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (6111):      0.60   0.022     4.08    36.24
      + ID2= 2 (6112):     10.80   2.456     3.00    58.19
        ===============================================
        ID = 3 (0137):     11.40   2.460     3.00    57.03

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| CALIB             |
| NASHYD    (6101) |   Area    (ha)=   9.00   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------  U.H. Tp(hrs)=   1.23

     Unit Hyd Qpeak  (cms)=   0.279

     PEAK FLOW       (cms)=   0.246 (i)
     TIME TO PEAK    (hrs)=   4.333
     RUNOFF VOLUME    (mm)=  29.689
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.364

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6102) |   Area    (ha)=  12.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  27.00   Dir. Conn.(%)=
16.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.27         8.83
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     284.02        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        75.81
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.34 (ii)   14.05 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.66         1.03
1.506 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        32.92
39.75
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.40
0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN* =  70.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0136) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6101):     9.00   0.246     4.33    29.69
        + ID2= 2 (6102):    12.10   1.506     3.00    39.75
          ================================================
          ID = 3 (0136):    21.10   1.538     3.00    35.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0611) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 940.0) ------>
               Distance      Elevation       Manning
                  0.00          83.36        0.0900
                 12.33          84.54        0.0900
                 21.95          84.33    0.0900 /0.0700  Main
Channel
                 25.80          83.10        0.0700      Main
Channel
                 39.87          83.58    0.0700 /0.0900  Main
Channel
                 95.01          83.67        0.0900
                132.30          84.45        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    83.17    .442E+02       0.0          0.13
76.06
       0.14    83.24    .177E+03       0.1          0.20
47.91
       0.21    83.31    .398E+03       0.2          0.26
36.56
       0.28    83.38    .709E+03       0.4          0.32
30.22
       0.35    83.44    .113E+04       0.7          0.36
26.38
       0.41    83.51    .167E+04       1.2          0.41
23.66
       0.48    83.58    .232E+04       1.8          0.45
21.54
       0.56    83.66    .431E+04       3.1          0.42
23.06
       0.64    83.74    .779E+04       5.6          0.42
23.11
       0.72    83.82    .115E+05       9.1          0.46
20.97
       0.80    83.90    .154E+05      13.6          0.51
18.96
       0.88    83.98    .196E+05      18.9          0.55
17.31
       0.96    84.06    .240E+05      25.0          0.60
15.97
       1.04    84.14    .286E+05      32.1          0.65
14.88
       1.12    84.22    .334E+05      39.9          0.69
13.96
       1.20    84.30    .385E+05      48.6          0.73
13.19
       1.28    84.38    .438E+05      58.0          0.76
12.59
       1.36    84.46    .495E+05      68.4          0.80
12.06
       1.44    84.54    .555E+05      81.0          0.84
11.40

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0136)   21.10     1.54    3.00  35.46
0.45     0.43
     OUTFLOW: ID= 1 (0611)   21.10     0.92    3.25  35.45
0.38     0.38

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-------------------
| ADD HYD   (0138) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0137):    11.40   2.460     3.00    57.03
        + ID2= 2 (0611):    21.10   0.925     3.25    35.45
          ================================================
          ID = 3 (0138):    32.50   3.074     3.00    43.02

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6041) |   Area    (ha)=   1.70   Curve Number
(CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------  U.H. Tp(hrs)=   4.12

     Unit Hyd Qpeak  (cms)=   0.016

     PEAK FLOW       (cms)=   0.023 (i)
     TIME TO PEAK    (hrs)=   7.500
     RUNOFF VOLUME    (mm)=  38.381
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.470

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6042) |   Area    (ha)=  22.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.49         7.81
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     385.57        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30       120.63
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       5.21 (ii)   13.27 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.21         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.96         1.54
5.266 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        45.44
61.42
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.56
0.75


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN* =  79.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0129) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6041):     1.70   0.023     7.50    38.38
        + ID2= 2 (6042):    22.30   5.266     3.00    61.42
          ================================================
          ID = 3 (0129):    24.00   5.267     3.00    59.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6031) |   Area    (ha)=  19.00   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------  U.H. Tp(hrs)=   1.32

     Unit Hyd Qpeak  (cms)=   0.550

     PEAK FLOW       (cms)=   0.522 (i)
     TIME TO PEAK    (hrs)=   4.417
     RUNOFF VOLUME    (mm)=  31.425
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.385

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6032) |   Area    (ha)=  15.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
15.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.40        11.30
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     323.52        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        83.39
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.69 (ii)   14.04 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.80         1.45
2.002 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        35.32
41.36
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.43
0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN* =  72.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0127) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6031):    19.00   0.522     4.42    31.42
        + ID2= 2 (6032):    15.70   2.002     3.00    41.36
          ================================================
          ID = 3 (0127):    34.70   2.064     3.00    35.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6011) |   Area    (ha)=  44.10   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------  U.H. Tp(hrs)=   0.83

     Unit Hyd Qpeak  (cms)=   2.027

     PEAK FLOW       (cms)=   1.276 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  23.626
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.290

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6012) |   Area    (ha)=  11.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
16.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.08         7.92
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     270.80        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        52.38
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.22 (ii)   15.47 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.24         0.07

*TOTALS*
     PEAK FLOW       (cms)=       0.60         0.69
1.070 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      75.60        26.83
34.64
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.33
0.42

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN* =  62.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0124) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6011):    44.10   1.276     3.83    23.63
        + ID2= 2 (6012):    11.00   1.070     3.00    34.64
          ================================================
          ID = 3 (0124):    55.10   1.597     3.50    25.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6021) |   Area    (ha)=  43.60   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------  U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   1.753

     PEAK FLOW       (cms)=   1.141 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  23.626
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.290

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (6022) |   Area    (ha)=  12.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
23.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.51         8.39
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     293.26        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        53.84
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.42 (ii)   15.55 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.23         0.07

*TOTALS*
     PEAK FLOW       (cms)=       1.01         0.74
1.520 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      75.60        27.16
38.30
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.33
0.47

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN* =  62.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0125) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6021):    43.60   1.141     4.00    23.63
        + ID2= 2 (6022):    12.90   1.520     3.00    38.30
          ================================================
          ID = 3 (0125):    56.50   1.733     3.00    26.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0126) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0124):     55.10   1.597     3.50    25.82
        + ID2= 2 (0125):     56.50   1.733     3.00    26.98
          ===============================================
          ID = 3 (0126):    111.60   3.093     3.00    26.41

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0603) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (2135.9) ------>
               Distance      Elevation       Manning
                   0.00          92.58        0.1400
                   8.54          92.59        0.1400
                  22.11          92.47        0.1400
                  48.74          91.83        0.1400
                  67.59          91.58        0.1400
                  86.45          91.21        0.1400
                 103.50          90.80        0.1400
                 118.09          90.23        0.1400
                 127.84          90.09    0.1400 /0.0700  Main
Channel
                 129.84          89.59        0.0700      Main
Channel
                 130.34          90.09    0.0700 /0.1400  Main
Channel
                 140.57          90.14        0.1400
                 161.87          90.11        0.1400
                 177.03          90.04        0.1400
                 188.67          89.87        0.1400
                 199.59          90.31        0.1400
                 212.02          90.96        0.1400
                 225.58          91.35        0.1400
                 252.71          91.66        0.1400
                 274.11          91.86        0.1400

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12    89.71    .358E+02       0.0          0.19
81.29
       0.25    89.84    .143E+03       0.0          0.30
51.21
       0.37    89.96    .689E+03       0.2          0.23
67.44
       0.50    90.09    .278E+04       0.6          0.20
77.83
       0.67    90.26    .132E+05       3.4          0.23
65.31
       0.83    90.42    .262E+05       9.3          0.33
46.76
       1.00    90.59    .403E+05      17.9          0.41
37.64
       1.17    90.76    .556E+05      28.8          0.48
32.17
       1.33    90.92    .721E+05      42.0          0.53
28.63
       1.50    91.09    .903E+05      57.1          0.58
26.37
       1.67    91.26    .110E+06      74.7          0.62
24.65
       1.83    91.42    .133E+06      93.4          0.64
23.71
       2.00    91.59    .159E+06     113.6          0.66
23.26
       2.17    91.76    .188E+06     136.6          0.67
22.96
       2.33    91.92    .222E+06     168.5          0.70
21.97
       2.50    92.09    .258E+06     211.3          0.75
20.33
       2.67    92.26    .294E+06     258.5          0.81
18.98
       2.83    92.42    .332E+06     310.1          0.86
17.85
       3.00    92.59    .371E+06     358.0          0.88
17.29

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0126)  111.60     3.09    3.00  26.41
0.65      0.23
     OUTFLOW: ID= 1 (0603)  111.60     2.16    4.58  26.40
0.59      0.22


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--------------------
| ADD HYD   (0128) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0127):     34.70   2.064     3.00    35.92
        + ID2= 2 (0603):    111.60   2.157     4.58    26.40
          ===============================================
          ID = 3 (0128):    146.30   2.904     4.50    28.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0604) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1414.9) ------>
               Distance      Elevation       Manning
                   0.00          86.75        0.0900
                   3.09          87.40        0.0900
                  18.33          87.41        0.0900
                  35.33          86.99        0.0900
                  73.84          86.75        0.0900
                 103.33          86.41        0.0900
                 120.33          86.11        0.0900
                 129.46          86.13        0.0900
                 143.37          85.32        0.0900
                 154.33          85.02        0.0900
                 161.57          85.09        0.0900
                 163.05          84.78    0.0900 /0.0700  Main
Channel
                 166.55          83.78        0.0700      Main
Channel
                 168.05          84.78    0.0700 /0.1100  Main
Channel
                 172.02          85.29        0.1100
                 191.39          86.19        0.1100
                 270.18          85.78        0.1100
                 296.33          86.36        0.1100
                 324.34          86.68        0.1100
                 368.56          87.05        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.17    83.95    .465E+02       0.0          0.03
432.88
       0.33    84.11    .186E+03       0.0          0.04
272.70
       0.50    84.28    .418E+03       0.0          0.05
208.11
       0.67    84.45    .743E+03       0.1          0.06
171.79
       0.83    84.61    .116E+04       0.1          0.08
148.04
       1.00    84.78    .167E+04       0.2          0.09
131.10
       1.20    84.98    .252E+04       0.4          0.10
110.62
       1.41    85.19    .469E+04       0.6          0.09
121.59
       1.61    85.39    .842E+04       1.1          0.09
126.63
       1.81    85.59    .133E+05       1.8          0.09
121.99
       2.01    85.79    .192E+05       2.7          0.10
116.68
       2.22    86.00    .298E+05       4.0          0.09
125.45
       2.42    86.20    .487E+05       5.6          0.08
143.80
       2.62    86.40    .736E+05       9.0          0.08
137.02
       2.82    86.60    .102E+06      13.1          0.09
130.82
       3.03    86.81    .136E+06      18.1          0.09
125.42
       3.23    87.01    .178E+06      24.4          0.09
121.07
       3.43    87.21    .224E+06      34.2          0.10
108.80
       3.63    87.41    .271E+06      44.8          0.11
100.89

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0128)  146.30     2.90    4.50  28.66
2.04      0.09
     OUTFLOW: ID= 1 (0604)  146.30     2.16    4.83  28.65
1.89      0.09

     **** WARNING:  COMPUTATIONS FAILED TO CONVERGE.

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| ADD HYD   (0130) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0129):     24.00   5.267     3.00    59.79
        + ID2= 2 (0604):    146.30   2.158     4.83    28.65
          ===============================================
          ID = 3 (0130):    170.30   6.007     3.00    33.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0605) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 801.4) ------>
               Distance      Elevation       Manning
                   0.00          82.95        0.1100
                   3.78          82.95        0.1100
                   9.24          82.49        0.1100
                  50.67          82.10        0.1100
                 105.12          82.17        0.1100
                 119.34          81.56        0.1100
                 150.67          81.66        0.1100
                 157.23          82.37        0.1100
                 190.03          82.57        0.1100
                 223.75          82.27        0.1100
                 252.32          82.50        0.1100
                 254.65          81.95    0.1100 /0.0700  Main
Channel
                 258.15          80.95        0.0700      Main
Channel
                 259.65          81.95    0.0700 /0.1100  Main
Channel
                 263.15          82.90        0.1100
                 278.14          82.80        0.1100
                 282.35          81.68        0.1100
                 285.02          82.19        0.1100
                 336.56          82.53        0.1100
                 404.40          82.68        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.08    81.03    .125E+02       0.0          0.11
104.30
       0.17    81.12    .499E+02       0.0          0.18
65.70
       0.25    81.20    .112E+03       0.0          0.24
50.14
       0.33    81.28    .199E+03       0.1          0.29
41.39
       0.42    81.37    .312E+03       0.1          0.34
35.67
       0.50    81.45    .449E+03       0.2          0.38
31.59
       0.58    81.53    .611E+03       0.4          0.42
28.50
       0.67    81.62    .117E+04       0.5          0.33
36.10
       0.75    81.70    .316E+04       1.1          0.24
49.12
       0.83    81.78    .560E+04       2.1          0.27
45.15
       0.92    81.87    .827E+04       3.4          0.30
40.03
       1.00    81.95    .112E+05       5.2          0.33
35.88
       1.10    82.05    .151E+05       8.0          0.38
31.68
       1.21    82.16    .207E+05       8.8          0.30
39.37
       1.31    82.26    .306E+05      14.0          0.33
36.36
       1.41    82.36    .433E+05      20.3          0.34
35.59
       1.52    82.47    .606E+05      28.4          0.34
35.57
       1.62    82.57    .828E+05      41.0          0.36
33.68
       1.73    82.68    .109E+06      60.1          0.39
30.35

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0130)  170.30     6.01    3.00  33.04
1.03      0.35
     OUTFLOW: ID= 1 (0605)  170.30     2.47    3.50  33.04
0.86      0.27


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--------------------
| ADD HYD   (0139) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0138):     32.50   3.074     3.00    43.02
        + ID2= 2 (0605):    170.30   2.473     3.50    33.04
          ===============================================
          ID = 3 (0139):    202.80   4.940     3.00    34.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0132) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0131):     15.90   3.445     3.00    55.36
        + ID2= 2 (0139):    202.80   4.940     3.00    34.64
          ===============================================
          ID = 3 (0132):    218.70   8.384     3.00    36.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0530) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 350.0) ------>
               Distance      Elevation       Manning
                   0.00          81.70        0.1100
                   3.84          81.72        0.1100
                   5.87          80.72        0.1100
                   9.38          81.42        0.1100
                  49.64          81.07        0.1100
                  80.61          80.72        0.1100
                  85.61          81.14        0.1100
                  93.32          80.00        0.1100
                  95.04          80.45        0.1100
                 102.72          80.66        0.1100
                 110.13          78.93    0.1100 /0.0700  Main
Channel
                 118.05          78.63        0.0700      Main
Channel
                 124.40          78.89    0.0700 /0.1100  Main
Channel
                 132.18          79.61        0.1100
                 139.34          79.23        0.1100
                 144.67          79.43        0.1100
                 149.63          79.98        0.1100
                 153.42          79.79        0.1100
                 158.56          80.58        0.1100
                 176.89          81.15        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.13    78.76    .190E+03       0.1          0.19
38.41
       0.26    78.89    .758E+03       0.5          0.31
24.20
       0.43    79.05    .189E+04       2.1          0.50
14.77
       0.59    79.22    .321E+04       4.7          0.65
11.35
       0.76    79.39    .498E+04       8.2          0.73
10.10
       0.93    79.55    .743E+04      13.1          0.78
9.48
       1.09    79.72    .103E+05      19.5          0.84
8.84
       1.26    79.89    .135E+05      27.1          0.89
8.29
       1.43    80.05    .171E+05      36.3          0.94
7.85
       1.59    80.22    .209E+05      47.2          1.00
7.39
       1.76    80.39    .251E+05      59.8          1.06
6.99
       1.93    80.56    .296E+05      73.5          1.10
6.70
       2.10    80.72    .348E+05      87.6          1.12
6.61
       2.26    80.89    .412E+05     102.8          1.11
6.68
       2.43    81.06    .495E+05     122.0          1.09
6.77
       2.60    81.22    .596E+05     146.2          1.09
6.80
       2.76    81.39    .714E+05     176.9          1.10
6.72
       2.93    81.56    .841E+05     215.0          1.13
6.52
       3.10    81.72    .970E+05     256.7          1.18
6.30

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0132)  218.70     8.38    3.00  36.14
0.77      0.73
     OUTFLOW: ID= 1 (0530)  218.70     6.58    3.08  36.14
0.68      0.69


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--------------------
| ADD HYD   (0134) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0530):    218.70   6.578     3.08    36.14
        + ID2= 2 (5302):      5.80   1.223     3.00    53.09
          ===============================================
          ID = 3 (0134):    224.50   7.224     3.08    36.58

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0135) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0120):    273.90  11.531     3.08    37.02
        + ID2= 2 (0134):    224.50   7.224     3.08    36.58
          ===============================================
          ID = 3 (0135):    498.40  18.755     3.08    36.83

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0507) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (  40.0) ------>
               Distance      Elevation       Manning
                   0.00          79.36        0.0900
                   7.45          79.32        0.0900
                  13.77          79.27        0.0900
                  20.24          79.24        0.0900
                  27.28          79.26        0.0900
                  34.16          79.13        0.0900
                  40.79          79.05        0.0900
                  47.58          79.05        0.0900
                  54.30          79.07        0.0900
                  60.87          79.24        0.0900
                  71.39          79.48        0.0900
                  73.53          78.96        0.0900
                  76.96          78.07        0.0900
```

```
               82.21         77.08    0.0900 /0.0700  Main
Channel
               85.82         76.28        0.0700      Main
Channel
               89.97         76.89        0.0700      Main
Channel
               91.35         77.38    0.0700 /0.0900  Main
Channel
               95.27         78.68        0.0900
               98.44         79.63        0.0900
              102.89         79.89        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
     0.16    76.44    .113E+03       0.0          0.14
88.10
     0.32    76.60    .451E+03       0.1          0.23
55.50
     0.49    76.76    .101E+04       0.4          0.30
42.35
     0.65    76.92    .180E+04       0.9          0.37
34.57
     0.81    77.09    .276E+04       1.6          0.44
28.86
     0.97    77.25    .388E+04       2.7          0.52
24.37
     1.14    77.41    .516E+04       4.0          0.59
21.56
     1.30    77.57    .660E+04       5.7          0.66
19.26
     1.46    77.74    .822E+04       7.8          0.72
17.67
     1.62    77.90    .100E+05      10.1          0.77
16.48
     1.79    78.06    .120E+05      12.8          0.82
15.54
     1.95    78.22    .141E+05      15.9          0.87
14.74
     2.11    78.39    .163E+05      19.4          0.91
14.06
     2.27    78.55    .187E+05      23.2          0.95
13.47
     2.44    78.71    .212E+05      27.3          0.99
12.95
     2.60    78.87    .239E+05      31.9          1.02
12.50
     2.76    79.04    .267E+05      36.8          1.06
12.10
     2.92    79.20    .320E+05      39.4          0.94
13.56
     3.09    79.36    .409E+05      45.7          0.85
14.94

                                  <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (0135)  498.40    18.76    3.08  36.83
2.08      0.90
     OUTFLOW: ID= 1 (0507)  498.40    15.57    3.33  36.82
1.92      0.86


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-------------------
| ADD HYD   (0122) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0121):    48.90   6.761     3.00    47.11
       + ID2= 2 (0507):   498.40  15.574     3.33    36.82
         ==================================================
         ID = 3 (0122):   547.30  19.491     3.17    37.74

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB           |
| NASHYD    (5401) |   Area    (ha)=   3.40   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.99

     Unit Hyd Qpeak  (cms)=   0.131

     PEAK FLOW       (cms)=   0.097 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  26.495
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.325

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB           |
| STANDHYD  (5402) |   Area    (ha)=   6.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  33.00   Dir. Conn.(%)=
20.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.98          4.02
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     200.00         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     127.30         72.45
                over (min)       5.00         15.00
     Storage Coeff.  (min)=       3.52 (ii)    13.40 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.26          0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.42          0.45
0.789 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60         30.41
39.45
     TOTAL RAINFALL   (mm)=      81.60         81.60
81.60
     RUNOFF COEFFICIENT   =       0.93          0.37
0.48

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0123) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (5401):     3.40   0.097     4.08    26.49
       + ID2= 2 (5402):     6.00   0.789     3.00    39.45
         ==================================================
         ID = 3 (0123):     9.40   0.806     3.00    34.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| STORE HYD (1505) |    AREA      (ha)= 253.60
| ID= 1 DT= 5.0min |    QPEAK     (cms)=   0.78
-------------------     TPEAK     (hrs)=  15.58
                        VOLUME     (mm)=  47.57

  TIME    FLOW |  TIME     FLOW |  TIME     FLOW |'  TIME     FLOW |
TIME    FLOW
   hrs     cms |   hrs      cms |   hrs      cms |'   hrs      cms |
hrs     cms
  0.00    0.00 | 31.33     0.10 | 62.67     0.25 | 94.00     0.26
|125.33    0.16
  0.08    0.00 | 31.42     0.10 | 62.75     0.25 | 94.08     0.26
|125.42    0.16
  0.17    0.00 | 31.50     0.10 | 62.83     0.25 | 94.17     0.25
|125.50    0.16
  0.25    0.00 | 31.58     0.10 | 62.92     0.25 | 94.25     0.25
|125.58    0.16
  0.33    0.00 | 31.67     0.10 | 63.00     0.25 | 94.33     0.25
|125.67    0.17
  0.42    0.00 | 31.75     0.10 | 63.08     0.25 | 94.42     0.25
|125.75    0.16
  0.50    0.00 | 31.83     0.10 | 63.17     0.25 | 94.50     0.25
|125.83    0.16
  0.58    0.00 | 31.92     0.10 | 63.25     0.24 | 94.58     0.25
|125.92    0.17
  0.67    0.00 | 32.00     0.10 | 63.33     0.24 | 94.67     0.24
|126.00    0.15
  0.75    0.00 | 32.08     0.10 | 63.42     0.24 | 94.75     0.25
|126.08    0.16
  0.83    0.00 | 32.17     0.10 | 63.50     0.23 | 94.83     0.24
|126.17    0.16
  0.92    0.00 | 32.25     0.10 | 63.58     0.24 | 94.92     0.25
|126.25    0.16
  1.00    0.00 | 32.33     0.10 | 63.67     0.24 | 95.00     0.25
|126.33    0.16
  1.08    0.00 | 32.42     0.10 | 63.75     0.24 | 95.08     0.25
|126.42    0.16
  1.17    0.00 | 32.50     0.10 | 63.83     0.23 | 95.17     0.24
|126.50    0.17
  1.25    0.00 | 32.58     0.10 | 63.92     0.23 | 95.25     0.21
|126.58    0.16
  1.33    0.00 | 32.67     0.10 | 64.00     0.23 | 95.33     0.25
|126.67    0.16
  1.42    0.00 | 32.75     0.10 | 64.08     0.23 | 95.42     0.22
|126.75    0.17
  1.50    0.00 | 32.83     0.10 | 64.17     0.23 | 95.50     0.23
|126.83    0.17
  1.58    0.00 | 32.92     0.10 | 64.25     0.24 | 95.58     0.22
|126.92    0.17
  1.67    0.00 | 33.00     0.10 | 64.33     0.23 | 95.67     0.24
|127.00    0.17
  1.75    0.00 | 33.08     0.10 | 64.42     0.23 | 95.75     0.26
|127.08    0.17
  1.83    0.00 | 33.17     0.10 | 64.50     0.23 | 95.83     0.24
|127.17    0.18
  1.92    0.00 | 33.25     0.11 | 64.58     0.23 | 95.92     0.23
|127.25    0.17
  2.00    0.00 | 33.33     0.11 | 64.67     0.24 | 96.00     0.24
|127.33    0.18
  2.08    0.00 | 33.42     0.11 | 64.75     0.24 | 96.08     0.24
|127.42    0.18
  2.17    0.00 | 33.50     0.11 | 64.83     0.24 | 96.17     0.24
|127.50    0.16
  2.25    0.00 | 33.58     0.11 | 64.92     0.24 | 96.25     0.24
|127.58    0.18
  2.33    0.00 | 33.67     0.11 | 65.00     0.24 | 96.33     0.24
|127.67    0.17
  2.42    0.00 | 33.75     0.11 | 65.08     0.23 | 96.42     0.24
|127.75    0.18
  2.50    0.00 | 33.83     0.11 | 65.17     0.23 | 96.50     0.24
|127.83    0.17
  2.58    0.00 | 33.92     0.11 | 65.25     0.23 | 96.58     0.23
|127.92    0.17
  2.67    0.00 | 34.00     0.11 | 65.33     0.23 | 96.67     0.24
|128.00    0.17
  2.75    0.00 | 34.08     0.11 | 65.42     0.22 | 96.75     0.23
|128.08    0.17
  2.83    0.00 | 34.17     0.11 | 65.50     0.22 | 96.83     0.23
|128.17    0.17
  2.92    0.00 | 34.25     0.11 | 65.58     0.22 | 96.92     0.24
|128.25    0.18
  3.00    0.00 | 34.33     0.11 | 65.67     0.22 | 97.00     0.23
|128.33    0.18
  3.08    0.00 | 34.42     0.11 | 65.75     0.22 | 97.08     0.22
|128.42    0.19
  3.17    0.00 | 34.50     0.11 | 65.83     0.22 | 97.17     0.23
|128.50    0.18
  3.25    0.00 | 34.58     0.11 | 65.92     0.21 | 97.25     0.22
|128.58    0.17
  3.33    0.00 | 34.67     0.11 | 66.00     0.21 | 97.33     0.25
|128.67    0.18
  3.42    0.00 | 34.75     0.11 | 66.08     0.21 | 97.42     0.22
|128.75    0.18
  3.50    0.00 | 34.83     0.11 | 66.17     0.20 | 97.50     0.24
|128.83    0.18
  3.58    0.00 | 34.92     0.11 | 66.25     0.20 | 97.58     0.23
|128.92    0.18
  3.67    0.00 | 35.00     0.11 | 66.33     0.20 | 97.67     0.22
|129.00    0.18
  3.75    0.00 | 35.08     0.11 | 66.42     0.20 | 97.75     0.23
|129.08    0.19
  3.83    0.00 | 35.17     0.11 | 66.50     0.19 | 97.83     0.22
|129.17    0.17
  3.92    0.00 | 35.25     0.11 | 66.58     0.20 | 97.92     0.21
|129.25    0.17
  4.00    0.00 | 35.33     0.11 | 66.67     0.20 | 98.00     0.22
|129.33    0.17
  4.08    0.00 | 35.42     0.11 | 66.75     0.20 | 98.08     0.23
|129.42    0.18
  4.17    0.00 | 35.50     0.11 | 66.83     0.19 | 98.17     0.21
|129.50    0.18
  4.25    0.00 | 35.58     0.11 | 66.92     0.19 | 98.25     0.21
|129.58    0.18
  4.33    0.00 | 35.67     0.11 | 67.00     0.20 | 98.33     0.23
|129.67    0.18
  4.42    0.00 | 35.75     0.11 | 67.08     0.20 | 98.42     0.21
|129.75    0.18
  4.50    0.00 | 35.83     0.11 | 67.17     0.20 | 98.50     0.21
|129.83    0.18
  4.58    0.00 | 35.92     0.11 | 67.25     0.20 | 98.58     0.23
|129.92    0.18
  4.67    0.00 | 36.00     0.11 | 67.33     0.20 | 98.67     0.22
|130.00    0.18
  4.75    0.00 | 36.08     0.11 | 67.42     0.21 | 98.75     0.23
|130.08    0.17
  4.83    0.00 | 36.17     0.11 | 67.50     0.22 | 98.83     0.24
|130.17    0.17
  4.92    0.00 | 36.25     0.11 | 67.58     0.22 | 98.92     0.22
|130.25    0.17
  5.00    0.00 | 36.33     0.11 | 67.67     0.23 | 99.00     0.20
|130.33    0.17
  5.08    0.00 | 36.42     0.12 | 67.75     0.24 | 99.08     0.20
|130.42    0.18
  5.17    0.00 | 36.50     0.12 | 67.83     0.26 | 99.17     0.22
|130.50    0.18
  5.25    0.00 | 36.58     0.12 | 67.92     0.27 | 99.25     0.21
|130.58    0.18
  5.33    0.00 | 36.67     0.12 | 68.00     0.28 | 99.33     0.22
|130.67    0.17
  5.42    0.00 | 36.75     0.12 | 68.08     0.31 | 99.42     0.21
|130.75    0.17
  5.50    0.00 | 36.83     0.12 | 68.17     0.32 | 99.50     0.20
|130.83    0.18
  5.58    0.00 | 36.92     0.12 | 68.25     0.34 | 99.58     0.21
|130.92    0.17
  5.67    0.00 | 37.00     0.12 | 68.33     0.35 | 99.67     0.20
|131.00    0.17
  5.75    0.00 | 37.08     0.12 | 68.42     0.38 | 99.75     0.19
|131.08    0.17
  5.83    0.00 | 37.17     0.12 | 68.50     0.39 | 99.83     0.20
|131.17    0.18
  5.92    0.00 | 37.25     0.12 | 68.58     0.40 | 99.92     0.22
|131.25    0.18
  6.00    0.00 | 37.33     0.12 | 68.67     0.42 |100.00     0.21
|131.33    0.17
  6.08    0.00 | 37.42     0.12 | 68.75     0.44 |100.08     0.20
|131.42    0.17
  6.17    0.00 | 37.50     0.12 | 68.83     0.46 |100.17     0.21
|131.50    0.17
  6.25    0.00 | 37.58     0.12 | 68.92     0.49 |100.25     0.19
|131.58    0.17
  6.33    0.00 | 37.67     0.13 | 69.00     0.51 |100.33     0.19
|131.67    0.17
  6.42    0.00 | 37.75     0.12 | 69.08     0.54 |100.42     0.19
|131.75    0.17
  6.50    0.00 | 37.83     0.12 | 69.17     0.56 |100.50     0.19
|131.83    0.17
  6.58    0.00 | 37.92     0.12 | 69.25     0.60 |100.58     0.19
|131.92    0.17
  6.67    0.00 | 38.00     0.12 | 69.33     0.64 |100.67     0.19
|132.00    0.16
  6.75    0.00 | 38.08     0.12 | 69.42     0.67 |100.75     0.21
|132.08    0.17
  6.83    0.00 | 38.17     0.12 | 69.50     0.67 |100.83     0.19
|132.17    0.17
  6.92    0.00 | 38.25     0.12 | 69.58     0.68 |100.92     0.19
|132.25    0.17
  7.00    0.00 | 38.33     0.12 | 69.67     0.65 |101.00     0.19
|132.33    0.17
  7.08    0.00 | 38.42     0.12 | 69.75     0.66 |101.08     0.19
|132.42    0.18
  7.17    0.00 | 38.50     0.12 | 69.83     0.66 |101.17     0.20
|132.50    0.17
  7.25    0.00 | 38.58     0.12 | 69.92     0.67 |101.25     0.19
|132.58    0.16
  7.33    0.00 | 38.67     0.13 | 70.00     0.66 |101.33     0.18
|132.67    0.17
  7.42    0.00 | 38.75     0.13 | 70.08     0.67 |101.42     0.19
|132.75    0.17
  7.50    0.00 | 38.83     0.13 | 70.17     0.67 |101.50     0.19
|132.83    0.17
  7.58    0.00 | 38.92     0.13 | 70.25     0.70 |101.58     0.19
|132.92    0.16
  7.67    0.00 | 39.00     0.13 | 70.33     0.74 |101.67     0.20
|133.00    0.17
  7.75    0.00 | 39.08     0.14 | 70.42     0.73 |101.75     0.19
|133.08    0.16
  7.83    0.00 | 39.17     0.14 | 70.50     0.74 |101.83     0.18
|133.17    0.16
  7.92    0.00 | 39.25     0.14 | 70.58     0.74 |101.92     0.19
|133.25    0.16
  8.00    0.00 | 39.33     0.14 | 70.67     0.74 |102.00     0.19
|133.33    0.15
  8.08    0.00 | 39.42     0.14 | 70.75     0.75 |102.08     0.19
|133.42    0.16
  8.17    0.00 | 39.50     0.15 | 70.83     0.75 |102.17     0.19
|133.50    0.16
  8.25    0.00 | 39.58     0.16 | 70.92     0.74 |102.25     0.18
|133.58    0.17
  8.33    0.00 | 39.67     0.16 | 71.00     0.74 |102.33     0.18
|133.67    0.16
  8.42    0.00 | 39.75     0.16 | 71.08     0.75 |102.42     0.19
|133.75    0.15
  8.50    0.00 | 39.83     0.16 | 71.17     0.77 |102.50     0.19
|133.83    0.16
  8.58    0.00 | 39.92     0.17 | 71.25     0.76 |102.58     0.19
|133.92    0.16
  8.67    0.00 | 40.00     0.17 | 71.33     0.76 |102.67     0.18
|134.00    0.16
  8.75    0.00 | 40.08     0.17 | 71.42     0.77 |102.75     0.20
|134.08    0.16
  8.83    0.00 | 40.17     0.17 | 71.50     0.76 |102.83     0.18
|134.17    0.15
  8.92    0.00 | 40.25     0.18 | 71.58     0.77 |102.92     0.18
|134.25    0.16
  9.00    0.00 | 40.33     0.18 | 71.67     0.76 |103.00     0.17
|134.33    0.16
  9.08    0.00 | 40.42     0.18 | 71.75     0.76 |103.08     0.17
|134.42    0.16
  9.17    0.00 | 40.50     0.18 | 71.83     0.78 |103.17     0.18
|134.50    0.16
  9.25    0.00 | 40.58     0.19 | 71.92     0.77 |103.25     0.18
|134.58    0.15
  9.33    0.00 | 40.67     0.19 | 72.00     0.76 |103.33     0.17
|134.67    0.16
  9.42    0.00 | 40.75     0.19 | 72.08     0.74 |103.42     0.17
|134.75    0.15
  9.50    0.00 | 40.83     0.19 | 72.17     0.75 |103.50     0.17
|134.83    0.15
  9.58    0.00 | 40.92     0.19 | 72.25     0.74 |103.58     0.18
|134.92    0.16
  9.67    0.00 | 41.00     0.19 | 72.33     0.72 |103.67     0.18
|135.00    0.15
  9.75    0.00 | 41.08     0.19 | 72.42     0.70 |103.75     0.18
|135.08    0.15
  9.83    0.00 | 41.17     0.20 | 72.50     0.70 |103.83     0.18
|135.17    0.15
  9.92    0.00 | 41.25     0.20 | 72.58     0.69 |103.92     0.19
|135.25    0.15
 10.00    0.00 | 41.33     0.21 | 72.67     0.70 |104.00     0.17
|135.33    0.15
 10.08    0.00 | 41.42     0.22 | 72.75     0.68 |104.08     0.18
|135.42    0.15
 10.17    0.00 | 41.50     0.23 | 72.83     0.67 |104.17     0.18
|135.50    0.15
 10.25    0.00 | 41.58     0.23 | 72.92     0.66 |104.25     0.17
|135.58    0.15
 10.33    0.00 | 41.67     0.23 | 73.00     0.64 |104.33     0.17
|135.67    0.14
 10.42    0.00 | 41.75     0.24 | 73.08     0.63 |104.42     0.17
|135.75    0.15
 10.50    0.00 | 41.83     0.25 | 73.17     0.63 |104.50     0.18
|135.83    0.16
 10.58    0.00 | 41.92     0.25 | 73.25     0.61 |104.58     0.17
|135.92    0.15
 10.67    0.00 | 42.00     0.26 | 73.33     0.62 |104.67     0.16
|136.00    0.15
 10.75    0.00 | 42.08     0.25 | 73.42     0.61 |104.75     0.16
|136.08    0.15
 10.83    0.00 | 42.17     0.26 | 73.50     0.62 |104.83     0.18
|136.17    0.15
 10.92    0.00 | 42.25     0.26 | 73.58     0.60 |104.92     0.16
|136.25    0.15
 11.00    0.00 | 42.33     0.26 | 73.67     0.62 |105.00     0.17
|136.33    0.15
 11.08    0.00 | 42.42     0.26 | 73.75     0.58 |105.08     0.16
|136.42    0.15
 11.17    0.00 | 42.50     0.26 | 73.83     0.59 |105.17     0.16
|136.50    0.15
 11.25    0.00 | 42.58     0.26 | 73.92     0.57 |105.25     0.16
|136.58    0.15
 11.33    0.00 | 42.67     0.26 | 74.00     0.57 |105.33     0.16
|136.67    0.14
 11.42    0.00 | 42.75     0.25 | 74.08     0.57 |105.42     0.16
|136.75    0.15
 11.50    0.00 | 42.83     0.26 | 74.17     0.56 |105.50     0.16
|136.83    0.14
 11.58    0.00 | 42.92     0.25 | 74.25     0.58 |105.58     0.16
|136.92    0.14
 11.67    0.00 | 43.00     0.25 | 74.33     0.58 |105.67     0.16
|137.00    0.14
 11.75    0.00 | 43.08     0.25 | 74.42     0.58 |105.75     0.17
|137.08    0.15
 11.83    0.00 | 43.17     0.25 | 74.50     0.59 |105.83     0.16
|137.17    0.14
 11.92    0.00 | 43.25     0.25 | 74.58     0.60 |105.92     0.16
|137.25    0.15
 12.00    0.00 | 43.33     0.25 | 74.67     0.57 |106.00     0.16
|137.33    0.15
 12.08    0.00 | 43.42     0.25 | 74.75     0.56 |106.08     0.16
|137.42    0.14
 12.17    0.00 | 43.50     0.25 | 74.83     0.54 |106.17     0.16
|137.50    0.14
 12.25    0.00 | 43.58     0.25 | 74.92     0.56 |106.25     0.17
|137.58    0.14
 12.33    0.00 | 43.67     0.25 | 75.00     0.53 |106.33     0.16
|137.67    0.15
 12.42    0.00 | 43.75     0.25 | 75.08     0.51 |106.42     0.16
|137.75    0.14
 12.50    0.00 | 43.83     0.26 | 75.17     0.51 |106.50     0.16
|137.83    0.14
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 12.58   0.00 | 43.92    0.26 | 75.25    0.51 |106.58    0.16
|137.92   0.14
 12.67   0.00 | 44.00    0.26 | 75.33    0.51 |106.67    0.16
|138.00   0.14
 12.75   0.00 | 44.08    0.26 | 75.42    0.50 |106.75    0.16
|138.08   0.14
 12.83   0.00 | 44.17    0.26 | 75.50    0.50 |106.83    0.15
|138.17   0.14
 12.92   0.00 | 44.25    0.27 | 75.58    0.49 |106.92    0.15
|138.25   0.14
 13.00   0.00 | 44.33    0.26 | 75.67    0.49 |107.00    0.16
|138.33   0.14
 13.08   0.00 | 44.42    0.26 | 75.75    0.49 |107.08    0.16
|138.42   0.14
 13.17   0.00 | 44.50    0.26 | 75.83    0.48 |107.17    0.16
|138.50   0.14
 13.25   0.00 | 44.58    0.26 | 75.92    0.47 |107.25    0.15
|138.58   0.14
 13.33   0.00 | 44.67    0.26 | 76.00    0.47 |107.33    0.16
|138.67   0.14
 13.42   0.00 | 44.75    0.26 | 76.08    0.48 |107.42    0.16
|138.75   0.14
 13.50   0.00 | 44.83    0.26 | 76.17    0.46 |107.50    0.15
|138.83   0.14
 13.58   0.00 | 44.92    0.26 | 76.25    0.45 |107.58    0.16
|138.92   0.14
 13.67   0.00 | 45.00    0.26 | 76.33    0.45 |107.67    0.15
|139.00   0.14
 13.75   0.00 | 45.08    0.26 | 76.42    0.43 |107.75    0.15
|139.08   0.14
 13.83   0.00 | 45.17    0.25 | 76.50    0.44 |107.83    0.16
|139.17   0.13
 13.92   0.00 | 45.25    0.25 | 76.58    0.46 |107.92    0.16
|139.25   0.14
 14.00   0.00 | 45.33    0.25 | 76.67    0.43 |108.00    0.16
|139.33   0.14
 14.08   0.00 | 45.42    0.25 | 76.75    0.44 |108.08    0.15
|139.42   0.14
 14.17   0.00 | 45.50    0.25 | 76.83    0.43 |108.17    0.15
|139.50   0.14
 14.25   0.00 | 45.58    0.25 | 76.92    0.45 |108.25    0.15
|139.58   0.13
 14.33   0.00 | 45.67    0.25 | 77.00    0.42 |108.33    0.16
|139.67   0.14
 14.42   0.00 | 45.75    0.25 | 77.08    0.43 |108.42    0.16
|139.75   0.14
 14.50   0.00 | 45.83    0.26 | 77.17    0.43 |108.50    0.15
|139.83   0.13
 14.58   0.00 | 45.92    0.25 | 77.25    0.42 |108.58    0.15
|139.92   0.14
 14.67   0.00 | 46.00    0.26 | 77.33    0.41 |108.67    0.15
|140.00   0.14
 14.75   0.00 | 46.08    0.26 | 77.42    0.43 |108.75    0.16
|140.08   0.13
 14.83   0.00 | 46.17    0.25 | 77.50    0.41 |108.83    0.15
|140.17   0.13
 14.92   0.69 | 46.25    0.26 | 77.58    0.43 |108.92    0.15
|140.25   0.13
 15.00   0.69 | 46.33    0.26 | 77.67    0.39 |109.00    0.15
|140.33   0.13
 15.08   0.71 | 46.42    0.26 | 77.75    0.39 |109.08    0.15
|140.42   0.14
 15.17   0.74 | 46.50    0.26 | 77.83    0.37 |109.17    0.15
|140.50   0.13
 15.25   0.74 | 46.58    0.26 | 77.92    0.39 |109.25    0.15
|140.58   0.13
 15.33   0.74 | 46.67    0.26 | 78.00    0.39 |109.33    0.14
|140.67   0.13
 15.42   0.77 | 46.75    0.26 | 78.08    0.39 |109.42    0.15
|140.75   0.13
 15.50   0.76 | 46.83    0.25 | 78.17    0.37 |109.50    0.15
|140.83   0.13
 15.58   0.78 | 46.92    0.25 | 78.25    0.36 |109.58    0.14
|140.92   0.13
 15.67   0.78 | 47.00    0.25 | 78.33    0.37 |109.67    0.15
|141.00   0.13
 15.75   0.77 | 47.08    0.25 | 78.42    0.38 |109.75    0.14
|141.08   0.13
 15.83   0.77 | 47.17    0.26 | 78.50    0.36 |109.83    0.15
|141.17   0.13
 15.92   0.77 | 47.25    0.26 | 78.58    0.36 |109.92    0.14
|141.25   0.13
 16.00   0.76 | 47.33    0.26 | 78.67    0.36 |110.00    0.14
|141.33   0.13
 16.08   0.74 | 47.42    0.26 | 78.75    0.37 |110.08    0.14
|141.42   0.13
 16.17   0.74 | 47.50    0.26 | 78.83    0.34 |110.17    0.14
|141.50   0.13
 16.25   0.74 | 47.58    0.25 | 78.92    0.35 |110.25    0.14
|141.58   0.13
 16.33   0.72 | 47.67    0.26 | 79.00    0.36 |110.33    0.15
|141.67   0.13
 16.42   0.69 | 47.75    0.26 | 79.08    0.35 |110.42    0.15
|141.75   0.13
 16.50   0.69 | 47.83    0.26 | 79.17    0.35 |110.50    0.14
|141.83   0.13
 16.58   0.67 | 47.92    0.26 | 79.25    0.36 |110.58    0.14
|141.92   0.13
 16.67   0.66 | 48.00    0.25 | 79.33    0.36 |110.67    0.14
|142.00   0.13
 16.75   0.64 | 48.08    0.25 | 79.42    0.33 |110.75    0.15
|142.08   0.12
 16.83   0.63 | 48.17    0.26 | 79.50    0.33 |110.83    0.14
|142.17   0.13
 16.92   0.63 | 48.25    0.25 | 79.58    0.33 |110.92    0.15
|142.25   0.13
 17.00   0.60 | 48.33    0.25 | 79.67    0.32 |111.00    0.15
|142.33   0.13
 17.08   0.58 | 48.42    0.25 | 79.75    0.33 |111.08    0.14
|142.42   0.12
 17.17   0.58 | 48.50    0.25 | 79.83    0.33 |111.17    0.14
|142.50   0.13
 17.25   0.57 | 48.58    0.25 | 79.92    0.32 |111.25    0.14
|142.58   0.13
 17.33   0.56 | 48.67    0.24 | 80.00    0.33 |111.33    0.15
|142.67   0.13
 17.42   0.55 | 48.75    0.24 | 80.08    0.34 |111.42    0.14
|142.75   0.13
 17.50   0.54 | 48.83    0.24 | 80.17    0.32 |111.50    0.15
|142.83   0.12
 17.58   0.51 | 48.92    0.24 | 80.25    0.31 |111.58    0.14
|142.92   0.13
 17.67   0.50 | 49.00    0.24 | 80.33    0.33 |111.67    0.14
|143.00   0.12
 17.75   0.48 | 49.08    0.25 | 80.42    0.31 |111.75    0.14
|143.08   0.12
 17.83   0.47 | 49.17    0.24 | 80.50    0.32 |111.83    0.14
|143.17   0.12
 17.92   0.47 | 49.25    0.24 | 80.58    0.31 |111.92    0.14
|143.25   0.12
 18.00   0.45 | 49.33    0.24 | 80.67    0.31 |112.00    0.15
|143.33   0.12
 18.08   0.44 | 49.42    0.23 | 80.75    0.33 |112.08    0.15
|143.42   0.12
 18.17   0.41 | 49.50    0.23 | 80.83    0.31 |112.17    0.14
|143.50   0.12
 18.25   0.42 | 49.58    0.24 | 80.92    0.32 |112.25    0.14
|143.58   0.12
 18.33   0.40 | 49.67    0.23 | 81.00    0.32 |112.33    0.14
|143.67   0.12
 18.42   0.39 | 49.75    0.24 | 81.08    0.31 |112.42    0.15
|143.75   0.12
 18.50   0.38 | 49.83    0.24 | 81.17    0.31 |112.50    0.14
|143.83   0.12
 18.58   0.38 | 49.92    0.23 | 81.25    0.31 |112.58    0.15
|143.92   0.12
 18.67   0.37 | 50.00    0.23 | 81.33    0.31 |112.67    0.15
|144.00   0.12
 18.75   0.37 | 50.08    0.23 | 81.42    0.31 |112.75    0.14
|144.08   0.12
 18.83   0.36 | 50.17    0.24 | 81.50    0.32 |112.83    0.15
|144.17   0.12
 18.92   0.35 | 50.25    0.23 | 81.58    0.32 |112.92    0.14
|144.25   0.12
 19.00   0.34 | 50.33    0.23 | 81.67    0.34 |113.00    0.15
|144.33   0.12
 19.08   0.34 | 50.42    0.23 | 81.75    0.34 |113.08    0.15
|144.42   0.12
 19.17   0.34 | 50.50    0.23 | 81.83    0.35 |113.17    0.14
|144.50   0.12
 19.25   0.34 | 50.58    0.23 | 81.92    0.37 |113.25    0.15
|144.58   0.12
 19.33   0.33 | 50.67    0.23 | 82.00    0.36 |113.33    0.15
|144.67   0.12
 19.42   0.33 | 50.75    0.23 | 82.08    0.37 |113.42    0.14
|144.75   0.12
 19.50   0.32 | 50.83    0.23 | 82.17    0.38 |113.50    0.14
|144.83   0.12
 19.58   0.32 | 50.92    0.23 | 82.25    0.36 |113.58    0.14
|144.92   0.12
 19.67   0.32 | 51.00    0.23 | 82.33    0.35 |113.67    0.14
|145.00   0.12
 19.75   0.31 | 51.08    0.23 | 82.42    0.37 |113.75    0.14
|145.08   0.12
 19.83   0.30 | 51.17    0.23 | 82.50    0.37 |113.83    0.14
|145.17   0.12
 19.92   0.30 | 51.25    0.23 | 82.58    0.36 |113.92    0.14
|145.25   0.12
 20.00   0.29 | 51.33    0.23 | 82.67    0.38 |114.00    0.14
|145.33   0.12
 20.08   0.29 | 51.42    0.23 | 82.75    0.38 |114.08    0.14
|145.42   0.12
 20.17   0.28 | 51.50    0.23 | 82.83    0.41 |114.17    0.14
|145.50   0.12
 20.25   0.28 | 51.58    0.23 | 82.92    0.40 |114.25    0.14
|145.58   0.12
 20.33   0.28 | 51.67    0.23 | 83.00    0.40 |114.33    0.14
|145.67   0.12
 20.42   0.27 | 51.75    0.23 | 83.08    0.40 |114.42    0.14
|145.75   0.12
 20.50   0.27 | 51.83    0.23 | 83.17    0.44 |114.50    0.15
|145.83   0.12
 20.58   0.26 | 51.92    0.23 | 83.25    0.44 |114.58    0.14
|145.92   0.12
 20.67   0.27 | 52.00    0.23 | 83.33    0.42 |114.67    0.14
|146.00   0.12
 20.75   0.26 | 52.08    0.24 | 83.42    0.42 |114.75    0.14
|146.08   0.11
 20.83   0.26 | 52.17    0.24 | 83.50    0.42 |114.83    0.15
|146.17   0.11
 20.92   0.25 | 52.25    0.24 | 83.58    0.41 |114.92    0.14
|146.25   0.11
 21.00   0.25 | 52.33    0.25 | 83.67    0.41 |115.00    0.15
|146.33   0.12
 21.08   0.25 | 52.42    0.25 | 83.75    0.42 |115.08    0.14
|146.42   0.11
 21.17   0.24 | 52.50    0.25 | 83.83    0.41 |115.17    0.14
|146.50   0.12
 21.25   0.25 | 52.58    0.25 | 83.92    0.41 |115.25    0.14
|146.58   0.12
 21.33   0.24 | 52.67    0.25 | 84.00    0.43 |115.33    0.15
|146.67   0.11
 21.42   0.24 | 52.75    0.25 | 84.08    0.40 |115.42    0.14
|146.75   0.12
 21.50   0.24 | 52.83    0.25 | 84.17    0.42 |115.50    0.15
|146.83   0.11
 21.58   0.23 | 52.92    0.25 | 84.25    0.41 |115.58    0.14
|146.92   0.12
 21.67   0.23 | 53.00    0.27 | 84.33    0.42 |115.67    0.14
|147.00   0.11
 21.75   0.23 | 53.08    0.27 | 84.42    0.42 |115.75    0.14
|147.08   0.12
 21.83   0.23 | 53.17    0.28 | 84.50    0.43 |115.83    0.14
|147.17   0.11
 21.92   0.23 | 53.25    0.28 | 84.58    0.44 |115.92    0.14
|147.25   0.12
 22.00   0.23 | 53.33    0.28 | 84.67    0.42 |116.00    0.15
|147.33   0.12
 22.08   0.22 | 53.42    0.28 | 84.75    0.44 |116.08    0.14
|147.42   0.11
 22.17   0.22 | 53.50    0.28 | 84.83    0.45 |116.17    0.15
|147.50   0.11
 22.25   0.22 | 53.58    0.29 | 84.92    0.45 |116.25    0.14
|147.58   0.11
 22.33   0.22 | 53.67    0.29 | 85.00    0.46 |116.33    0.14
|147.67   0.11
 22.42   0.21 | 53.75    0.29 | 85.08    0.47 |116.42    0.14
|147.75   0.11
 22.50   0.21 | 53.83    0.30 | 85.17    0.46 |116.50    0.14
|147.83   0.11
 22.58   0.21 | 53.92    0.30 | 85.25    0.46 |116.58    0.14
|147.92   0.11
 22.67   0.21 | 54.00    0.30 | 85.33    0.44 |116.67    0.14
|148.00   0.11
 22.75   0.21 | 54.08    0.30 | 85.42    0.45 |116.75    0.14
|148.08   0.11
 22.83   0.20 | 54.17    0.31 | 85.50    0.45 |116.83    0.14
|148.17   0.11
 22.92   0.20 | 54.25    0.30 | 85.58    0.45 |116.92    0.14
|148.25   0.11
 23.00   0.20 | 54.33    0.31 | 85.67    0.45 |117.00    0.14
|148.33   0.11
 23.08   0.20 | 54.42    0.30 | 85.75    0.46 |117.08    0.14
|148.42   0.11
 23.17   0.20 | 54.50    0.31 | 85.83    0.45 |117.17    0.14
|148.50   0.11
 23.25   0.20 | 54.58    0.32 | 85.92    0.47 |117.25    0.14
|148.58   0.11
 23.33   0.19 | 54.67    0.32 | 86.00    0.44 |117.33    0.14
|148.67   0.11
 23.42   0.19 | 54.75    0.32 | 86.08    0.45 |117.42    0.14
|148.75   0.11
 23.50   0.19 | 54.83    0.32 | 86.17    0.43 |117.50    0.14
|148.83   0.11
 23.58   0.19 | 54.92    0.32 | 86.25    0.43 |117.58    0.14
|148.92   0.11
 23.67   0.19 | 55.00    0.32 | 86.33    0.43 |117.67    0.13
|149.00   0.11
 23.75   0.18 | 55.08    0.32 | 86.42    0.43 |117.75    0.13
|149.08   0.11
 23.83   0.18 | 55.17    0.32 | 86.50    0.45 |117.83    0.14
|149.17   0.11
 23.92   0.18 | 55.25    0.33 | 86.58    0.42 |117.92    0.13
|149.25   0.11
 24.00   0.18 | 55.33    0.33 | 86.67    0.42 |118.00    0.13
|149.33   0.11
 24.08   0.18 | 55.42    0.33 | 86.75    0.43 |118.08    0.13
|149.42   0.11
 24.17   0.18 | 55.50    0.33 | 86.83    0.41 |118.17    0.13
|149.50   0.11
 24.25   0.17 | 55.58    0.32 | 86.92    0.40 |118.25    0.13
|149.58   0.11
 24.33   0.18 | 55.67    0.32 | 87.00    0.40 |118.33    0.13
|149.67   0.11
 24.42   0.17 | 55.75    0.32 | 87.08    0.39 |118.42    0.13
|149.75   0.11
 24.50   0.17 | 55.83    0.32 | 87.17    0.39 |118.50    0.13
|149.83   0.11
 24.58   0.17 | 55.92    0.32 | 87.25    0.39 |118.58    0.13
|149.92   0.11
 24.67   0.17 | 56.00    0.32 | 87.33    0.37 |118.67    0.13
|150.00   0.11
 24.75   0.16 | 56.08    0.32 | 87.42    0.37 |118.75    0.13
|150.08   0.11
 24.83   0.16 | 56.17    0.32 | 87.50    0.38 |118.83    0.13
|150.17   0.11
 24.92   0.16 | 56.25    0.32 | 87.58    0.37 |118.92    0.13
|150.25   0.11
 25.00   0.16 | 56.33    0.32 | 87.67    0.36 |119.00    0.13
|150.33   0.11
 25.08   0.16 | 56.42    0.32 | 87.75    0.38 |119.08    0.13
|150.42   0.11
 25.17   0.16 | 56.50    0.32 | 87.83    0.38 |119.17    0.13
|150.50   0.11
 25.25   0.16 | 56.58    0.31 | 87.92    0.34 |119.25    0.13
|150.58   0.11
 25.33   0.15 | 56.67    0.31 | 88.00    0.35 |119.33    0.13
|150.67   0.11
 25.42   0.16 | 56.75    0.32 | 88.08    0.34 |119.42    0.13
|150.75   0.11
 25.50   0.15 | 56.83    0.31 | 88.17    0.35 |119.50    0.13
|150.83   0.11
 25.58   0.15 | 56.92    0.31 | 88.25    0.34 |119.58    0.13
|150.92   0.11
 25.67   0.15 | 57.00    0.31 | 88.33    0.36 |119.67    0.13
|151.00   0.11
 25.75   0.15 | 57.08    0.31 | 88.42    0.33 |119.75    0.13
|151.08   0.11
 25.83   0.15 | 57.17    0.31 | 88.50    0.33 |119.83    0.13
|151.17   0.11
 25.92   0.15 | 57.25    0.31 | 88.58    0.34 |119.92    0.13
|151.25   0.11
 26.00   0.15 | 57.33    0.30 | 88.67    0.33 |120.00    0.13
|151.33   0.11
 26.08   0.15 | 57.42    0.30 | 88.75    0.33 |120.08    0.13
|151.42   0.11
 26.17   0.15 | 57.50    0.30 | 88.83    0.32 |120.17    0.13
|151.50   0.11
 26.25   0.14 | 57.58    0.30 | 88.92    0.30 |120.25    0.14
|151.58   0.11
 26.33   0.14 | 57.67    0.31 | 89.00    0.31 |120.33    0.14
|151.67   0.11
 26.42   0.14 | 57.75    0.30 | 89.08    0.31 |120.42    0.13
|151.75   0.11
 26.50   0.14 | 57.83    0.30 | 89.17    0.30 |120.50    0.14
|151.83   0.11
 26.58   0.14 | 57.92    0.30 | 89.25    0.31 |120.58    0.14
|151.92   0.11
 26.67   0.14 | 58.00    0.29 | 89.33    0.32 |120.67    0.14
|152.00   0.11
 26.75   0.14 | 58.08    0.29 | 89.42    0.31 |120.75    0.14
|152.08   0.11
 26.83   0.14 | 58.17    0.29 | 89.50    0.30 |120.83    0.14
|152.17   0.11
 26.92   0.14 | 58.25    0.29 | 89.58    0.29 |120.92    0.14
|152.25   0.11
 27.00   0.14 | 58.33    0.29 | 89.67    0.29 |121.00    0.14
|152.33   0.10
 27.08   0.13 | 58.42    0.29 | 89.75    0.29 |121.08    0.14
|152.42   0.11
 27.17   0.13 | 58.50    0.29 | 89.83    0.28 |121.17    0.14
|152.50   0.11
 27.25   0.13 | 58.58    0.29 | 89.92    0.30 |121.25    0.14
|152.58   0.10
 27.33   0.13 | 58.67    0.28 | 90.00    0.31 |121.33    0.14
|152.67   0.10
 27.42   0.13 | 58.75    0.28 | 90.08    0.31 |121.42    0.14
|152.75   0.10
 27.50   0.13 | 58.83    0.28 | 90.17    0.30 |121.50    0.14
|152.83   0.10
 27.58   0.13 | 58.92    0.29 | 90.25    0.30 |121.58    0.14
|152.92   0.10
 27.67   0.13 | 59.00    0.29 | 90.33    0.31 |121.67    0.14
|153.00   0.11
 27.75   0.13 | 59.08    0.29 | 90.42    0.30 |121.75    0.14
|153.08   0.10
 27.83   0.13 | 59.17    0.28 | 90.50    0.31 |121.83    0.14
|153.17   0.10
 27.92   0.12 | 59.25    0.28 | 90.58    0.31 |121.92    0.14
|153.25   0.11
 28.00   0.13 | 59.33    0.28 | 90.67    0.31 |122.00    0.15
|153.33   0.10
 28.08   0.12 | 59.42    0.27 | 90.75    0.31 |122.08    0.14
|153.42   0.11
 28.17   0.12 | 59.50    0.27 | 90.83    0.30 |122.17    0.14
|153.50   0.10
 28.25   0.12 | 59.58    0.27 | 90.92    0.31 |122.25    0.14
|153.58   0.10
 28.33   0.12 | 59.67    0.26 | 91.00    0.30 |122.33    0.14
|153.67   0.10
 28.42   0.12 | 59.75    0.26 | 91.08    0.30 |122.42    0.15
|153.75   0.11
 28.50   0.12 | 59.83    0.26 | 91.17    0.32 |122.50    0.15
|153.83   0.10
 28.58   0.12 | 59.92    0.26 | 91.25    0.30 |122.58    0.15
|153.92   0.10
 28.67   0.12 | 60.00    0.25 | 91.33    0.28 |122.67    0.14
|154.00   0.10
 28.75   0.12 | 60.08    0.25 | 91.42    0.30 |122.75    0.15
|154.08   0.10
 28.83   0.12 | 60.17    0.25 | 91.50    0.28 |122.83    0.14
|154.17   0.10
 28.92   0.12 | 60.25    0.25 | 91.58    0.31 |122.92    0.14
|154.25   0.10
 29.00   0.12 | 60.33    0.25 | 91.67    0.28 |123.00    0.15
|154.33   0.10
 29.08   0.12 | 60.42    0.24 | 91.75    0.30 |123.08    0.15
|154.42   0.10
 29.17   0.11 | 60.50    0.24 | 91.83    0.31 |123.17    0.15
|154.50   0.10
 29.25   0.11 | 60.58    0.24 | 91.92    0.27 |123.25    0.15
|154.58   0.10
 29.33   0.11 | 60.67    0.23 | 92.00    0.28 |123.33    0.15
|154.67   0.10
 29.42   0.11 | 60.75    0.24 | 92.08    0.29 |123.42    0.15
|154.75   0.10
 29.50   0.11 | 60.83    0.23 | 92.17    0.27 |123.50    0.15
|154.83   0.10
 29.58   0.11 | 60.92    0.23 | 92.25    0.28 |123.58    0.15
|154.92   0.10
 29.67   0.11 | 61.00    0.23 | 92.33    0.28 |123.67    0.15
|155.00   0.10
 29.75   0.11 | 61.08    0.23 | 92.42    0.31 |123.75    0.15
|155.08   0.10
 29.83   0.11 | 61.17    0.23 | 92.50    0.28 |123.83    0.15
|155.17   0.10
 29.92   0.11 | 61.25    0.22 | 92.58    0.28 |123.92    0.15
|155.25   0.10
 30.00   0.11 | 61.33    0.23 | 92.67    0.28 |124.00    0.15
|155.33   0.10
 30.08   0.11 | 61.42    0.23 | 92.75    0.28 |124.08    0.15
|155.42   0.10
 30.17   0.11 | 61.50    0.24 | 92.83    0.27 |124.17    0.15
|155.50   0.10
 30.25   0.11 | 61.58    0.24 | 92.92    0.28 |124.25    0.15
|155.58   0.10
 30.33   0.11 | 61.67    0.23 | 93.00    0.28 |124.33    0.14
|155.67   0.10
 30.42   0.11 | 61.75    0.23 | 93.08    0.27 |124.42    0.15
|155.75   0.10
 30.50   0.11 | 61.83    0.23 | 93.17    0.29 |124.50    0.15
|155.83   0.10
 30.58   0.11 | 61.92    0.23 | 93.25    0.28 |124.58    0.16
|155.92   0.10
 30.67   0.11 | 62.00    0.23 | 93.33    0.26 |124.67    0.15
|156.00   0.10
 30.75   0.11 | 62.08    0.23 | 93.42    0.27 |124.75    0.15
|156.08   0.10
 30.83   0.11 | 62.17    0.23 | 93.50    0.27 |124.83    0.15
|156.17   0.10
 30.92   0.11 | 62.25    0.23 | 93.58    0.26 |124.92    0.17
|156.25   0.10
 31.00   0.11 | 62.33    0.24 | 93.67    0.26 |125.00    0.16 |
 31.08   0.10 | 62.42    0.25 | 93.75    0.28 |125.08    0.16 |
 31.17   0.10 | 62.50    0.25 | 93.83    0.25 |125.17    0.16 |
 31.25   0.10 | 62.58    0.26 | 93.92    0.28 |125.25    0.16 |
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| STORE HYD (1605) |   AREA     (ha)= 218.70
| ID= 1 DT= 5.0min |   QPEAK    (cms)=   1.37
--------------------   TPEAK    (hrs)=  71.92
                       VOLUME    (mm)=  85.77

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |'  TIME    FLOW |
TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |'   hrs     cms |
hrs     cms
  0.00   0.00 | 31.25    0.15 | 62.50    0.38 | 93.75    0.37
|125.00   0.20
  0.08   0.00 | 31.33    0.15 | 62.58    0.38 | 93.83    0.36
|125.08   0.20
  0.17   0.00 | 31.42    0.15 | 62.67    0.38 | 93.92    0.36
|125.17   0.20
  0.25   0.00 | 31.50    0.15 | 62.75    0.38 | 94.00    0.36
|125.25   0.20
  0.33   0.00 | 31.58    0.15 | 62.83    0.38 | 94.08    0.36
|125.33   0.20
  0.42   0.00 | 31.67    0.15 | 62.92    0.38 | 94.17    0.36
|125.42   0.20
  0.50   0.00 | 31.75    0.15 | 63.00    0.37 | 94.25    0.36
|125.50   0.20
  0.58   0.00 | 31.83    0.14 | 63.08    0.38 | 94.33    0.36
|125.58   0.20
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0.67	0.00	31.92	0.14	63.17	0.37	94.42	0.36	125.67	0.21
0.75	0.00	32.00	0.14	63.25	0.37	94.50	0.36	125.75	0.21
0.83	0.00	32.08	0.14	63.33	0.37	94.58	0.36	125.83	0.21
0.92	0.00	32.17	0.14	63.42	0.37	94.67	0.36	125.92	0.21
1.00	0.00	32.25	0.14	63.50	0.37	94.75	0.36	126.00	0.21
1.08	0.00	32.33	0.14	63.58	0.37	94.83	0.36	126.08	0.21
1.17	0.00	32.42	0.14	63.67	0.36	94.92	0.35	126.17	0.21
1.25	0.00	32.50	0.14	63.75	0.36	95.00	0.35	126.25	0.21
1.33	0.00	32.58	0.14	63.83	0.36	95.08	0.35	126.33	0.21
1.42	0.00	32.67	0.14	63.92	0.36	95.17	0.35	126.42	0.22
1.50	0.00	32.75	0.14	64.00	0.36	95.25	0.35	126.50	0.22
1.58	0.00	32.83	0.14	64.08	0.36	95.33	0.35	126.58	0.22
1.67	0.00	32.92	0.14	64.17	0.36	95.42	0.35	126.67	0.22
1.75	0.00	33.00	0.14	64.25	0.35	95.50	0.35	126.75	0.22
1.83	0.00	33.08	0.14	64.33	0.35	95.58	0.34	126.83	0.22
1.92	0.00	33.17	0.14	64.42	0.35	95.67	0.34	126.92	0.23
2.00	0.00	33.25	0.14	64.50	0.35	95.75	0.34	127.00	0.23
2.08	0.00	33.33	0.14	64.58	0.34	95.83	0.34	127.08	0.23
2.17	0.00	33.42	0.14	64.67	0.34	95.92	0.34	127.17	0.23
2.25	0.00	33.50	0.14	64.75	0.34	96.00	0.34	127.25	0.23
2.33	0.00	33.58	0.14	64.83	0.34	96.08	0.34	127.33	0.24
2.42	0.00	33.67	0.14	64.92	0.34	96.17	0.34	127.42	0.24
2.50	0.00	33.75	0.14	65.00	0.34	96.25	0.34	127.50	0.24
2.58	0.00	33.83	0.14	65.08	0.34	96.33	0.34	127.58	0.24
2.67	0.00	33.92	0.14	65.17	0.34	96.42	0.34	127.67	0.24
2.75	0.00	34.00	0.14	65.25	0.34	96.50	0.34	127.75	0.24
2.83	0.00	34.08	0.14	65.33	0.34	96.58	0.34	127.83	0.25
2.92	0.00	34.17	0.14	65.42	0.34	96.67	0.34	127.92	0.25
3.00	0.00	34.25	0.14	65.50	0.34	96.75	0.33	128.00	0.25
3.08	0.00	34.33	0.14	65.58	0.33	96.83	0.33	128.08	0.25
3.17	0.00	34.42	0.14	65.67	0.34	96.92	0.33	128.17	0.25
3.25	0.00	34.50	0.14	65.75	0.33	97.00	0.33	128.25	0.25
3.33	0.00	34.58	0.14	65.83	0.33	97.08	0.33	128.33	0.25
3.42	0.00	34.67	0.14	65.92	0.33	97.17	0.33	128.42	0.25
3.50	0.00	34.75	0.14	66.00	0.33	97.25	0.33	128.50	0.25
3.58	0.00	34.83	0.14	66.08	0.32	97.33	0.33	128.58	0.26
3.67	0.00	34.92	0.14	66.17	0.33	97.42	0.33	128.67	0.26
3.75	0.00	35.00	0.14	66.25	0.33	97.50	0.33	128.75	0.26
3.83	0.00	35.08	0.14	66.33	0.32	97.58	0.33	128.83	0.26
3.92	0.00	35.17	0.14	66.42	0.32	97.67	0.33	128.92	0.26
4.00	0.00	35.25	0.14	66.50	0.33	97.75	0.33	129.00	0.26
4.08	0.00	35.33	0.14	66.58	0.32	97.83	0.33	129.08	0.26
4.17	0.00	35.42	0.14	66.67	0.32	97.92	0.33	129.17	0.26
4.25	0.00	35.50	0.14	66.75	0.32	98.00	0.32	129.25	0.27
4.33	0.00	35.58	0.14	66.83	0.32	98.08	0.32	129.33	0.27
4.42	0.00	35.67	0.14	66.92	0.32	98.17	0.32	129.42	0.27
4.50	0.00	35.75	0.14	67.00	0.32	98.25	0.32	129.50	0.27
4.58	0.00	35.83	0.14	67.08	0.32	98.33	0.32	129.58	0.28
4.67	0.00	35.92	0.14	67.17	0.32	98.42	0.32	129.67	0.28
4.75	0.00	36.00	0.14	67.25	0.32	98.50	0.32	129.75	0.28
4.83	0.00	36.08	0.14	67.33	0.33	98.58	0.32	129.83	0.29
4.92	0.00	36.17	0.14	67.42	0.34	98.67	0.32	129.92	0.29
5.00	0.00	36.25	0.14	67.50	0.34	98.75	0.32	130.00	0.29
5.08	0.00	36.33	0.15	67.58	0.35	98.83	0.32	130.08	0.29
5.17	0.00	36.42	0.15	67.67	0.35	98.92	0.32	130.17	0.29
5.25	0.00	36.50	0.15	67.75	0.36	99.00	0.32	130.25	0.29
5.33	0.00	36.58	0.15	67.83	0.37	99.08	0.32	130.33	0.29
5.42	0.00	36.67	0.15	67.92	0.38	99.17	0.32	130.42	0.29
5.50	0.00	36.75	0.15	68.00	0.40	99.25	0.32	130.50	0.29
5.58	0.00	36.83	0.15	68.08	0.41	99.33	0.32	130.58	0.29
5.67	0.00	36.92	0.15	68.17	0.42	99.42	0.32	130.67	0.29
5.75	0.00	37.00	0.15	68.25	0.43	99.50	0.32	130.75	0.29
5.83	0.00	37.08	0.15	68.33	0.45	99.58	0.31	130.83	0.29
5.92	0.00	37.17	0.15	68.42	0.47	99.67	0.31	130.92	0.29
6.00	0.00	37.25	0.15	68.50	0.48	99.75	0.31	131.00	0.29
6.08	0.00	37.33	0.15	68.58	0.50	99.83	0.31	131.08	0.29
6.17	0.00	37.42	0.15	68.67	0.52	99.92	0.31	131.17	0.29
6.25	0.00	37.50	0.15	68.75	0.53	100.00	0.31	131.25	0.29
6.33	0.00	37.58	0.15	68.83	0.56	100.08	0.31	131.33	0.29
6.42	0.00	37.67	0.15	68.92	0.57	100.17	0.31	131.42	0.29
6.50	0.00	37.75	0.16	69.00	0.58	100.25	0.31	131.50	0.29
6.58	0.00	37.83	0.16	69.08	0.60	100.33	0.31	131.58	0.28
6.67	0.00	37.92	0.16	69.17	0.61	100.42	0.31	131.67	0.28
6.75	0.00	38.00	0.16	69.25	0.63	100.50	0.30	131.75	0.28
6.83	0.00	38.08	0.16	69.33	0.63	100.58	0.30	131.83	0.28
6.92	0.00	38.17	0.16	69.42	0.64	100.67	0.30	131.92	0.28
7.00	0.00	38.25	0.16	69.50	0.66	100.75	0.30	132.00	0.28
7.08	0.00	38.33	0.16	69.58	0.68	100.83	0.30	132.08	0.28
7.17	0.00	38.42	0.16	69.67	0.70	100.92	0.30	132.17	0.28
7.25	0.00	38.50	0.16	69.75	0.71	101.00	0.30	132.25	0.28
7.33	0.00	38.58	0.16	69.83	0.74	101.08	0.30	132.33	0.28
7.42	0.00	38.67	0.17	69.92	0.76	101.17	0.30	132.42	0.28
7.50	0.00	38.75	0.17	70.00	0.78	101.25	0.30	132.50	0.27
7.58	0.00	38.83	0.17	70.08	0.80	101.33	0.29	132.58	0.27
7.67	0.00	38.92	0.17	70.17	0.82	101.42	0.29	132.67	0.27
7.75	0.00	39.00	0.17	70.25	0.84	101.50	0.29	132.75	0.27
7.83	0.00	39.08	0.17	70.33	0.87	101.58	0.29	132.83	0.27
7.92	0.00	39.17	0.17	70.42	0.91	101.67	0.29	132.92	0.27
8.00	0.00	39.25	0.18	70.50	0.94	101.75	0.28	133.00	0.27
8.08	0.00	39.33	0.18	70.58	0.98	101.83	0.28	133.08	0.27
8.17	0.00	39.42	0.18	70.67	1.01	101.92	0.28	133.17	0.27
8.25	0.00	39.50	0.18	70.75	1.04	102.00	0.28	133.25	0.26
8.33	0.00	39.58	0.19	70.83	1.09	102.08	0.28	133.33	0.26
8.42	0.00	39.67	0.19	70.92	1.14	102.17	0.28	133.42	0.26
8.50	0.00	39.75	0.19	71.00	1.20	102.25	0.28	133.50	0.26
8.58	0.00	39.83	0.19	71.08	1.23	102.33	0.28	133.58	0.26
8.67	0.00	39.92	0.20	71.17	1.25	102.42	0.27	133.67	0.26
8.75	0.00	40.00	0.20	71.25	1.30	102.50	0.27	133.75	0.26
8.83	0.00	40.08	0.20	71.33	1.32	102.58	0.27	133.83	0.25
8.92	0.00	40.17	0.21	71.42	1.33	102.67	0.27	133.92	0.25
9.00	0.00	40.25	0.21	71.50	1.34	102.75	0.27	134.00	0.25
9.08	0.00	40.33	0.21	71.58	1.36	102.83	0.27	134.08	0.25
9.17	0.00	40.42	0.22	71.67	1.36	102.92	0.27	134.17	0.25
9.25	0.00	40.50	0.22	71.75	1.36	103.00	0.27	134.25	0.25
9.33	0.00	40.58	0.22	71.83	1.37	103.08	0.27	134.33	0.25
9.42	0.00	40.67	0.23	71.92	1.37	103.17	0.27	134.42	0.25
9.50	0.00	40.75	0.23	72.00	1.36	103.25	0.26	134.50	0.25
9.58	0.00	40.83	0.24	72.08	1.35	103.33	0.26	134.58	0.24
9.67	0.00	40.92	0.24	72.17	1.35	103.42	0.26	134.67	0.24
9.75	0.00	41.00	0.24	72.25	1.33	103.50	0.26	134.75	0.24
9.83	0.00	41.08	0.25	72.33	1.32	103.58	0.26	134.83	0.24
9.92	0.00	41.17	0.25	72.42	1.31	103.67	0.26	134.92	0.24
10.00	0.00	41.25	0.26	72.50	1.29	103.75	0.25	135.00	0.24
10.08	0.00	41.33	0.27	72.58	1.27	103.83	0.25	135.08	0.24
10.17	0.00	41.42	0.27	72.67	1.26	103.92	0.25	135.17	0.24
10.25	0.00	41.50	0.28	72.75	1.23	104.00	0.25	135.25	0.24
10.33	0.00	41.58	0.29	72.83	1.23	104.08	0.25	135.33	0.23
10.42	0.00	41.67	0.29	72.92	1.21	104.17	0.25	135.42	0.23
10.50	0.00	41.75	0.30	73.00	1.20	104.25	0.25	135.50	0.23
10.58	0.00	41.83	0.30	73.08	1.17	104.33	0.25	135.58	0.23
10.67	0.00	41.92	0.31	73.17	1.17	104.42	0.24	135.67	0.23
10.75	0.00	42.00	0.32	73.25	1.16	104.50	0.24	135.75	0.23
10.83	0.00	42.08	0.32	73.33	1.15	104.58	0.24	135.83	0.23
10.92	0.00	42.17	0.33	73.42	1.12	104.67	0.24	135.92	0.23
11.00	0.00	42.25	0.33	73.50	1.12	104.75	0.24	136.00	0.22
11.08	0.00	42.33	0.34	73.58	1.11	104.83	0.24	136.08	0.22
11.17	0.00	42.42	0.34	73.67	1.09	104.92	0.24	136.17	0.22
11.25	0.00	42.50	0.35	73.75	1.08	105.00	0.24	136.25	0.22
11.33	0.00	42.58	0.36	73.83	1.06	105.08	0.24	136.33	0.22
11.42	0.00	42.67	0.36	73.92	1.05	105.17	0.23	136.42	0.22
11.50	0.00	42.75	0.37	74.00	1.03	105.25	0.23	136.50	0.22
11.58	0.00	42.83	0.38	74.08	1.03	105.33	0.23	136.58	0.22
11.67	0.00	42.92	0.39	74.17	1.02	105.42	0.23	136.67	0.21
11.75	0.00	43.00	0.40	74.25	1.00	105.50	0.23	136.75	0.21
11.83	0.00	43.08	0.40	74.33	0.99	105.58	0.23	136.83	0.21
11.92	0.00	43.17	0.42	74.42	0.97	105.67	0.23	136.92	0.21
12.00	0.00	43.25	0.42	74.50	0.96	105.75	0.23	137.00	0.21
12.08	0.00	43.33	0.43	74.58	0.95	105.83	0.23	137.08	0.21
12.17	0.00	43.42	0.44	74.67	0.94	105.92	0.23	137.17	0.21
12.25	0.00	43.50	0.45	74.75	0.92	106.00	0.22	137.25	0.21
12.33	0.00	43.58	0.46	74.83	0.91	106.08	0.22	137.33	0.21
12.42	0.00	43.67	0.47	74.92	0.89	106.17	0.22	137.42	0.21
12.50	0.00	43.75	0.48	75.00	0.88	106.25	0.22	137.50	0.20
12.58	0.00	43.83	0.49	75.08	0.87	106.33	0.22	137.58	0.20
12.67	0.00	43.92	0.50	75.17	0.85	106.42	0.22	137.67	0.20
12.75	0.00	44.00	0.50	75.25	0.84	106.50	0.22	137.75	0.20
12.83	0.00	44.08	0.51	75.33	0.83	106.58	0.22	137.83	0.20
12.92	0.00	44.17	0.51	75.42	0.81	106.67	0.22	137.92	0.20
13.00	0.00	44.25	0.52	75.50	0.80	106.75	0.21	138.00	0.20
13.08	0.00	44.33	0.52	75.58	0.79	106.83	0.21	138.08	0.20
13.17	0.00	44.42	0.53	75.67	0.77	106.92	0.21	138.17	0.20
13.25	0.00	44.50	0.53	75.75	0.77	107.00	0.21	138.25	0.19
13.33	0.00	44.58	0.53	75.83	0.76	107.08	0.21	138.33	0.19
13.42	0.00	44.67	0.54	75.92	0.74	107.17	0.21	138.42	0.19
13.50	0.00	44.75	0.54	76.00	0.74	107.25	0.21	138.50	0.19
13.58	0.00	44.83	0.54	76.08	0.72	107.33	0.21	138.58	0.19
13.67	0.00	44.92	0.55	76.17	0.72	107.42	0.21	138.67	0.19
13.75	0.00	45.00	0.55	76.25	0.71	107.50	0.21	138.75	0.19
13.83	0.00	45.08	0.55	76.33	0.70	107.58	0.21	138.83	0.19
13.92	0.00	45.17	0.55	76.42	0.69	107.67	0.21	138.92	0.19
14.00	0.00	45.25	0.55	76.50	0.68	107.75	0.20	139.00	0.19
14.08	0.00	45.33	0.55	76.58	0.68	107.83	0.20	139.08	0.19
14.17	0.00	45.42	0.55	76.67	0.68	107.92	0.20	139.17	0.18
14.25	0.00	45.50	0.55	76.75	0.66	108.00	0.20	139.25	0.18
14.33	0.00	45.58	0.55	76.83	0.65	108.08	0.20	139.33	0.18
14.42	0.00	45.67	0.55	76.92	0.65	108.17	0.20	139.42	0.18
14.50	0.00	45.75	0.55	77.00	0.64	108.25	0.20	139.50	0.18
14.58	0.00	45.83	0.55	77.08	0.63	108.33	0.20	139.58	0.18
14.67	0.00	45.92	0.55	77.17	0.63	108.42	0.20	139.67	0.18
14.75	0.99	46.00	0.54	77.25	0.63	108.50	0.20	139.75	0.18
14.83	0.99	46.08	0.54	77.33	0.62	108.58	0.20	139.83	0.18
14.92	1.00	46.17	0.54	77.42	0.61	108.67	0.20	139.92	0.18
15.00	1.00	46.25	0.54	77.50	0.60	108.75	0.19	140.00	0.18
15.08	1.01	46.33	0.53	77.58	0.60	108.83	0.19	140.08	0.18
15.17	1.01	46.42	0.53	77.67	0.59	108.92	0.19	140.17	0.18
15.25	1.02	46.50	0.53	77.75	0.59	109.00	0.19	140.25	0.18
15.33	1.03	46.58	0.52	77.83	0.58	109.08	0.19	140.33	0.18
15.42	1.04	46.67	0.52	77.92	0.58	109.17	0.19	140.42	0.17
15.50	1.05	46.75	0.52	78.00	0.58	109.25	0.19	140.50	0.17
15.58	1.06	46.83	0.52	78.08	0.58	109.33	0.19	140.58	0.17
15.67	1.07	46.92	0.51	78.17	0.57	109.42	0.19	140.67	0.17
15.75	1.08	47.00	0.51	78.25	0.56	109.50	0.19	140.75	0.17
15.83	1.08	47.08	0.51	78.33	0.56	109.58	0.19	140.83	0.17
15.92	1.08	47.17	0.51	78.42	0.55	109.67	0.18	140.92	0.17
16.00	1.09	47.25	0.51	78.50	0.55	109.75	0.18	141.00	0.17
16.08	1.09	47.33	0.51	78.58	0.55	109.83	0.18	141.08	0.17
16.17	1.09	47.42	0.51	78.67	0.55	109.92	0.18	141.17	0.17
16.25	1.09	47.50	0.50	78.75	0.54	110.00	0.18	141.25	0.17
16.33	1.09	47.58	0.50	78.83	0.54	110.08	0.18	141.33	0.17
16.42	1.09	47.67	0.50	78.92	0.54	110.17	0.18	141.42	0.17
16.50	1.09	47.75	0.50	79.00	0.54	110.25	0.18	141.50	0.16
16.58	1.10	47.83	0.50	79.08	0.53	110.33	0.18	141.58	0.16
16.67	1.09	47.92	0.50	79.17	0.52	110.42	0.18	141.67	0.16
16.75	1.09	48.00	0.50	79.25	0.52	110.50	0.18	141.75	0.16
16.83	1.08	48.08	0.50	79.33	0.51	110.58	0.18	141.83	0.16
16.92	1.09	48.17	0.49	79.42	0.50	110.67	0.18	141.92	0.16
17.00	1.08	48.25	0.49	79.50	0.50	110.75	0.18	142.00	0.16
17.08	1.07	48.33	0.49	79.58	0.49	110.83	0.18	142.08	0.16
17.17	1.06	48.42	0.49	79.67	0.49	110.92	0.18	142.17	0.16
17.25	1.06	48.50	0.49	79.75	0.48	111.00	0.18	142.25	0.16
17.33	1.05	48.58	0.49	79.83	0.48	111.08	0.18	142.33	0.16
17.42	1.04	48.67	0.48	79.92	0.48	111.17	0.18	142.42	0.16
17.50	1.04	48.75	0.48	80.00	0.47	111.25	0.18	142.50	0.16
17.58	1.03	48.83	0.48	80.08	0.47	111.33	0.18	142.58	0.16
17.67	1.02	48.92	0.48	80.17	0.46	111.42	0.18	142.67	0.16
17.75	1.01	49.00	0.47	80.25	0.46	111.50	0.18	142.75	0.16
17.83	1.00	49.08	0.47	80.33	0.46	111.58	0.18	142.83	0.16
17.92	0.99	49.17	0.47	80.42	0.45	111.67	0.18	142.92	0.16
18.00	0.98	49.25	0.47	80.50	0.45	111.75	0.18	143.00	0.16
18.08	0.97	49.33	0.47	80.58	0.45	111.83	0.17	143.08	0.15
18.17	0.96	49.42	0.46	80.67	0.45	111.92	0.17	143.17	0.15
18.25	0.95	49.50	0.46	80.75	0.44	112.00	0.17	143.25	0.15
18.33	0.93	49.58	0.46	80.83	0.44	112.08	0.17	143.33	0.15
18.42	0.92	49.67	0.46	80.92	0.44	112.17	0.17	143.42	0.15
18.50	0.91	49.75	0.45	81.00	0.44	112.25	0.17	143.50	0.15
18.58	0.89	49.83	0.45	81.08	0.44	112.33	0.17	143.58	0.15
18.67	0.87	49.92	0.45	81.17	0.44	112.42	0.17	143.67	0.15
18.75	0.86	50.00	0.45	81.25	0.44	112.50	0.17	143.75	0.15
18.83	0.84	50.08	0.44	81.33	0.44	112.58	0.17	143.83	0.15
18.92	0.83	50.17	0.44	81.42	0.43	112.67	0.17	143.92	0.15
19.00	0.81	50.25	0.44	81.50	0.44	112.75	0.17	144.00	0.15
19.08	0.79	50.33	0.44	81.58	0.45	112.83	0.17	144.08	0.15
19.17	0.78	50.42	0.44	81.67	0.46	112.92	0.17	144.17	0.15
19.25	0.76	50.50	0.44	81.75	0.45	113.00	0.17	144.25	0.15
19.33	0.74	50.58	0.44	81.83	0.46	113.08	0.17	144.33	0.15
19.42	0.72	50.67	0.44	81.92	0.46	113.17	0.16	144.42	0.15
19.50	0.71	50.75	0.43	82.00	0.47	113.25	0.16	144.50	0.15
19.58	0.69	50.83	0.43	82.08	0.47	113.33	0.16	144.58	0.15
19.67	0.68	50.92	0.43	82.17	0.47	113.42	0.16	144.67	0.15
19.75	0.66	51.00	0.43	82.25	0.48	113.50	0.16	144.75	0.15
19.83	0.65	51.08	0.43	82.33	0.49	113.58	0.16	144.83	0.14
19.92	0.64	51.17	0.43	82.42	0.49	113.67	0.16	144.92	0.14
20.00	0.62	51.25	0.43	82.50	0.49	113.75	0.16	145.00	0.14
20.08	0.61	51.33	0.43	82.58	0.49	113.83	0.16	145.08	0.14
20.17	0.60	51.42	0.43	82.67	0.50	113.92	0.16	145.17	0.14
20.25	0.58	51.50	0.43	82.75	0.50	114.00	0.16	145.25	0.14
20.33	0.58	51.58	0.43	82.83	0.50	114.08	0.16	145.33	0.14

```
 20.42    0.56 | 51.67    0.43 | 82.92    0.50 |114.17    0.16
|145.42    0.14
 20.50    0.55 | 51.75    0.43 | 83.00    0.50 |114.25    0.16
|145.50    0.14
 20.58    0.54 | 51.83    0.43 | 83.08    0.50 |114.33    0.16
|145.58    0.14
 20.67    0.53 | 51.92    0.43 | 83.17    0.51 |114.42    0.16
|145.67    0.14
 20.75    0.52 | 52.00    0.43 | 83.25    0.51 |114.50    0.16
|145.75    0.14
 20.83    0.51 | 52.08    0.43 | 83.33    0.51 |114.58    0.16
|145.83    0.14
 20.92    0.50 | 52.17    0.43 | 83.42    0.51 |114.67    0.16
|145.92    0.14
 21.00    0.49 | 52.25    0.43 | 83.50    0.52 |114.75    0.16
|146.00    0.14
 21.08    0.49 | 52.33    0.43 | 83.58    0.52 |114.83    0.16
|146.08    0.14
 21.17    0.48 | 52.42    0.43 | 83.67    0.53 |114.92    0.16
|146.17    0.14
 21.25    0.47 | 52.50    0.43 | 83.75    0.53 |115.00    0.16
|146.25    0.14
 21.33    0.47 | 52.58    0.43 | 83.83    0.54 |115.08    0.16
|146.33    0.14
 21.42    0.46 | 52.67    0.43 | 83.92    0.55 |115.17    0.16
|146.42    0.14
 21.50    0.45 | 52.75    0.43 | 84.00    0.56 |115.25    0.16
|146.50    0.14
 21.58    0.45 | 52.83    0.43 | 84.08    0.57 |115.33    0.16
|146.58    0.14
 21.67    0.44 | 52.92    0.44 | 84.17    0.58 |115.42    0.16
|146.67    0.14
 21.75    0.43 | 53.00    0.44 | 84.25    0.60 |115.50    0.16
|146.75    0.14
 21.83    0.43 | 53.08    0.44 | 84.33    0.62 |115.58    0.16
|146.83    0.14
 21.92    0.42 | 53.17    0.44 | 84.42    0.64 |115.67    0.16
|146.92    0.13
 22.00    0.42 | 53.25    0.44 | 84.50    0.66 |115.75    0.16
|147.00    0.13
 22.08    0.41 | 53.33    0.45 | 84.58    0.69 |115.83    0.16
|147.08    0.13
 22.17    0.41 | 53.42    0.45 | 84.67    0.72 |115.92    0.16
|147.17    0.13
 22.25    0.40 | 53.50    0.45 | 84.75    0.74 |116.00    0.16
|147.25    0.13
 22.33    0.40 | 53.58    0.45 | 84.83    0.77 |116.08    0.15
|147.33    0.13
 22.42    0.39 | 53.67    0.46 | 84.92    0.79 |116.17    0.15
|147.42    0.13
 22.50    0.39 | 53.75    0.46 | 85.00    0.81 |116.25    0.16
|147.50    0.13
 22.58    0.38 | 53.83    0.46 | 85.08    0.82 |116.33    0.16
|147.58    0.13
 22.67    0.38 | 53.92    0.46 | 85.17    0.84 |116.42    0.16
|147.67    0.13
 22.75    0.37 | 54.00    0.47 | 85.25    0.85 |116.50    0.16
|147.75    0.13
 22.83    0.37 | 54.08    0.47 | 85.33    0.85 |116.58    0.16
|147.83    0.13
 22.92    0.36 | 54.17    0.47 | 85.42    0.86 |116.67    0.16
|147.92    0.13
 23.00    0.36 | 54.25    0.48 | 85.50    0.87 |116.75    0.16
|148.00    0.13
 23.08    0.36 | 54.33    0.48 | 85.58    0.86 |116.83    0.16
|148.08    0.13
 23.17    0.35 | 54.42    0.49 | 85.67    0.87 |116.92    0.16
|148.17    0.13
 23.25    0.35 | 54.50    0.49 | 85.75    0.86 |117.00    0.16
|148.25    0.13
 23.33    0.34 | 54.58    0.50 | 85.83    0.85 |117.08    0.16
|148.33    0.13
 23.42    0.34 | 54.67    0.50 | 85.92    0.85 |117.17    0.16
|148.42    0.13
 23.50    0.34 | 54.75    0.51 | 86.00    0.84 |117.25    0.16
|148.50    0.13
 23.58    0.33 | 54.83    0.52 | 86.08    0.83 |117.33    0.16
|148.58    0.13
 23.67    0.33 | 54.92    0.53 | 86.17    0.82 |117.42    0.16
|148.67    0.13
 23.75    0.32 | 55.00    0.53 | 86.25    0.81 |117.50    0.16
|148.75    0.13
 23.83    0.32 | 55.08    0.54 | 86.33    0.81 |117.58    0.16
|148.83    0.13
 23.92    0.32 | 55.17    0.55 | 86.42    0.79 |117.67    0.16
|148.92    0.13
 24.00    0.31 | 55.25    0.55 | 86.50    0.78 |117.75    0.16
|149.00    0.13
 24.08    0.31 | 55.33    0.55 | 86.58    0.77 |117.83    0.16
|149.08    0.13
 24.17    0.30 | 55.42    0.56 | 86.67    0.76 |117.92    0.16
|149.17    0.13
 24.25    0.30 | 55.50    0.56 | 86.75    0.74 |118.00    0.16
|149.25    0.12
 24.33    0.30 | 55.58    0.57 | 86.83    0.74 |118.08    0.16
|149.33    0.12
 24.42    0.30 | 55.67    0.57 | 86.92    0.73 |118.17    0.16
|149.42    0.12
 24.50    0.29 | 55.75    0.58 | 87.00    0.71 |118.25    0.16
|149.50    0.12
 24.58    0.29 | 55.83    0.58 | 87.08    0.71 |118.33    0.16
|149.58    0.12
 24.67    0.29 | 55.92    0.58 | 87.17    0.70 |118.42    0.16
|149.67    0.12
 24.75    0.28 | 56.00    0.58 | 87.25    0.68 |118.50    0.16
|149.75    0.12
 24.83    0.28 | 56.08    0.58 | 87.33    0.68 |118.58    0.15
|149.83    0.12
 24.92    0.28 | 56.17    0.58 | 87.42    0.66 |118.67    0.15
|149.92    0.12
 25.00    0.27 | 56.25    0.58 | 87.50    0.66 |118.75    0.15
|150.00    0.12
 25.08    0.27 | 56.33    0.58 | 87.58    0.65 |118.83    0.15
|150.08    0.12
 25.17    0.27 | 56.42    0.58 | 87.67    0.64 |118.92    0.15
|150.17    0.12
 25.25    0.27 | 56.50    0.59 | 87.75    0.63 |119.00    0.15
|150.25    0.12
 25.33    0.26 | 56.58    0.59 | 87.83    0.62 |119.08    0.15
|150.33    0.12
 25.42    0.26 | 56.67    0.59 | 87.92    0.62 |119.17    0.15
|150.42    0.12
 25.50    0.26 | 56.75    0.59 | 88.00    0.61 |119.25    0.15
|150.50    0.12
 25.58    0.25 | 56.83    0.59 | 88.08    0.60 |119.33    0.15
|150.58    0.12
 25.67    0.25 | 56.92    0.59 | 88.17    0.59 |119.42    0.15
|150.67    0.12
 25.75    0.25 | 57.00    0.59 | 88.25    0.58 |119.50    0.15
|150.75    0.12
 25.83    0.25 | 57.08    0.59 | 88.33    0.58 |119.58    0.15
|150.83    0.12
 25.92    0.25 | 57.17    0.59 | 88.42    0.57 |119.67    0.15
|150.92    0.12
 26.00    0.24 | 57.25    0.59 | 88.50    0.57 |119.75    0.15
|151.00    0.12
 26.08    0.24 | 57.33    0.59 | 88.58    0.56 |119.83    0.16
|151.08    0.12
 26.17    0.24 | 57.42    0.59 | 88.67    0.55 |119.92    0.16
|151.17    0.12
 26.25    0.24 | 57.50    0.59 | 88.75    0.55 |120.00    0.16
|151.25    0.12
 26.33    0.23 | 57.58    0.58 | 88.83    0.54 |120.08    0.16
|151.33    0.12
 26.42    0.23 | 57.67    0.58 | 88.92    0.53 |120.17    0.16
|151.42    0.12
 26.50    0.23 | 57.75    0.58 | 89.00    0.53 |120.25    0.16
|151.50    0.12
 26.58    0.23 | 57.83    0.57 | 89.08    0.52 |120.33    0.16
|151.58    0.12
 26.67    0.23 | 57.92    0.57 | 89.17    0.51 |120.42    0.16
|151.67    0.12
 26.75    0.22 | 58.00    0.57 | 89.25    0.51 |120.50    0.16
|151.75    0.12
 26.83    0.22 | 58.08    0.57 | 89.33    0.50 |120.58    0.16
|151.83    0.12
 26.92    0.22 | 58.17    0.56 | 89.42    0.50 |120.67    0.16
|151.92    0.12
 27.00    0.22 | 58.25    0.56 | 89.50    0.49 |120.75    0.16
|152.00    0.12
 27.08    0.22 | 58.33    0.56 | 89.58    0.48 |120.83    0.16
|152.08    0.12
 27.17    0.21 | 58.42    0.55 | 89.67    0.48 |120.92    0.16
|152.17    0.12
 27.25    0.21 | 58.50    0.55 | 89.75    0.47 |121.00    0.16
|152.25    0.12
 27.33    0.21 | 58.58    0.54 | 89.83    0.47 |121.08    0.16
|152.33    0.11
 27.42    0.21 | 58.67    0.54 | 89.92    0.47 |121.17    0.17
|152.42    0.11
 27.50    0.21 | 58.75    0.53 | 90.00    0.47 |121.25    0.17
|152.50    0.11
 27.58    0.21 | 58.83    0.53 | 90.08    0.46 |121.33    0.17
|152.58    0.11
 27.67    0.20 | 58.92    0.52 | 90.17    0.46 |121.42    0.17
|152.67    0.11
 27.75    0.20 | 59.00    0.52 | 90.25    0.45 |121.50    0.17
|152.75    0.11
 27.83    0.20 | 59.08    0.52 | 90.33    0.45 |121.58    0.17
|152.83    0.11
 27.92    0.20 | 59.17    0.51 | 90.42    0.44 |121.67    0.17
|152.92    0.11
 28.00    0.19 | 59.25    0.51 | 90.50    0.44 |121.75    0.17
|153.00    0.11
 28.08    0.19 | 59.33    0.50 | 90.58    0.44 |121.83    0.17
|153.08    0.11
 28.17    0.19 | 59.42    0.50 | 90.67    0.43 |121.92    0.17
|153.17    0.11
 28.25    0.19 | 59.50    0.49 | 90.75    0.43 |122.00    0.17
|153.25    0.11
 28.33    0.19 | 59.58    0.49 | 90.83    0.43 |122.08    0.17
|153.33    0.11
 28.42    0.19 | 59.67    0.49 | 90.92    0.43 |122.17    0.17
|153.42    0.11
 28.50    0.19 | 59.75    0.48 | 91.00    0.42 |122.25    0.18
|153.50    0.11
 28.58    0.18 | 59.83    0.48 | 91.08    0.42 |122.33    0.18
|153.58    0.11
 28.67    0.18 | 59.92    0.47 | 91.17    0.42 |122.42    0.18
|153.67    0.11
 28.75    0.18 | 60.00    0.47 | 91.25    0.42 |122.50    0.18
|153.75    0.11
 28.83    0.18 | 60.08    0.47 | 91.33    0.41 |122.58    0.18
|153.83    0.11
 28.92    0.18 | 60.17    0.46 | 91.42    0.41 |122.67    0.18
|153.92    0.11
 29.00    0.18 | 60.25    0.46 | 91.50    0.41 |122.75    0.18
|154.00    0.11
 29.08    0.18 | 60.33    0.45 | 91.58    0.41 |122.83    0.18
|154.08    0.11
 29.17    0.18 | 60.42    0.45 | 91.67    0.41 |122.92    0.18
|154.17    0.11
 29.25    0.17 | 60.50    0.44 | 91.75    0.41 |123.00    0.18
|154.25    0.11
 29.33    0.17 | 60.58    0.44 | 91.83    0.40 |123.08    0.18
|154.33    0.11
 29.42    0.17 | 60.67    0.44 | 91.92    0.40 |123.17    0.18
|154.42    0.11
 29.50    0.17 | 60.75    0.43 | 92.00    0.40 |123.25    0.18
|154.50    0.11
 29.58    0.17 | 60.83    0.43 | 92.08    0.40 |123.33    0.18
|154.58    0.11
 29.67    0.17 | 60.92    0.42 | 92.17    0.40 |123.42    0.18
|154.67    0.11
 29.75    0.17 | 61.00    0.42 | 92.25    0.39 |123.50    0.18
|154.75    0.11
 29.83    0.17 | 61.08    0.42 | 92.33    0.39 |123.58    0.18
|154.83    0.11
 29.92    0.16 | 61.17    0.42 | 92.42    0.39 |123.67    0.18
|154.92    0.11
 30.00    0.16 | 61.25    0.41 | 92.50    0.39 |123.75    0.18
|155.00    0.11
 30.08    0.16 | 61.33    0.41 | 92.58    0.38 |123.83    0.18
|155.08    0.11
 30.17    0.16 | 61.42    0.40 | 92.67    0.38 |123.92    0.18
|155.17    0.11
 30.25    0.16 | 61.50    0.40 | 92.75    0.38 |124.00    0.18
|155.25    0.11
 30.33    0.16 | 61.58    0.40 | 92.83    0.38 |124.08    0.18
|155.33    0.11
 30.42    0.16 | 61.67    0.40 | 92.92    0.38 |124.17    0.18
|155.42    0.11
 30.50    0.16 | 61.75    0.39 | 93.00    0.37 |124.25    0.18
|155.50    0.11
 30.58    0.16 | 61.83    0.39 | 93.08    0.37 |124.33    0.19
|155.58    0.11
 30.67    0.16 | 61.92    0.39 | 93.17    0.37 |124.42    0.19
|155.67    0.11
 30.75    0.16 | 62.00    0.38 | 93.25    0.37 |124.50    0.19
|155.75    0.11
 30.83    0.15 | 62.08    0.38 | 93.33    0.37 |124.58    0.19
|155.83    0.10
 30.92    0.15 | 62.17    0.38 | 93.42    0.37 |124.67    0.20
|155.92    0.11
 31.00    0.15 | 62.25    0.38 | 93.50    0.37 |124.75    0.20
|156.00    0.10
 31.08    0.15 | 62.33    0.39 | 93.58    0.37 |124.83    0.20 |
 31.17    0.15 | 62.42    0.39 | 93.67    0.37 |124.92    0.20 |
-----------------------------------------------------------------
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--------------------
| CALIB            |
| NASHYD    (6201) |   Area    (ha)=   9.60   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.04

     Unit Hyd Qpeak  (cms)=   0.352

     PEAK FLOW       (cms)=   0.368 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  36.241
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.444

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6202) |   Area    (ha)=   2.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.50         0.81
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     123.83        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30       115.20
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       2.64 (ii)   10.85 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.43         0.16
0.567 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        43.30
60.42
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.53
0.74

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0140) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (6201):     9.60   0.368     4.08    36.24
       + ID2= 2 (6202):     2.30   0.567     3.00    60.42
         ==================================================
         ID = 3 (0140):    11.90   0.633     3.00    40.91

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0621) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1549.0) ------>
               Distance      Elevation       Manning
                   0.00          87.56        0.0900
                   3.37          87.60        0.0900
                  16.78          87.21        0.0900
                  31.08          87.29        0.0900
                  43.62          87.28        0.0900
                  62.88          87.41        0.0900
                  68.00          87.22        0.0900
                  96.20          87.43        0.0900
                 112.60          86.39    0.0900 /0.0700  Main
Channel
                 113.70          86.10        0.0700      Main
Channel
                 114.40          86.51    0.0700 /0.0900  Main
Channel
                 114.60          86.67        0.0900
                 131.60          87.07        0.0900
                 156.70          87.16        0.0900
                 184.59          87.41        0.0900
                 194.09          87.56        0.0900
                 202.66          87.64        0.0900
                 221.43          87.69        0.0900
                 230.63          87.86        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    86.17    .898E+01       0.0          0.13
79.55
       0.14    86.24    .359E+02       0.0          0.21
50.11
       0.21    86.31    .808E+02       0.0          0.28
38.24
       0.29    86.39    .144E+03       0.1          0.33
31.57
       0.36    86.46    .256E+03       0.2          0.39
27.10
       0.44    86.54    .435E+03       0.3          0.42
25.03
       0.52    86.62    .680E+03       0.5          0.46
23.12
       0.60    86.70    .998E+03       0.8          0.48
21.78
       0.68    86.78    .150E+04       1.2          0.48
21.76
       0.76    86.85    .223E+04       1.7          0.48
21.78
       0.83    86.93    .319E+04       2.5          0.49
21.41
       0.91    87.01    .437E+04       3.5          0.51
20.74
       0.99    87.09    .580E+04       4.7          0.51
20.64
       1.07    87.17    .811E+04       6.2          0.48
21.90
       1.15    87.25    .113E+05       7.8          0.44
24.18
       1.23    87.32    .165E+05      10.6          0.41
26.00
       1.30    87.40    .239E+05      16.0          0.42
24.97
       1.38    87.48    .327E+05      24.3          0.47
22.45
       1.46    87.56    .419E+05      34.6          0.52
20.16

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0140)   11.90     0.63    3.00  40.91
0.56      0.47
     OUTFLOW: ID= 1 (0621)   11.90     0.40    4.25  40.89
0.48      0.44


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--------------------
| CALIB            |
| NASHYD    (6211) |   Area    (ha)=   4.60   Curve Number
(CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.08

     Unit Hyd Qpeak  (cms)=   0.162

     PEAK FLOW       (cms)=   0.188 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  39.510
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.484

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (6212) |   Area    (ha)=  17.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.39         5.61
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     336.65        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30       126.10
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.81 (ii)   12.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.16         1.18
4.172 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        46.90
62.68
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.57
0.77
```

```
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  80.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0141) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (6211):      4.60   0.188    4.08    39.51
       + ID2= 2 (6212):     17.00   4.172    3.00    62.68
         ===============================================
         ID = 3 (0141):     21.60   4.205    3.00    57.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0142) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0141):     21.60   4.205    3.00    57.75
       + ID2= 2 (0621):     11.90   0.401    4.25    40.89
         ===============================================
         ID = 3 (0142):     33.50   4.503    3.00    51.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0622) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 953.0) ------>
               Distance       Elevation       Manning
                  16.75          82.21        0.1100
                  30.34          82.03        0.1100
                  44.96          81.97        0.1100
                  58.95          81.94        0.1100
                  71.21          81.85        0.1100
                 100.74          81.58        0.1100
                 112.29          81.50        0.1100
                 121.63          81.56        0.1100
                 127.04          81.66     0.1100 /0.0700  Main
Channel
                 129.04          80.66        0.0700      Main
Channel
                 130.04          80.66        0.0700      Main
Channel
                 131.04          80.66        0.0700      Main
Channel
                 133.04          81.66     0.0700 /0.1100  Main
Channel
                 134.58          82.08        0.1100
                 135.14          82.01        0.1100
                 139.68          81.73        0.1100
                 151.74          81.75        0.1100
                 153.37          81.71        0.1100
                 167.06          81.83        0.1100
                 187.62          81.87        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.06    80.72    .649E+02       0.0         0.17
49.00
      0.12    80.79    .138E+03       0.1         0.25
32.10
      0.19    80.85    .218E+03       0.1         0.32
25.32
      0.25    80.91    .306E+03       0.2         0.38
21.50
      0.31    80.97    .401E+03       0.4         0.43
18.99
      0.37    81.04    .504E+03       0.5         0.47
17.19
      0.44    81.10    .615E+03       0.6         0.52
15.81
      0.50    81.16    .733E+03       0.8         0.55
14.71
      0.56    81.22    .860E+03       1.0         0.59
13.81
      0.62    81.29    .993E+03       1.3         0.62
13.06
      0.69    81.35    .113E+04       1.5         0.66
12.41
      0.75    81.41    .128E+04       1.8         0.69
11.84
      0.81    81.47    .144E+04       2.1         0.72
11.35
      0.87    81.54    .170E+04       2.5         0.71
11.50
      0.94    81.60    .245E+04       3.0         0.59
13.80
      1.00    81.66    .355E+04       3.7         0.51
16.06
      1.07    81.73    .511E+04       4.9         0.47
17.27
      1.14    81.80    .759E+04       6.7         0.43
18.98
      1.21    81.87    .109E+05       9.0         0.40
20.28

                                  <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0142)   33.50     4.50    3.00  51.76
1.05      0.48
     OUTFLOW: ID= 1 (0622)   33.50     2.97    3.17  51.75
0.94      0.59


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--------------------
| CALIB            |
| STANDHYD  (6222) |   Area    (ha)=  16.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=
57.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.29          5.31
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      332.67         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=     127.30         90.53
                over (min)        5.00         15.00
     Storage Coeff.  (min)=        4.77 (ii)   13.81 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.22          0.08

*TOTALS*
     PEAK FLOW       (cms)=        3.20          0.75
3.821 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       75.60         33.91
57.67
     TOTAL RAINFALL   (mm)=       81.60         81.60
81.60
     RUNOFF COEFFICIENT   =        0.93          0.42
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6221) |   Area    (ha)=   0.30   Curve Number
(CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------    U.H. Tp(hrs)=   1.03

     Unit Hyd Qpeak  (cms)=   0.011

     PEAK FLOW       (cms)=   0.009 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  27.254
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.334

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0143) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (6221):      0.30   0.009    4.08    27.25
       + ID2= 2 (6222):     16.60   3.821    3.00    57.67
         ===============================================
         ID = 3 (0143):     16.90   3.822    3.00    57.13

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0144) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0143):     16.90   3.822    3.00    57.13
       + ID2= 2 (0622):     33.50   2.974    3.17    51.75
         ===============================================
         ID = 3 (0144):     50.40   6.454    3.00    53.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6231) |   Area    (ha)=   5.10   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------    U.H. Tp(hrs)=   1.12

     Unit Hyd Qpeak  (cms)=   0.175

     PEAK FLOW       (cms)=   0.133 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)=  26.495
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.325

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6232) |   Area    (ha)=  15.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        5.89          9.61
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      321.46         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=     127.30         75.74
                over (min)        5.00         15.00
     Storage Coeff.  (min)=        4.67 (ii)   14.38 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.22          0.08

*TOTALS*
     PEAK FLOW       (cms)=        1.26          1.10
2.164 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       75.60         31.00
41.70
     TOTAL RAINFALL   (mm)=       81.60         81.60
81.60
     RUNOFF COEFFICIENT   =        0.93          0.38
0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0145) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (6231):      5.10   0.133    4.17    26.49
       + ID2= 2 (6232):     15.50   2.164    3.00    41.70
         ===============================================
         ID = 3 (0145):     20.60   2.183    3.00    37.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0146) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0144):     50.40   6.454    3.00    53.56
       + ID2= 2 (0145):     20.60   2.183    3.00    37.94
         ===============================================
         ID = 3 (0146):     71.00   8.637    3.00    49.02

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6302) |   Area    (ha)=   2.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=
50.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.64          0.96
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      131.66         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=     127.30        124.51
                over (min)        5.00         15.00
     Storage Coeff.  (min)=        2.74 (ii)   10.70 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.29          0.09

*TOTALS*
     PEAK FLOW       (cms)=        0.46          0.21
0.640 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       75.60         46.69
61.14
     TOTAL RAINFALL   (mm)=       81.60         81.60
81.60
     RUNOFF COEFFICIENT   =        0.93          0.57
0.75

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  80.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0631) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 788.2) ------>
               Distance       Elevation       Manning
                   0.00          81.00        0.1100
                  15.70          81.00        0.1100
                  17.50          80.50     0.1100 /0.0700  Main
Channel
                  18.50          80.50        0.0700      Main
Channel
                  20.00          81.00     0.0700 /0.1100  Main
Channel
                  24.00          81.00        0.1100
                  38.00          81.50        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.03    80.53    .174E+02       0.0         0.10
100.96
      0.05    80.55    .375E+02       0.0         0.15
66.64
      0.08    80.58    .604E+02       0.0         0.19
52.98
      0.11    80.61    .861E+02       0.0         0.22
45.34
      0.13    80.63    .115E+03       0.0         0.25
40.34
      0.16    80.66    .146E+03       0.1         0.28
36.75
      0.18    80.68    .180E+03       0.1         0.30
34.02
      0.21    80.71    .217E+03       0.1         0.32
31.85
      0.24    80.74    .256E+03       0.1         0.34
30.07
      0.26    80.76    .298E+03       0.2         0.35
28.57
      0.29    80.79    .344E+03       0.2         0.37
27.28
      0.32    80.82    .391E+03       0.2         0.39
26.15
      0.34    80.84    .442E+03       0.3         0.40
25.16
      0.37    80.87    .495E+03       0.3         0.42
24.27
      0.39    80.89    .552E+03       0.4         0.43
23.48
      0.42    80.92    .611E+03       0.4         0.44
22.75
      0.45    80.95    .672E+03       0.5         0.46
22.09
      0.47    80.97    .737E+03       0.6         0.47
21.48
      0.50    81.00    .804E+03       0.6         0.48
20.91

                                  <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6302)    2.60     0.64    3.00  61.14
0.50      0.48
     OUTFLOW: ID= 1 (0631)    2.60     0.35    3.08  60.92
0.37      0.42


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--------------------
| CALIB            |
| STANDHYD  (6312) |   Area    (ha)=   8.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=
51.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        5.54          3.26
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      242.21         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=     127.30         88.40
                over (min)        5.00         15.00
     Storage Coeff.  (min)=        3.94 (ii)   13.07 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.24          0.08

*TOTALS*
     PEAK FLOW       (cms)=        1.55          0.46
1.925 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       75.60         33.58
55.01
     TOTAL RAINFALL   (mm)=       81.60         81.60
81.60
     RUNOFF COEFFICIENT   =        0.93          0.41
0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0149) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0631):      2.60   0.352    3.08    60.92
       + ID2= 2 (6312):      8.80   1.925    3.00    55.01
         ===============================================
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```
          ID = 3 (0149):    11.40   2.248     3.00    56.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0632) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                 <------ DATA FOR SECTION ( 924.2) ------>
                 Distance      Elevation       Manning
                     0.00         82.50        0.1100
                     6.00         82.00        0.1100
                    11.00         81.00        0.1100
                    12.00         80.00        0.1100
                    13.50         79.50    0.1100 /0.0700  Main
Channel
                    14.50         79.50        0.0700      Main
Channel
                    16.00         80.00    0.0700 /0.1100  Main
Channel
                    18.00         80.00        0.1100
                    29.70         80.00        0.1100
                    37.00         80.50        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.05    79.55    .330E+02       0.0          0.17
52.00
      0.11    79.61    .749E+02       0.0          0.26
35.21
      0.16    79.66    .126E+03       0.1          0.32
28.45
      0.21    79.71    .186E+03       0.1          0.37
24.60
      0.26    79.76    .255E+03       0.2          0.41
22.04
      0.32    79.82    .333E+03       0.3          0.45
20.16
      0.37    79.87    .420E+03       0.4          0.48
18.69
      0.42    79.92    .515E+03       0.5          0.51
17.51
      0.47    79.97    .620E+03       0.6          0.55
16.53
      0.53    80.03    .931E+03       0.8          0.48
18.86
      0.58    80.08    .146E+04       1.2          0.43
20.73
      0.63    80.13    .201E+04       1.6          0.44
20.51
      0.68    80.18    .258E+04       2.2          0.46
19.66
      0.74    80.24    .318E+04       2.8          0.48
18.66
      0.79    80.29    .380E+04       3.6          0.51
17.70
      0.84    80.34    .445E+04       4.4          0.54
16.82
      0.89    80.39    .511E+04       5.3          0.56
16.03
      0.95    80.45    .580E+04       6.3          0.59
15.32
      1.00    80.50    .652E+04       7.4          0.61
14.69

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0149)   11.40     2.25     3.00  56.36
0.69     0.46
    OUTFLOW: ID= 1 (0632)   11.40     1.25     3.08  56.33
0.59     0.44


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--------------------
| CALIB            |
| NASHYD    (6321) |   Area    (ha)=   1.10   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   0.044

     PEAK FLOW       (cms)=   0.032 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  26.493
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.325

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (6322) |   Area    (ha)=   4.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  42.00   Dir. Conn.(%)=
28.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.81         2.49
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     169.31        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        77.37
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.18 (ii)   12.81 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.42         0.31
0.674 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        31.28
43.69
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.38
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0173) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (6321):      1.10   0.032     4.00    26.49
       + ID2= 2 (6322):      4.30   0.674     3.00    43.69
         ===============================================
          ID = 3 (0173):      5.40   0.680     3.00    40.19

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD   (0174) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0173):      5.40   0.680     3.00    40.19
       + ID2= 2 (0632):     11.40   1.248     3.08    56.33
         ===============================================
          ID = 3 (0174):     16.80   1.804     3.00    51.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6401) |   Area    (ha)=   0.70   Curve Number
(CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.36

     Unit Hyd Qpeak  (cms)=   0.020

     PEAK FLOW       (cms)=   0.024 (i)
     TIME TO PEAK    (hrs)=   4.500
     RUNOFF VOLUME    (mm)=  39.507
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.484

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6402) |   Area    (ha)=  16.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.72         5.28
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     326.60        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30       126.10
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.72 (ii)   12.64 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.98         1.12
3.936 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        46.90
62.68
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.57
0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  80.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0177) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (6401):      0.70   0.024     4.50    39.51
       + ID2= 2 (6402):     16.00   3.936     3.00    62.68
         ===============================================
          ID = 3 (0177):     16.70   3.938     3.00    61.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0641) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                 <------ DATA FOR SECTION ( 910.0) ------>
                 Distance      Elevation       Manning
                     0.00         83.92        0.1100
                     1.93         83.93        0.1100
                     3.02         83.94        0.1100
                     5.01         83.96        0.1100
                     6.81         83.80        0.1100
                     7.33         83.77        0.1100
                     8.42         83.41    0.1100 /0.0700  Main
Channel
                    10.42         82.41        0.0700      Main
Channel
                    11.17         82.41        0.0700      Main
Channel
                    11.92         82.41        0.0700      Main
Channel
                    13.92         83.41    0.0700 /0.1100  Main
Channel
                    21.33         84.40        0.1100
                    23.85         84.09        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.10    82.51    .768E+02       0.0          0.24
32.02
      0.20    82.61    .172E+03       0.1          0.35
21.50
      0.30    82.71    .285E+03       0.3          0.44
17.20
      0.40    82.81    .416E+03       0.5          0.51
14.73
      0.50    82.91    .565E+03       0.7          0.58
13.08
      0.60    83.01    .732E+03       1.0          0.64
11.86
      0.70    83.11    .918E+03       1.4          0.69
10.92
      0.80    83.21    .112E+04       1.8          0.74
10.16
      0.90    83.31    .134E+04       2.3          0.79
9.53
      1.00    83.41    .158E+04       2.9          0.84
9.00
      1.11    83.52    .188E+04       3.8          0.92
8.20
      1.22    83.63    .224E+04       4.8          0.98
7.72
      1.33    83.74    .266E+04       6.0          1.02
7.39
      1.44    83.85    .315E+04       7.3          1.05
7.20
      1.55    83.96    .379E+04       8.7          1.04
7.24
      1.66    84.07    .471E+04      10.6          1.02
7.41
      1.77    84.18    .567E+04      12.7          1.01
7.46
      1.88    84.29    .673E+04      15.1          1.01
7.43
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      1.99    84.40    .787E+04      17.8          1.02
7.36

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0177)   16.70     3.94     3.00  61.71
1.12     0.92
    OUTFLOW: ID= 1 (0641)   16.70     3.06     3.00  61.71
1.01     0.85


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--------------------
| CALIB            |
| NASHYD    (6411) |   Area    (ha)=   1.00   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.97

     Unit Hyd Qpeak  (cms)=   0.039

     PEAK FLOW       (cms)=   0.035 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  31.423
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.385

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6412) |   Area    (ha)=  12.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
56.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.44         4.16
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     289.83        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30       101.17
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.39 (ii)   13.04 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.41         0.68
2.975 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        38.18
59.14
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.47
0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  72.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0181) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (6411):      1.00   0.035     4.00    31.42
       + ID2= 2 (6412):     12.60   2.975     3.00    59.14
         ===============================================
          ID = 3 (0181):     13.60   2.982     3.00    57.10

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0184) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0181):     13.60   2.982     3.00    57.10
       + ID2= 2 (0641):     16.70   3.064     3.00    61.71
         ===============================================
          ID = 3 (0184):     30.30   6.046     3.00    59.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0642) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                 <------ DATA FOR SECTION (1099.5) ------>
                 Distance      Elevation       Manning
                     0.00         85.00        0.1100
                    14.50         80.00        0.1100
                    15.30         80.00        0.1100
                    16.80         79.50    0.1100 /0.0700  Main
Channel
                    17.80         79.50        0.0700      Main
Channel
                    19.30         80.00    0.0700 /0.1100  Main
Channel
                    20.30         80.00        0.1100
                    27.30         81.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.08    79.58    .520E+02       0.0          0.24
36.74
      0.16    79.66    .124E+03       0.1          0.35
25.35
      0.24    79.74    .216E+03       0.2          0.43
20.68
      0.32    79.82    .328E+03       0.3          0.49
17.96
      0.39    79.89    .460E+03       0.5          0.55
16.11
      0.47    79.97    .611E+03       0.7          0.60
14.73
      0.55    80.05    .836E+03       1.0          0.62
14.31
      0.63    80.13    .112E+04       1.4          0.66
13.40
      0.71    80.21    .143E+04       1.9          0.70
12.62
      0.79    80.29    .178E+04       2.5          0.74
11.97
      0.87    80.37    .216E+04       3.2          0.78
11.42
      0.95    80.45    .258E+04       3.9          0.81
10.93
      1.03    80.53    .302E+04       4.8          0.85
10.51
      1.11    80.61    .350E+04       5.8          0.88
10.14
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```
      1.18    80.68    .402E+04       6.8          0.91
9.80
      1.26    80.76    .456E+04       8.0          0.94
9.49
      1.34    80.84    .514E+04       9.3          0.96
9.21
      1.42    80.92    .575E+04      10.7          0.99
8.96
      1.50    81.00    .640E+04      12.2          1.02
8.72

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0184)   30.30     6.05    3.00  59.64
1.13     0.88
    OUTFLOW: ID= 1 (0642)   30.30     4.63    3.08  59.64
1.01     0.84


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--------------------
| CALIB            |
| NASHYD    (6421) |   Area    (ha)=   3.60   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.88

     Unit Hyd Qpeak  (cms)=   0.156

     PEAK FLOW       (cms)=   0.112 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=  26.495
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.325

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6422) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  41.00   Dir. Conn.(%)=
27.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.66         8.14
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     303.32        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        89.92
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.51 (ii)   13.58 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.27         1.15
2.226 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        36.43
47.00
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.45
0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0185) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6421):      3.60   0.112     3.92    26.49
        + ID2= 2 (6422):     13.80   2.226     3.00    47.00
          ================================================
          ID = 3 (0185):     17.40   2.249     3.00    42.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0187) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0185):     17.40   2.249     3.00    42.76
        + ID2= 2 (0642):     30.30   4.631     3.08    59.64
          ================================================
          ID = 3 (0187):     47.70   6.362     3.08    53.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6501) |   Area    (ha)=   6.90   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.02

     Unit Hyd Qpeak  (cms)=   0.258

     PEAK FLOW       (cms)=   0.192 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  26.495
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.325

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6502) |   Area    (ha)=   2.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
22.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.77         1.43
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     121.11        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        73.06
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.60 (ii)   12.45 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.17         0.17
0.309 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        30.52
40.43
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.37
0.50

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0190) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6501):      6.90   0.192     4.08    26.50
        + ID2= 2 (6502):      2.20   0.309     3.00    40.43
          ================================================
          ID = 3 (0190):      9.10   0.341     3.00    29.87

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6601) |   Area    (ha)=   2.00   Curve Number
(CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.66

     Unit Hyd Qpeak  (cms)=   0.116

     PEAK FLOW       (cms)=   0.116 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  38.384
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.470

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6602) |   Area    (ha)=  11.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  41.00   Dir. Conn.(%)=
27.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.80         6.90
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     279.28        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30       107.12
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.30 (ii)   12.75 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.08         1.22
2.113 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        43.52
52.18
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.53
0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0193) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6601):      2.00   0.116     3.58    38.38
        + ID2= 2 (6602):     11.70   2.113     3.00    52.18
          ================================================
          ID = 3 (0193):     13.70   2.153     3.00    50.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7302) |   Area    (ha)=   3.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=
20.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09         2.31
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     150.55        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        70.64
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.96 (ii)   12.95 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.24         0.26
0.450 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        30.08
39.18
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.37
0.48

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7402) |   Area    (ha)=   3.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  40.00   Dir. Conn.(%)=
26.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.48         2.22
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     157.06        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        76.53
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.04 (ii)   12.71 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.34         0.27
0.560 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        31.14
42.69
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.38
0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| NASHYD    (7031) |   Area    (ha)=   3.70   Curve Number
(CN)= 63.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.12

     Unit Hyd Qpeak  (cms)=   0.126

     PEAK FLOW       (cms)=   0.088 (i)
     TIME TO PEAK    (hrs)=   4.250
     RUNOFF VOLUME    (mm)=  24.315
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.298

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7032) |   Area    (ha)=  19.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.61         7.09
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     362.40        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        80.70
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       5.02 (ii)   14.49 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.21         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.45         0.86
4.155 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        30.48
53.94
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.37
0.66


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  63.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0213) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7031):      3.70   0.088     4.25    24.32
        + ID2= 2 (7032):     19.70   4.155     3.00    53.94
          ================================================
          ID = 3 (0213):     23.40   4.167     3.00    49.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (7101) |   Area    (ha)=  70.70   Curve Number
(CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.78

     Unit Hyd Qpeak  (cms)=   3.471

     PEAK FLOW       (cms)=   1.576 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  17.584
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.215

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7102) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
33.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.88         9.62
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     341.57        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        42.35
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.85 (ii)   17.10 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.22         0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.95         0.64
2.377 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      75.60        21.05
39.05
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.26
0.48

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
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       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0218) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7101):    70.70   1.576     3.83    17.58
        + ID2= 2 (7102):    17.50   2.377     3.00    39.05
          ===============================================
          ID = 3 (0218):    88.20   2.758     3.00    21.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0711) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1487.9) ------>
              Distance      Elevation        Manning
                 0.00          95.00         0.1100
                89.00          94.00         0.1100
               135.70          94.00     0.1100 /0.0700  Main
Channel
               137.20          93.50         0.0700      Main
Channel
               138.20          93.50         0.0700      Main
Channel
               139.70          94.00     0.0700 /0.1100  Main
Channel
               211.60          94.00         0.1100
               249.00          95.00         0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    93.57    .969E+02       0.0          0.20
95.33
       0.14    93.64    .228E+03       0.1          0.29
64.56
       0.21    93.71    .393E+03       0.1          0.36
51.73
       0.29    93.79    .593E+03       0.2          0.42
44.23
       0.36    93.86    .826E+03       0.4          0.48
39.15
       0.43    93.93    .109E+04       0.5          0.53
35.40
       0.50    94.00    .140E+04       0.7          0.57
32.52
       0.58    94.08    .133E+05       2.6          0.22
84.59
       0.67    94.17    .262E+05       6.5          0.28
67.17
       0.75    94.25    .400E+05      12.0          0.33
55.64
       0.83    94.33    .549E+05      19.0          0.39
48.10
       0.92    94.42    .707E+05      27.5          0.43
42.81
       1.00    94.50    .875E+05      37.5          0.48
38.86
       1.08    94.58    .105E+06      49.0          0.52
35.80
       1.17    94.67    .124E+06      62.0          0.56
33.34
       1.25    94.75    .144E+06      76.6          0.59
31.30
       1.33    94.83    .165E+06      92.7          0.63
29.59
       1.42    94.92    .186E+06     110.4          0.66
28.12
       1.50    95.00    .209E+06     129.7          0.69
26.84

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
      INFLOW : ID= 2 (0218)   88.20     2.76    3.00  21.84
0.59     0.22
      OUTFLOW: ID= 1 (0711)   88.20     1.62    4.58  21.84
0.54     0.32

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--------------------
| CALIB            |
| NASHYD    (7111) |   Area    (ha)=  49.10   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.43

     Unit Hyd Qpeak  (cms)=   1.311

     PEAK FLOW       (cms)=   1.194 (i)
     TIME TO PEAK    (hrs)=   4.583
     RUNOFF VOLUME    (mm)=  29.689
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.364

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7112) |   Area    (ha)=  11.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  34.00   Dir. Conn.(%)=
22.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        3.81         7.39
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      273.25        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      127.30        79.24
                over (min)         5.00        15.00
     Storage Coeff.  (min)=        4.24 (ii)   13.78 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.24         0.08

*TOTALS*
     PEAK FLOW       (cms)=        0.84         0.91
1.592 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       75.60        33.54
42.79
     TOTAL RAINFALL   (mm)=       81.60        81.60
81.60
     RUNOFF COEFFICIENT   =        0.93         0.41
0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0222) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7111):    49.10   1.194     4.58    29.69
        + ID2= 2 (7112):    11.20   1.592     3.00    42.79
          ===============================================
          ID = 3 (0222):    60.30   1.714     3.00    32.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0223) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0222):    60.30   1.714     3.00    32.12
        + ID2= 2 (0711):    88.20   1.622     4.58    21.84
          ===============================================
          ID = 3 (0223):   148.50   2.971     4.50    26.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (7011) |   Area    (ha)=  90.40   Curve Number
(CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.77

     Unit Hyd Qpeak  (cms)=   4.467

     PEAK FLOW       (cms)=   2.518 (i)
     TIME TO PEAK    (hrs)=   3.750
     RUNOFF VOLUME    (mm)=  21.658
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.265

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7012) |   Area    (ha)=  25.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
25.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        9.54        15.56
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      409.06        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      127.30        51.32
                over (min)         5.00        20.00
     Storage Coeff.  (min)=        5.40 (ii)   16.75 (ii)
     Unit Hyd. Tpeak (min)=        5.00        20.00
     Unit Hyd. peak  (cms)=        0.21         0.06

*TOTALS*
     PEAK FLOW       (cms)=        2.09         1.27
2.951 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=       75.60        25.45
37.99
     TOTAL RAINFALL   (mm)=       81.60        81.60
81.60
     RUNOFF COEFFICIENT   =        0.93         0.31
0.47

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  59.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0205) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7011):    90.40   2.518     3.75    21.66
        + ID2= 2 (7012):    25.10   2.951     3.00    37.99
          ===============================================
          ID = 3 (0205):   115.50   3.580     3.00    25.21

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0702) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1184.6) ------>
              Distance      Elevation        Manning
                 0.00          93.00         0.1100
                56.00          92.00         0.1100
                65.40          92.00         0.1100
                74.80          91.50     0.1100 /0.0700  Main
Channel
                75.80          91.50         0.0700      Main
Channel
                77.30          92.00     0.0700 /0.1100  Main
Channel
               144.00          92.00         0.1100
               186.00          93.00         0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.08    91.58    .236E+03       0.0          0.13
200.27
       0.16    91.66    .689E+03       0.1          0.18
146.52
       0.24    91.74    .136E+04       0.2          0.22
121.67
       0.32    91.82    .225E+04       0.4          0.25
105.99
       0.39    91.89    .336E+04       0.6          0.28
94.79
       0.47    91.97    .468E+04       0.9          0.31
86.24
       0.55    92.05    .128E+05       1.5          0.19
142.36
       0.63    92.13    .251E+05       3.4          0.22
123.43
       0.71    92.21    .384E+05       6.1          0.26
104.46
       0.79    92.29    .526E+05       9.6          0.29
90.95
       0.87    92.37    .678E+05      13.9          0.33
81.16
       0.95    92.45    .840E+05      19.0          0.36
73.76
       1.03    92.53    .101E+06      24.8          0.39
67.97
       1.11    92.61    .119E+06      31.4          0.42
63.30
       1.18    92.68    .139E+06      38.8          0.45
59.44
       1.26    92.76    .159E+06      47.1          0.48
56.18
       1.34    92.84    .180E+06      56.1          0.50
53.38
       1.42    92.92    .202E+06      66.0          0.52
50.95
       1.50    93.00    .225E+06      76.8          0.55
48.81

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
      INFLOW : ID= 2 (0205)  115.50     3.58    3.00  25.21
0.64     0.22
      OUTFLOW: ID= 1 (0702)  115.50     1.73    5.67  25.20
0.56     0.19

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--------------------
| CALIB            |
| NASHYD    (7021) |   Area    (ha)=  16.10   Curve Number
(CN)= 64.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.72

     Unit Hyd Qpeak  (cms)=   0.358

     PEAK FLOW       (cms)=   0.285 (i)
     TIME TO PEAK    (hrs)=   5.000
     RUNOFF VOLUME    (mm)=  25.023
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.307

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7022) |   Area    (ha)=  26.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  36.00   Dir. Conn.(%)=
24.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        9.50        16.90
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      419.52        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      127.30        57.22
                over (min)         5.00        20.00
     Storage Coeff.  (min)=        5.48 (ii)   16.35 (ii)
     Unit Hyd. Tpeak (min)=        5.00        20.00
     Unit Hyd. peak  (cms)=        0.20         0.06

*TOTALS*
     PEAK FLOW       (cms)=        2.11         1.56
3.174 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=       75.60        28.71
39.97
     TOTAL RAINFALL   (mm)=       81.60        81.60
81.60
     RUNOFF COEFFICIENT   =        0.93         0.35
0.49

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  64.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0209) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7021):    16.10   0.285     5.00    25.02
        + ID2= 2 (7022):    26.40   3.174     3.00    39.97
          ===============================================
          ID = 3 (0209):    42.50   3.195     3.00    34.31

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0210) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0209):    42.50   3.195     3.00    34.31
        + ID2= 2 (0702):   115.50   1.730     5.67    25.20
          ===============================================
          ID = 3 (0210):   158.00   3.646     3.00    27.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0224) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0210):   158.00   3.646     3.00    27.65
        + ID2= 2 (0223):   148.50   2.971     4.50    26.01
          ===============================================
          ID = 3 (0224):   306.50   5.992     3.00    26.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0703) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (2329.2) ------>
              Distance      Elevation        Manning
                 0.00          88.00         0.1100
                37.50          87.00         0.1100
                51.30          86.00         0.1100
                82.80          86.00         0.1100
               107.50          87.00         0.1100
               117.30          86.00         0.1100
               125.90          86.00     0.1100 /0.0700  Main
Channel
               127.40          85.50         0.0700      Main
Channel
               128.40          85.50         0.0700      Main
Channel
               129.90          86.00     0.0700 /0.1100  Main
Channel
               133.00          86.00         0.1100
               149.00          87.00         0.1100
               193.00          88.00         0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
```

```
      0.12    85.62    .787E+02       0.0          0.19
40.30
      0.25    85.75    .200E+03       0.1          0.28
27.58
      0.37    85.88    .365E+03       0.3          0.35
22.10
      0.50    86.00    .572E+03       0.5          0.41
18.84
      0.63    86.13    .372E+04       1.8          0.22
34.16
      0.77    86.27    .738E+04       4.4          0.27
28.02
      0.90    86.40    .116E+05       8.1          0.32
23.77
      1.03    86.53    .163E+05      13.0          0.37
20.89
      1.17    86.67    .215E+05      19.1          0.41
18.82
      1.30    86.80    .273E+05      26.4          0.44
17.24
      1.43    86.93    .336E+05      35.0          0.48
15.99
      1.57    87.07    .404E+05      44.9          0.51
15.00
      1.70    87.20    .479E+05      56.3          0.54
14.18
      1.83    87.33    .560E+05      69.3          0.57
13.47
      1.97    87.47    .648E+05      84.0          0.59
12.85
      2.10    87.60    .743E+05     100.6          0.62
12.31
      2.23    87.73    .844E+05     119.0          0.65
11.82
      2.37    87.87    .952E+05     139.3          0.67
11.39
      2.50    88.00    .107E+06     161.7          0.69
11.00

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0224)  306.50     5.99    3.00  26.86
0.82     0.29
    OUTFLOW: ID= 1 (0703)  306.50     5.02    4.83  26.86
0.79     0.28


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| ADD HYD   (0215) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0213):    23.40   4.167     3.00    49.26
        + ID2= 2 (0703):   306.50   5.018     4.83    26.86
          ===============================================
          ID = 3 (0215):   329.90   6.356     3.00    28.44

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0704) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (2755.4) ------>
               Distance       Elevation        Manning
                  0.00          85.00         0.1100
                 25.00          84.00         0.1100
                 32.00          84.00      0.1100 /0.0700  Main
Channel
                 33.50          83.50         0.0700       Main
Channel
                 34.50          83.50         0.0700       Main
Channel
                 36.00          84.00      0.0700 /0.1100  Main
Channel
                 65.00          84.00         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.03    83.53    .121E+02       0.0          0.12
61.52
      0.05    83.55    .259E+02       0.0          0.19
40.35
      0.08    83.58    .414E+02       0.0          0.24
31.84
      0.10    83.60    .585E+02       0.0          0.28
27.04
      0.13    83.63    .774E+02       0.1          0.31
23.87
      0.15    83.65    .979E+02       0.1          0.35
21.59
      0.18    83.68    .120E+03       0.1          0.38
19.84
      0.20    83.70    .144E+03       0.1          0.41
18.45
      0.23    83.73    .170E+03       0.2          0.43
17.31
      0.25    83.75    .197E+03       0.2          0.46
16.34
      0.28    83.78    .226E+03       0.2          0.48
15.52
      0.30    83.80    .257E+03       0.3          0.51
14.80
      0.33    83.83    .289E+03       0.3          0.53
14.16
      0.35    83.85    .323E+03       0.4          0.55
13.60
      0.38    83.88    .359E+03       0.5          0.57
13.09
      0.40    83.90    .396E+03       0.5          0.59
12.64
      0.43    83.93    .435E+03       0.6          0.61
12.22
      0.45    83.95    .476E+03       0.7          0.63
11.84
      0.48    83.98    .518E+03       0.8          0.65
11.49

    **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0215)  329.90     6.36    3.00  28.44
0.46     0.64
    OUTFLOW: ID= 1 (0704)  329.90     5.32    4.92  28.44
0.48     0.65


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| CALIB             |
| NASHYD    (7041) |    Area    (ha)=   9.20   Curve Number
(CN)= 61.0
|ID= 1 DT= 5.0 min |    Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------    U.H. Tp(hrs)=   0.82

    Unit Hyd Qpeak  (cms)=   0.431

    PEAK FLOW       (cms)=   0.262 (i)
    TIME TO PEAK    (hrs)=   3.833
    RUNOFF VOLUME    (mm)=  22.954
    TOTAL RAINFALL   (mm)=  81.600
    RUNOFF COEFFICIENT   =   0.281

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7042) |    Area    (ha)=  14.50
|ID= 1 DT= 5.0 min |    Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        9.72          4.78
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      310.91         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=      127.30         79.59
              over (min)         5.00         15.00
    Storage Coeff.  (min)=        4.58 (ii)    14.10 (ii)
    Unit Hyd. Tpeak (min)=        5.00         15.00
    Unit Hyd. peak  (cms)=        0.23          0.08

*TOTALS*
    PEAK FLOW       (cms)=        2.71          0.58
3.186 (iii)
    TIME TO PEAK    (hrs)=        3.00          3.08
3.00
    RUNOFF VOLUME    (mm)=       75.60         29.44
54.83
    TOTAL RAINFALL   (mm)=       81.60         81.60
81.60
    RUNOFF COEFFICIENT   =        0.93          0.36
0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  61.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0227) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7041):     9.20   0.262     3.83    22.95
        + ID2= 2 (7042):    14.50   3.186     3.00    54.83
          ===============================================
          ID = 3 (0227):    23.70   3.247     3.00    42.45

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0229) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0227):    23.70   3.247     3.00    42.45
        + ID2= 2 (0704):   329.90   5.318     4.92    28.44
          ===============================================
          ID = 3 (0229):   353.60   7.206     3.00    29.38

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (7201) |    Area    (ha)=  14.00   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |    Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------    U.H. Tp(hrs)=   0.98

    Unit Hyd Qpeak  (cms)=   0.548

    PEAK FLOW       (cms)=   0.405 (i)
    TIME TO PEAK    (hrs)=   4.000
    RUNOFF VOLUME    (mm)=  26.495
    TOTAL RAINFALL   (mm)=  81.600
    RUNOFF COEFFICIENT   =   0.325

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7202) |    Area    (ha)=   8.50
|ID= 1 DT= 5.0 min |    Total Imp(%)=  55.00   Dir. Conn.(%)=
43.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        4.68          3.83
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      238.05         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=      127.30         80.04
              over (min)         5.00         15.00
    Storage Coeff.  (min)=        3.90 (ii)    13.40 (ii)
    Unit Hyd. Tpeak (min)=        5.00         15.00
    Unit Hyd. peak  (cms)=        0.25          0.08

*TOTALS*
    PEAK FLOW       (cms)=        1.26          0.48
1.654 (iii)
    TIME TO PEAK    (hrs)=        3.00          3.08
3.00
    RUNOFF VOLUME    (mm)=       75.60         31.74
50.60
    TOTAL RAINFALL   (mm)=       81.60         81.60
81.60
    RUNOFF COEFFICIENT   =        0.93          0.39
0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0232) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7201):    14.00   0.405     4.00    26.50
        + ID2= 2 (7202):     8.50   1.654     3.00    50.60
          ===============================================
          ID = 3 (0232):    22.50   1.729     3.00    35.60

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0721) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 920.0) ------>
               Distance       Elevation        Manning
                  0.00          82.00         0.1100
                 41.00          82.00         0.1100
                 50.70          82.00         0.1100
                 57.80          81.00      0.1100 /0.0700  Main
Channel
                 59.30          79.84         0.0700       Main
Channel
                 60.30          79.84         0.0700       Main
Channel
                 61.80          81.00      0.0700 /0.1100  Main
Channel
                 63.30          81.00         0.1100
                 85.90          81.00         0.1100
                100.00          82.00         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.11    79.95    .515E+02       0.0          0.20
35.58
      0.21    80.05    .115E+03       0.1          0.30
24.20
      0.32    80.16    .192E+03       0.2          0.37
19.53
      0.42    80.26    .280E+03       0.3          0.43
16.82
      0.53    80.37    .381E+03       0.4          0.48
15.00
      0.63    80.47    .494E+03       0.6          0.53
13.65
      0.74    80.58    .620E+03       0.8          0.57
12.60
      0.84    80.68    .758E+03       1.1          0.61
11.75
      0.95    80.79    .908E+03       1.4          0.65
11.04
      1.05    80.89    .107E+04       1.7          0.69
10.44
      1.16    81.00    .125E+04       2.1          0.72
9.92
      1.28    81.12    .283E+04       3.2          0.49
14.61
      1.41    81.25    .455E+04       5.0          0.48
15.04
      1.53    81.37    .642E+04       7.4          0.50
14.36
      1.66    81.50    .843E+04      10.4          0.53
13.50
      1.78    81.62    .106E+05      13.9          0.57
12.67
      1.91    81.75    .129E+05      18.0          0.60
11.93
      2.03    81.87    .153E+05      22.6          0.63
11.29
      2.16    82.00    .179E+05      27.8          0.67
10.73

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0232)   22.50     1.73    3.00  35.60
1.06     0.69
    OUTFLOW: ID= 1 (0721)   22.50     1.26    3.08  35.60
0.91     0.63


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-------------------
| CALIB             |
| NASHYD    (7211) |    Area    (ha)=   8.70   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |    Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------    U.H. Tp(hrs)=   1.06

    Unit Hyd Qpeak  (cms)=   0.312

    PEAK FLOW       (cms)=   0.235 (i)
    TIME TO PEAK    (hrs)=   4.167
    RUNOFF VOLUME    (mm)=  26.495
    TOTAL RAINFALL   (mm)=  81.600
    RUNOFF COEFFICIENT   =   0.325

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7212) |    Area    (ha)=   9.30
|ID= 1 DT= 5.0 min |    Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        5.95          3.35
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      249.00         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=      127.30         87.16
              over (min)         5.00         15.00
    Storage Coeff.  (min)=        4.01 (ii)    13.19 (ii)
    Unit Hyd. Tpeak (min)=        5.00         15.00
    Unit Hyd. peak  (cms)=        0.24          0.08

*TOTALS*
    PEAK FLOW       (cms)=        1.66          0.46
2.045 (iii)
    TIME TO PEAK    (hrs)=        3.00          3.08
3.00
    RUNOFF VOLUME    (mm)=       75.60         32.90
55.10
    TOTAL RAINFALL   (mm)=       81.60         81.60
81.60
    RUNOFF COEFFICIENT   =        0.93          0.40
0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0236) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7211):     8.70   0.235     4.17    26.50
        + ID2= 2 (7212):     9.30   2.045     3.00    55.10
          ===============================================
          ID = 3 (0236):    18.00   2.083     3.00    41.28

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0237) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0236):    18.00   2.083     3.00    41.28
        + ID2= 2 (0721):    22.50   1.262     3.08    35.60
          ===============================================
          ID = 3 (0237):    40.50   3.311     3.00    38.12
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    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0238) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0229):   353.60   7.206     3.00    29.38
        + ID2= 2 (0237):    40.50   3.311     3.00    38.12
          ===============================================
          ID = 3 (0238):   394.10  10.517     3.00    30.28

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0705) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (3276.8) ------>
              Distance      Elevation       Manning
                 0.00          80.50         0.1100
                 5.70          80.00         0.1100
                14.00          79.00         0.1100
                22.00          79.00    0.1100 /0.0700  Main
Channel
                23.50          78.50         0.0700     Main
Channel
                24.50          78.50         0.0700     Main
Channel
                26.00          79.00    0.0700 /0.1100  Main
Channel
                28.00          79.00         0.1100
                41.00          80.00         0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.07    78.57    .248E+02       0.0          0.26
18.45
       0.14    78.64    .584E+02       0.1          0.38
12.49
       0.21    78.71    .101E+03       0.2          0.48
10.01
       0.29    78.79    .152E+03       0.3          0.56
8.56
       0.36    78.86    .212E+03       0.5          0.63
7.58
       0.43    78.93    .280E+03       0.7          0.70
6.85
       0.50    79.00    .358E+03       0.9          0.76
6.29
       0.58    79.08    .712E+03       1.6          0.64
7.50
       0.67    79.17    .111E+04       2.5          0.65
7.35
       0.75    79.25    .155E+04       3.7          0.69
6.94
       0.83    79.33    .203E+04       5.2          0.73
6.52
       0.92    79.42    .255E+04       6.9          0.78
6.14
       1.00    79.50    .312E+04       9.0          0.82
5.81
       1.08    79.58    .373E+04      11.3          0.86
5.52
       1.17    79.67    .438E+04      13.9          0.90
5.27
       1.25    79.75    .507E+04      16.7          0.94
5.05
       1.33    79.83    .581E+04      20.0          0.98
4.85
       1.42    79.92    .659E+04      23.5          1.02
4.68
       1.50    80.00    .741E+04      27.3          1.06
4.52

                                    <---- hydrograph ---->   <-
pipe / channel->
                          AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                          (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0238)  394.10    10.52    3.00  30.28
1.06      0.85
    OUTFLOW: ID= 1 (0705)  394.10     9.35    3.08  30.28
1.01      0.83

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-------------------
| CALIB            |
| NASHYD    (7051) |   Area    (ha)=   2.10   Curve Number
(CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.60

    Unit Hyd Qpeak  (cms)=   0.133

    PEAK FLOW      (cms)=   0.055 (i)
    TIME TO PEAK    (hrs)=   3.583
    RUNOFF VOLUME    (mm)=  17.053
    TOTAL RAINFALL   (mm)=  81.600
    RUNOFF COEFFICIENT   =   0.209

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7052) |   Area    (ha)=   4.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  40.00   Dir. Conn.(%)=
26.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       1.88         2.82
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     177.01        40.00
    Mannings n          =      0.013        0.250

    Max.Eff.Inten.(mm/hr)=     127.30        42.05
               over (min)       5.00        20.00
    Storage Coeff.  (min)=       3.27 (ii)   15.55 (ii)
    Unit Hyd. Tpeak (min)=       5.00        20.00
    Unit Hyd. peak  (cms)=       0.27         0.07

*TOTALS*
    PEAK FLOW       (cms)=       0.43         0.19
0.556 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=      75.60        20.67
34.95
    TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
    RUNOFF COEFFICIENT   =       0.93         0.25
0.43

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  51.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0241) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7051):     2.10   0.055     3.58    17.05
        + ID2= 2 (7052):     4.70   0.556     3.00    34.95
          ===============================================
          ID = 3 (0241):     6.80   0.575     3.00    29.42

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0243) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0241):     6.80   0.575     3.00    29.42
        + ID2= 2 (0705):   394.10   9.347     3.08    30.28
          ===============================================
          ID = 3 (0243):   400.90   9.684     3.08    30.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7502) |   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  34.00   Dir. Conn.(%)=
21.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.87         3.63
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     191.49        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        72.75
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.43 (ii)   13.29 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.26         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.40         0.41
0.741 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        30.46
39.94
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.37
0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   6 **
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|    READ STORM    |    Filename: C:\Users\Jenny\AppD
|                  |              ata\Local\Temp\
|                  |              a8b7002d-931f-4bdf-82e5-
bad09a870f5a\74e2b116
| Ptotal= 91.90 mm |    Comments: Mount Hope-6 hour SCS
Distribution Desig
-------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                0.17    3.68 |  1.67    9.19 |  3.17   20.22 |
4.67    5.51
                0.33    3.68 |  1.83    9.19 |  3.33   20.22 |
4.83    5.51
                0.50    3.68 |  2.00    9.19 |  3.50   20.22 |
5.00    5.51
                0.67    5.51 |  2.17   11.03 |  3.67    9.19 |
5.17    3.68
                0.83    5.51 |  2.33   11.03 |  3.83    9.19 |
5.33    3.68
                1.00    5.51 |  2.50   11.03 |  4.00    9.19 |
5.50    3.68
                1.17    5.51 |  2.67   55.14 |  4.17    7.35 |
5.67    3.68
                1.33    5.51 |  2.83   99.25 |  4.33    7.35 |
5.83    3.68
                1.50    5.51 |  3.00  143.36 |  4.50    7.35 |
6.00    3.68

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| CALIB            |
| NASHYD    (5071) |   Area    (ha)=   8.40   Curve Number
(CN)= 74.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.72

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
               0.083    3.68 | 1.583    9.19 | 3.083   20.22 |
4.58    5.51
               0.167    3.68 | 1.667    9.19 | 3.167   20.22 |
4.67    5.51
               0.250    3.68 | 1.750    9.19 | 3.250   20.22 |
4.75    5.51
               0.333    3.68 | 1.833    9.19 | 3.333   20.22 |
4.83    5.51
               0.417    3.68 | 1.917    9.19 | 3.417   20.22 |
4.92    5.51
               0.500    3.68 | 2.000    9.19 | 3.500   20.22 |
5.00    5.51
               0.583    5.51 | 2.083   11.03 | 3.583    9.19 |
5.08    3.68
               0.667    5.51 | 2.167   11.03 | 3.667    9.19 |
5.17    3.68
               0.750    5.51 | 2.250   11.03 | 3.750    9.19 |
5.25    3.68
               0.833    5.51 | 2.333   11.03 | 3.833    9.19 |
5.33    3.68
               0.917    5.51 | 2.417   11.03 | 3.917    9.19 |
5.42    3.68
               1.000    5.51 | 2.500   11.03 | 4.000    9.19 |
5.50    3.68
               1.083    5.51 | 2.583   55.14 | 4.083    7.35 |
5.58    3.68
               1.167    5.51 | 2.667   55.14 | 4.167    7.35 |
5.67    3.68
               1.250    5.51 | 2.750   99.25 | 4.250    7.35 |
5.75    3.68
               1.333    5.51 | 2.833   99.25 | 4.333    7.35 |
5.83    3.68
               1.417    5.51 | 2.917  143.36 | 4.417    7.35 |
5.92    3.68
```

```
               1.500    5.51 | 3.000  143.36 | 4.500    7.35 |
6.00    3.68

     Unit Hyd Qpeak  (cms)=   0.187

     PEAK FLOW      (cms)=   0.245 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  40.655
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.442

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5072) |   Area    (ha)=  40.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
30.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      18.23        22.28
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     519.62        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       118.43
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       5.95 (ii)   14.07 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.19         0.08

*TOTALS*
     PEAK FLOW       (cms)=       4.50         4.16
8.002 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        47.07
58.72
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.51
0.64


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  74.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0121) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5071):     8.40   0.245     4.92    40.66
        + ID2= 2 (5072):    40.50   8.002     3.00    58.72
          ===============================================
          ID = 3 (0121):    48.90   8.023     3.00    55.61

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (5121) |   Area    (ha)=   0.70   Curve Number
(CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.14

     Unit Hyd Qpeak  (cms)=   0.023

     PEAK FLOW      (cms)=   0.026 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)=  37.510
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.408

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5122) |   Area    (ha)=   3.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=
47.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.92         1.28
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     146.06        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       117.57
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       2.78 (ii)   10.92 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.59         0.26
0.816 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        44.91
64.17
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.49
0.70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  71.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0118) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5121):     0.70   0.026     4.17    37.51
        + ID2= 2 (5122):     3.20   0.816     3.00    64.17
          ===============================================
          ID = 3 (0118):     3.90   0.821     3.00    59.39

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (5111) |   Area    (ha)=   1.90   Curve Number
(CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.56

     Unit Hyd Qpeak  (cms)=   0.129

     PEAK FLOW      (cms)=   0.106 (i)
     TIME TO PEAK    (hrs)=   3.500
     RUNOFF VOLUME    (mm)=  33.678
     TOTAL RAINFALL   (mm)=  91.900
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     RUNOFF COEFFICIENT   =   0.366

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (5112) |   Area    (ha)=   1.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.55         0.55
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      85.63        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       114.19
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       2.02 (ii)   10.26 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.31         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.15         0.11
0.248 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        44.41
58.93
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.48
0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0116) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5111):     1.90   0.106     3.50    33.68
        + ID2= 2 (5112):     1.10   0.248     3.00    58.93
          ==================================================
          ID = 3 (0116):     3.00   0.291     3.00    42.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (5101) |   Area    (ha)=   0.80   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.42

     Unit Hyd Qpeak  (cms)=   0.022

     PEAK FLOW       (cms)=   0.022 (i)
     TIME TO PEAK    (hrs)=   4.583
     RUNOFF VOLUME    (mm)=  32.775
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.357

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (5102) |   Area    (ha)=   0.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.45         0.45
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      77.46        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       101.50
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       1.90 (ii)   10.53 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.32         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.13         0.08
0.192 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        39.44
55.70
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.43
0.61

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0115) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5101):     0.80   0.022     4.58    32.78
        + ID2= 2 (5102):     0.90   0.192     3.00    55.70
          ==================================================
          ID = 3 (0115):     1.70   0.195     3.00    44.91

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0511) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
             <------ DATA FOR SECTION ( 553.6) ------>
               Distance       Elevation       Manning
                   0.00          81.24        0.1100
                  33.01          80.98        0.1100
                  49.97          81.27        0.1100
                  54.18          80.35        0.1100
                  60.88          81.23     0.1100 /0.0700  Main
Channel
                  69.13          79.02        0.0700      Main
Channel
                  92.42          79.04        0.0700      Main
Channel
                  98.70          80.89     0.0700 /0.1100  Main
Channel
                 128.88          81.13        0.1100
                 199.00          81.23        0.1100
```

```
      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.12     79.13    .361E+03       0.6          0.24
9.91
      0.23     79.25    .776E+03       2.1          0.40
6.09
      0.35     79.37    .121E+04       4.3          0.52
4.65
      0.47     79.48    .165E+04       7.1          0.63
3.85
      0.59     79.60    .211E+04      10.5          0.72
3.34
      0.70     79.72    .258E+04      14.4          0.81
2.98
      0.82     79.84    .307E+04      18.8          0.89
2.71
      0.94     79.95    .357E+04      23.8          0.97
2.50
      1.05     80.07    .408E+04      29.2          1.04
2.33
      1.17     80.19    .461E+04      35.1          1.10
2.19
      1.29     80.30    .515E+04      41.5          1.17
2.07
      1.41     80.42    .571E+04      48.4          1.23
1.97
      1.52     80.54    .631E+04      55.8          1.28
1.88
      1.64     80.66    .695E+04      63.8          1.33
1.81
      1.76     80.77    .762E+04      72.3          1.38
1.76
      1.87     80.89    .833E+04      81.4          1.42
1.71
      2.00     81.02    .931E+04      92.4          1.44
1.68
      2.13     81.14    .109E+05     104.8          1.39
1.74
      2.25     81.27    .140E+05     120.9          1.25
1.93

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK    TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)    (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0115)    1.70      0.19     3.00  44.91
0.04      0.24
     OUTFLOW: ID= 1 (0511)    1.70      0.14     3.08  44.91
0.03      0.24

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-------------------
| ADD HYD   (0117) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0116):     3.00   0.291     3.00    42.94
        + ID2= 2 (0511):     1.70   0.141     3.08    44.91
          ==================================================
          ID = 3 (0117):     4.70   0.426     3.00    43.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0512) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
             <------ DATA FOR SECTION ( 484.2) ------>
               Distance       Elevation       Manning
                   0.00          80.80        0.0900
                   9.73          80.46        0.0900
                  14.10          82.04        0.0900
                  17.18          82.28        0.0900
                  41.13          82.12     0.0900 /0.0700  Main
Channel
                  46.88          79.71        0.0700      Main
Channel
                  51.41          80.90     0.0700 /0.0900  Main
Channel
                  94.29          80.56        0.0900
                 175.64          80.72        0.0900
                 192.09          80.85        0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.13     79.84    .255E+02       0.0          0.14
54.71
      0.26     79.98    .102E+03       0.0          0.23
34.47
      0.40     80.11    .229E+03       0.1          0.30
26.30
      0.53     80.24    .408E+03       0.3          0.36
21.71
      0.66     80.37    .637E+03       0.6          0.42
18.71
      0.79     80.51    .934E+03       0.9          0.46
16.84
      0.93     80.64    .245E+04       1.6          0.31
24.96
      1.06     80.77    .873E+04       4.6          0.25
31.51
      1.19     80.90    .179E+05      11.4          0.30
26.08
      1.32     81.04    .278E+05      22.6          0.38
20.45
      1.46     81.17    .381E+05      37.5          0.46
16.91
      1.60     81.31    .484E+05      55.4          0.54
14.57
      1.74     81.45    .588E+05      76.0          0.61
12.90
      1.87     81.59    .693E+05      99.3          0.67
11.63
      2.01     81.72    .798E+05     125.0          0.73
10.64
      2.15     81.86    .903E+05     153.1          0.80
9.83
      2.29     82.00    .101E+06     183.5          0.85
9.16
      2.42     82.14    .112E+06     214.3          0.90
8.68
      2.56     82.27    .123E+06     244.4          0.93
8.40

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK    TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)    (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0117)    4.70      0.43     3.00  43.65
0.59      0.38
     OUTFLOW: ID= 1 (0512)    4.70      0.27     3.25  43.64
0.50      0.34

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-------------------
| ADD HYD   (0119) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0118):     3.90   0.821     3.00    59.39
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```
        + ID2= 2 (0512):     4.70   0.270     3.25    43.64
          ==================================================
          ID = 3 (0119):     8.60   1.020     3.00    50.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| NASHYD    (5061) |   Area    (ha)=   3.90   Curve Number
(CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.239

     PEAK FLOW       (cms)=   0.227 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  37.512
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.408

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (5062) |   Area    (ha)=   7.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.07         2.73
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     228.04        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       119.99
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.63 (ii)   11.71 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.61         0.56
2.083 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        45.26
66.80
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.49
0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0109) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5061):     3.90   0.227     3.58    37.51
        + ID2= 2 (5062):     7.80   2.083     3.00    66.80
          ==================================================
          ID = 3 (0109):    11.70   2.166     3.00    57.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (5051) |   Area    (ha)=   1.30   Curve Number
(CN)= 68.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.080

     PEAK FLOW       (cms)=   0.069 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  34.601
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.377

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (5052) |   Area    (ha)=  14.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.64         4.96
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     311.98        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       113.36
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.38 (ii)   12.64 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.03         0.92
3.803 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        42.41
65.89
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.46
0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0107) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5051):     1.30   0.069     3.58    34.60
        + ID2= 2 (5052):    14.60   3.803     3.00    65.89
          ==================================================
          ID = 3 (0107):    15.90   3.828     3.00    63.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| NASHYD    (5211) |   Area    (ha)=   1.90   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   0.076

     PEAK FLOW       (cms)=   0.095 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=  44.057
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.479

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (5212) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  52.00   Dir. Conn.(%)=
40.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.18         6.62
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     303.32        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       123.41
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.30 (ii)   12.29 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.09

*TOTALS*
     PEAK FLOW       (cms)=       2.12         1.38
3.297 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        50.00
64.36
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.54
0.70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0112) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5211):     1.90   0.095     3.92    44.06
        + ID2= 2 (5212):    13.80   3.297     3.00    64.36
          ===============================================
          ID = 3 (0112):    15.70   3.317     3.00    61.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (5201) |   Area    (ha)=  22.80   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.31

     Unit Hyd Qpeak  (cms)=   0.663

     PEAK FLOW       (cms)=   0.773 (i)
     TIME TO PEAK    (hrs)=   4.417
     RUNOFF VOLUME    (mm)=  38.533
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.419

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (5202) |   Area    (ha)=   6.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  23.00   Dir. Conn.(%)=
12.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.59         5.31
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     214.48        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        95.72
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.50 (ii)   12.34 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.26         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.32         0.84
1.025 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        42.07
47.33
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.46
0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0111) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5201):    22.80   0.773     4.42    38.53
        + ID2= 2 (5202):     6.90   1.025     3.00    47.33
          ===============================================
          ID = 3 (0111):    29.70   1.123     3.00    40.58

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0521) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 815.4) ------>
                  Distance      Elevation       Manning
                  415.18         83.86        0.0900
                  461.15         83.40        0.0900
                  501.83         83.53     0.0900 /0.0700  Main
Channel
                  513.93         82.96        0.0700      Main
Channel
                  526.85         83.23     0.0700 /0.0900  Main
Channel
                  569.63         83.21        0.0900
                  610.76         83.63        0.0900
                  663.54         83.88        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.05    83.00    .378E+02       0.0          0.11
83.81
      0.09    83.05    .151E+03       0.0          0.17
52.79
      0.14    83.09    .340E+03       0.1          0.22
40.29
      0.18    83.14    .605E+03       0.3          0.27
33.26
      0.23    83.18    .946E+03       0.5          0.32
28.66
      0.27    83.23    .151E+04       0.9          0.33
27.77
      0.32    83.27    .323E+04       1.8          0.31
29.51
      0.37    83.32    .510E+04       3.2          0.34
26.44
      0.42    83.37    .713E+04       5.0          0.38
23.61
      0.46    83.42    .934E+04       7.3          0.42
21.44
      0.51    83.47    .121E+05      10.0          0.45
20.23
      0.56    83.52    .156E+05      13.4          0.47
19.44
      0.61    83.57    .196E+05      17.7          0.49
18.52
      0.66    83.61    .240E+05      22.8          0.52
17.49
      0.71    83.66    .286E+05      28.4          0.54
16.75
      0.75    83.71    .336E+05      34.7          0.56
16.14
      0.80    83.76    .390E+05      41.8          0.58
15.55
      0.85    83.81    .448E+05      49.8          0.60
14.99
      0.90    83.86    .510E+05      58.8          0.63
14.46

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0111)   29.70     1.12    3.00  40.58
0.28      0.32
     OUTFLOW: ID= 1 (0521)   29.70     0.87    4.58  40.56
0.27      0.32


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-------------------
| ADD HYD   (0113) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0112):    15.70   3.317     3.00    61.90
        + ID2= 2 (0521):    29.70   0.867     4.58    40.56
          ===============================================
          ID = 3 (0113):    45.40   3.689     3.00    47.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (5041) |   Area    (ha)=   0.30   Curve Number
(CN)= 68.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.89

     Unit Hyd Qpeak  (cms)=   0.013

     PEAK FLOW       (cms)=   0.012 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=  34.596
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.376

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (5042) |   Area    (ha)=   7.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.88         2.52
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     222.11        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       113.36
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.57 (ii)   11.83 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.26         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.56         0.48
1.963 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        42.41
65.89
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.46
0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0105) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5041):     0.30   0.012     3.92    34.60
        + ID2= 2 (5042):     7.40   1.963     3.00    65.89
          ===============================================
          ID = 3 (0105):     7.70   1.966     3.00    64.67

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (5031) |   Area    (ha)=   1.70   Curve Number
(CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.82

     Unit Hyd Qpeak  (cms)=   0.079

     PEAK FLOW       (cms)=   0.080 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  37.512
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.408

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (5032) |   Area    (ha)=  12.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  59.00   Dir. Conn.(%)=
47.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.20         5.00
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     285.19        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       113.20
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.15 (ii)   12.42 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.21         0.94
3.003 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        44.26
63.83
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.48
0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0103) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5031):     1.70   0.080     3.83    37.51
        + ID2= 2 (5032):    12.20   3.003     3.00    63.83
          ===============================================
          ID = 3 (0103):    13.90   3.023     3.00    60.61

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (5021) |   Area    (ha)=  25.20   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.46

     Unit Hyd Qpeak  (cms)=   0.662

     PEAK FLOW       (cms)=   0.596 (i)
     TIME TO PEAK    (hrs)=   4.667
     RUNOFF VOLUME    (mm)=  29.382
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.320

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (5022) |   Area    (ha)=  25.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  42.00   Dir. Conn.(%)=
30.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.88        15.02
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     415.53        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        81.23
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       5.20 (ii)   14.64 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.21         0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.93         1.83
4.433 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        33.94
49.53
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.37
0.54


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0101) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5021):    25.20   0.596     4.67    29.38
        + ID2= 2 (5022):    25.90   4.433     3.00    49.53
          ===============================================
          ID = 3 (0101):    51.10   4.492     3.00    39.59

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| NASHYD    (5011) |   Area    (ha)=  80.20   Curve Number
(CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.85
```

```
     Unit Hyd Qpeak  (cms)=   3.621

     PEAK FLOW       (cms)=   3.123 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  31.899
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.347

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (5012) |   Area    (ha)=  39.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       14.97        24.43
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      512.51        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      143.36        90.00
                over (min)        5.00        15.00
     Storage Coeff.  (min)=        5.90 (ii)   14.96 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.19         0.08

*TOTALS*
     PEAK FLOW       (cms)=        3.51         3.29
6.214 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       85.90        37.01
48.74
     TOTAL RAINFALL   (mm)=       91.90        91.90
91.90
     RUNOFF COEFFICIENT   =        0.93         0.40
0.53


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  65.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0100) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (5011):    80.20   3.123     3.83    31.90
       + ID2= 2 (5012):    39.40   6.214     3.00    48.74
         ==================================================
         ID = 3 (0100):   119.60   6.950     3.00    37.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0502) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1537.5) ------>
               Distance      Elevation       Manning
                  0.00         89.30         0.1100
                  4.20         89.28         0.1100
                  9.03         88.80         0.1100
                 21.55         88.78         0.1100
                 29.06         88.24         0.1100
                 39.87         87.83         0.1100
                 55.54         87.84     0.1100 /0.0700  Main
Channel
                 57.54         86.84         0.0700      Main
Channel
                 59.04         86.84         0.0700      Main
Channel
                 61.04         87.84     0.0700 /0.1100  Main
Channel
                 74.10         87.86         0.1100
                 87.72         88.07         0.1100
                101.34         88.18         0.1100
                113.53         88.23         0.1100
                128.57         88.32         0.1100
                142.19         88.61         0.1100
                155.81         88.53         0.1100
                183.05         88.85         0.1100
                187.19         88.84         0.1100
                211.21         88.88         0.1100
      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.10   86.94    .202E+03       0.0          0.25
78.80
       0.20   87.04    .452E+03       0.1          0.37
52.91
       0.30   87.14    .749E+03       0.3          0.47
42.34
       0.40   87.24    .109E+04       0.5          0.55
36.26
       0.50   87.34    .149E+04       0.8          0.62
32.18
       0.60   87.44    .193E+04       1.1          0.68
29.19
       0.70   87.54    .241E+04       1.5          0.74
26.87
       0.80   87.64    .295E+04       2.0          0.79
25.01
       0.90   87.74    .353E+04       2.5          0.84
23.46
       1.00   87.84    .421E+04       3.1          0.89
22.39
       1.10   87.94    .849E+04       4.5          0.63
31.56
       1.21   88.05    .150E+05       7.1          0.56
35.43
       1.33   88.17    .233E+05      10.6          0.54
36.49
       1.44   88.28    .346E+05      15.5          0.53
37.18
       1.56   88.40    .484E+05      22.8          0.56
35.35
       1.67   88.51    .634E+05      32.1          0.60
32.90
       1.79   88.63    .807E+05      41.2          0.61
32.65
       1.90   88.74    .101E+06      54.6          0.64
30.77
       2.02   88.86    .124E+06      64.7          0.62
31.85

                                     <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0100)  119.60     6.95     3.00  37.45
1.21     0.56
     OUTFLOW: ID= 1 (0502)  119.60     4.38     4.00  37.44
1.09     0.65

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| ADD HYD   (0102) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0101):    51.10   4.492     3.00    39.59
       + ID2= 2 (0502):   119.60   4.377     4.00    37.44
         ==================================================
         ID = 3 (0102):   170.70   6.968     3.00    38.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0503) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1157.9) ------>
               Distance      Elevation       Manning
                  0.00         86.78         0.0900
                 25.34         87.17         0.0900
                 68.44         87.04         0.0900
                117.13         86.81         0.0900
                125.36         85.21     0.0900 /0.0700  Main
Channel
                127.36         84.21         0.0700      Main
Channel
                128.86         84.21         0.0700      Main
Channel
                130.86         85.21     0.0700 /0.0900  Main
Channel
                131.88         86.36         0.0900
                140.63         86.77         0.0900
                168.26         86.90         0.0900
                169.81         87.10         0.0900
                202.11         87.50         0.0900
                239.06         87.35         0.0900
                270.29         87.83         0.0900
                283.90         87.90         0.0900
                297.51         87.86         0.0900
                324.73         87.89         0.0900
                351.95         87.78         0.0900
                388.59         87.46         0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.17   84.38    .114E+03       0.1          0.34
18.34
       0.33   84.54    .269E+03       0.4          0.50
12.51
       0.50   84.71    .465E+03       0.8          0.62
10.07
       0.67   84.88    .703E+03       1.4          0.72
8.63
       0.83   85.04    .982E+03       2.1          0.81
7.65
       1.00   85.21    .130E+04       3.1          0.89
6.93
       1.21   85.42    .177E+04       5.0          1.06
5.87
       1.41   85.62    .234E+04       7.4          1.17
5.28
       1.62   85.83    .300E+04      10.2          1.27
4.89
       1.83   86.04    .376E+04      13.6          1.35
4.60
       2.03   86.24    .462E+04      17.6          1.42
4.37
       2.24   86.45    .560E+04      22.1          1.47
4.22
       2.45   86.66    .695E+04      27.6          1.48
4.20
       2.66   86.87    .925E+04      31.2          1.25
4.94
       2.86   87.07    .168E+05      43.1          0.96
6.48
       3.07   87.28    .297E+05      67.7          0.85
7.30
       3.28   87.49    .456E+05     103.1          0.84
7.38
       3.48   87.69    .663E+05     159.6          0.89
6.93
       3.69   87.90    .907E+05     223.4          0.92
6.77

                                     <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0102)  170.70     6.97     3.00  38.09
1.38     1.15
     OUTFLOW: ID= 1 (0503)  170.70     6.51     3.08  38.09
1.34     1.13


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| ADD HYD   (0104) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0103):    13.90   3.023     3.00    60.61
       + ID2= 2 (0503):   170.70   6.509     3.08    38.09
         ==================================================
         ID = 3 (0104):   184.60   8.794     3.00    39.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0504) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 815.4) ------>
               Distance      Elevation       Manning
                 19.10         82.03         0.0900
                 29.01         83.14         0.0900
                 40.83         82.56         0.0900
                 81.51         82.27         0.0900
                122.18         82.68         0.0900
                169.31         82.61         0.0900
                217.10         82.90         0.0900
                229.61         83.66     0.0900 /0.0700  Main
Channel
                232.80         81.85         0.0700      Main
Channel
                243.24         83.87         0.0700      Main
Channel
                257.77         84.06         0.0900
                312.01         83.52         0.0900
                415.18         83.86         0.0900
                461.15         83.40         0.0900
                501.83         83.53         0.0900
                513.93         82.96         0.0900
                526.85         83.23         0.0900
                569.63         83.21         0.0900
                610.76         83.63         0.0900
                663.54         83.88         0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.11   81.96    .117E+02       0.0          0.18
23.95
       0.23   82.08    .492E+02       0.1          0.28
15.67
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       0.34   82.19    .135E+03       0.2          0.34
13.00
       0.45   82.30    .312E+03       0.4          0.32
13.44
       0.57   82.42    .116E+04       1.2          0.28
15.74
       0.68   82.53    .287E+04       3.5          0.32
13.85
       0.79   82.64    .549E+04       7.0          0.33
13.13
       0.91   82.76    .101E+05      14.9          0.39
11.28
       1.02   82.87    .155E+05      27.5          0.47
9.38
       1.13   82.98    .214E+05      45.2          0.55
7.89
       1.25   83.10    .277E+05      67.2          0.64
6.87
       1.36   83.21    .344E+05      93.6          0.71
6.12
       1.47   83.32    .426E+05     125.3          0.77
5.67
       1.59   83.44    .516E+05     162.2          0.82
5.30
       1.70   83.55    .620E+05     204.2          0.86
5.06
       1.81   83.66    .747E+05     254.0          0.89
4.90
       1.95   83.80    .924E+05     324.9          0.92
4.74
       2.08   83.93    .113E+06     411.3          0.95
4.59
       2.21   84.06    .135E+06     515.5          1.00
4.37

                                     <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0104)  184.60     8.79     3.00  39.78
0.82     0.34
     OUTFLOW: ID= 1 (0504)  184.60     7.03     3.33  39.78
0.79     0.33


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| ADD HYD   (0106) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0105):     7.70   1.966     3.00    64.67
       + ID2= 2 (0504):   184.60   7.029     3.33    39.78
         ==================================================
         ID = 3 (0106):   192.30   7.617     3.25    40.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0114) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0106):   192.30   7.617     3.25    40.78
       + ID2= 2 (0113):    45.40   3.689     3.00    47.94
         ==================================================
         ID = 3 (0114):   237.70  10.667     3.00    42.15

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0505) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation       Manning
                  0.00         81.24         0.1100
                 33.01         80.98         0.1100
                 49.97         81.27         0.1100
                 54.18         80.35         0.1100
                 60.88         81.23         0.1100
                 69.13         79.02         0.1100
                 92.42         79.04         0.1100
                 98.70         80.89         0.1100
                128.88         81.13         0.1100
                199.00         81.23         0.1100
                266.11         81.68         0.1100
                306.94         81.73         0.1100
                331.74         81.55     0.1100 /0.0700  Main
Channel
                336.74         80.15         0.0700      Main
Channel
                346.34         81.64     0.0700 /0.0900  Main
Channel
                394.77         81.68         0.0900
                431.64         81.44         0.0900
                477.44         82.08         0.0900
                481.25         82.81         0.0900
                501.51         83.16         0.0900
      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12   79.13    .418E+03       0.4          0.15
18.59
       0.23   79.25    .899E+03       1.3          0.25
11.41
       0.35   79.36    .140E+04       2.7          0.33
8.70
       0.46   79.48    .191E+04       4.4          0.39
7.22
       0.58   79.59    .244E+04       6.5          0.46
6.26
       0.69   79.71    .299E+04       8.9          0.51
5.58
       0.81   79.82    .355E+04      11.7          0.56
5.08
       0.92   79.94    .413E+04      14.7          0.61
4.68
       1.04   80.05    .472E+04      18.1          0.65
4.36
       1.15   80.17    .533E+04      21.7          0.70
4.09
       1.27   80.28    .598E+04      25.7          0.74
3.88
       1.38   80.40    .666E+04      29.7          0.76
3.74
       1.50   80.51    .740E+04      33.7          0.78
3.67
       1.61   80.63    .822E+04      38.1          0.79
3.59
       1.73   80.74    .909E+04      43.1          0.81
3.52
       1.84   80.86    .100E+05      48.6          0.83
3.45
       1.96   80.97    .111E+05      48.4          0.74
3.83
       2.07   81.09    .128E+05      43.8          0.59
4.86
       2.19   81.21    .155E+05      40.6          0.45
6.35

                                     <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
```

```
    INFLOW : ID= 2 (0114)  237.70    10.67    3.00  42.15
0.77      0.54
    OUTFLOW: ID= 1 (0505)  237.70    10.06    3.08  42.15
0.74      0.53


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| ADD HYD   (0108) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0107):    15.90   3.828     3.00    63.34
        + ID2= 2 (0505):   237.70  10.055     3.08    42.15
          ===============================================
          ID = 3 (0108):   253.60  12.701     3.00    43.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0506) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 304.1) ------>
               Distance      Elevation       Manning
                  0.00         81.42         0.0900
                  7.45         81.36         0.0900
                 32.34         80.38         0.0900
                 45.97         80.05         0.0900
                 65.23         79.93         0.0900
                 84.49         80.35         0.0900
                113.49         80.02         0.0900
                136.48         80.07         0.0900
                188.81         79.81         0.0900
                197.86         79.25     0.0900 /0.0700  Main
Channel
                200.70         78.22         0.0700      Main
Channel
                203.29         79.35     0.0700 /0.0900  Main
Channel
                204.01         79.67         0.0900
                236.47         80.40         0.0900
                277.80         80.48         0.0900
                305.35         80.37         0.0900
                346.67         80.41         0.0900
                387.99         80.33         0.0900
                415.54         80.53         0.0900
                447.88         80.49         0.0900

      <--------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.11    78.34    .979E+01       0.0          0.23
21.53
       0.23    78.45    .392E+02       0.0          0.37
13.56
       0.34    78.56    .881E+02       0.1          0.48
10.35
       0.46    78.68    .157E+03       0.3          0.58
8.54
       0.57    78.79    .245E+03       0.6          0.67
7.36
       0.68    78.91    .352E+03       0.9          0.76
6.52
       0.80    79.02    .480E+03       1.4          0.84
5.88
       0.91    79.13    .627E+03       1.9          0.92
5.38
       1.03    79.25    .793E+03       2.7          0.99
4.98
       1.15    79.37    .103E+04       3.8          1.09
4.55
       1.28    79.50    .135E+04       5.2          1.16
4.28
       1.40    79.62    .175E+04       7.1          1.20
4.12
       1.52    79.75    .228E+04       9.3          1.21
4.08
       1.65    79.87    .318E+04      11.7          1.10
4.52
       1.77    80.00    .524E+04      15.8          0.90
5.52
       1.90    80.12    .973E+04      24.3          0.74
6.69
       2.02    80.24    .158E+05      39.7          0.75
6.62
       2.15    80.37    .230E+05      59.2          0.77
6.46
       2.27    80.49    .349E+05      90.3          0.77
6.44

                                          <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0108)  253.60    12.70    3.00  43.48
1.68      1.04
    OUTFLOW: ID= 1 (0506)  253.60    11.73    3.17  43.48
1.65      1.09


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--------------------
| ADD HYD   (0110) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0109):    11.70   2.166     3.00    57.04
        + ID2= 2 (0506):   253.60  11.731     3.17    43.48
          ===============================================
          ID = 3 (0110):   265.30  12.737     3.17    44.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0120) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0110):   265.30  12.737     3.17    44.07
        + ID2= 2 (0119):     8.60   1.020     3.00    50.78
          ===============================================
          ID = 3 (0120):   273.90  13.408     3.08    44.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (5302) |   Area    (ha)=   5.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=
48.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.48          2.32
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     196.64         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     143.36        101.50
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       3.32 (ii)    11.96 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.26          0.09
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*TOTALS*
    PEAK FLOW       (cms)=       1.09          0.39
1.419 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.08
3.00
    RUNOFF VOLUME    (mm)=      85.90         39.44
61.74
    TOTAL RAINFALL   (mm)=      91.90         91.90
91.90
    RUNOFF COEFFICIENT   =       0.93          0.43
0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6051) |   Area    (ha)=   0.40   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.31

     Unit Hyd Qpeak  (cms)=   0.012

     PEAK FLOW      (cms)=   0.012 (i)
     TIME TO PEAK    (hrs)=   4.417
     RUNOFF VOLUME    (mm)=  32.772
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.357

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6052) |   Area    (ha)=  15.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
54.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.23          5.27
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     321.46         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     143.36        108.20
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       4.46 (ii)    12.88 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.23          0.08

*TOTALS*
    PEAK FLOW       (cms)=       3.21          0.92
3.982 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.08
3.00
    RUNOFF VOLUME    (mm)=      85.90         40.47
65.00
    TOTAL RAINFALL   (mm)=      91.90         91.90
91.90
    RUNOFF COEFFICIENT   =       0.93          0.44
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0131) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6051):     0.40   0.012     4.42    32.77
        + ID2= 2 (6052):    15.50   3.982     3.00    65.00
          ===============================================
          ID = 3 (0131):    15.90   3.983     3.00    64.19

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6111) |   Area    (ha)=   0.60   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.08

     Unit Hyd Qpeak  (cms)=   0.021

     PEAK FLOW      (cms)=   0.027 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  44.055
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.479

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6112) |   Area    (ha)=  10.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  62.00   Dir. Conn.(%)=
50.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.70          4.10
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     268.33         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     143.36        127.22
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       4.00 (ii)    11.89 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.24          0.09

*TOTALS*
    PEAK FLOW       (cms)=       2.09          0.89
2.849 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.08
3.00
    RUNOFF VOLUME    (mm)=      85.90         49.05
67.47
    TOTAL RAINFALL   (mm)=      91.90         91.90
91.90
    RUNOFF COEFFICIENT   =       0.93          0.53
0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| ADD HYD   (0137) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6111):     0.60   0.027     4.08    44.05
        + ID2= 2 (6112):    10.80   2.849     3.00    67.47
          ===============================================
          ID = 3 (0137):    11.40   2.854     3.00    66.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6101) |   Area    (ha)=   9.00   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.23

     Unit Hyd Qpeak  (cms)=   0.279

     PEAK FLOW      (cms)=   0.304 (i)
     TIME TO PEAK    (hrs)=   4.333
     RUNOFF VOLUME    (mm)=  36.518
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.397

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6102) |   Area    (ha)=  12.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  27.00   Dir. Conn.(%)=
16.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.27          8.83
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     284.02         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     143.36         92.04
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       4.14 (ii)    13.12 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.24          0.08

*TOTALS*
    PEAK FLOW       (cms)=       0.75          1.30
1.828 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.08
3.00
    RUNOFF VOLUME    (mm)=      85.90         40.19
47.50
    TOTAL RAINFALL   (mm)=      91.90         91.90
91.90
    RUNOFF COEFFICIENT   =       0.93          0.44
0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
          YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0136) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6101):     9.00   0.304     4.33    36.52
        + ID2= 2 (6102):    12.10   1.828     3.00    47.50
          ===============================================
          ID = 3 (0136):    21.10   1.870     3.00    42.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0611) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 940.0) ------>
               Distance      Elevation       Manning
                  0.00         83.36         0.0900
                 12.33         84.54         0.0900
                 21.95         84.33     0.0900 /0.0700  Main
Channel
                 25.80         83.10         0.0700      Main
Channel
                 39.87         83.58     0.0700 /0.0900  Main
Channel
                 95.01         83.67         0.0900
                132.30         84.45         0.0900

      <--------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.07    83.17    .442E+02       0.0          0.13
76.06
       0.14    83.24    .177E+03       0.1          0.20
47.91
       0.21    83.31    .398E+03       0.2          0.26
36.56
       0.28    83.38    .709E+03       0.4          0.32
30.22
       0.35    83.44    .113E+04       0.7          0.36
26.38
       0.41    83.51    .167E+04       1.2          0.41
23.66
       0.48    83.58    .232E+04       1.8          0.45
21.54
       0.56    83.66    .431E+04       3.1          0.42
23.06
       0.64    83.74    .779E+04       5.6          0.42
23.11
       0.72    83.82    .115E+05       9.1          0.46
20.97
       0.80    83.90    .154E+05      13.6          0.51
18.96
       0.88    83.98    .196E+05      18.9          0.55
17.31
       0.96    84.06    .240E+05      25.0          0.60
15.97
       1.04    84.14    .286E+05      32.1          0.65
14.88
       1.12    84.22    .334E+05      39.9          0.69
13.96
       1.20    84.30    .385E+05      48.6          0.73
13.19
       1.28    84.38    .438E+05      58.0          0.76
12.59
       1.36    84.46    .495E+05      68.4          0.80
12.06
       1.44    84.54    .555E+05      81.0          0.84
11.40

                                          <---- hydrograph ---->   <-
pipe / channel->
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                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0136)   21.10     1.87    3.00  42.82
0.49     0.44
     OUTFLOW: ID= 1 (0611)   21.10     1.16    3.25  42.80
0.41     0.40

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| ADD HYD   (0138) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0137):    11.40   2.854     3.00    66.24
        + ID2= 2 (0611):    21.10   1.156     3.25    42.80
          ================================================
          ID = 3 (0138):    32.50   3.621     3.00    51.02

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD   (6041) |   Area    (ha)=   1.70   Curve Number
(CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   4.12

     Unit Hyd Qpeak  (cms)=   0.016

     PEAK FLOW       (cms)=   0.028 (i)
     TIME TO PEAK    (hrs)=   7.500
     RUNOFF VOLUME    (mm)=  46.483
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.506

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6042) |   Area    (ha)=  22.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       14.49          7.81
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      385.57         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      143.36        142.59
               over (min)         5.00         15.00
     Storage Coeff.  (min)=        4.97 (ii)   12.51 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.22          0.08

*TOTALS*
     PEAK FLOW       (cms)=        4.48          1.88
6.101 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       85.90         54.22
71.01
     TOTAL RAINFALL   (mm)=       91.90         91.90
91.90
     RUNOFF COEFFICIENT   =        0.93          0.59
0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0129) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6041):     1.70   0.028     7.50    46.48
        + ID2= 2 (6042):    22.30   6.101     3.00    71.01
          ================================================
          ID = 3 (0129):    24.00   6.101     3.00    69.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD   (6031) |   Area    (ha)=  19.00   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.32

     Unit Hyd Qpeak  (cms)=   0.550

     PEAK FLOW       (cms)=   0.642 (i)
     TIME TO PEAK    (hrs)=   4.417
     RUNOFF VOLUME    (mm)=  38.533
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.419

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6032) |   Area    (ha)=  15.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
15.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        4.40         11.30
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      323.52         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      143.36        100.72
               over (min)         5.00         15.00
     Storage Coeff.  (min)=        4.47 (ii)   13.14 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.23          0.08

*TOTALS*
     PEAK FLOW       (cms)=        0.90          1.83
2.434 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       85.90         42.93
49.37
     TOTAL RAINFALL   (mm)=       91.90         91.90
91.90
     RUNOFF COEFFICIENT   =        0.93          0.47
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0127) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6031):    19.00   0.642     4.42    38.53
        + ID2= 2 (6032):    15.70   2.434     3.00    49.37
          ================================================
          ID = 3 (0127):    34.70   2.515     3.00    43.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD   (6011) |   Area    (ha)=  44.10   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.83

     Unit Hyd Qpeak  (cms)=   2.027

     PEAK FLOW       (cms)=   1.596 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  29.382
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.320

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6012) |   Area    (ha)=  11.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
16.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        3.08          7.92
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      270.80         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      143.36         76.68
               over (min)         5.00         15.00
     Storage Coeff.  (min)=        4.02 (ii)   13.68 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.24          0.08

*TOTALS*
     PEAK FLOW       (cms)=        0.68          0.94
1.451 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       85.90         33.10
41.55
     TOTAL RAINFALL   (mm)=       91.90         91.90
91.90
     RUNOFF COEFFICIENT   =        0.93          0.36
0.45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0124) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6011):    44.10   1.596     3.83    29.38
        + ID2= 2 (6012):    11.00   1.451     3.00    41.55
          ================================================
          ID = 3 (0124):    55.10   1.931     3.50    31.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD   (6021) |   Area    (ha)=  43.60   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   1.753

     PEAK FLOW       (cms)=   1.426 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  29.382
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.320

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6022) |   Area    (ha)=  12.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
23.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        4.51          8.39
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      293.26         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      143.36         78.70
               over (min)         5.00         15.00
     Storage Coeff.  (min)=        4.22 (ii)   13.78 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.24          0.08

*TOTALS*
     PEAK FLOW       (cms)=        1.14          1.02
1.979 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       85.90         33.48
45.53
     TOTAL RAINFALL   (mm)=       91.90         91.90
91.90
     RUNOFF COEFFICIENT   =        0.93          0.36
0.50

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0125) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6021):    43.60   1.426     4.00    29.38
        + ID2= 2 (6022):    12.90   1.979     3.00    45.53
          ================================================
          ID = 3 (0125):    56.50   2.259     3.00    33.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0126) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0124):    55.10   1.931     3.50    31.81
        + ID2= 2 (0125):    56.50   2.259     3.00    33.07
          ================================================
          ID = 3 (0126):   111.60   4.090     3.00    32.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0603) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (2135.9) ------>
               Distance      Elevation       Manning
                   0.00          92.58        0.1400
                   8.54          92.59        0.1400
                  22.11          92.47        0.1400
                  48.74          91.83        0.1400
                  67.59          91.58        0.1400
                  86.45          91.21        0.1400
                 103.50          90.80        0.1400
                 118.09          90.23        0.1400
                 127.84          90.09     0.1400 /0.0700  Main
Channel
                 129.84          89.59        0.0700      Main
Channel
                 130.34          90.09     0.0700 /0.1400  Main
Channel
                 140.57          90.14        0.1400
                 161.87          90.11        0.1400
                 177.03          90.04        0.1400
                 188.67          89.87        0.1400
                 199.59          90.31        0.1400
                 212.02          90.96        0.1400
                 225.58          91.35        0.1400
                 252.71          91.66        0.1400
                 274.11          91.86        0.1400

      <-------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)      (cu.m.)      (cms)         (m/s)
(min)
     0.12    89.71    .358E+02       0.0          0.19
81.29
     0.25    89.84    .143E+03       0.0          0.30
51.21
     0.37    89.96    .689E+03       0.2          0.23
67.44
     0.50    90.09    .278E+04       0.6          0.20
77.83
     0.67    90.26    .132E+05       3.4          0.23
65.31
     0.83    90.42    .262E+05       9.3          0.33
46.76
     1.00    90.59    .403E+05      17.9          0.41
37.64
     1.17    90.76    .556E+05      28.8          0.48
32.17
     1.33    90.92    .721E+05      42.0          0.53
28.63
     1.50    91.09    .903E+05      57.1          0.58
26.37
     1.67    91.26    .110E+06      74.7          0.62
24.65
     1.83    91.42    .133E+06      93.4          0.64
23.71
     2.00    91.59    .159E+06     113.6          0.66
23.26
     2.17    91.76    .188E+06     136.6          0.67
22.96
     2.33    91.92    .222E+06     168.5          0.70
21.97
     2.50    92.09    .258E+06     211.3          0.75
20.33
     2.67    92.26    .294E+06     258.5          0.81
18.98
     2.83    92.42    .332E+06     310.1          0.86
17.85
     3.00    92.59    .371E+06     358.0          0.88
17.29

                                   <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0126)  111.60     4.09    3.00  32.45
0.69     0.24
     OUTFLOW: ID= 1 (0603)  111.60     2.68    4.50  32.44
0.62     0.22

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| ADD HYD   (0128) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0127):    34.70   2.515     3.00    43.44
        + ID2= 2 (0603):   111.60   2.684     4.50    32.44
          ================================================
          ID = 3 (0128):   146.30   3.591     4.42    35.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0604) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1414.9) ------>
               Distance      Elevation       Manning
                   0.00          86.75        0.0900
                   3.09          87.40        0.0900
                  18.33          87.41        0.0900
                  35.33          86.99        0.0900
                  73.84          86.75        0.0900
                 103.33          86.41        0.0900
                 120.33          86.11        0.0900
                 129.46          86.13        0.0900
                 143.37          85.32        0.0900
                 154.33          85.02        0.0900
                 161.57          85.09        0.0900
                 163.05          84.78     0.0900 /0.0700  Main
Channel
                 166.55          83.78        0.0700      Main
Channel
                 168.05          84.78     0.0700 /0.1100  Main
Channel
                 172.02          85.29        0.1100
                 191.39          86.19        0.1100
                 270.18          85.78        0.1100
                 296.33          86.36        0.1100
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                324.34         86.68        0.1100
                368.56         87.05        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV     VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.17    83.95    .465E+02       0.0          0.03
432.88
     0.33    84.11    .186E+03       0.0          0.04
272.70
     0.50    84.28    .418E+03       0.0          0.05
208.11
     0.67    84.45    .743E+03       0.1          0.06
171.79
     0.83    84.61    .116E+04       0.1          0.08
148.04
     1.00    84.78    .167E+04       0.2          0.09
131.10
     1.20    84.98    .252E+04       0.4          0.10
110.62
     1.41    85.19    .469E+04       0.6          0.09
121.59
     1.61    85.39    .842E+04       1.1          0.09
126.63
     1.81    85.59    .133E+05       1.8          0.09
121.99
     2.01    85.79    .192E+05       2.7          0.10
116.68
     2.22    86.00    .298E+05       4.0          0.09
125.45
     2.42    86.20    .487E+05       5.6          0.08
143.80
     2.62    86.40    .736E+05       9.0          0.08
137.02
     2.82    86.60    .102E+06      13.1          0.09
130.82
     3.03    86.81    .136E+06      18.1          0.09
125.42
     3.23    87.01    .178E+06      24.4          0.09
121.07
     3.43    87.21    .224E+06      34.2          0.10
108.80
     3.63    87.41    .271E+06      44.8          0.11
100.89

                              <---- hydrograph ---->   <-
pipe / channel->
                          AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                          (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0128)  146.30     3.59    4.42  35.05
2.15      0.09
    OUTFLOW: ID= 1 (0604)  146.30     2.65    4.92  35.04
2.00      0.10

    **** WARNING:  COMPUTATIONS FAILED TO CONVERGE.

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--------------------
| ADD HYD   (0130) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0129):    24.00   6.101     3.00    69.27
       + ID2= 2 (0604):   146.30   2.650     4.92    35.04
         ================================================
         ID = 3 (0130):   170.30   7.015     3.00    39.86

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0605) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 801.4) ------>
              Distance      Elevation       Manning
                  0.00         82.95        0.1100
                  3.78         82.95        0.1100
                  9.24         82.49        0.1100
                 50.67         82.10        0.1100
                105.12         82.17        0.1100
                119.34         81.56        0.1100
                150.67         81.66        0.1100
                157.23         82.37        0.1100
                190.03         82.57        0.1100
                223.75         82.27        0.1100
                252.32         82.50        0.1100
                254.65         81.95     0.1100 /0.0700  Main
Channel
                258.15         80.95        0.0700      Main
Channel
                259.65         81.95     0.0700 /0.1100  Main
Channel
                263.15         82.90        0.1100
                278.14         82.80        0.1100
                282.35         81.68        0.1100
                285.02         82.19        0.1100
                336.56         82.53        0.1100
                404.40         82.68        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV     VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.08    81.03    .125E+02       0.0          0.11
104.30
     0.17    81.12    .499E+02       0.0          0.18
65.70
     0.25    81.20    .112E+03       0.0          0.24
50.14
     0.33    81.28    .199E+03       0.1          0.29
41.39
     0.42    81.37    .312E+03       0.1          0.34
35.67
     0.50    81.45    .449E+03       0.2          0.38
31.59
     0.58    81.53    .611E+03       0.4          0.42
28.50
     0.67    81.62    .117E+04       0.5          0.33
36.10
     0.75    81.70    .316E+04       1.1          0.24
49.12
     0.83    81.78    .560E+04       2.1          0.27
45.15
     0.92    81.87    .827E+04       3.4          0.30
40.03
     1.00    81.95    .112E+05       5.2          0.33
35.88
     1.10    82.05    .151E+05       8.0          0.38
31.68
     1.21    82.16    .207E+05       8.8          0.30
39.37
     1.31    82.26    .306E+05      14.0          0.33
36.36
     1.41    82.36    .433E+05      20.3          0.34
35.59
     1.52    82.47    .606E+05      28.4          0.34
35.57
     1.62    82.57    .828E+05      41.0          0.36
33.68
     1.73    82.68    .109E+06      60.1          0.39
30.35

                              <---- hydrograph ---->   <-
pipe / channel->
                          AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                          (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
```

```
    INFLOW : ID= 2 (0130)  170.30     7.02    3.00  39.86
1.07      0.36
    OUTFLOW: ID= 1 (0605)  170.30     3.00    3.50  39.86
0.89      0.29


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--------------------
| ADD HYD   (0139) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0138):    32.50   3.621     3.00    51.02
       + ID2= 2 (0605):   170.30   3.004     3.50    39.86
         ================================================
         ID = 3 (0139):   202.80   5.886     3.00    41.65

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0132) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0131):    15.90   3.983     3.00    64.19
       + ID2= 2 (0139):   202.80   5.886     3.00    41.65
         ================================================
         ID = 3 (0132):   218.70   9.870     3.00    43.29

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0530) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 350.0) ------>
              Distance      Elevation       Manning
                  0.00         81.70        0.1100
                  3.84         81.72        0.1100
                  5.87         80.72        0.1100
                  9.38         81.42        0.1100
                 49.64         81.07        0.1100
                 80.61         80.72        0.1100
                 85.61         81.14        0.1100
                 93.32         80.00        0.1100
                 95.04         80.45        0.1100
                102.72         80.66        0.1100
                110.13         78.93     0.1100 /0.0700  Main
Channel
                118.05         78.63        0.0700      Main
Channel
                124.40         78.89     0.0700 /0.1100  Main
Channel
                132.18         79.61        0.1100
                139.34         79.23        0.1100
                144.67         79.43        0.1100
                149.63         79.98        0.1100
                153.42         79.79        0.1100
                158.56         80.58        0.1100
                176.89         81.15        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV     VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.13    78.76    .190E+03       0.1          0.19
38.41
     0.26    78.89    .758E+03       0.5          0.31
24.20
     0.43    79.05    .189E+04       2.1          0.50
14.77
     0.59    79.22    .321E+04       4.7          0.65
11.35
     0.76    79.39    .498E+04       8.2          0.73
10.10
     0.93    79.55    .743E+04      13.1          0.78
9.48
     1.09    79.72    .103E+05      19.5          0.84
8.84
     1.26    79.89    .135E+05      27.1          0.89
8.29
     1.43    80.05    .171E+05      36.3          0.94
7.85
     1.59    80.22    .209E+05      47.2          1.00
7.39
     1.76    80.39    .251E+05      59.8          1.06
6.99
     1.93    80.56    .296E+05      73.5          1.10
6.70
     2.10    80.72    .348E+05      87.6          1.12
6.61
     2.26    80.89    .412E+05     102.8          1.11
6.68
     2.43    81.06    .495E+05     122.0          1.09
6.77
     2.60    81.22    .596E+05     146.2          1.09
6.80
     2.76    81.39    .714E+05     176.9          1.10
6.72
     2.93    81.56    .841E+05     215.0          1.13
6.52
     3.10    81.72    .970E+05     256.7          1.18
6.30

                              <---- hydrograph ---->   <-
pipe / channel->
                          AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                          (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0132)  218.70     9.87    3.00  43.29
0.82      0.75
    OUTFLOW: ID= 1 (0530)  218.70     7.76    3.08  43.29
0.74      0.72


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--------------------
| ADD HYD   (0134) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0530):   218.70   7.763     3.08    43.29
       + ID2= 2 (5302):     5.80   1.419     3.00    61.74
         ================================================
         ID = 3 (0134):   224.50   8.518     3.08    43.76

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0135) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0120):   273.90  13.408     3.08    44.28
       + ID2= 2 (0134):   224.50   8.518     3.08    43.76
         ================================================
         ID = 3 (0135):   498.40  21.926     3.08    44.05

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0507) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (  40.0) ------>
```

```
              Distance      Elevation       Manning
                  0.00         79.36        0.0900
                  7.45         79.32        0.0900
                 13.77         79.27        0.0900
                 20.24         79.24        0.0900
                 27.28         79.26        0.0900
                 34.16         79.13        0.0900
                 40.79         79.05        0.0900
                 47.58         79.05        0.0900
                 54.30         79.07        0.0900
                 60.87         79.24        0.0900
                 71.39         79.48        0.0900
                 73.53         78.96        0.0900
                 76.96         78.07        0.0900
                 82.21         77.08     0.0900 /0.0700  Main
Channel
                 85.82         76.28        0.0700      Main
Channel
                 89.97         76.89        0.0700      Main
Channel
                 91.35         77.38     0.0700 /0.0900  Main
Channel
                 95.27         78.68        0.0900
                 98.44         79.63        0.0900
                102.89         79.89        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV     VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.16    76.44    .113E+03       0.0          0.14
88.10
     0.32    76.60    .451E+03       0.1          0.23
55.50
     0.49    76.76    .101E+04       0.4          0.30
42.35
     0.65    76.92    .180E+04       0.9          0.37
34.57
     0.81    77.09    .276E+04       1.6          0.44
28.86
     0.97    77.25    .388E+04       2.7          0.52
24.37
     1.14    77.41    .516E+04       4.0          0.59
21.56
     1.30    77.57    .660E+04       5.7          0.66
19.26
     1.46    77.74    .822E+04       7.8          0.72
17.67
     1.62    77.90    .100E+05      10.1          0.77
16.48
     1.79    78.06    .120E+05      12.8          0.82
15.54
     1.95    78.22    .141E+05      15.9          0.87
14.74
     2.11    78.39    .163E+05      19.4          0.91
14.06
     2.27    78.55    .187E+05      23.2          0.95
13.47
     2.44    78.71    .212E+05      27.3          0.99
12.95
     2.60    78.87    .239E+05      31.9          1.02
12.50
     2.76    79.04    .267E+05      36.8          1.06
12.10
     2.92    79.20    .320E+05      39.4          0.94
13.56
     3.09    79.36    .409E+05      45.7          0.85
14.94

                              <---- hydrograph ---->   <-
pipe / channel->
                          AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                          (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0135)  498.40    21.93    3.08  44.05
2.22      0.93
    OUTFLOW: ID= 1 (0507)  498.40    18.73    3.33  44.05
2.08      0.90


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| ADD HYD   (0122) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0121):    48.90   8.023     3.00    55.61
       + ID2= 2 (0507):   498.40  18.727     3.33    44.05
         ================================================
         ID = 3 (0122):   547.30  23.256     3.17    45.08

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (5401) |   Area    (ha)=   3.40   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.99

     Unit Hyd Qpeak  (cms)=   0.131

     PEAK FLOW      (cms)=   0.121 (i)
     TIME TO PEAK   (hrs)=   4.000
     RUNOFF VOLUME   (mm)= 32.778
     TOTAL RAINFALL  (mm)= 91.900
     RUNOFF COEFFICIENT   =  0.357

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (5402) |   Area    (ha)=   6.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  33.00   Dir. Conn.(%)=
20.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.98         4.02
     Dep. Storage     (mm)=      6.00         8.00
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    200.00        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=    143.36        88.38
              over (min)        5.00        15.00
     Storage Coeff.  (min)=      3.35 (ii)   12.48 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=      0.26         0.08

*TOTALS*
     PEAK FLOW       (cms)=      0.47         0.58
0.949 (iii)
     TIME TO PEAK    (hrs)=      3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=     85.90        37.27
46.99
     TOTAL RAINFALL   (mm)=     91.90        91.90
91.90
     RUNOFF COEFFICIENT   =      0.93         0.41
0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
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    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD  (0123) |
|   1 +  2 = 3    |        AREA    QPEAK    TPEAK     R.V.
--------------------       (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (5401):     3.40   0.121     4.00    32.78
     + ID2= 2 (5402):     6.00   0.949     3.00    46.99
       ==================================================
       ID = 3 (0123):     9.40   0.972     3.00    41.85

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| STORE HYD (1505) |   AREA      (ha)= 253.60
| ID= 1 DT= 5.0min |   QPEAK    (cms)=   0.78
--------------------   TPEAK    (hrs)=  15.58
                       VOLUME    (mm)=  47.57

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |' TIME    FLOW |
TIME   FLOW
   hrs     cms |   hrs     cms |   hrs     cms |'  hrs     cms |
hrs     cms
  0.00    0.00 | 31.33    0.10 | 62.67    0.25 | 94.00    0.26
|125.33   0.16
  0.08    0.00 | 31.42    0.10 | 62.75    0.25 | 94.08    0.26
|125.42   0.16
  0.17    0.00 | 31.50    0.10 | 62.83    0.25 | 94.17    0.25
|125.50   0.16
  0.25    0.00 | 31.58    0.10 | 62.92    0.25 | 94.25    0.25
|125.58   0.16
  0.33    0.00 | 31.67    0.10 | 63.00    0.25 | 94.33    0.25
|125.67   0.17
  0.42    0.00 | 31.75    0.10 | 63.08    0.25 | 94.42    0.25
|125.75   0.16
  0.50    0.00 | 31.83    0.10 | 63.17    0.25 | 94.50    0.25
|125.83   0.16
  0.58    0.00 | 31.92    0.10 | 63.25    0.24 | 94.58    0.25
|125.92   0.17
  0.67    0.00 | 32.00    0.10 | 63.33    0.24 | 94.67    0.24
|126.00   0.15
  0.75    0.00 | 32.08    0.10 | 63.42    0.24 | 94.75    0.25
|126.08   0.16
  0.83    0.00 | 32.17    0.10 | 63.50    0.23 | 94.83    0.24
|126.17   0.16
  0.92    0.00 | 32.25    0.10 | 63.58    0.24 | 94.92    0.25
|126.25   0.16
  1.00    0.00 | 32.33    0.10 | 63.67    0.24 | 95.00    0.25
|126.33   0.16
  1.08    0.00 | 32.42    0.10 | 63.75    0.24 | 95.08    0.25
|126.42   0.16
  1.17    0.00 | 32.50    0.10 | 63.83    0.23 | 95.17    0.24
|126.50   0.17
  1.25    0.00 | 32.58    0.10 | 63.92    0.23 | 95.25    0.21
|126.58   0.16
  1.33    0.00 | 32.67    0.10 | 64.00    0.23 | 95.33    0.25
|126.67   0.16
  1.42    0.00 | 32.75    0.10 | 64.08    0.23 | 95.42    0.22
|126.75   0.17
  1.50    0.00 | 32.83    0.10 | 64.17    0.23 | 95.50    0.23
|126.83   0.17
  1.58    0.00 | 32.92    0.10 | 64.25    0.24 | 95.58    0.22
|126.92   0.17
  1.67    0.00 | 33.00    0.10 | 64.33    0.23 | 95.67    0.24
|127.00   0.17
  1.75    0.00 | 33.08    0.10 | 64.42    0.23 | 95.75    0.26
|127.08   0.17
  1.83    0.00 | 33.17    0.10 | 64.50    0.23 | 95.83    0.24
|127.17   0.18
  1.92    0.00 | 33.25    0.11 | 64.58    0.23 | 95.92    0.23
|127.25   0.17
  2.00    0.00 | 33.33    0.11 | 64.67    0.24 | 96.00    0.24
|127.33   0.18
  2.08    0.00 | 33.42    0.11 | 64.75    0.24 | 96.08    0.24
|127.42   0.18
  2.17    0.00 | 33.50    0.11 | 64.83    0.24 | 96.17    0.24
|127.50   0.16
  2.25    0.00 | 33.58    0.11 | 64.92    0.24 | 96.25    0.24
|127.58   0.18
  2.33    0.00 | 33.67    0.11 | 65.00    0.24 | 96.33    0.24
|127.67   0.17
  2.42    0.00 | 33.75    0.11 | 65.08    0.23 | 96.42    0.24
|127.75   0.18
  2.50    0.00 | 33.83    0.11 | 65.17    0.23 | 96.50    0.24
|127.83   0.17
  2.58    0.00 | 33.92    0.11 | 65.25    0.23 | 96.58    0.23
|127.92   0.17
  2.67    0.00 | 34.00    0.11 | 65.33    0.23 | 96.67    0.24
|128.00   0.17
  2.75    0.00 | 34.08    0.11 | 65.42    0.22 | 96.75    0.23
|128.08   0.17
  2.83    0.00 | 34.17    0.11 | 65.50    0.22 | 96.83    0.23
|128.17   0.17
  2.92    0.00 | 34.25    0.11 | 65.58    0.22 | 96.92    0.24
|128.25   0.18
  3.00    0.00 | 34.33    0.11 | 65.67    0.22 | 97.00    0.23
|128.33   0.18
  3.08    0.00 | 34.42    0.11 | 65.75    0.22 | 97.08    0.22
|128.42   0.19
  3.17    0.00 | 34.50    0.11 | 65.83    0.22 | 97.17    0.23
|128.50   0.18
  3.25    0.00 | 34.58    0.11 | 65.92    0.21 | 97.25    0.22
|128.58   0.17
  3.33    0.00 | 34.67    0.11 | 66.00    0.21 | 97.33    0.25
|128.67   0.18
  3.42    0.00 | 34.75    0.11 | 66.08    0.21 | 97.42    0.22
|128.75   0.18
  3.50    0.00 | 34.83    0.11 | 66.17    0.20 | 97.50    0.24
|128.83   0.18
  3.58    0.00 | 34.92    0.11 | 66.25    0.20 | 97.58    0.23
|128.92   0.18
  3.67    0.00 | 35.00    0.11 | 66.33    0.20 | 97.67    0.22
|129.00   0.18
  3.75    0.00 | 35.08    0.11 | 66.42    0.20 | 97.75    0.23
|129.08   0.19
  3.83    0.00 | 35.17    0.11 | 66.50    0.19 | 97.83    0.22
|129.17   0.17
  3.92    0.00 | 35.25    0.11 | 66.58    0.20 | 97.92    0.21
|129.25   0.17
  4.00    0.00 | 35.33    0.11 | 66.67    0.20 | 98.00    0.22
|129.33   0.17
  4.08    0.00 | 35.42    0.11 | 66.75    0.20 | 98.08    0.23
|129.42   0.18
  4.17    0.00 | 35.50    0.11 | 66.83    0.19 | 98.17    0.21
|129.50   0.18
  4.25    0.00 | 35.58    0.11 | 66.92    0.19 | 98.25    0.21
|129.58   0.18
  4.33    0.00 | 35.67    0.11 | 67.00    0.20 | 98.33    0.23
|129.67   0.18
  4.42    0.00 | 35.75    0.11 | 67.08    0.20 | 98.42    0.21
|129.75   0.18
  4.50    0.00 | 35.83    0.11 | 67.17    0.20 | 98.50    0.21
|129.83   0.18
  4.58    0.00 | 35.92    0.11 | 67.25    0.20 | 98.58    0.23
|129.92   0.18
  4.67    0.00 | 36.00    0.11 | 67.33    0.20 | 98.67    0.22
|130.00   0.18
  4.75    0.00 | 36.08    0.11 | 67.42    0.21 | 98.75    0.23
|130.08   0.17
  4.83    0.00 | 36.17    0.11 | 67.50    0.22 | 98.83    0.24
|130.17   0.17
  4.92    0.00 | 36.25    0.11 | 67.58    0.22 | 98.92    0.22
|130.25   0.17
  5.00    0.00 | 36.33    0.11 | 67.67    0.23 | 99.00    0.20
|130.33   0.17
  5.08    0.00 | 36.42    0.12 | 67.75    0.24 | 99.08    0.20
|130.42   0.18
  5.17    0.00 | 36.50    0.12 | 67.83    0.26 | 99.17    0.22
|130.50   0.18
  5.25    0.00 | 36.58    0.12 | 67.92    0.27 | 99.25    0.21
|130.58   0.18
  5.33    0.00 | 36.67    0.12 | 68.00    0.28 | 99.33    0.22
|130.67   0.17
  5.42    0.00 | 36.75    0.12 | 68.08    0.31 | 99.42    0.21
|130.75   0.17
  5.50    0.00 | 36.83    0.12 | 68.17    0.32 | 99.50    0.20
|130.83   0.18
  5.58    0.00 | 36.92    0.12 | 68.25    0.34 | 99.58    0.21
|130.92   0.17
  5.67    0.00 | 37.00    0.12 | 68.33    0.35 | 99.67    0.20
|131.00   0.17
  5.75    0.00 | 37.08    0.12 | 68.42    0.38 | 99.75    0.19
|131.08   0.17
  5.83    0.00 | 37.17    0.12 | 68.50    0.39 | 99.83    0.20
|131.17   0.18
  5.92    0.00 | 37.25    0.12 | 68.58    0.40 | 99.92    0.22
|131.25   0.18
  6.00    0.00 | 37.33    0.12 | 68.67    0.42 |100.00    0.21
|131.33   0.17
  6.08    0.00 | 37.42    0.12 | 68.75    0.44 |100.08    0.20
|131.42   0.17
  6.17    0.00 | 37.50    0.12 | 68.83    0.46 |100.17    0.21
|131.50   0.17
  6.25    0.00 | 37.58    0.12 | 68.92    0.49 |100.25    0.19
|131.58   0.17
  6.33    0.00 | 37.67    0.13 | 69.00    0.51 |100.33    0.19
|131.67   0.17
  6.42    0.00 | 37.75    0.12 | 69.08    0.54 |100.42    0.19
|131.75   0.17
  6.50    0.00 | 37.83    0.12 | 69.17    0.56 |100.50    0.19
|131.83   0.17
  6.58    0.00 | 37.92    0.12 | 69.25    0.60 |100.58    0.19
|131.92   0.17
  6.67    0.00 | 38.00    0.12 | 69.33    0.64 |100.67    0.19
|132.00   0.16
  6.75    0.00 | 38.08    0.12 | 69.42    0.67 |100.75    0.21
|132.08   0.17
  6.83    0.00 | 38.17    0.12 | 69.50    0.67 |100.83    0.19
|132.17   0.17
  6.92    0.00 | 38.25    0.12 | 69.58    0.68 |100.92    0.19
|132.25   0.17
  7.00    0.00 | 38.33    0.12 | 69.67    0.65 |101.00    0.19
|132.33   0.17
  7.08    0.00 | 38.42    0.12 | 69.75    0.66 |101.08    0.19
|132.42   0.18
  7.17    0.00 | 38.50    0.12 | 69.83    0.66 |101.17    0.20
|132.50   0.17
  7.25    0.00 | 38.58    0.12 | 69.92    0.67 |101.25    0.19
|132.58   0.16
  7.33    0.00 | 38.67    0.13 | 70.00    0.66 |101.33    0.18
|132.67   0.17
  7.42    0.00 | 38.75    0.13 | 70.08    0.67 |101.42    0.19
|132.75   0.17
  7.50    0.00 | 38.83    0.13 | 70.17    0.67 |101.50    0.19
|132.83   0.17
  7.58    0.00 | 38.92    0.13 | 70.25    0.70 |101.58    0.19
|132.92   0.16
  7.67    0.00 | 39.00    0.13 | 70.33    0.74 |101.67    0.20
|133.00   0.17
  7.75    0.00 | 39.08    0.14 | 70.42    0.73 |101.75    0.19
|133.08   0.16
  7.83    0.00 | 39.17    0.14 | 70.50    0.74 |101.83    0.18
|133.17   0.16
  7.92    0.00 | 39.25    0.14 | 70.58    0.74 |101.92    0.19
|133.25   0.16
  8.00    0.00 | 39.33    0.14 | 70.67    0.74 |102.00    0.19
|133.33   0.15
  8.08    0.00 | 39.42    0.14 | 70.75    0.75 |102.08    0.19
|133.42   0.16
  8.17    0.00 | 39.50    0.15 | 70.83    0.75 |102.17    0.19
|133.50   0.16
  8.25    0.00 | 39.58    0.16 | 70.92    0.74 |102.25    0.18
|133.58   0.17
  8.33    0.00 | 39.67    0.16 | 71.00    0.74 |102.33    0.18
|133.67   0.16
  8.42    0.00 | 39.75    0.16 | 71.08    0.75 |102.42    0.19
|133.75   0.15
  8.50    0.00 | 39.83    0.16 | 71.17    0.77 |102.50    0.19
|133.83   0.16
  8.58    0.00 | 39.92    0.17 | 71.25    0.76 |102.58    0.19
|133.92   0.16
  8.67    0.00 | 40.00    0.17 | 71.33    0.76 |102.67    0.18
|134.00   0.16
  8.75    0.00 | 40.08    0.17 | 71.42    0.77 |102.75    0.20
|134.08   0.16
  8.83    0.00 | 40.17    0.17 | 71.50    0.76 |102.83    0.18
|134.17   0.15
  8.92    0.00 | 40.25    0.18 | 71.58    0.77 |102.92    0.18
|134.25   0.16
  9.00    0.00 | 40.33    0.18 | 71.67    0.76 |103.00    0.17
|134.33   0.16
  9.08    0.00 | 40.42    0.18 | 71.75    0.76 |103.08    0.17
|134.42   0.16
  9.17    0.00 | 40.50    0.18 | 71.83    0.78 |103.17    0.18
|134.50   0.16
  9.25    0.00 | 40.58    0.19 | 71.92    0.77 |103.25    0.18
|134.58   0.15
  9.33    0.00 | 40.67    0.19 | 72.00    0.76 |103.33    0.17
|134.67   0.16
  9.42    0.00 | 40.75    0.19 | 72.08    0.74 |103.42    0.17
|134.75   0.15
  9.50    0.00 | 40.83    0.19 | 72.17    0.75 |103.50    0.17
|134.83   0.15
  9.58    0.00 | 40.92    0.19 | 72.25    0.74 |103.58    0.18
|134.92   0.16
  9.67    0.00 | 41.00    0.19 | 72.33    0.72 |103.67    0.18
|135.00   0.15
  9.75    0.00 | 41.08    0.19 | 72.42    0.70 |103.75    0.18
|135.08   0.15
  9.83    0.00 | 41.17    0.20 | 72.50    0.70 |103.83    0.18
|135.17   0.15
  9.92    0.00 | 41.25    0.20 | 72.58    0.69 |103.92    0.19
|135.25   0.15
 10.00    0.00 | 41.33    0.21 | 72.67    0.70 |104.00    0.17
|135.33   0.15
 10.08    0.00 | 41.42    0.22 | 72.75    0.68 |104.08    0.18
|135.42   0.15
 10.17    0.00 | 41.50    0.23 | 72.83    0.67 |104.17    0.18
|135.50   0.15
 10.25    0.00 | 41.58    0.23 | 72.92    0.66 |104.25    0.17
|135.58   0.15
 10.33    0.00 | 41.67    0.23 | 73.00    0.64 |104.33    0.17
|135.67   0.14
 10.42    0.00 | 41.75    0.24 | 73.08    0.63 |104.42    0.17
|135.75   0.15
 10.50    0.00 | 41.83    0.25 | 73.17    0.63 |104.50    0.18
|135.83   0.16
 10.58    0.00 | 41.92    0.25 | 73.25    0.61 |104.58    0.17
|135.92   0.15
 10.67    0.00 | 42.00    0.26 | 73.33    0.62 |104.67    0.16
|136.00   0.15
 10.75    0.00 | 42.08    0.25 | 73.42    0.61 |104.75    0.16
|136.08   0.15
 10.83    0.00 | 42.17    0.26 | 73.50    0.62 |104.83    0.18
|136.17   0.15
 10.92    0.00 | 42.25    0.26 | 73.58    0.60 |104.92    0.16
|136.25   0.15
 11.00    0.00 | 42.33    0.26 | 73.67    0.62 |105.00    0.17
|136.33   0.15
 11.08    0.00 | 42.42    0.26 | 73.75    0.58 |105.08    0.16
|136.42   0.15
 11.17    0.00 | 42.50    0.26 | 73.83    0.59 |105.17    0.16
|136.50   0.15
 11.25    0.00 | 42.58    0.26 | 73.92    0.57 |105.25    0.16
|136.58   0.15
 11.33    0.00 | 42.67    0.26 | 74.00    0.57 |105.33    0.16
|136.67   0.14
 11.42    0.00 | 42.75    0.25 | 74.08    0.57 |105.42    0.16
|136.75   0.15
 11.50    0.00 | 42.83    0.26 | 74.17    0.56 |105.50    0.16
|136.83   0.14
 11.58    0.00 | 42.92    0.25 | 74.25    0.58 |105.58    0.16
|136.92   0.14
 11.67    0.00 | 43.00    0.25 | 74.33    0.58 |105.67    0.16
|137.00   0.14
 11.75    0.00 | 43.08    0.25 | 74.42    0.58 |105.75    0.17
|137.08   0.15
 11.83    0.00 | 43.17    0.25 | 74.50    0.59 |105.83    0.16
|137.17   0.14
 11.92    0.00 | 43.25    0.25 | 74.58    0.60 |105.92    0.16
|137.25   0.15
 12.00    0.00 | 43.33    0.25 | 74.67    0.57 |106.00    0.16
|137.33   0.15
 12.08    0.00 | 43.42    0.25 | 74.75    0.56 |106.08    0.16
|137.42   0.14
 12.17    0.00 | 43.50    0.25 | 74.83    0.54 |106.17    0.16
|137.50   0.14
 12.25    0.00 | 43.58    0.25 | 74.92    0.56 |106.25    0.17
|137.58   0.14
 12.33    0.00 | 43.67    0.25 | 75.00    0.53 |106.33    0.16
|137.67   0.15
 12.42    0.00 | 43.75    0.25 | 75.08    0.51 |106.42    0.16
|137.75   0.14
 12.50    0.00 | 43.83    0.26 | 75.17    0.51 |106.50    0.16
|137.83   0.14
 12.58    0.00 | 43.92    0.26 | 75.25    0.51 |106.58    0.16
|137.92   0.14
 12.67    0.00 | 44.00    0.26 | 75.33    0.51 |106.67    0.16
|138.00   0.14
 12.75    0.00 | 44.08    0.26 | 75.42    0.50 |106.75    0.16
|138.08   0.14
 12.83    0.00 | 44.17    0.26 | 75.50    0.50 |106.83    0.15
|138.17   0.14
 12.92    0.00 | 44.25    0.27 | 75.58    0.49 |106.92    0.15
|138.25   0.14
 13.00    0.00 | 44.33    0.26 | 75.67    0.49 |107.00    0.16
|138.33   0.14
 13.08    0.00 | 44.42    0.26 | 75.75    0.49 |107.08    0.16
|138.42   0.14
 13.17    0.00 | 44.50    0.26 | 75.83    0.48 |107.17    0.16
|138.50   0.14
 13.25    0.00 | 44.58    0.26 | 75.92    0.47 |107.25    0.15
|138.58   0.14
 13.33    0.00 | 44.67    0.26 | 76.00    0.47 |107.33    0.16
|138.67   0.14
 13.42    0.00 | 44.75    0.26 | 76.08    0.48 |107.42    0.16
|138.75   0.14
 13.50    0.00 | 44.83    0.26 | 76.17    0.46 |107.50    0.15
|138.83   0.14
 13.58    0.00 | 44.92    0.26 | 76.25    0.45 |107.58    0.16
|138.92   0.14
 13.67    0.00 | 45.00    0.26 | 76.33    0.45 |107.67    0.15
|139.00   0.14
 13.75    0.00 | 45.08    0.26 | 76.42    0.43 |107.75    0.15
|139.08   0.14
 13.83    0.00 | 45.17    0.25 | 76.50    0.44 |107.83    0.16
|139.17   0.13
 13.92    0.00 | 45.25    0.25 | 76.58    0.46 |107.92    0.16
|139.25   0.14
 14.00    0.00 | 45.33    0.25 | 76.67    0.43 |108.00    0.16
|139.33   0.14
 14.08    0.00 | 45.42    0.25 | 76.75    0.44 |108.08    0.15
|139.42   0.14
 14.17    0.00 | 45.50    0.25 | 76.83    0.43 |108.17    0.15
|139.50   0.14
 14.25    0.00 | 45.58    0.25 | 76.92    0.45 |108.25    0.15
|139.58   0.13
 14.33    0.00 | 45.67    0.25 | 77.00    0.42 |108.33    0.16
|139.67   0.14
 14.42    0.00 | 45.75    0.25 | 77.08    0.43 |108.42    0.16
|139.75   0.14
 14.50    0.00 | 45.83    0.26 | 77.17    0.43 |108.50    0.15
|139.83   0.13
 14.58    0.00 | 45.92    0.25 | 77.25    0.42 |108.58    0.15
|139.92   0.14
 14.67    0.00 | 46.00    0.26 | 77.33    0.41 |108.67    0.15
|140.00   0.14
 14.75    0.00 | 46.08    0.26 | 77.42    0.43 |108.75    0.16
|140.08   0.13
 14.83    0.00 | 46.17    0.25 | 77.50    0.41 |108.83    0.15
|140.17   0.13
 14.92    0.69 | 46.25    0.26 | 77.58    0.43 |108.92    0.15
|140.25   0.13
 15.00    0.69 | 46.33    0.26 | 77.67    0.39 |109.00    0.15
|140.33   0.13
 15.08    0.71 | 46.42    0.26 | 77.75    0.39 |109.08    0.15
|140.42   0.14
 15.17    0.74 | 46.50    0.26 | 77.83    0.37 |109.17    0.15
|140.50   0.13
 15.25    0.74 | 46.58    0.26 | 77.92    0.39 |109.25    0.15
|140.58   0.13
 15.33    0.74 | 46.67    0.26 | 78.00    0.39 |109.33    0.14
|140.67   0.13
 15.42    0.77 | 46.75    0.26 | 78.08    0.39 |109.42    0.15
|140.75   0.13
 15.50    0.76 | 46.83    0.25 | 78.17    0.37 |109.50    0.15
|140.83   0.13
 15.58    0.78 | 46.92    0.25 | 78.25    0.36 |109.58    0.14
|140.92   0.13
 15.67    0.78 | 47.00    0.25 | 78.33    0.37 |109.67    0.15
|141.00   0.13
 15.75    0.77 | 47.08    0.25 | 78.42    0.38 |109.75    0.14
|141.08   0.13
 15.83    0.77 | 47.17    0.26 | 78.50    0.36 |109.83    0.15
|141.17   0.13
 15.92    0.77 | 47.25    0.26 | 78.58    0.36 |109.92    0.14
|141.25   0.13
 16.00    0.76 | 47.33    0.26 | 78.67    0.36 |110.00    0.14
|141.33   0.13
 16.08    0.74 | 47.42    0.26 | 78.75    0.37 |110.08    0.14
|141.42   0.13
 16.17    0.74 | 47.50    0.26 | 78.83    0.34 |110.17    0.14
|141.50   0.13
 16.25    0.74 | 47.58    0.25 | 78.92    0.35 |110.25    0.14
|141.58   0.13
 16.33    0.72 | 47.67    0.26 | 79.00    0.36 |110.33    0.15
|141.67   0.13
 16.42    0.69 | 47.75    0.26 | 79.08    0.35 |110.42    0.15
|141.75   0.13
 16.50    0.69 | 47.83    0.26 | 79.17    0.35 |110.50    0.14
|141.83   0.13
 16.58    0.67 | 47.92    0.26 | 79.25    0.36 |110.58    0.14
|141.92   0.13
 16.67    0.66 | 48.00    0.25 | 79.33    0.36 |110.67    0.14
|142.00   0.13
 16.75    0.64 | 48.08    0.25 | 79.42    0.33 |110.75    0.15
|142.08   0.12
 16.83    0.63 | 48.17    0.26 | 79.50    0.33 |110.83    0.14
|142.17   0.13
 16.92    0.63 | 48.25    0.25 | 79.58    0.33 |110.92    0.15
|142.25   0.13
 17.00    0.60 | 48.33    0.25 | 79.67    0.32 |111.00    0.15
|142.33   0.13
 17.08    0.58 | 48.42    0.25 | 79.75    0.33 |111.08    0.14
|142.42   0.12
 17.17    0.58 | 48.50    0.25 | 79.83    0.33 |111.17    0.14
|142.50   0.13
 17.25    0.57 | 48.58    0.25 | 79.92    0.32 |111.25    0.14
|142.58   0.13
 17.33    0.56 | 48.67    0.24 | 80.00    0.33 |111.33    0.15
|142.67   0.13
 17.42    0.55 | 48.75    0.24 | 80.08    0.34 |111.42    0.14
|142.75   0.13
 17.50    0.54 | 48.83    0.24 | 80.17    0.32 |111.50    0.15
|142.83   0.12
 17.58    0.51 | 48.92    0.24 | 80.25    0.31 |111.58    0.14
|142.92   0.13
 17.67    0.50 | 49.00    0.24 | 80.33    0.33 |111.67    0.14
|143.00   0.12
 17.75    0.48 | 49.08    0.25 | 80.42    0.31 |111.75    0.14
|143.08   0.12
 17.83    0.47 | 49.17    0.24 | 80.50    0.32 |111.83    0.14
|143.17   0.12
 17.92    0.47 | 49.25    0.24 | 80.58    0.31 |111.92    0.14
|143.25   0.12
 18.00    0.45 | 49.33    0.24 | 80.67    0.31 |112.00    0.15
|143.33   0.12
 18.08    0.44 | 49.42    0.23 | 80.75    0.33 |112.08    0.15
|143.42   0.12
 18.17    0.41 | 49.50    0.23 | 80.83    0.31 |112.17    0.14
|143.50   0.12
 18.25    0.42 | 49.58    0.24 | 80.92    0.32 |112.25    0.14
|143.58   0.12
 18.33    0.40 | 49.67    0.23 | 81.00    0.32 |112.33    0.14
|143.67   0.12
 18.42    0.39 | 49.75    0.24 | 81.08    0.31 |112.42    0.15
|143.75   0.12
 18.50    0.38 | 49.83    0.24 | 81.17    0.31 |112.50    0.15
|143.83   0.12
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 18.58   0.38 | 49.92   0.23 | 81.25   0.31 |112.58   0.15
|143.92   0.12
 18.67   0.37 | 50.00   0.23 | 81.33   0.31 |112.67   0.15
|144.00   0.12
 18.75   0.37 | 50.08   0.23 | 81.42   0.31 |112.75   0.14
|144.08   0.12
 18.83   0.36 | 50.17   0.24 | 81.50   0.32 |112.83   0.15
|144.17   0.12
 18.92   0.35 | 50.25   0.23 | 81.58   0.32 |112.92   0.14
|144.25   0.12
 19.00   0.34 | 50.33   0.23 | 81.67   0.34 |113.00   0.15
|144.33   0.12
 19.08   0.34 | 50.42   0.23 | 81.75   0.34 |113.08   0.15
|144.42   0.12
 19.17   0.34 | 50.50   0.23 | 81.83   0.35 |113.17   0.14
|144.50   0.12
 19.25   0.34 | 50.58   0.23 | 81.92   0.37 |113.25   0.15
|144.58   0.12
 19.33   0.33 | 50.67   0.23 | 82.00   0.36 |113.33   0.15
|144.67   0.12
 19.42   0.33 | 50.75   0.23 | 82.08   0.37 |113.42   0.14
|144.75   0.12
 19.50   0.32 | 50.83   0.23 | 82.17   0.38 |113.50   0.14
|144.83   0.12
 19.58   0.32 | 50.92   0.23 | 82.25   0.36 |113.58   0.14
|144.92   0.12
 19.67   0.32 | 51.00   0.23 | 82.33   0.35 |113.67   0.14
|145.00   0.12
 19.75   0.31 | 51.08   0.23 | 82.42   0.37 |113.75   0.14
|145.08   0.12
 19.83   0.30 | 51.17   0.23 | 82.50   0.37 |113.83   0.14
|145.17   0.12
 19.92   0.30 | 51.25   0.23 | 82.58   0.36 |113.92   0.14
|145.25   0.12
 20.00   0.29 | 51.33   0.23 | 82.67   0.38 |114.00   0.14
|145.33   0.12
 20.08   0.29 | 51.42   0.23 | 82.75   0.38 |114.08   0.14
|145.42   0.12
 20.17   0.28 | 51.50   0.23 | 82.83   0.41 |114.17   0.14
|145.50   0.12
 20.25   0.28 | 51.58   0.23 | 82.92   0.40 |114.25   0.14
|145.58   0.12
 20.33   0.28 | 51.67   0.23 | 83.00   0.40 |114.33   0.14
|145.67   0.12
 20.42   0.27 | 51.75   0.23 | 83.08   0.40 |114.42   0.14
|145.75   0.12
 20.50   0.27 | 51.83   0.23 | 83.17   0.44 |114.50   0.15
|145.83   0.12
 20.58   0.26 | 51.92   0.23 | 83.25   0.44 |114.58   0.14
|145.92   0.12
 20.67   0.27 | 52.00   0.23 | 83.33   0.42 |114.67   0.14
|146.00   0.12
 20.75   0.26 | 52.08   0.24 | 83.42   0.42 |114.75   0.14
|146.08   0.11
 20.83   0.26 | 52.17   0.24 | 83.50   0.42 |114.83   0.15
|146.17   0.11
 20.92   0.25 | 52.25   0.24 | 83.58   0.41 |114.92   0.14
|146.25   0.11
 21.00   0.25 | 52.33   0.25 | 83.67   0.41 |115.00   0.15
|146.33   0.12
 21.08   0.25 | 52.42   0.25 | 83.75   0.42 |115.08   0.14
|146.42   0.11
 21.17   0.24 | 52.50   0.25 | 83.83   0.41 |115.17   0.14
|146.50   0.12
 21.25   0.25 | 52.58   0.25 | 83.92   0.41 |115.25   0.14
|146.58   0.12
 21.33   0.24 | 52.67   0.25 | 84.00   0.43 |115.33   0.15
|146.67   0.11
 21.42   0.24 | 52.75   0.25 | 84.08   0.40 |115.42   0.14
|146.75   0.12
 21.50   0.24 | 52.83   0.25 | 84.17   0.42 |115.50   0.15
|146.83   0.11
 21.58   0.23 | 52.92   0.25 | 84.25   0.41 |115.58   0.14
|146.92   0.12
 21.67   0.23 | 53.00   0.27 | 84.33   0.42 |115.67   0.14
|147.00   0.11
 21.75   0.23 | 53.08   0.27 | 84.42   0.42 |115.75   0.14
|147.08   0.12
 21.83   0.23 | 53.17   0.28 | 84.50   0.43 |115.83   0.14
|147.17   0.11
 21.92   0.23 | 53.25   0.28 | 84.58   0.44 |115.92   0.14
|147.25   0.12
 22.00   0.23 | 53.33   0.28 | 84.67   0.42 |116.00   0.15
|147.33   0.12
 22.08   0.22 | 53.42   0.28 | 84.75   0.44 |116.08   0.14
|147.42   0.11
 22.17   0.22 | 53.50   0.28 | 84.83   0.45 |116.17   0.15
|147.50   0.11
 22.25   0.22 | 53.58   0.29 | 84.92   0.45 |116.25   0.14
|147.58   0.11
 22.33   0.22 | 53.67   0.29 | 85.00   0.46 |116.33   0.14
|147.67   0.11
 22.42   0.21 | 53.75   0.29 | 85.08   0.47 |116.42   0.14
|147.75   0.11
 22.50   0.21 | 53.83   0.30 | 85.17   0.46 |116.50   0.14
|147.83   0.11
 22.58   0.21 | 53.92   0.30 | 85.25   0.46 |116.58   0.14
|147.92   0.11
 22.67   0.21 | 54.00   0.30 | 85.33   0.44 |116.67   0.14
|148.00   0.11
 22.75   0.21 | 54.08   0.30 | 85.42   0.45 |116.75   0.14
|148.08   0.11
 22.83   0.20 | 54.17   0.31 | 85.50   0.45 |116.83   0.14
|148.17   0.11
 22.92   0.20 | 54.25   0.30 | 85.58   0.45 |116.92   0.14
|148.25   0.11
 23.00   0.20 | 54.33   0.31 | 85.67   0.45 |117.00   0.14
|148.33   0.11
 23.08   0.20 | 54.42   0.30 | 85.75   0.46 |117.08   0.14
|148.42   0.11
 23.17   0.20 | 54.50   0.31 | 85.83   0.45 |117.17   0.14
|148.50   0.11
 23.25   0.20 | 54.58   0.32 | 85.92   0.47 |117.25   0.14
|148.58   0.11
 23.33   0.19 | 54.67   0.32 | 86.00   0.44 |117.33   0.14
|148.67   0.11
 23.42   0.19 | 54.75   0.32 | 86.08   0.45 |117.42   0.14
|148.75   0.11
 23.50   0.19 | 54.83   0.32 | 86.17   0.43 |117.50   0.14
|148.83   0.11
 23.58   0.19 | 54.92   0.32 | 86.25   0.43 |117.58   0.14
|148.92   0.11
 23.67   0.19 | 55.00   0.32 | 86.33   0.43 |117.67   0.13
|149.00   0.11
 23.75   0.18 | 55.08   0.32 | 86.42   0.43 |117.75   0.13
|149.08   0.11
 23.83   0.18 | 55.17   0.32 | 86.50   0.45 |117.83   0.14
|149.17   0.11
 23.92   0.18 | 55.25   0.33 | 86.58   0.42 |117.92   0.13
|149.25   0.11
 24.00   0.18 | 55.33   0.33 | 86.67   0.42 |118.00   0.13
|149.33   0.11
 24.08   0.18 | 55.42   0.33 | 86.75   0.43 |118.08   0.13
|149.42   0.11
 24.17   0.18 | 55.50   0.33 | 86.83   0.41 |118.17   0.13
|149.50   0.11
 24.25   0.17 | 55.58   0.32 | 86.92   0.40 |118.25   0.13
|149.58   0.11
 24.33   0.18 | 55.67   0.32 | 87.00   0.40 |118.33   0.13
|149.67   0.11
 24.42   0.17 | 55.75   0.32 | 87.08   0.39 |118.42   0.13
|149.75   0.11
 24.50   0.17 | 55.83   0.32 | 87.17   0.39 |118.50   0.13
|149.83   0.11
 24.58   0.17 | 55.92   0.32 | 87.25   0.39 |118.58   0.13
|149.92   0.11
 24.67   0.17 | 56.00   0.32 | 87.33   0.37 |118.67   0.13
|150.00   0.11
 24.75   0.16 | 56.08   0.32 | 87.42   0.37 |118.75   0.13
|150.08   0.11
 24.83   0.16 | 56.17   0.32 | 87.50   0.38 |118.83   0.13
|150.17   0.11
 24.92   0.16 | 56.25   0.32 | 87.58   0.37 |118.92   0.13
|150.25   0.11
 25.00   0.16 | 56.33   0.32 | 87.67   0.36 |119.00   0.13
|150.33   0.11
 25.08   0.16 | 56.42   0.32 | 87.75   0.38 |119.08   0.13
|150.42   0.11
 25.17   0.16 | 56.50   0.32 | 87.83   0.38 |119.17   0.13
|150.50   0.11
 25.25   0.16 | 56.58   0.31 | 87.92   0.34 |119.25   0.13
|150.58   0.11
 25.33   0.15 | 56.67   0.31 | 88.00   0.35 |119.33   0.13
|150.67   0.11
 25.42   0.16 | 56.75   0.32 | 88.08   0.34 |119.42   0.13
|150.75   0.11
 25.50   0.15 | 56.83   0.31 | 88.17   0.35 |119.50   0.13
|150.83   0.11
 25.58   0.15 | 56.92   0.31 | 88.25   0.34 |119.58   0.13
|150.92   0.11
 25.67   0.15 | 57.00   0.31 | 88.33   0.36 |119.67   0.13
|151.00   0.11
 25.75   0.15 | 57.08   0.31 | 88.42   0.33 |119.75   0.13
|151.08   0.11
 25.83   0.15 | 57.17   0.31 | 88.50   0.33 |119.83   0.13
|151.17   0.11
 25.92   0.15 | 57.25   0.31 | 88.58   0.34 |119.92   0.13
|151.25   0.11
 26.00   0.15 | 57.33   0.30 | 88.67   0.33 |120.00   0.13
|151.33   0.11
 26.08   0.15 | 57.42   0.30 | 88.75   0.33 |120.08   0.13
|151.42   0.11
 26.17   0.15 | 57.50   0.30 | 88.83   0.32 |120.17   0.13
|151.50   0.11
 26.25   0.14 | 57.58   0.30 | 88.92   0.30 |120.25   0.14
|151.58   0.11
 26.33   0.14 | 57.67   0.31 | 89.00   0.31 |120.33   0.14
|151.67   0.11
 26.42   0.14 | 57.75   0.30 | 89.08   0.31 |120.42   0.13
|151.75   0.11
 26.50   0.14 | 57.83   0.30 | 89.17   0.30 |120.50   0.14
|151.83   0.11
 26.58   0.14 | 57.92   0.30 | 89.25   0.31 |120.58   0.14
|151.92   0.11
 26.67   0.14 | 58.00   0.29 | 89.33   0.32 |120.67   0.14
|152.00   0.11
 26.75   0.14 | 58.08   0.29 | 89.42   0.31 |120.75   0.14
|152.08   0.11
 26.83   0.14 | 58.17   0.29 | 89.50   0.30 |120.83   0.14
|152.17   0.11
 26.92   0.14 | 58.25   0.29 | 89.58   0.29 |120.92   0.14
|152.25   0.11
 27.00   0.14 | 58.33   0.29 | 89.67   0.29 |121.00   0.14
|152.33   0.10
 27.08   0.13 | 58.42   0.29 | 89.75   0.29 |121.08   0.14
|152.42   0.11
 27.17   0.13 | 58.50   0.29 | 89.83   0.28 |121.17   0.14
|152.50   0.11
 27.25   0.13 | 58.58   0.29 | 89.92   0.30 |121.25   0.14
|152.58   0.10
 27.33   0.13 | 58.67   0.28 | 90.00   0.31 |121.33   0.14
|152.67   0.10
 27.42   0.13 | 58.75   0.28 | 90.08   0.31 |121.42   0.14
|152.75   0.10
 27.50   0.13 | 58.83   0.28 | 90.17   0.30 |121.50   0.14
|152.83   0.10
 27.58   0.13 | 58.92   0.29 | 90.25   0.30 |121.58   0.14
|152.92   0.10
 27.67   0.13 | 59.00   0.29 | 90.33   0.31 |121.67   0.14
|153.00   0.11
 27.75   0.13 | 59.08   0.29 | 90.42   0.30 |121.75   0.14
|153.08   0.10
 27.83   0.13 | 59.17   0.28 | 90.50   0.31 |121.83   0.14
|153.17   0.10
 27.92   0.12 | 59.25   0.28 | 90.58   0.31 |121.92   0.14
|153.25   0.11
 28.00   0.13 | 59.33   0.28 | 90.67   0.31 |122.00   0.15
|153.33   0.10
 28.08   0.12 | 59.42   0.27 | 90.75   0.31 |122.08   0.14
|153.42   0.11
 28.17   0.12 | 59.50   0.27 | 90.83   0.30 |122.17   0.14
|153.50   0.10
 28.25   0.12 | 59.58   0.27 | 90.92   0.31 |122.25   0.14
|153.58   0.10
 28.33   0.12 | 59.67   0.26 | 91.00   0.30 |122.33   0.14
|153.67   0.10
 28.42   0.12 | 59.75   0.26 | 91.08   0.30 |122.42   0.15
|153.75   0.11
 28.50   0.12 | 59.83   0.26 | 91.17   0.32 |122.50   0.15
|153.83   0.10
 28.58   0.12 | 59.92   0.26 | 91.25   0.30 |122.58   0.15
|153.92   0.10
 28.67   0.12 | 60.00   0.25 | 91.33   0.28 |122.67   0.14
|154.00   0.10
 28.75   0.12 | 60.08   0.25 | 91.42   0.30 |122.75   0.15
|154.08   0.10
 28.83   0.12 | 60.17   0.25 | 91.50   0.28 |122.83   0.14
|154.17   0.10
 28.92   0.12 | 60.25   0.25 | 91.58   0.31 |122.92   0.14
|154.25   0.10
 29.00   0.12 | 60.33   0.25 | 91.67   0.28 |123.00   0.15
|154.33   0.10
 29.08   0.12 | 60.42   0.24 | 91.75   0.30 |123.08   0.15
|154.42   0.10
 29.17   0.11 | 60.50   0.24 | 91.83   0.31 |123.17   0.15
|154.50   0.10
 29.25   0.11 | 60.58   0.24 | 91.92   0.27 |123.25   0.15
|154.58   0.10
 29.33   0.11 | 60.67   0.23 | 92.00   0.28 |123.33   0.15
|154.67   0.10
 29.42   0.11 | 60.75   0.24 | 92.08   0.29 |123.42   0.15
|154.75   0.10
 29.50   0.11 | 60.83   0.23 | 92.17   0.27 |123.50   0.15
|154.83   0.10
 29.58   0.11 | 60.92   0.23 | 92.25   0.28 |123.58   0.15
|154.92   0.10
 29.67   0.11 | 61.00   0.23 | 92.33   0.28 |123.67   0.15
|155.00   0.10
 29.75   0.11 | 61.08   0.23 | 92.42   0.31 |123.75   0.15
|155.08   0.10
 29.83   0.11 | 61.17   0.23 | 92.50   0.28 |123.83   0.15
|155.17   0.10
 29.92   0.11 | 61.25   0.22 | 92.58   0.28 |123.92   0.15
|155.25   0.10
 30.00   0.11 | 61.33   0.23 | 92.67   0.28 |124.00   0.15
|155.33   0.10
 30.08   0.11 | 61.42   0.23 | 92.75   0.28 |124.08   0.15
|155.42   0.10
 30.17   0.11 | 61.50   0.24 | 92.83   0.27 |124.17   0.15
|155.50   0.10
 30.25   0.11 | 61.58   0.24 | 92.92   0.28 |124.25   0.15
|155.58   0.10
 30.33   0.11 | 61.67   0.23 | 93.00   0.28 |124.33   0.14
|155.67   0.10
 30.42   0.11 | 61.75   0.23 | 93.08   0.27 |124.42   0.15
|155.75   0.10
 30.50   0.11 | 61.83   0.23 | 93.17   0.29 |124.50   0.15
|155.83   0.10
 30.58   0.11 | 61.92   0.23 | 93.25   0.28 |124.58   0.16
|155.92   0.10
 30.67   0.11 | 62.00   0.23 | 93.33   0.26 |124.67   0.15
|156.00   0.10
 30.75   0.11 | 62.08   0.23 | 93.42   0.27 |124.75   0.15
|156.08   0.10
 30.83   0.11 | 62.17   0.23 | 93.50   0.27 |124.83   0.15
|156.17   0.10
 30.92   0.11 | 62.25   0.23 | 93.58   0.26 |124.92   0.17
|156.25   0.10
 31.00   0.11 | 62.33   0.24 | 93.67   0.26 |125.00   0.16 |
 31.08   0.10 | 62.42   0.25 | 93.75   0.28 |125.08   0.16 |
 31.17   0.10 | 62.50   0.25 | 93.83   0.25 |125.17   0.16 |
 31.25   0.10 | 62.58   0.26 | 93.92   0.28 |125.25   0.16 |
----------------------------------------------------------------
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--------------------
| STORE HYD (1605) |   AREA     (ha)= 218.70
| ID= 1 DT= 5.0min |   QPEAK    (cms)=   1.37
--------------------   TPEAK    (hrs)=  71.92
                       VOLUME    (mm)=  85.77

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |'  TIME    FLOW |
TIME    FLOW
   hrs    cms |   hrs     cms |   hrs     cms |'   hrs     cms |
hrs    cms
  0.00    0.00 | 31.25   0.15 | 62.50   0.38 | 93.75   0.37
|125.00   0.20
  0.08   0.00 | 31.33   0.15 | 62.58   0.38 | 93.83   0.36
|125.08   0.20
  0.17   0.00 | 31.42   0.15 | 62.67   0.38 | 93.92   0.36
|125.17   0.20
  0.25   0.00 | 31.50   0.15 | 62.75   0.38 | 94.00   0.36
|125.25   0.20
  0.33   0.00 | 31.58   0.15 | 62.83   0.38 | 94.08   0.36
|125.33   0.20
  0.42   0.00 | 31.67   0.15 | 62.92   0.38 | 94.17   0.36
|125.42   0.20
  0.50   0.00 | 31.75   0.15 | 63.00   0.37 | 94.25   0.36
|125.50   0.20
  0.58   0.00 | 31.83   0.14 | 63.08   0.38 | 94.33   0.36
|125.58   0.20
  0.67   0.00 | 31.92   0.14 | 63.17   0.37 | 94.42   0.36
|125.67   0.21
  0.75   0.00 | 32.00   0.14 | 63.25   0.37 | 94.50   0.36
|125.75   0.21
  0.83   0.00 | 32.08   0.14 | 63.33   0.37 | 94.58   0.36
|125.83   0.21
  0.92   0.00 | 32.17   0.14 | 63.42   0.37 | 94.67   0.36
|125.92   0.21
  1.00   0.00 | 32.25   0.14 | 63.50   0.37 | 94.75   0.36
|126.00   0.21
  1.08   0.00 | 32.33   0.14 | 63.58   0.37 | 94.83   0.36
|126.08   0.21
  1.17   0.00 | 32.42   0.14 | 63.67   0.36 | 94.92   0.35
|126.17   0.21
  1.25   0.00 | 32.50   0.14 | 63.75   0.36 | 95.00   0.35
|126.25   0.21
  1.33   0.00 | 32.58   0.14 | 63.83   0.36 | 95.08   0.35
|126.33   0.21
  1.42   0.00 | 32.67   0.14 | 63.92   0.36 | 95.17   0.35
|126.42   0.22
  1.50   0.00 | 32.75   0.14 | 64.00   0.36 | 95.25   0.35
|126.50   0.22
  1.58   0.00 | 32.83   0.14 | 64.08   0.36 | 95.33   0.35
|126.58   0.22
  1.67   0.00 | 32.92   0.14 | 64.17   0.36 | 95.42   0.35
|126.67   0.22
  1.75   0.00 | 33.00   0.14 | 64.25   0.35 | 95.50   0.35
|126.75   0.22
  1.83   0.00 | 33.08   0.14 | 64.33   0.35 | 95.58   0.34
|126.83   0.22
  1.92   0.00 | 33.17   0.14 | 64.42   0.35 | 95.67   0.34
|126.92   0.23
  2.00   0.00 | 33.25   0.14 | 64.50   0.35 | 95.75   0.34
|127.00   0.23
  2.08   0.00 | 33.33   0.14 | 64.58   0.34 | 95.83   0.34
|127.08   0.23
  2.17   0.00 | 33.42   0.14 | 64.67   0.34 | 95.92   0.34
|127.17   0.23
  2.25   0.00 | 33.50   0.14 | 64.75   0.34 | 96.00   0.34
|127.25   0.23
  2.33   0.00 | 33.58   0.14 | 64.83   0.34 | 96.08   0.34
|127.33   0.24
  2.42   0.00 | 33.67   0.14 | 64.92   0.34 | 96.17   0.34
|127.42   0.24
  2.50   0.00 | 33.75   0.14 | 65.00   0.34 | 96.25   0.34
|127.50   0.24
  2.58   0.00 | 33.83   0.14 | 65.08   0.34 | 96.33   0.34
|127.58   0.24
  2.67   0.00 | 33.92   0.14 | 65.17   0.34 | 96.42   0.34
|127.67   0.24
  2.75   0.00 | 34.00   0.14 | 65.25   0.34 | 96.50   0.34
|127.75   0.24
  2.83   0.00 | 34.08   0.14 | 65.33   0.34 | 96.58   0.34
|127.83   0.25
  2.92   0.00 | 34.17   0.14 | 65.42   0.34 | 96.67   0.34
|127.92   0.25
  3.00   0.00 | 34.25   0.14 | 65.50   0.34 | 96.75   0.33
|128.00   0.25
  3.08   0.00 | 34.33   0.14 | 65.58   0.33 | 96.83   0.33
|128.08   0.25
  3.17   0.00 | 34.42   0.14 | 65.67   0.34 | 96.92   0.33
|128.17   0.25
  3.25   0.00 | 34.50   0.14 | 65.75   0.33 | 97.00   0.33
|128.25   0.25
  3.33   0.00 | 34.58   0.14 | 65.83   0.33 | 97.08   0.33
|128.33   0.25
  3.42   0.00 | 34.67   0.14 | 65.92   0.33 | 97.17   0.33
|128.42   0.25
  3.50   0.00 | 34.75   0.14 | 66.00   0.33 | 97.25   0.33
|128.50   0.25
  3.58   0.00 | 34.83   0.14 | 66.08   0.32 | 97.33   0.33
|128.58   0.26
  3.67   0.00 | 34.92   0.14 | 66.17   0.33 | 97.42   0.33
|128.67   0.26
  3.75   0.00 | 35.00   0.14 | 66.25   0.33 | 97.50   0.33
|128.75   0.26
  3.83   0.00 | 35.08   0.14 | 66.33   0.32 | 97.58   0.33
|128.83   0.26
  3.92   0.00 | 35.17   0.14 | 66.42   0.32 | 97.67   0.33
|128.92   0.26
  4.00   0.00 | 35.25   0.14 | 66.50   0.33 | 97.75   0.33
|129.00   0.26
  4.08   0.00 | 35.33   0.14 | 66.58   0.32 | 97.83   0.33
|129.08   0.26
  4.17   0.00 | 35.42   0.14 | 66.67   0.32 | 97.92   0.33
|129.17   0.26
  4.25   0.00 | 35.50   0.14 | 66.75   0.32 | 98.00   0.32
|129.25   0.27
  4.33   0.00 | 35.58   0.14 | 66.83   0.32 | 98.08   0.32
|129.33   0.27
  4.42   0.00 | 35.67   0.14 | 66.92   0.32 | 98.17   0.32
|129.42   0.27
  4.50   0.00 | 35.75   0.14 | 67.00   0.32 | 98.25   0.32
|129.50   0.27
  4.58   0.00 | 35.83   0.14 | 67.08   0.32 | 98.33   0.32
|129.58   0.28
  4.67   0.00 | 35.92   0.14 | 67.17   0.32 | 98.42   0.32
|129.67   0.28
  4.75   0.00 | 36.00   0.14 | 67.25   0.32 | 98.50   0.32
|129.75   0.28
  4.83   0.00 | 36.08   0.14 | 67.33   0.33 | 98.58   0.32
|129.83   0.29
  4.92   0.00 | 36.17   0.14 | 67.42   0.34 | 98.67   0.32
|129.92   0.29
  5.00   0.00 | 36.25   0.14 | 67.50   0.34 | 98.75   0.32
|130.00   0.29
  5.08   0.00 | 36.33   0.15 | 67.58   0.35 | 98.83   0.32
|130.08   0.29
  5.17   0.00 | 36.42   0.15 | 67.67   0.35 | 98.92   0.32
|130.17   0.29
  5.25   0.00 | 36.50   0.15 | 67.75   0.36 | 99.00   0.32
|130.25   0.29
  5.33   0.00 | 36.58   0.15 | 67.83   0.37 | 99.08   0.32
|130.33   0.29
  5.42   0.00 | 36.67   0.15 | 67.92   0.38 | 99.17   0.32
|130.42   0.29
  5.50   0.00 | 36.75   0.15 | 68.00   0.40 | 99.25   0.32
|130.50   0.29
  5.58   0.00 | 36.83   0.15 | 68.08   0.41 | 99.33   0.32
|130.58   0.29
  5.67   0.00 | 36.92   0.15 | 68.17   0.42 | 99.42   0.32
|130.67   0.29
  5.75   0.00 | 37.00   0.15 | 68.25   0.43 | 99.50   0.32
|130.75   0.29
  5.83   0.00 | 37.08   0.15 | 68.33   0.45 | 99.58   0.31
|130.83   0.29
  5.92   0.00 | 37.17   0.15 | 68.42   0.47 | 99.67   0.31
|130.92   0.29
  6.00   0.00 | 37.25   0.15 | 68.50   0.48 | 99.75   0.31
|131.00   0.29
  6.08   0.00 | 37.33   0.15 | 68.58   0.50 | 99.83   0.31
|131.08   0.29
  6.17   0.00 | 37.42   0.15 | 68.67   0.52 | 99.92   0.31
|131.17   0.29
  6.25   0.00 | 37.50   0.15 | 68.75   0.53 |100.00   0.31
|131.25   0.29
  6.33   0.00 | 37.58   0.15 | 68.83   0.56 |100.08   0.31
|131.33   0.29
  6.42   0.00 | 37.67   0.15 | 68.92   0.57 |100.17   0.31
|131.42   0.29
  6.50   0.00 | 37.75   0.16 | 69.00   0.58 |100.25   0.31
|131.50   0.29
  6.58   0.00 | 37.83   0.16 | 69.08   0.60 |100.33   0.31
|131.58   0.28
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6.67	0.00	37.92	0.16	69.17	0.61	100.42	0.31	131.67	0.28
6.75	0.00	38.00	0.16	69.25	0.63	100.50	0.30	131.75	0.28
6.83	0.00	38.08	0.16	69.33	0.63	100.58	0.30	131.83	0.28
6.92	0.00	38.17	0.16	69.42	0.64	100.67	0.30	131.92	0.28
7.00	0.00	38.25	0.16	69.50	0.66	100.75	0.30	132.00	0.28
7.08	0.00	38.33	0.16	69.58	0.68	100.83	0.30	132.08	0.28
7.17	0.00	38.42	0.16	69.67	0.70	100.92	0.30	132.17	0.28
7.25	0.00	38.50	0.16	69.75	0.71	101.00	0.30	132.25	0.28
7.33	0.00	38.58	0.16	69.83	0.74	101.08	0.30	132.33	0.28
7.42	0.00	38.67	0.17	69.92	0.76	101.17	0.30	132.42	0.28
7.50	0.00	38.75	0.17	70.00	0.78	101.25	0.30	132.50	0.27
7.58	0.00	38.83	0.17	70.08	0.80	101.33	0.29	132.58	0.27
7.67	0.00	38.92	0.17	70.17	0.82	101.42	0.29	132.67	0.27
7.75	0.00	39.00	0.17	70.25	0.84	101.50	0.29	132.75	0.27
7.83	0.00	39.08	0.17	70.33	0.87	101.58	0.29	132.83	0.27
7.92	0.00	39.17	0.17	70.42	0.91	101.67	0.29	132.92	0.27
8.00	0.00	39.25	0.18	70.50	0.94	101.75	0.28	133.00	0.27
8.08	0.00	39.33	0.18	70.58	0.98	101.83	0.28	133.08	0.27
8.17	0.00	39.42	0.18	70.67	1.01	101.92	0.28	133.17	0.27
8.25	0.00	39.50	0.18	70.75	1.04	102.00	0.28	133.25	0.26
8.33	0.00	39.58	0.19	70.83	1.09	102.08	0.28	133.33	0.26
8.42	0.00	39.67	0.19	70.92	1.14	102.17	0.28	133.42	0.26
8.50	0.00	39.75	0.19	71.00	1.20	102.25	0.28	133.50	0.26
8.58	0.00	39.83	0.19	71.08	1.23	102.33	0.28	133.58	0.26
8.67	0.00	39.92	0.20	71.17	1.25	102.42	0.27	133.67	0.26
8.75	0.00	40.00	0.20	71.25	1.30	102.50	0.27	133.75	0.26
8.83	0.00	40.08	0.20	71.33	1.32	102.58	0.27	133.83	0.25
8.92	0.00	40.17	0.21	71.42	1.33	102.67	0.27	133.92	0.25
9.00	0.00	40.25	0.21	71.50	1.34	102.75	0.27	134.00	0.25
9.08	0.00	40.33	0.21	71.58	1.36	102.83	0.27	134.08	0.25
9.17	0.00	40.42	0.22	71.67	1.36	102.92	0.27	134.17	0.25
9.25	0.00	40.50	0.22	71.75	1.36	103.00	0.27	134.25	0.25
9.33	0.00	40.58	0.22	71.83	1.37	103.08	0.27	134.33	0.25
9.42	0.00	40.67	0.23	71.92	1.37	103.17	0.27	134.42	0.25
9.50	0.00	40.75	0.23	72.00	1.36	103.25	0.26	134.50	0.25
9.58	0.00	40.83	0.24	72.08	1.35	103.33	0.26	134.58	0.24
9.67	0.00	40.92	0.24	72.17	1.35	103.42	0.26	134.67	0.24
9.75	0.00	41.00	0.24	72.25	1.33	103.50	0.26	134.75	0.24
9.83	0.00	41.08	0.25	72.33	1.32	103.58	0.26	134.83	0.24
9.92	0.00	41.17	0.25	72.42	1.31	103.67	0.26	134.92	0.24
10.00	0.00	41.25	0.26	72.50	1.29	103.75	0.25	135.00	0.24
10.08	0.00	41.33	0.27	72.58	1.27	103.83	0.25	135.08	0.24
10.17	0.00	41.42	0.27	72.67	1.26	103.92	0.25	135.17	0.24
10.25	0.00	41.50	0.28	72.75	1.23	104.00	0.25	135.25	0.24
10.33	0.00	41.58	0.29	72.83	1.23	104.08	0.25	135.33	0.23
10.42	0.00	41.67	0.29	72.92	1.21	104.17	0.25	135.42	0.23
10.50	0.00	41.75	0.30	73.00	1.20	104.25	0.25	135.50	0.23
10.58	0.00	41.83	0.30	73.08	1.17	104.33	0.25	135.58	0.23
10.67	0.00	41.92	0.31	73.17	1.17	104.42	0.24	135.67	0.23
10.75	0.00	42.00	0.32	73.25	1.16	104.50	0.24	135.75	0.23
10.83	0.00	42.08	0.32	73.33	1.15	104.58	0.24	135.83	0.23
10.92	0.00	42.17	0.33	73.42	1.12	104.67	0.24	135.92	0.23
11.00	0.00	42.25	0.33	73.50	1.12	104.75	0.24	136.00	0.22
11.08	0.00	42.33	0.34	73.58	1.11	104.83	0.24	136.08	0.22
11.17	0.00	42.42	0.34	73.67	1.09	104.92	0.24	136.17	0.22
11.25	0.00	42.50	0.35	73.75	1.08	105.00	0.24	136.25	0.22
11.33	0.00	42.58	0.36	73.83	1.06	105.08	0.24	136.33	0.22
11.42	0.00	42.67	0.36	73.92	1.05	105.17	0.23	136.42	0.22
11.50	0.00	42.75	0.37	74.00	1.03	105.25	0.23	136.50	0.22
11.58	0.00	42.83	0.38	74.08	1.03	105.33	0.23	136.58	0.22
11.67	0.00	42.92	0.39	74.17	1.02	105.42	0.23	136.67	0.21
11.75	0.00	43.00	0.40	74.25	1.00	105.50	0.23	136.75	0.21
11.83	0.00	43.08	0.40	74.33	0.99	105.58	0.23	136.83	0.21
11.92	0.00	43.17	0.42	74.42	0.97	105.67	0.23	136.92	0.21
12.00	0.00	43.25	0.42	74.50	0.96	105.75	0.23	137.00	0.21
12.08	0.00	43.33	0.43	74.58	0.95	105.83	0.23	137.08	0.21
12.17	0.00	43.42	0.44	74.67	0.94	105.92	0.23	137.17	0.21
12.25	0.00	43.50	0.45	74.75	0.92	106.00	0.22	137.25	0.21
12.33	0.00	43.58	0.46	74.83	0.91	106.08	0.22	137.33	0.21
12.42	0.00	43.67	0.47	74.92	0.89	106.17	0.22	137.42	0.21
12.50	0.00	43.75	0.48	75.00	0.88	106.25	0.22	137.50	0.20
12.58	0.00	43.83	0.49	75.08	0.87	106.33	0.22	137.58	0.20
12.67	0.00	43.92	0.50	75.17	0.85	106.42	0.22	137.67	0.20
12.75	0.00	44.00	0.50	75.25	0.84	106.50	0.22	137.75	0.20
12.83	0.00	44.08	0.51	75.33	0.83	106.58	0.22	137.83	0.20
12.92	0.00	44.17	0.51	75.42	0.81	106.67	0.22	137.92	0.20
13.00	0.00	44.25	0.52	75.50	0.80	106.75	0.21	138.00	0.20
13.08	0.00	44.33	0.52	75.58	0.79	106.83	0.21	138.08	0.20
13.17	0.00	44.42	0.53	75.67	0.77	106.92	0.21	138.17	0.20
13.25	0.00	44.50	0.53	75.75	0.77	107.00	0.21	138.25	0.19
13.33	0.00	44.58	0.53	75.83	0.76	107.08	0.21	138.33	0.19
13.42	0.00	44.67	0.54	75.92	0.74	107.17	0.21	138.42	0.19
13.50	0.00	44.75	0.54	76.00	0.74	107.25	0.21	138.50	0.19
13.58	0.00	44.83	0.54	76.08	0.72	107.33	0.21	138.58	0.19
13.67	0.00	44.92	0.55	76.17	0.72	107.42	0.21	138.67	0.19
13.75	0.00	45.00	0.55	76.25	0.71	107.50	0.21	138.75	0.19
13.83	0.00	45.08	0.55	76.33	0.70	107.58	0.21	138.83	0.19
13.92	0.00	45.17	0.55	76.42	0.69	107.67	0.21	138.92	0.19
14.00	0.00	45.25	0.55	76.50	0.68	107.75	0.20	139.00	0.19
14.08	0.00	45.33	0.55	76.58	0.68	107.83	0.20	139.08	0.19
14.17	0.00	45.42	0.55	76.67	0.68	107.92	0.20	139.17	0.18
14.25	0.00	45.50	0.55	76.75	0.66	108.00	0.20	139.25	0.18
14.33	0.00	45.58	0.55	76.83	0.65	108.08	0.20	139.33	0.18
14.42	0.00	45.67	0.55	76.92	0.65	108.17	0.20	139.42	0.18
14.50	0.00	45.75	0.55	77.00	0.64	108.25	0.20	139.50	0.18
14.58	0.00	45.83	0.55	77.08	0.63	108.33	0.20	139.58	0.18
14.67	0.00	45.92	0.55	77.17	0.63	108.42	0.20	139.67	0.18
14.75	0.99	46.00	0.54	77.25	0.63	108.50	0.20	139.75	0.18
14.83	0.99	46.08	0.54	77.33	0.62	108.58	0.20	139.83	0.18
14.92	1.00	46.17	0.54	77.42	0.61	108.67	0.20	139.92	0.18
15.00	1.00	46.25	0.54	77.50	0.60	108.75	0.19	140.00	0.18
15.08	1.01	46.33	0.53	77.58	0.60	108.83	0.19	140.08	0.18
15.17	1.01	46.42	0.53	77.67	0.59	108.92	0.19	140.17	0.18
15.25	1.02	46.50	0.53	77.75	0.59	109.00	0.19	140.25	0.18
15.33	1.03	46.58	0.52	77.83	0.58	109.08	0.19	140.33	0.18
15.42	1.04	46.67	0.52	77.92	0.58	109.17	0.19	140.42	0.17
15.50	1.05	46.75	0.52	78.00	0.58	109.25	0.19	140.50	0.17
15.58	1.06	46.83	0.52	78.08	0.58	109.33	0.19	140.58	0.17
15.67	1.07	46.92	0.51	78.17	0.57	109.42	0.19	140.67	0.17
15.75	1.08	47.00	0.51	78.25	0.56	109.50	0.19	140.75	0.17
15.83	1.08	47.08	0.51	78.33	0.56	109.58	0.19	140.83	0.17
15.92	1.08	47.17	0.51	78.42	0.55	109.67	0.18	140.92	0.17
16.00	1.09	47.25	0.51	78.50	0.55	109.75	0.18	141.00	0.17
16.08	1.09	47.33	0.51	78.58	0.55	109.83	0.18	141.08	0.17
16.17	1.09	47.42	0.51	78.67	0.55	109.92	0.18	141.17	0.17
16.25	1.09	47.50	0.50	78.75	0.54	110.00	0.18	141.25	0.17
16.33	1.09	47.58	0.50	78.83	0.54	110.08	0.18	141.33	0.17
16.42	1.09	47.67	0.50	78.92	0.54	110.17	0.18	141.42	0.17
16.50	1.09	47.75	0.50	79.00	0.54	110.25	0.18	141.50	0.16
16.58	1.10	47.83	0.50	79.08	0.53	110.33	0.18	141.58	0.16
16.67	1.09	47.92	0.50	79.17	0.52	110.42	0.18	141.67	0.16
16.75	1.09	48.00	0.50	79.25	0.52	110.50	0.18	141.75	0.16
16.83	1.08	48.08	0.50	79.33	0.51	110.58	0.18	141.83	0.16
16.92	1.09	48.17	0.49	79.42	0.50	110.67	0.18	141.92	0.16
17.00	1.08	48.25	0.49	79.50	0.50	110.75	0.18	142.00	0.16
17.08	1.07	48.33	0.49	79.58	0.49	110.83	0.18	142.08	0.16
17.17	1.06	48.42	0.49	79.67	0.49	110.92	0.18	142.17	0.16
17.25	1.06	48.50	0.49	79.75	0.48	111.00	0.18	142.25	0.16
17.33	1.05	48.58	0.49	79.83	0.48	111.08	0.18	142.33	0.16
17.42	1.04	48.67	0.48	79.92	0.48	111.17	0.18	142.42	0.16
17.50	1.04	48.75	0.48	80.00	0.47	111.25	0.18	142.50	0.16
17.58	1.03	48.83	0.48	80.08	0.47	111.33	0.18	142.58	0.16
17.67	1.02	48.92	0.48	80.17	0.46	111.42	0.18	142.67	0.16
17.75	1.01	49.00	0.47	80.25	0.46	111.50	0.18	142.75	0.16
17.83	1.00	49.08	0.47	80.33	0.46	111.58	0.18	142.83	0.16
17.92	0.99	49.17	0.47	80.42	0.45	111.67	0.18	142.92	0.16
18.00	0.98	49.25	0.47	80.50	0.45	111.75	0.18	143.00	0.16
18.08	0.97	49.33	0.47	80.58	0.45	111.83	0.17	143.08	0.15
18.17	0.96	49.42	0.46	80.67	0.45	111.92	0.17	143.17	0.15
18.25	0.95	49.50	0.46	80.75	0.44	112.00	0.17	143.25	0.15
18.33	0.93	49.58	0.46	80.83	0.44	112.08	0.17	143.33	0.15
18.42	0.92	49.67	0.46	80.92	0.44	112.17	0.17	143.42	0.15
18.50	0.91	49.75	0.45	81.00	0.44	112.25	0.17	143.50	0.15
18.58	0.89	49.83	0.45	81.08	0.44	112.33	0.17	143.58	0.15
18.67	0.87	49.92	0.45	81.17	0.44	112.42	0.17	143.67	0.15
18.75	0.86	50.00	0.45	81.25	0.44	112.50	0.17	143.75	0.15
18.83	0.84	50.08	0.44	81.33	0.44	112.58	0.17	143.83	0.15
18.92	0.83	50.17	0.44	81.42	0.43	112.67	0.17	143.92	0.15
19.00	0.81	50.25	0.44	81.50	0.44	112.75	0.17	144.00	0.15
19.08	0.79	50.33	0.44	81.58	0.45	112.83	0.17	144.08	0.15
19.17	0.78	50.42	0.44	81.67	0.46	112.92	0.17	144.17	0.15
19.25	0.76	50.50	0.44	81.75	0.45	113.00	0.17	144.25	0.15
19.33	0.74	50.58	0.44	81.83	0.46	113.08	0.17	144.33	0.15
19.42	0.72	50.67	0.44	81.92	0.46	113.17	0.16	144.42	0.15
19.50	0.71	50.75	0.43	82.00	0.47	113.25	0.16	144.50	0.15
19.58	0.69	50.83	0.43	82.08	0.47	113.33	0.16	144.58	0.15
19.67	0.68	50.92	0.43	82.17	0.47	113.42	0.16	144.67	0.15
19.75	0.66	51.00	0.43	82.25	0.48	113.50	0.16	144.75	0.15
19.83	0.65	51.08	0.43	82.33	0.49	113.58	0.16	144.83	0.14
19.92	0.64	51.17	0.43	82.42	0.49	113.67	0.16	144.92	0.14
20.00	0.62	51.25	0.43	82.50	0.49	113.75	0.16	145.00	0.14
20.08	0.61	51.33	0.43	82.58	0.49	113.83	0.16	145.08	0.14
20.17	0.60	51.42	0.43	82.67	0.50	113.92	0.16	145.17	0.14
20.25	0.58	51.50	0.43	82.75	0.50	114.00	0.16	145.25	0.14
20.33	0.58	51.58	0.43	82.83	0.50	114.08	0.16	145.33	0.14
20.42	0.56	51.67	0.43	82.92	0.50	114.17	0.16	145.42	0.14
20.50	0.55	51.75	0.43	83.00	0.50	114.25	0.16	145.50	0.14
20.58	0.54	51.83	0.43	83.08	0.50	114.33	0.16	145.58	0.14
20.67	0.53	51.92	0.43	83.17	0.51	114.42	0.16	145.67	0.14
20.75	0.52	52.00	0.43	83.25	0.51	114.50	0.16	145.75	0.14
20.83	0.51	52.08	0.43	83.33	0.51	114.58	0.16	145.83	0.14
20.92	0.50	52.17	0.43	83.42	0.51	114.67	0.16	145.92	0.14
21.00	0.49	52.25	0.43	83.50	0.52	114.75	0.16	146.00	0.14
21.08	0.49	52.33	0.43	83.58	0.52	114.83	0.16	146.08	0.14
21.17	0.48	52.42	0.43	83.67	0.53	114.92	0.16	146.17	0.14
21.25	0.47	52.50	0.43	83.75	0.53	115.00	0.16	146.25	0.14
21.33	0.47	52.58	0.43	83.83	0.54	115.08	0.16	146.33	0.14
21.42	0.46	52.67	0.43	83.92	0.55	115.17	0.16	146.42	0.14
21.50	0.45	52.75	0.43	84.00	0.56	115.25	0.16	146.50	0.14
21.58	0.45	52.83	0.43	84.08	0.57	115.33	0.16	146.58	0.14
21.67	0.44	52.92	0.44	84.17	0.58	115.42	0.16	146.67	0.14
21.75	0.43	53.00	0.44	84.25	0.60	115.50	0.16	146.75	0.14
21.83	0.43	53.08	0.44	84.33	0.62	115.58	0.16	146.83	0.14
21.92	0.42	53.17	0.44	84.42	0.64	115.67	0.16	146.92	0.13
22.00	0.42	53.25	0.44	84.50	0.66	115.75	0.16	147.00	0.13
22.08	0.41	53.33	0.45	84.58	0.69	115.83	0.16	147.08	0.13
22.17	0.41	53.42	0.45	84.67	0.72	115.92	0.16	147.17	0.13
22.25	0.40	53.50	0.45	84.75	0.74	116.00	0.16	147.25	0.13
22.33	0.40	53.58	0.45	84.83	0.77	116.08	0.15	147.33	0.13
22.42	0.39	53.67	0.46	84.92	0.79	116.17	0.15	147.42	0.13
22.50	0.39	53.75	0.46	85.00	0.81	116.25	0.16	147.50	0.13
22.58	0.38	53.83	0.46	85.08	0.82	116.33	0.16	147.58	0.13
22.67	0.38	53.92	0.46	85.17	0.84	116.42	0.16	147.67	0.13
22.75	0.37	54.00	0.47	85.25	0.85	116.50	0.16	147.75	0.13
22.83	0.37	54.08	0.47	85.33	0.85	116.58	0.16	147.83	0.13
22.92	0.36	54.17	0.47	85.42	0.86	116.67	0.16	147.92	0.13
23.00	0.36	54.25	0.48	85.50	0.87	116.75	0.16	148.00	0.13
23.08	0.36	54.33	0.48	85.58	0.86	116.83	0.16	148.08	0.13
23.17	0.35	54.42	0.49	85.67	0.87	116.92	0.16	148.17	0.13
23.25	0.35	54.50	0.49	85.75	0.86	117.00	0.16	148.25	0.13
23.33	0.34	54.58	0.50	85.83	0.85	117.08	0.16	148.33	0.13
23.42	0.34	54.67	0.50	85.92	0.85	117.17	0.16	148.42	0.13
23.50	0.34	54.75	0.51	86.00	0.84	117.25	0.16	148.50	0.13
23.58	0.33	54.83	0.52	86.08	0.83	117.33	0.16	148.58	0.13
23.67	0.33	54.92	0.53	86.17	0.82	117.42	0.16	148.67	0.13
23.75	0.32	55.00	0.53	86.25	0.81	117.50	0.16	148.75	0.13
23.83	0.32	55.08	0.54	86.33	0.81	117.58	0.16	148.83	0.13
23.92	0.32	55.17	0.55	86.42	0.79	117.67	0.16	148.92	0.13
24.00	0.31	55.25	0.55	86.50	0.78	117.75	0.16	149.00	0.13
24.08	0.31	55.33	0.55	86.58	0.77	117.83	0.16	149.08	0.13
24.17	0.30	55.42	0.56	86.67	0.76	117.92	0.16	149.17	0.13
24.25	0.30	55.50	0.56	86.75	0.74	118.00	0.16	149.25	0.12
24.33	0.30	55.58	0.57	86.83	0.74	118.08	0.16	149.33	0.12
24.42	0.30	55.67	0.57	86.92	0.73	118.17	0.16	149.42	0.12
24.50	0.29	55.75	0.58	87.00	0.71	118.25	0.16	149.50	0.12
24.58	0.29	55.83	0.58	87.08	0.71	118.33	0.16	149.58	0.12
24.67	0.29	55.92	0.58	87.17	0.70	118.42	0.16	149.67	0.12
24.75	0.28	56.00	0.58	87.25	0.68	118.50	0.16	149.75	0.12
24.83	0.28	56.08	0.58	87.33	0.68	118.58	0.15	149.83	0.12
24.92	0.28	56.17	0.58	87.42	0.66	118.67	0.15	149.92	0.12
25.00	0.27	56.25	0.58	87.50	0.66	118.75	0.15	150.00	0.12
25.08	0.27	56.33	0.58	87.58	0.65	118.83	0.15	150.08	0.12
25.17	0.27	56.42	0.58	87.67	0.64	118.92	0.15	150.17	0.12
25.25	0.27	56.50	0.59	87.75	0.63	119.00	0.15	150.25	0.12
25.33	0.26	56.58	0.59	87.83	0.62	119.08	0.15	150.33	0.12
25.42	0.26	56.67	0.59	87.92	0.62	119.17	0.15	150.42	0.12
25.50	0.26	56.75	0.59	88.00	0.61	119.25	0.15	150.50	0.12
25.58	0.25	56.83	0.59	88.08	0.60	119.33	0.15	150.58	0.12
25.67	0.25	56.92	0.59	88.17	0.59	119.42	0.15	150.67	0.12
25.75	0.25	57.00	0.59	88.25	0.58	119.50	0.15	150.75	0.12
25.83	0.25	57.08	0.59	88.33	0.58	119.58	0.15	150.83	0.12
25.92	0.25	57.17	0.59	88.42	0.57	119.67	0.15	150.92	0.12
26.00	0.24	57.25	0.59	88.50	0.57	119.75	0.15	151.00	0.12
26.08	0.24	57.33	0.59	88.58	0.56	119.83	0.15	151.08	0.12
26.17	0.24	57.42	0.59	88.67	0.55	119.92	0.15	151.17	0.12
26.25	0.24	57.50	0.59	88.75	0.55	120.00	0.15	151.25	0.12
26.33	0.23	57.58	0.58	88.83	0.54	120.08	0.16	151.33	0.12

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 26.42    0.23 | 57.67    0.58 | 88.92    0.53 |120.17    0.16
|151.42    0.12
 26.50    0.23 | 57.75    0.58 | 89.00    0.53 |120.25    0.16
|151.50    0.12
 26.58    0.23 | 57.83    0.57 | 89.08    0.52 |120.33    0.16
|151.58    0.12
 26.67    0.23 | 57.92    0.57 | 89.17    0.51 |120.42    0.16
|151.67    0.12
 26.75    0.22 | 58.00    0.57 | 89.25    0.51 |120.50    0.16
|151.75    0.12
 26.83    0.22 | 58.08    0.57 | 89.33    0.50 |120.58    0.16
|151.83    0.12
 26.92    0.22 | 58.17    0.56 | 89.42    0.50 |120.67    0.16
|151.92    0.12
 27.00    0.22 | 58.25    0.56 | 89.50    0.49 |120.75    0.16
|152.00    0.12
 27.08    0.22 | 58.33    0.56 | 89.58    0.48 |120.83    0.16
|152.08    0.12
 27.17    0.21 | 58.42    0.55 | 89.67    0.48 |120.92    0.16
|152.17    0.12
 27.25    0.21 | 58.50    0.55 | 89.75    0.47 |121.00    0.16
|152.25    0.12
 27.33    0.21 | 58.58    0.54 | 89.83    0.47 |121.08    0.16
|152.33    0.11
 27.42    0.21 | 58.67    0.54 | 89.92    0.47 |121.17    0.17
|152.42    0.11
 27.50    0.21 | 58.75    0.53 | 90.00    0.47 |121.25    0.17
|152.50    0.11
 27.58    0.21 | 58.83    0.53 | 90.08    0.46 |121.33    0.17
|152.58    0.11
 27.67    0.20 | 58.92    0.52 | 90.17    0.46 |121.42    0.17
|152.67    0.11
 27.75    0.20 | 59.00    0.52 | 90.25    0.45 |121.50    0.17
|152.75    0.11
 27.83    0.20 | 59.08    0.52 | 90.33    0.45 |121.58    0.17
|152.83    0.11
 27.92    0.20 | 59.17    0.51 | 90.42    0.44 |121.67    0.17
|152.92    0.11
 28.00    0.19 | 59.25    0.51 | 90.50    0.44 |121.75    0.17
|153.00    0.11
 28.08    0.19 | 59.33    0.50 | 90.58    0.44 |121.83    0.17
|153.08    0.11
 28.17    0.19 | 59.42    0.50 | 90.67    0.43 |121.92    0.17
|153.17    0.11
 28.25    0.19 | 59.50    0.49 | 90.75    0.43 |122.00    0.17
|153.25    0.11
 28.33    0.19 | 59.58    0.49 | 90.83    0.43 |122.08    0.17
|153.33    0.11
 28.42    0.19 | 59.67    0.49 | 90.92    0.43 |122.17    0.17
|153.42    0.11
 28.50    0.19 | 59.75    0.48 | 91.00    0.42 |122.25    0.18
|153.50    0.11
 28.58    0.18 | 59.83    0.48 | 91.08    0.42 |122.33    0.18
|153.58    0.11
 28.67    0.18 | 59.92    0.47 | 91.17    0.42 |122.42    0.18
|153.67    0.11
 28.75    0.18 | 60.00    0.47 | 91.25    0.42 |122.50    0.18
|153.75    0.11
 28.83    0.18 | 60.08    0.47 | 91.33    0.41 |122.58    0.18
|153.83    0.11
 28.92    0.18 | 60.17    0.46 | 91.42    0.41 |122.67    0.18
|153.92    0.11
 29.00    0.18 | 60.25    0.46 | 91.50    0.41 |122.75    0.18
|154.00    0.11
 29.08    0.18 | 60.33    0.45 | 91.58    0.41 |122.83    0.18
|154.08    0.11
 29.17    0.18 | 60.42    0.45 | 91.67    0.41 |122.92    0.18
|154.17    0.11
 29.25    0.17 | 60.50    0.44 | 91.75    0.41 |123.00    0.18
|154.25    0.11
 29.33    0.17 | 60.58    0.44 | 91.83    0.40 |123.08    0.18
|154.33    0.11
 29.42    0.17 | 60.67    0.44 | 91.92    0.40 |123.17    0.18
|154.42    0.11
 29.50    0.17 | 60.75    0.43 | 92.00    0.40 |123.25    0.18
|154.50    0.11
 29.58    0.17 | 60.83    0.43 | 92.08    0.40 |123.33    0.18
|154.58    0.11
 29.67    0.17 | 60.92    0.42 | 92.17    0.40 |123.42    0.18
|154.67    0.11
 29.75    0.17 | 61.00    0.42 | 92.25    0.39 |123.50    0.18
|154.75    0.11
 29.83    0.17 | 61.08    0.42 | 92.33    0.39 |123.58    0.18
|154.83    0.11
 29.92    0.16 | 61.17    0.42 | 92.42    0.39 |123.67    0.18
|154.92    0.11
 30.00    0.16 | 61.25    0.41 | 92.50    0.39 |123.75    0.18
|155.00    0.11
 30.08    0.16 | 61.33    0.41 | 92.58    0.38 |123.83    0.18
|155.08    0.11
 30.17    0.16 | 61.42    0.40 | 92.67    0.38 |123.92    0.18
|155.17    0.11
 30.25    0.16 | 61.50    0.40 | 92.75    0.38 |124.00    0.18
|155.25    0.11
 30.33    0.16 | 61.58    0.40 | 92.83    0.38 |124.08    0.18
|155.33    0.11
 30.42    0.16 | 61.67    0.40 | 92.92    0.38 |124.17    0.18
|155.42    0.11
 30.50    0.16 | 61.75    0.39 | 93.00    0.37 |124.25    0.18
|155.50    0.11
 30.58    0.16 | 61.83    0.39 | 93.08    0.37 |124.33    0.19
|155.58    0.11
 30.67    0.16 | 61.92    0.39 | 93.17    0.37 |124.42    0.19
|155.67    0.11
 30.75    0.16 | 62.00    0.38 | 93.25    0.37 |124.50    0.19
|155.75    0.11
 30.83    0.15 | 62.08    0.38 | 93.33    0.37 |124.58    0.19
|155.83    0.10
 30.92    0.15 | 62.17    0.38 | 93.42    0.37 |124.67    0.20
|155.92    0.11
 31.00    0.15 | 62.25    0.38 | 93.50    0.37 |124.75    0.20
|156.00    0.10
 31.08    0.15 | 62.33    0.39 | 93.58    0.37 |124.83    0.20 |
 31.17    0.15 | 62.42    0.39 | 93.67    0.37 |124.92    0.20 |
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-------------------
| CALIB             |
| NASHYD    (6201) |   Area    (ha)=   9.60   Curve Number
(CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.04

    Unit Hyd Qpeak  (cms)=   0.352

    PEAK FLOW       (cms)=   0.449 (i)
    TIME TO PEAK    (hrs)=   4.083
    RUNOFF VOLUME    (mm)=  44.058
    TOTAL RAINFALL   (mm)=  91.900
    RUNOFF COEFFICIENT   =   0.479

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6202) |   Area    (ha)=   2.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=
53.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       1.50          0.81
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     123.83         40.00
    Mannings n          =       0.013         0.250

    Max.Eff.Inten.(mm/hr)=     143.36        136.78
               over (min)        5.00         15.00
    Storage Coeff.  (min)=       2.51 (ii)   10.18 (ii)
    Unit Hyd. Tpeak (min)=       5.00         15.00
    Unit Hyd. peak  (cms)=       0.29          0.10

*TOTALS*
    PEAK FLOW       (cms)=       0.48          0.20
0.655 (iii)
```

```
    TIME TO PEAK    (hrs)=       3.00          3.08
3.00
    RUNOFF VOLUME    (mm)=      85.90         51.85
69.90
    TOTAL RAINFALL   (mm)=      91.90         91.90
91.90
    RUNOFF COEFFICIENT   =       0.93          0.56
0.76

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0140) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (6201):       9.60   0.449     4.08    44.06
       + ID2= 2 (6202):       2.30   0.655     3.00    69.90
         ===============================================
         ID = 3 (0140):      11.90   0.741     3.00    49.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0621) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1549.0) ------>
               Distance      Elevation        Manning
                   0.00         87.56          0.0900
                   3.37         87.60          0.0900
                  16.78         87.21          0.0900
                  31.08         87.29          0.0900
                  43.62         87.28          0.0900
                  62.88         87.41          0.0900
                  68.00         87.22          0.0900
                  96.20         87.43          0.0900
                 112.60         86.39      0.0900 /0.0700  Main
Channel
                 113.70         86.10          0.0700      Main
Channel
                 114.40         86.51      0.0700 /0.0900  Main
Channel
                 114.60         86.67          0.0900
                 131.60         87.07          0.0900
                 156.70         87.16          0.0900
                 184.59         87.41          0.0900
                 194.09         87.56          0.0900
                 202.66         87.64          0.0900
                 221.43         87.69          0.0900
                 230.63         87.86          0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
     0.07    86.17    .898E+01       0.0          0.13
79.55
     0.14    86.24    .359E+02       0.0          0.21
50.11
     0.21    86.31    .808E+02       0.0          0.28
38.24
     0.29    86.39    .144E+03       0.1          0.33
31.57
     0.36    86.46    .256E+03       0.2          0.39
27.10
     0.44    86.54    .435E+03       0.3          0.42
25.03
     0.52    86.62    .680E+03       0.5          0.46
23.12
     0.60    86.70    .998E+03       0.8          0.48
21.78
     0.68    86.78    .150E+04       1.2          0.48
21.76
     0.76    86.85    .223E+04       1.7          0.48
21.78
     0.83    86.93    .319E+04       2.5          0.49
21.41
     0.91    87.01    .437E+04       3.5          0.51
20.74
     0.99    87.09    .580E+04       4.7          0.51
20.64
     1.07    87.17    .811E+04       6.2          0.48
21.90
     1.15    87.25    .113E+05       7.8          0.44
24.18
     1.23    87.32    .165E+05      10.6          0.41
26.00
     1.30    87.40    .239E+05      16.0          0.42
24.97
     1.38    87.48    .327E+05      24.3          0.47
22.45
     1.46    87.56    .419E+05      34.6          0.52
20.16

                                      <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0140)   11.90     0.74    3.00  49.05
0.59     0.48
     OUTFLOW: ID= 1 (0621)   11.90     0.49    4.25  49.03
0.52     0.45


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-------------------
| CALIB             |
| NASHYD    (6211) |   Area    (ha)=   4.60   Curve Number
(CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.08

    Unit Hyd Qpeak  (cms)=   0.162

    PEAK FLOW       (cms)=   0.228 (i)
    TIME TO PEAK    (hrs)=   4.083
    RUNOFF VOLUME    (mm)=  47.755
    TOTAL RAINFALL   (mm)=  91.900
    RUNOFF COEFFICIENT   =   0.520

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6212) |   Area    (ha)=  17.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      11.39          5.61
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     336.65         40.00
    Mannings n          =       0.013         0.250

    Max.Eff.Inten.(mm/hr)=     143.36        148.61
               over (min)        5.00         15.00
    Storage Coeff.  (min)=       4.58 (ii)   12.00 (ii)
    Unit Hyd. Tpeak (min)=       5.00         15.00
```

```
    Unit Hyd. peak  (cms)=       0.23          0.09

*TOTALS*
    PEAK FLOW       (cms)=       3.58          1.44
4.822 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.08
3.00
    RUNOFF VOLUME    (mm)=      85.90         55.82
72.36
    TOTAL RAINFALL   (mm)=      91.90         91.90
91.90
    RUNOFF COEFFICIENT   =       0.93          0.61
0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0141) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (6211):       4.60   0.228     4.08    47.76
       + ID2= 2 (6212):      17.00   4.822     3.00    72.36
         ===============================================
         ID = 3 (0141):      21.60   4.865     3.00    67.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0142) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0141):      21.60   4.865     3.00    67.12
       + ID2= 2 (0621):      11.90   0.486     4.25    49.03
         ===============================================
         ID = 3 (0142):      33.50   5.218     3.00    60.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0622) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 953.0) ------>
               Distance      Elevation        Manning
                  16.75         82.21          0.1100
                  30.34         82.03          0.1100
                  44.96         81.97          0.1100
                  58.95         81.94          0.1100
                  71.21         81.85          0.1100
                 100.74         81.58          0.1100
                 112.29         81.50          0.1100
                 121.63         81.56          0.1100
                 127.04         81.66      0.1100 /0.0700  Main
Channel
                 129.04         80.66          0.0700      Main
Channel
                 130.04         80.66          0.0700      Main
Channel
                 131.04         80.66          0.0700      Main
Channel
                 133.04         81.66      0.0700 /0.1100  Main
Channel
                 134.58         82.08          0.1100
                 135.14         82.01          0.1100
                 139.68         81.73          0.1100
                 151.74         81.75          0.1100
                 153.37         81.71          0.1100
                 167.06         81.83          0.1100
                 187.62         81.87          0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
     0.06    80.72    .649E+02       0.0          0.17
49.00
     0.12    80.79    .138E+03       0.1          0.25
32.10
     0.19    80.85    .218E+03       0.1          0.32
25.32
     0.25    80.91    .306E+03       0.2          0.38
21.50
     0.31    80.97    .401E+03       0.4          0.43
18.99
     0.37    81.04    .504E+03       0.5          0.47
17.19
     0.44    81.10    .615E+03       0.6          0.52
15.81
     0.50    81.16    .733E+03       0.8          0.55
14.71
     0.56    81.22    .860E+03       1.0          0.59
13.81
     0.62    81.29    .993E+03       1.3          0.62
13.06
     0.69    81.35    .113E+04       1.5          0.66
12.41
     0.75    81.41    .128E+04       1.8          0.69
11.84
     0.81    81.47    .144E+04       2.1          0.72
11.35
     0.87    81.54    .170E+04       2.5          0.71
11.50
     0.94    81.60    .245E+04       3.0          0.59
13.80
     1.00    81.66    .355E+04       3.7          0.51
16.06
     1.07    81.73    .511E+04       4.9          0.47
17.27
     1.14    81.80    .759E+04       6.7          0.43
18.98
     1.21    81.87    .109E+05       9.0          0.40
20.28

                                      <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0142)   33.50     5.22    3.00  60.69
1.08     0.46
     OUTFLOW: ID= 1 (0622)   33.50     3.31    3.17  60.69
0.97     0.54


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-------------------
| CALIB             |
| STANDHYD  (6222) |   Area    (ha)=  16.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=
57.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      11.29          5.31
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     332.67         40.00
    Mannings n          =       0.013         0.250

    Max.Eff.Inten.(mm/hr)=     143.36        109.58
               over (min)        5.00         15.00
```

```
     Storage Coeff.  (min)=       4.55 (ii)   12.93 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.62         0.94
4.410 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        41.26
66.70
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.45
0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6221) |   Area    (ha)=   0.30   Curve Number
(CN)= 67.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.03

     Unit Hyd Qpeak  (cms)=   0.011

     PEAK FLOW       (cms)=   0.011 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  33.672
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.366

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0143) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6221):     0.30   0.011     4.08    33.67
        + ID2= 2 (6222):    16.60   4.410     3.00    66.70
          ===============================================
          ID = 3 (0143):    16.90   4.412     3.00    66.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0144) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0143):    16.90   4.412     3.00    66.12
        + ID2= 2 (0622):    33.50   3.315     3.17    60.69
          ===============================================
          ID = 3 (0144):    50.40   7.362     3.00    62.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (6231) |   Area    (ha)=   5.10   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.12

     Unit Hyd Qpeak  (cms)=   0.175

     PEAK FLOW       (cms)=   0.166 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)=  32.778
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.357

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6232) |   Area    (ha)=  15.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.89         9.61
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     321.46        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        92.28
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.46 (ii)   13.43 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.43         1.40
2.585 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        37.94
49.45
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.41
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0145) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6231):     5.10   0.166     4.17    32.78
        + ID2= 2 (6232):    15.50   2.585     3.00    49.45
          ===============================================
          ID = 3 (0145):    20.60   2.611     3.00    45.32

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0146) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0144):    50.40   7.362     3.00    62.51
        + ID2= 2 (0145):    20.60   2.611     3.00    45.32
          ===============================================
          ID = 3 (0146):    71.00   9.973     3.00    57.52
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     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6302) |   Area    (ha)=   2.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=
50.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.64         0.96
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     131.66        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       146.79
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       2.61 (ii)   10.06 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.10

*TOTALS*
     PEAK FLOW       (cms)=       0.51         0.26
0.741 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        55.60
70.75
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.60
0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ROUTE CHN (0631) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 788.2) ------>
              Distance      Elevation       Manning
                  0.00         81.00        0.1100
                 15.70         81.00        0.1100
                 17.50         80.50     0.1100 /0.0700  Main
Channel
                 18.50         80.50        0.0700      Main
Channel
                 20.00         81.00     0.0700 /0.1100  Main
Channel
                 24.00         81.00        0.1100
                 38.00         81.50        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.03    80.53    .174E+02       0.0          0.10
100.96
       0.05    80.55    .375E+02       0.0          0.15
66.64
       0.08    80.58    .604E+02       0.0          0.19
52.98
       0.11    80.61    .861E+02       0.0          0.22
45.34
       0.13    80.63    .115E+03       0.0          0.25
40.34
       0.16    80.66    .146E+03       0.1          0.28
36.75
       0.18    80.68    .180E+03       0.1          0.30
34.02
       0.21    80.71    .217E+03       0.1          0.32
31.85
       0.24    80.74    .256E+03       0.1          0.34
30.07
       0.26    80.76    .298E+03       0.2          0.35
28.57
       0.29    80.79    .344E+03       0.2          0.37
27.28
       0.32    80.82    .391E+03       0.2          0.39
26.15
       0.34    80.84    .442E+03       0.3          0.40
25.16
       0.37    80.87    .495E+03       0.3          0.42
24.27
       0.39    80.89    .552E+03       0.4          0.43
23.48
       0.42    80.92    .611E+03       0.4          0.44
22.75
       0.45    80.95    .672E+03       0.5          0.46
22.09
       0.47    80.97    .737E+03       0.6          0.47
21.48
       0.50    81.00    .804E+03       0.6          0.48
20.91

     **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                              <---- hydrograph ---->   <-
pipe / channel->
                          AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                          (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6302)    2.60     0.74    3.00  70.75
0.43     0.45
     OUTFLOW: ID= 1 (0631)    2.60     0.40    3.08  70.52
0.40     0.43


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-------------------
| CALIB             |
| STANDHYD  (6312) |   Area    (ha)=   8.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=
51.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.54         3.26
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     242.21        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       107.08
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.76 (ii)   12.22 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.75         0.58
2.229 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        40.88
63.84
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.44
0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
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      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0149) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0631):     2.60   0.401     3.08    70.52
        + ID2= 2 (6312):     8.80   2.229     3.00    63.84
          ===============================================
          ID = 3 (0149):    11.40   2.566     3.00    65.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0632) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 924.2) ------>
              Distance      Elevation       Manning
                  0.00         82.50        0.1100
                  6.00         82.00        0.1100
                 11.00         81.00        0.1100
                 12.00         80.00        0.1100
                 13.50         79.50     0.1100 /0.0700  Main
Channel
                 14.50         79.50        0.0700      Main
Channel
                 16.00         80.00     0.0700 /0.1100  Main
Channel
                 18.00         80.00        0.1100
                 29.70         80.00        0.1100
                 37.00         80.50        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.05    79.55    .330E+02       0.0          0.17
52.00
       0.11    79.61    .749E+02       0.0          0.26
35.21
       0.16    79.66    .126E+03       0.1          0.32
28.45
       0.21    79.71    .186E+03       0.1          0.37
24.60
       0.26    79.76    .255E+03       0.2          0.41
22.04
       0.32    79.82    .333E+03       0.3          0.45
20.16
       0.37    79.87    .420E+03       0.4          0.48
18.69
       0.42    79.92    .515E+03       0.5          0.51
17.51
       0.47    79.97    .620E+03       0.6          0.55
16.53
       0.53    80.03    .931E+03       0.8          0.48
18.86
       0.58    80.08    .146E+04       1.2          0.43
20.73
       0.63    80.13    .201E+04       1.6          0.44
20.51
       0.68    80.18    .258E+04       2.2          0.46
19.66
       0.74    80.24    .318E+04       2.8          0.48
18.66
       0.79    80.29    .380E+04       3.6          0.51
17.70
       0.84    80.34    .445E+04       4.4          0.54
16.82
       0.89    80.39    .511E+04       5.3          0.56
16.03
       0.95    80.45    .580E+04       6.3          0.59
15.32
       1.00    80.50    .652E+04       7.4          0.61
14.69

                              <---- hydrograph ---->   <-
pipe / channel->
                          AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                          (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0149)   11.40     2.57    3.00  65.36
0.71     0.47
     OUTFLOW: ID= 1 (0632)   11.40     1.44    3.08  65.34
0.61     0.44


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-------------------
| CALIB             |
| NASHYD    (6321) |   Area    (ha)=   1.10   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   0.044

     PEAK FLOW       (cms)=   0.040 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  32.777
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.357

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6322) |   Area    (ha)=   4.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  42.00   Dir. Conn.(%)=
28.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.81         2.49
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     169.31        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        94.20
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.03 (ii)   11.93 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.47         0.39
0.799 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        38.26
51.60
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.42
0.56

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| ADD HYD   (0173) |
|   1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6321):     1.10   0.040     4.00    32.78
        + ID2= 2 (6322):     4.30   0.799     3.00    51.60
          ===============================================
          ID = 3 (0173):     5.40   0.807     3.00    47.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0174) |
|   1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0173):     5.40   0.807     3.00    47.76
        + ID2= 2 (0632):    11.40   1.445     3.08    65.34
          ===============================================
          ID = 3 (0174):    16.80   2.107     3.00    59.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (6401) |   Area    (ha)=   0.70   Curve Number
(CN)= 80.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.36

     Unit Hyd Qpeak  (cms)=   0.020

     PEAK FLOW       (cms)=   0.029 (i)
     TIME TO PEAK    (hrs)=   4.417
     RUNOFF VOLUME    (mm)=  47.752
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.520

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6402) |   Area    (ha)=  16.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       10.72         5.28
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      326.60        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      143.36       148.61
               over (min)          5.00        15.00
     Storage Coeff.  (min)=        4.50 (ii)   11.92 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.23         0.09

*TOTALS*
     PEAK FLOW       (cms)=        3.37         1.36
4.548 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       85.90        55.82
72.36
     TOTAL RAINFALL   (mm)=       91.90        91.90
91.90
     RUNOFF COEFFICIENT   =        0.93         0.61
0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0177) |
|   1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6401):     0.70   0.029     4.42    47.75
        + ID2= 2 (6402):    16.00   4.548     3.00    72.36
          ===============================================
          ID = 3 (0177):    16.70   4.552     3.00    71.33

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0641) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 910.0) ------>
               Distance      Elevation       Manning
                  0.00         83.92         0.1100
                  1.93         83.93         0.1100
                  3.02         83.94         0.1100
                  5.01         83.96         0.1100
                  6.81         83.80         0.1100
                  7.33         83.77         0.1100
                  8.42         83.41     0.1100 /0.0700  Main
Channel
                 10.42         82.41         0.0700      Main
Channel
                 11.17         82.41         0.0700      Main
Channel
                 11.92         82.41         0.0700      Main
Channel
                 13.92         83.41     0.0700 /0.1100  Main
Channel
                 21.33         84.40         0.1100
                 23.85         84.09         0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.10    82.51    .768E+02       0.0          0.24
32.02
       0.20    82.61    .172E+03       0.1          0.35
21.50
       0.30    82.71    .285E+03       0.3          0.44
17.20
       0.40    82.81    .416E+03       0.5          0.51
14.73
       0.50    82.91    .565E+03       0.7          0.58
13.08
       0.60    83.01    .732E+03       1.0          0.64
11.86
       0.70    83.11    .918E+03       1.4          0.69
10.92
       0.80    83.21    .112E+04       1.8          0.74
10.16
       0.90    83.31    .134E+04       2.3          0.79
9.53
       1.00    83.41    .158E+04       2.9          0.84
9.00
       1.11    83.52    .188E+04       3.8          0.92
8.20
       1.22    83.63    .224E+04       4.8          0.98
7.72
       1.33    83.74    .266E+04       6.0          1.02
7.39
       1.44    83.85    .315E+04       7.3          1.05
7.20
       1.55    83.96    .379E+04       8.7          1.04
7.24
       1.66    84.07    .471E+04      10.6          1.02
7.41
       1.77    84.18    .567E+04      12.7          1.01
7.46
       1.88    84.29    .673E+04      15.1          1.01
7.43
       1.99    84.40    .787E+04      17.8          1.02
7.36

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0177)   16.70     4.55    3.00  71.33
1.19      0.96
    OUTFLOW: ID= 1 (0641)   16.70     3.60    3.00  71.33
1.08      0.90


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-------------------
| CALIB            |
| NASHYD    (6411) |   Area    (ha)=   1.00   Curve Number
(CN)= 72.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.97

     Unit Hyd Qpeak  (cms)=   0.039

     PEAK FLOW       (cms)=   0.043 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  38.531
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.419

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6412) |   Area    (ha)=  12.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
56.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        8.44         4.16
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      289.83        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      143.36       121.40
               over (min)          5.00        15.00
     Storage Coeff.  (min)=        4.19 (ii)   12.23 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.24         0.09

*TOTALS*
     PEAK FLOW       (cms)=        2.72         0.84
3.437 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       85.90        46.12
68.40
     TOTAL RAINFALL   (mm)=       91.90        91.90
91.90
     RUNOFF COEFFICIENT   =        0.93         0.50
0.74

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0181) |
|   1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6411):     1.00   0.043     4.00    38.53
        + ID2= 2 (6412):    12.60   3.437     3.00    68.40
          ===============================================
          ID = 3 (0181):    13.60   3.446     3.00    66.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0184) |
|   1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0181):    13.60   3.446     3.00    66.20
        + ID2= 2 (0641):    16.70   3.600     3.00    71.33
          ===============================================
          ID = 3 (0184):    30.30   7.046     3.00    69.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0642) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1099.5) ------>
               Distance      Elevation       Manning
                  0.00         85.00         0.1100
                 14.50         80.00         0.1100
                 15.30         80.00         0.1100
                 16.80         79.50     0.1100 /0.0700  Main
Channel
                 17.80         79.50         0.0700      Main
Channel
                 19.30         80.00     0.0700 /0.1100  Main
Channel
                 20.30         80.00         0.1100
                 27.30         81.00         0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.08    79.58    .520E+02       0.0          0.24
36.74
       0.16    79.66    .124E+03       0.1          0.35
25.35
       0.24    79.74    .216E+03       0.2          0.43
20.68
       0.32    79.82    .328E+03       0.3          0.49
17.96
       0.39    79.89    .460E+03       0.5          0.55
16.11
       0.47    79.97    .611E+03       0.7          0.60
14.73
       0.55    80.05    .836E+03       1.0          0.62
14.31
       0.63    80.13    .112E+04       1.4          0.66
13.40
       0.71    80.21    .143E+04       1.9          0.70
12.62
       0.79    80.29    .178E+04       2.5          0.74
11.97
       0.87    80.37    .216E+04       3.2          0.78
11.42
       0.95    80.45    .258E+04       3.9          0.81
10.93
       1.03    80.53    .302E+04       4.8          0.85
10.51
       1.11    80.61    .350E+04       5.8          0.88
10.14
       1.18    80.68    .402E+04       6.8          0.91
9.80
       1.26    80.76    .456E+04       8.0          0.94
9.49
       1.34    80.84    .514E+04       9.3          0.96
9.21
       1.42    80.92    .575E+04      10.7          0.99
8.96
       1.50    81.00    .640E+04      12.2          1.02
8.72
                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0184)   30.30     7.05    3.00  69.03
1.20      0.91
    OUTFLOW: ID= 1 (0642)   30.30     5.44    3.08  69.03
1.08      0.87


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-------------------
| CALIB            |
| NASHYD    (6421) |   Area    (ha)=   3.60   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.88

     Unit Hyd Qpeak  (cms)=   0.156

     PEAK FLOW       (cms)=   0.140 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=  32.778
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.357

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (6422) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  41.00   Dir. Conn.(%)=
27.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        5.66         8.14
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      303.32        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      143.36       108.32
               over (min)          5.00        15.00
     Storage Coeff.  (min)=        4.30 (ii)   12.72 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=        1.43         1.44
2.647 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       85.90        44.16
55.43
     TOTAL RAINFALL   (mm)=       91.90        91.90
91.90
     RUNOFF COEFFICIENT   =        0.93         0.48
0.60

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0185) |
|   1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6421):     3.60   0.140     3.92    32.78
        + ID2= 2 (6422):    13.80   2.647     3.00    55.43
          ===============================================
          ID = 3 (0185):    17.40   2.678     3.00    50.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0187) |
|   1 + 2 = 3   |         AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0185):    17.40   2.678     3.00    50.75
        + ID2= 2 (0642):    30.30   5.441     3.08    69.03
          ===============================================
          ID = 3 (0187):    47.70   7.522     3.08    62.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (6501) |   Area    (ha)=   6.90   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.02

     Unit Hyd Qpeak  (cms)=   0.258

     PEAK FLOW       (cms)=   0.239 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  32.778
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.357

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6502) |   Area    (ha)=   2.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
22.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        0.77         1.43
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
```

```
     Length           (m)=      121.11        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        89.11
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.48 (ii)   11.58 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.19         0.21
0.370 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        37.39
48.06
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.41
0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0190) |
|   1 + 2 = 3      |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (6501):      6.90    0.239     4.08    32.78
      + ID2= 2 (6502):      2.20    0.370     3.00    48.06
        ===============================================
        ID = 3 (0190):      9.10    0.413     3.00    36.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6601) |   Area    (ha)=   2.00   Curve Number
(CN)= 79.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.66

     Unit Hyd Qpeak  (cms)=   0.116

     PEAK FLOW       (cms)=   0.141 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  46.487
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.506

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6602) |   Area    (ha)=  11.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  41.00   Dir. Conn.(%)=
27.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.80         6.90
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     279.28        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       127.15
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.10 (ii)   11.99 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.22         1.50
2.506 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        52.13
61.25
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.57
0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0193) |
|   1 + 2 = 3      |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (6601):      2.00    0.141     3.58    46.49
      + ID2= 2 (6602):     11.70    2.506     3.00    61.25
        ===============================================
        ID = 3 (0193):     13.70    2.557     3.00    59.10

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7302) |   Area    (ha)=   3.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=
20.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09         2.31
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     150.55        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        86.25
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.83 (ii)   12.05 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.27         0.33
0.541 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        36.89
46.69
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.40
0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
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           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7402) |   Area    (ha)=   3.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  40.00   Dir. Conn.(%)=
26.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.48         2.22
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     157.06        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        93.20
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.90 (ii)   11.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.38         0.34
0.666 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        38.10
50.52
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.41
0.55

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (7031) |   Area    (ha)=   3.70   Curve Number
(CN)= 63.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.12

     Unit Hyd Qpeak  (cms)=   0.126

     PEAK FLOW       (cms)=   0.110 (i)
     TIME TO PEAK    (hrs)=   4.167
     RUNOFF VOLUME    (mm)=  30.201
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.329

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7032) |   Area    (ha)=  19.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.61         7.09
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     362.40        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        98.35
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.79 (ii)   13.54 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.90         1.09
4.810 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        37.31
62.58
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.41
0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  63.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0213) |
|   1 + 2 = 3      |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (7031):      3.70    0.110     4.17    30.20
      + ID2= 2 (7032):     19.70    4.810     3.00    62.58
        ===============================================
        ID = 3 (0213):     23.40    4.827     3.00    57.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (7101) |   Area    (ha)=  70.70   Curve Number
(CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.78

     Unit Hyd Qpeak  (cms)=   3.471

     PEAK FLOW       (cms)=   1.993 (i)
     TIME TO PEAK    (hrs)=   3.750
     RUNOFF VOLUME    (mm)=  22.111
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.241

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (7102) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
33.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.88         9.62
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     341.57        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        52.80
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.62 (ii)   15.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
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```
     Unit Hyd. peak  (cms)=       0.22         0.07

*TOTALS*
     PEAK FLOW       (cms)=       2.21         0.83
2.772 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      85.90        26.21
45.91
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.29
0.50

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0218) |
|   1 + 2 = 3      |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (7101):     70.70    1.993     3.75    22.11
      + ID2= 2 (7102):     17.50    2.772     3.00    45.91
        ===============================================
        ID = 3 (0218):     88.20    3.272     3.00    26.83

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0711) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1487.9) ------>
              Distance      Elevation        Manning
                  0.00          95.00        0.1100
                 89.00          94.00        0.1100
                135.70          94.00     0.1100 /0.0700  Main
Channel
                137.20          93.50        0.0700      Main
Channel
                138.20          93.50        0.0700      Main
Channel
                139.70          94.00     0.0700 /0.1100  Main
Channel
                211.60          94.00        0.1100
                249.00          95.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
    DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
     (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.07    93.57    .969E+02       0.0          0.20
95.33
     0.14    93.64    .228E+03       0.1          0.29
64.56
     0.21    93.71    .393E+03       0.1          0.36
51.73
     0.29    93.79    .593E+03       0.2          0.42
44.23
     0.36    93.86    .826E+03       0.4          0.48
39.15
     0.43    93.93    .109E+04       0.5          0.53
35.40
     0.50    94.00    .140E+04       0.7          0.57
32.52
     0.58    94.08    .133E+05       2.6          0.22
84.59
     0.67    94.17    .262E+05       6.5          0.28
67.17
     0.75    94.25    .400E+05      12.0          0.33
55.64
     0.83    94.33    .549E+05      19.0          0.39
48.10
     0.92    94.42    .707E+05      27.5          0.43
42.81
     1.00    94.50    .875E+05      37.5          0.48
38.86
     1.08    94.58    .105E+06      49.0          0.52
35.80
     1.17    94.67    .124E+06      62.0          0.56
33.34
     1.25    94.75    .144E+06      76.6          0.59
31.30
     1.33    94.83    .165E+06      92.7          0.63
29.59
     1.42    94.92    .186E+06     110.4          0.66
28.12
     1.50    95.00    .209E+06     129.7          0.69
26.84

                              <---- hydrograph ---->   <-
pipe / channel->
                         AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                         (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0218)   88.20     3.27    3.00  26.83
0.60     0.23
     OUTFLOW: ID= 1 (0711)   88.20     1.93    4.75  26.83
0.55     0.28


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| CALIB            |
| NASHYD    (7111) |   Area    (ha)=  49.10   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.43

     Unit Hyd Qpeak  (cms)=   1.311

     PEAK FLOW       (cms)=   1.475 (i)
     TIME TO PEAK    (hrs)=   4.583
     RUNOFF VOLUME    (mm)=  36.518
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.397

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7112) |   Area    (ha)=  11.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  34.00   Dir. Conn.(%)=
22.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.81         7.39
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     273.25        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        96.05
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.04 (ii)   12.87 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.95         1.15
1.909 (iii)
```

```
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      85.90        40.89
50.79
    TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
    RUNOFF COEFFICIENT   =       0.93         0.44
0.55

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  70.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0222) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7111):    49.10   1.475     4.58    36.52
        + ID2= 2 (7112):    11.20   1.909     3.00    50.79
          ===============================================
          ID = 3 (0222):    60.30   2.070     3.00    39.17

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0223) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0222):    60.30   2.070     3.00    39.17
        + ID2= 2 (0711):    88.20   1.927     4.75    26.83
          ===============================================
          ID = 3 (0223):   148.50   3.566     4.58    31.84

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (7011) |   Area    (ha)=  90.40   Curve Number
(CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.77

    Unit Hyd Qpeak  (cms)=   4.467

    PEAK FLOW       (cms)=   3.162 (i)
    TIME TO PEAK    (hrs)=   3.750
    RUNOFF VOLUME    (mm)=  27.031
    TOTAL RAINFALL   (mm)=  91.900
    RUNOFF COEFFICIENT   =   0.294

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7012) |   Area    (ha)=  25.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
25.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       9.54        15.56
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     409.06        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=     143.36        75.39
               over (min)       5.00        15.00
    Storage Coeff.  (min)=       5.15 (ii)   14.88 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.21         0.08

*TOTALS*
    PEAK FLOW       (cms)=       2.37         1.74
3.788 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=      85.90        31.46
45.07
    TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
    RUNOFF COEFFICIENT   =       0.93         0.34
0.49


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  59.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0205) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7011):    90.40   3.162     3.75    27.03
        + ID2= 2 (7012):    25.10   3.788     3.00    45.07
          ===============================================
          ID = 3 (0205):   115.50   4.611     3.00    30.95

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0702) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1184.6) ------>
              Distance      Elevation       Manning
                  0.00          93.00        0.1100
                 56.00          92.00        0.1100
                 65.40          92.00        0.1100
                 74.80          91.50    0.1100 /0.0700  Main
Channel
                 75.80          91.50        0.0700      Main
Channel
                 77.30          92.00    0.0700 /0.1100  Main
Channel
                144.00          92.00        0.1100
                186.00          93.00        0.1100

     <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)      (cu.m.)     (cms)        (m/s)
(min)
     0.08    91.58    .236E+03       0.0          0.13
200.27
     0.16    91.66    .689E+03       0.1          0.18
146.52
     0.24    91.74    .136E+04       0.2          0.22
121.67
     0.32    91.82    .225E+04       0.4          0.25
105.99
     0.39    91.89    .336E+04       0.6          0.28
94.79
     0.47    91.97    .468E+04       0.9          0.31
86.24
     0.55    92.05    .128E+05       1.5          0.19
142.36
     0.63    92.13    .251E+05       3.4          0.22
123.43
     0.71    92.21    .384E+05       6.1          0.26
104.46
     0.79    92.29    .526E+05       9.6          0.29
90.95
     0.87    92.37    .678E+05      13.9          0.33
81.16
     0.95    92.45    .840E+05      19.0          0.36
73.76
     1.03    92.53    .101E+06      24.8          0.39
67.97
     1.11    92.61    .119E+06      31.4          0.42
63.30
     1.18    92.68    .139E+06      38.8          0.45
59.44
     1.26    92.76    .159E+06      47.1          0.48
56.18
     1.34    92.84    .180E+06      56.1          0.50
53.38
     1.42    92.92    .202E+06      66.0          0.52
50.95
     1.50    93.00    .225E+06      76.8          0.55
48.81

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0205)  115.50     4.61    3.00  30.95
0.67     0.23
    OUTFLOW: ID= 1 (0702)  115.50     2.01    5.83  30.94
0.57     0.19


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| CALIB            |
| NASHYD    (7021) |   Area    (ha)=  16.10   Curve Number
(CN)= 64.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.72

    Unit Hyd Qpeak  (cms)=   0.358

    PEAK FLOW       (cms)=   0.355 (i)
    TIME TO PEAK    (hrs)=   5.000
    RUNOFF VOLUME    (mm)=  31.040
    TOTAL RAINFALL   (mm)=  91.900
    RUNOFF COEFFICIENT   =   0.338

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7022) |   Area    (ha)=  26.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  36.00   Dir. Conn.(%)=
24.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       9.50        16.90
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     419.52        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=     143.36        83.23
               over (min)       5.00        15.00
    Storage Coeff.  (min)=       5.23 (ii)   14.58 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.21         0.08

*TOTALS*
    PEAK FLOW       (cms)=       2.39         2.12
4.130 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      85.90        35.30
47.44
    TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
    RUNOFF COEFFICIENT   =       0.93         0.38
0.52


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  64.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0209) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7021):    16.10   0.355     5.00    31.04
        + ID2= 2 (7022):    26.40   4.130     3.00    47.44
          ===============================================
          ID = 3 (0209):    42.50   4.157     3.00    41.23

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0210) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0209):    42.50   4.157     3.00    41.23
        + ID2= 2 (0702):   115.50   2.012     5.83    30.94
          ===============================================
          ID = 3 (0210):   158.00   4.762     3.00    33.71

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0224) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0210):   158.00   4.762     3.00    33.71
        + ID2= 2 (0223):   148.50   3.566     4.58    31.84
          ===============================================
          ID = 3 (0224):   306.50   7.566     3.00    32.80

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0703) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (2329.2) ------>
              Distance      Elevation       Manning
                  0.00          88.00        0.1100
                 37.50          87.00        0.1100
                 51.30          86.00        0.1100
                 82.80          86.00        0.1100
                107.50          87.00        0.1100
                117.30          86.00        0.1100
                125.90          86.00    0.1100 /0.0700  Main
Channel
                127.40          85.50        0.0700      Main
Channel
                128.40          85.50        0.0700      Main
Channel
                129.90          86.00    0.0700 /0.1100  Main
Channel
                133.00          86.00        0.1100
                149.00          87.00        0.1100
                193.00          88.00        0.1100

     <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)      (cu.m.)     (cms)        (m/s)
(min)
     0.12    85.62    .787E+02       0.0          0.19
40.30
     0.25    85.75    .200E+03       0.1          0.28
27.58
     0.37    85.88    .365E+03       0.3          0.35
22.10
     0.50    86.00    .572E+03       0.5          0.41
18.84
     0.63    86.13    .372E+04       1.8          0.22
34.16
     0.77    86.27    .738E+04       4.4          0.27
28.02
     0.90    86.40    .116E+05       8.1          0.32
23.77
     1.03    86.53    .163E+05      13.0          0.37
20.89
     1.17    86.67    .215E+05      19.1          0.41
18.82
     1.30    86.80    .273E+05      26.4          0.44
17.24
     1.43    86.93    .336E+05      35.0          0.48
15.99
     1.57    87.07    .404E+05      44.9          0.51
15.00
     1.70    87.20    .479E+05      56.3          0.54
14.18
     1.83    87.33    .560E+05      69.3          0.57
13.47
     1.97    87.47    .648E+05      84.0          0.59
12.85
     2.10    87.60    .743E+05     100.6          0.62
12.31
     2.23    87.73    .844E+05     119.0          0.65
11.82
     2.37    87.87    .952E+05     139.3          0.67
11.39
     2.50    88.00    .107E+06     161.7          0.69
11.00

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0224)  306.50     7.57    3.00  32.80
0.88     0.31
    OUTFLOW: ID= 1 (0703)  306.50     6.11    4.83  32.80
0.83     0.29


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| ADD HYD   (0215) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0213):    23.40   4.827     3.00    57.46
        + ID2= 2 (0703):   306.50   6.110     4.83    32.80
          ===============================================
          ID = 3 (0215):   329.90   7.620     3.00    34.55

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0704) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (2755.4) ------>
              Distance      Elevation       Manning
                  0.00          85.00        0.1100
                 25.00          84.00        0.1100
                 32.00          84.00    0.1100 /0.0700  Main
Channel
                 33.50          83.50        0.0700      Main
Channel
                 34.50          83.50        0.0700      Main
Channel
                 36.00          84.00    0.0700 /0.1100  Main
Channel
                 65.00          84.00        0.1100

     <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)      (cu.m.)     (cms)        (m/s)
(min)
     0.03    83.53    .121E+02       0.0          0.12
61.52
     0.05    83.55    .259E+02       0.0          0.19
40.35
     0.08    83.58    .414E+02       0.0          0.24
31.84
     0.10    83.60    .585E+02       0.0          0.28
27.04
     0.13    83.63    .774E+02       0.1          0.31
23.87
     0.15    83.65    .979E+02       0.1          0.35
21.59
     0.18    83.68    .120E+03       0.1          0.38
19.84
     0.20    83.70    .144E+03       0.1          0.41
18.45
     0.23    83.73    .170E+03       0.2          0.43
17.31
     0.25    83.75    .197E+03       0.2          0.46
16.34
     0.28    83.78    .226E+03       0.2          0.48
15.52
     0.30    83.80    .257E+03       0.3          0.51
14.80
     0.33    83.83    .289E+03       0.3          0.53
14.16
     0.35    83.85    .323E+03       0.4          0.55
13.60
     0.38    83.88    .359E+03       0.5          0.57
13.09
     0.40    83.90    .396E+03       0.5          0.59
12.64
     0.43    83.93    .435E+03       0.6          0.61
12.22
     0.45    83.95    .476E+03       0.7          0.63
11.84
     0.48    83.98    .518E+03       0.8          0.65
11.49

    **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0215)  329.90     7.62    3.00  34.55
0.47     0.65
    OUTFLOW: ID= 1 (0704)  329.90     6.45    5.00  34.55
0.48     0.65
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-------------------
| CALIB             |
| NASHYD    (7041) |   Area    (ha)=   9.20   Curve Number
(CN)= 61.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.82

     Unit Hyd Qpeak  (cms)=   0.431

     PEAK FLOW       (cms)=   0.328 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  28.580
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.311

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7042) |   Area    (ha)=  14.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=
55.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.72          4.78
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     310.91         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     143.36         97.18
               over (min)        5.00         15.00
     Storage Coeff.  (min)=       4.37 (ii)   13.16 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.23          0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.07          0.74
3.677 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90         36.08
63.48
     TOTAL RAINFALL   (mm)=      91.90         91.90
91.90
     RUNOFF COEFFICIENT   =       0.93          0.39
0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  61.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0227) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7041):     9.20   0.328     3.83    28.58
        + ID2= 2 (7042):    14.50   3.677     3.00    63.48
          ===============================================
          ID = 3 (0227):    23.70   3.757     3.00    49.93

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0229) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0227):    23.70   3.757     3.00    49.93
        + ID2= 2 (0704):   329.90   6.447     5.00    34.55
          ===============================================
          ID = 3 (0229):   353.60   8.469     3.00    35.58

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (7201) |   Area    (ha)=  14.00   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.98

     Unit Hyd Qpeak  (cms)=   0.548

     PEAK FLOW       (cms)=   0.503 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  32.779
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.357

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (7202) |   Area    (ha)=   8.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=
43.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.68          3.83
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     238.05         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     143.36         97.33
               over (min)        5.00         15.00
     Storage Coeff.  (min)=       3.72 (ii)   12.51 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.25          0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.42          0.61
1.928 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90         38.78
59.04
     TOTAL RAINFALL   (mm)=      91.90         91.90
91.90
     RUNOFF COEFFICIENT   =       0.93          0.42
0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0232) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7201):    14.00   0.503     4.00    32.78
        + ID2= 2 (7202):     8.50   1.928     3.00    59.04
          ===============================================
          ID = 3 (0232):    22.50   2.025     3.00    42.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0721) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 920.0) ------>
              Distance      Elevation       Manning
                 0.00         82.00         0.1100
                41.00         82.00         0.1100
                50.70         82.00         0.1100
                57.80         81.00    0.1100 /0.0700  Main
Channel
                59.30         79.84         0.0700      Main
Channel
                60.30         79.84         0.0700      Main
Channel
                61.80         81.00    0.0700 /0.1100  Main
Channel
                63.30         81.00         0.1100
                85.90         81.00         0.1100
               100.00         82.00         0.1100

        <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.11   79.95   .515E+02       0.0          0.20
35.58
      0.21   80.05   .115E+03       0.1          0.30
24.20
      0.32   80.16   .192E+03       0.2          0.37
19.53
      0.42   80.26   .280E+03       0.3          0.43
16.82
      0.53   80.37   .381E+03       0.4          0.48
15.00
      0.63   80.47   .494E+03       0.6          0.53
13.65
      0.74   80.58   .620E+03       0.8          0.57
12.60
      0.84   80.68   .758E+03       1.1          0.61
11.75
      0.95   80.79   .908E+03       1.4          0.65
11.04
      1.05   80.89   .107E+04       1.7          0.69
10.44
      1.16   81.00   .125E+04       2.1          0.72
9.92
      1.28   81.12   .283E+04       3.2          0.49
14.61
      1.41   81.25   .455E+04       5.0          0.48
15.04
      1.53   81.37   .642E+04       7.4          0.50
14.36
      1.66   81.50   .843E+04      10.4          0.53
13.50
      1.78   81.62   .106E+05      13.9          0.57
12.67
      1.91   81.75   .129E+05      18.0          0.60
11.93
      2.03   81.87   .153E+05      22.6          0.63
11.29
      2.16   82.00   .179E+05      27.8          0.67
10.73

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0232)   22.50     2.03    3.00  42.70
1.14     0.72
     OUTFLOW: ID= 1 (0721)   22.50     1.49    3.08  42.70
0.99     0.66


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-------------------
| CALIB             |
| NASHYD    (7211) |   Area    (ha)=   8.70   Curve Number
(CN)= 66.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.06

     Unit Hyd Qpeak  (cms)=   0.312

     PEAK FLOW       (cms)=   0.293 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=  32.779
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.357

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7212) |   Area    (ha)=   9.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.95          3.35
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     249.00         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     143.36        105.71
               over (min)        5.00         15.00
     Storage Coeff.  (min)=       3.82 (ii)   12.32 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.25          0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.88          0.58
2.366 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90         40.09
63.91
     TOTAL RAINFALL   (mm)=      91.90         91.90
91.90
     RUNOFF COEFFICIENT   =       0.93          0.44
0.70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0236) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7211):     8.70   0.293     4.08    32.78
        + ID2= 2 (7212):     9.30   2.366     3.00    63.91
          ===============================================
          ID = 3 (0236):    18.00   2.416     3.00    48.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0237) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0236):    18.00   2.416     3.00    48.86
        + ID2= 2 (0721):    22.50   1.494     3.08    42.70
          ===============================================
          ID = 3 (0237):    40.50   3.875     3.00    45.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0238) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0229):   353.60   8.469     3.00    35.58
        + ID2= 2 (0237):    40.50   3.875     3.00    45.44
          ===============================================
          ID = 3 (0238):   394.10  12.344     3.00    36.59

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0705) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (3276.8) ------>
              Distance      Elevation       Manning
                 0.00         80.50         0.1100
                 5.70         80.00         0.1100
                14.00         79.00         0.1100
                22.00         79.00    0.1100 /0.0700  Main
Channel
                23.50         78.50         0.0700      Main
Channel
                24.50         78.50         0.0700      Main
Channel
                26.00         79.00    0.0700 /0.1100  Main
Channel
                28.00         79.00         0.1100
                41.00         80.00         0.1100

        <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.07   78.57   .248E+02       0.0          0.26
18.45
      0.14   78.64   .584E+02       0.1          0.38
12.49
      0.21   78.71   .101E+03       0.2          0.48
10.01
      0.29   78.79   .152E+03       0.3          0.56
8.56
      0.36   78.86   .212E+03       0.5          0.63
7.58
      0.43   78.93   .280E+03       0.7          0.70
6.85
      0.50   79.00   .358E+03       0.9          0.76
6.29
      0.58   79.08   .712E+03       1.6          0.64
7.50
      0.67   79.17   .111E+04       2.5          0.65
7.35
      0.75   79.25   .155E+04       3.7          0.69
6.94
      0.83   79.33   .203E+04       5.2          0.73
6.52
      0.92   79.42   .255E+04       6.9          0.78
6.14
      1.00   79.50   .312E+04       9.0          0.82
5.81
      1.08   79.58   .373E+04      11.3          0.86
5.52
      1.17   79.67   .438E+04      13.9          0.90
5.27
      1.25   79.75   .507E+04      16.7          0.94
5.05
      1.33   79.83   .581E+04      20.0          0.98
4.85
      1.42   79.92   .659E+04      23.5          1.02
4.68
      1.50   80.00   .741E+04      27.3          1.06
4.52

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0238)  394.10    12.34    3.00  36.59
1.12     0.88
     OUTFLOW: ID= 1 (0705)  394.10    11.06    3.08  36.59
1.08     0.86


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-------------------
| CALIB             |
| NASHYD    (7051) |   Area    (ha)=   2.10   Curve Number
(CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.60

     Unit Hyd Qpeak  (cms)=   0.133

     PEAK FLOW       (cms)=   0.069 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  21.464
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.234

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7052) |   Area    (ha)=   4.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  40.00   Dir. Conn.(%)=
26.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.88          2.82
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     177.01         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     143.36         52.46
               over (min)        5.00         15.00
     Storage Coeff.  (min)=       3.12 (ii)   14.36 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.27          0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.48          0.26
0.694 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
```

```
     RUNOFF VOLUME    (mm)=      85.90        25.75
41.39
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.28
0.45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  51.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0241) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7051):     2.10   0.069     3.58    21.46
        + ID2= 2 (7052):     4.70   0.694     3.00    41.39
          ==================================================
          ID = 3 (0241):     6.80   0.718     3.00    35.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0243) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0241):     6.80   0.718     3.00    35.24
        + ID2= 2 (0705):   394.10  11.064     3.08    36.59
          ==================================================
          ID = 3 (0243):   400.90  11.514     3.08    36.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7502) |   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  34.00   Dir. Conn.(%)=
21.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.87         3.63
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     191.49        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        88.74
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.27 (ii)   12.38 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.45         0.52
0.889 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        37.33
47.53
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.41
0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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 FINISH
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Hydrology Model Output

2) Future Landuse

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       V    V   I    SSSSS  U    U    A    L
       V    V   I    SS     U    U   A A   L
        V  V    I     SS    U    U  AAAAA  L
        V  V    I      SS   U    U  A   A  L
         VV     I    SSSSS  UUUUU  A    A  LLLLL

        OOO    TTTTT  TTTTT  H    H  Y   Y  M    M   OOO     TM
       O   O     T      T    H    H   Y Y   MM MM  O   O
       O   O     T      T    H    H    Y    M   M  O   O    Company
        OOO      T      T    H    H    Y    M   M   OOO
Serial

Developed and Distributed by Clarifica Inc.
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```
                    ***** D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual Otthymo
2.4\VO2\voin.dat
  Output  filename: C:\Users\Jenny\AppData\Local\Temp\5cabfbfe-
d340-4400-a9c0-5faca896dcae\Scenario.out
  Summary filename: C:\Users\Jenny\AppData\Local\Temp\5cabfbfe-
d340-4400-a9c0-5faca896dcae\Scenario.sum


DATE: 05/07/2013                            TIME: 10:03:57

USER:



COMMENTS: ____________________________________________________


----------------------------------------------------------------
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  ****************************
  ** SIMULATION NUMBER:   1 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\Jenny\AppD
|                  |              ata\Local\Temp\
|                  |              5cabfbfe-d340-4400-a9c0-
5faca896dcae\93dc9cef
| Ptotal=101.62 mm |    Comments: Mount Hope-6 hour SCS
Distribution Desig
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                 0.17    4.09 |  1.67   10.23 |  3.17   22.51 |
4.67    6.14
                 0.33    4.09 |  1.83   10.23 |  3.33   22.51 |
4.83    6.14
                 0.50    4.09 |  2.00   10.23 |  3.50   22.51 |
5.00    6.14
                 0.67    6.14 |  2.17   12.28 |  3.67   10.23 |
5.17    4.09
                 0.83    6.14 |  2.33   12.28 |  3.83   10.23 |
5.33    4.09
                 1.00    6.14 |  2.50   12.28 |  4.00   10.23 |
5.50    4.09
                 1.17    6.14 |  2.67   61.38 |  4.17    8.18 |
5.67    4.09
                 1.33    6.14 |  2.83  110.48 |  4.33    8.18 |
5.83    4.09
                 1.50    6.14 |  3.00  159.59 |  4.50    8.18 |

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--------------------
| CALIB            |
| STANDHYD  (5102) |   Area    (ha)=   1.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09          0.61
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     106.46         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                0.083    4.09 | 1.583   10.23 | 3.083   22.51 |
4.58    6.14
                0.167    4.09 | 1.667   10.23 | 3.167   22.51 |
4.67    6.14
                0.250    4.09 | 1.750   10.23 | 3.250   22.51 |
4.75    6.14
                0.333    4.09 | 1.833   10.23 | 3.333   22.51 |
4.83    6.14
                0.417    4.09 | 1.917   10.23 | 3.417   22.51 |
4.92    6.14
                0.500    4.09 | 2.000   10.23 | 3.500   22.51 |
5.00    6.14
                0.583    6.14 | 2.083   12.28 | 3.583   10.23 |
5.08    4.09
                0.667    6.14 | 2.167   12.28 | 3.667   10.23 |
5.17    4.09
                0.750    6.14 | 2.250   12.28 | 3.750   10.23 |
5.25    4.09
                0.833    6.14 | 2.333   12.28 | 3.833   10.23 |
5.33    4.09
                0.917    6.14 | 2.417   12.28 | 3.917   10.23 |
5.42    4.09
                1.000    6.14 | 2.500   12.28 | 4.000   10.23 |
5.50    4.09
                1.083    6.14 | 2.583   61.38 | 4.083    8.18 |
5.58    4.09
                1.167    6.14 | 2.667   61.38 | 4.167    8.18 |
5.67    4.09
                1.250    6.14 | 2.750  110.48 | 4.250    8.18 |
5.75    4.09
                1.333    6.14 | 2.833  110.48 | 4.333    8.18 |
5.83    4.09
                1.417    6.14 | 2.917  159.59 | 4.417    8.18 |
                1.500    6.14 | 3.000  159.59 | 4.500    8.18 |

     Max.Eff.Inten.(mm/hr)=     159.59        125.18
               over (min)        5.00         15.00
     Storage Coeff.  (min)=       2.20 (ii)   10.14 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.30          0.10

*TOTALS*
     PEAK FLOW       (cms)=       0.39          0.14
0.507 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62         47.19
72.37
     TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
     RUNOFF COEFFICIENT   =       0.94          0.46
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0511) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation      Manning
                  0.00         81.24        0.1100
                 33.01         80.98        0.1100
                 49.97         81.27        0.1100
                 54.18         80.35        0.1100
                 60.88         81.23     0.1100 /0.0700  Main
Channel
                 69.13         79.02        0.0700      Main
Channel
                 92.42         79.04        0.0700      Main
Channel
                 98.70         80.89     0.0700 /0.1100  Main
Channel
                128.88         81.13        0.1100
                199.00         81.23        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.12    79.13    .361E+03       0.6          0.24
9.91
      0.23    79.25    .776E+03       2.1          0.40
6.09
      0.35    79.37    .121E+04       4.3          0.52
4.65
      0.47    79.48    .165E+04       7.1          0.63
3.85
      0.59    79.60    .211E+04      10.5          0.72
3.34
      0.70    79.72    .258E+04      14.4          0.81
2.98
      0.82    79.84    .307E+04      18.8          0.89
2.71
      0.94    79.95    .357E+04      23.8          0.97
2.50
      1.05    80.07    .408E+04      29.2          1.04
2.33
      1.17    80.19    .461E+04      35.1          1.10
2.19
      1.29    80.30    .515E+04      41.5          1.17
2.07
      1.41    80.42    .571E+04      48.4          1.23
1.97
      1.52    80.54    .631E+04      55.8          1.28
1.88
      1.64    80.66    .695E+04      63.8          1.33
1.81
      1.76    80.77    .762E+04      72.3          1.38
1.76
      1.87    80.89    .833E+04      81.4          1.42
1.71
      2.00    81.02    .931E+04      92.4          1.44
1.68
      2.13    81.14    .109E+05     104.8          1.39
1.74
      2.25    81.27    .140E+05     120.9          1.25
1.93

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (5102)    1.70     0.51    3.00  72.37
0.10     0.24
     OUTFLOW: ID= 1 (0511)    1.70     0.37    3.00  72.34
0.07     0.24


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--------------------
| CALIB            |
| STANDHYD  (5112) |   Area    (ha)=   3.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=
58.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.07          0.93
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     141.42         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     159.59        142.77
               over (min)        5.00         15.00
     Storage Coeff.  (min)=       2.61 (ii)   10.14 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.29          0.10

*TOTALS*
     PEAK FLOW       (cms)=       0.77          0.24
0.972 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62         53.17
77.79
     TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
     RUNOFF COEFFICIENT   =       0.94          0.52
0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  71.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0117) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0511):      1.70   0.367     3.00    72.34
        + ID2= 2 (5112):      3.00   0.972     3.00    77.79
          ===============================================
          ID = 3 (0117):      4.70   1.339     3.00    75.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0512) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 484.2) ------>
               Distance      Elevation      Manning
                  0.00         80.80        0.0900
                  9.73         80.46        0.0900
                 14.10         82.04        0.0900
                 17.18         82.28        0.0900
                 41.13         82.12     0.0900 /0.0700  Main
Channel
                 46.88         79.71        0.0700      Main
Channel
                 51.41         80.90     0.0700 /0.0900  Main
Channel
                 94.29         80.56        0.0900
                175.64         80.72        0.0900
                192.09         80.85        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.13    79.84    .255E+02       0.0          0.14
54.71
      0.26    79.98    .102E+03       0.0          0.23
34.47
      0.40    80.11    .229E+03       0.1          0.30
26.30
      0.53    80.24    .408E+03       0.3          0.36
21.71
      0.66    80.37    .637E+03       0.6          0.42
18.71
      0.79    80.51    .934E+03       0.9          0.46
16.84
      0.93    80.64    .245E+04       1.6          0.31
24.96
      1.06    80.77    .873E+04       4.6          0.25
31.51
      1.19    80.90    .179E+05      11.4          0.30
26.08
      1.32    81.04    .278E+05      22.6          0.38
20.45
      1.46    81.17    .381E+05      37.5          0.46
16.91
      1.60    81.31    .484E+05      55.4          0.54
14.57
      1.74    81.45    .588E+05      76.0          0.61
12.90
      1.87    81.59    .693E+05      99.3          0.67
11.63
      2.01    81.72    .798E+05     125.0          0.73
10.64
      2.15    81.86    .903E+05     153.1          0.80
9.83
      2.29    82.00    .101E+06     183.5          0.85
9.16
      2.42    82.14    .112E+06     214.3          0.90
8.68
      2.56    82.27    .123E+06     244.4          0.93
8.40

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0117)    4.70     1.34    3.00  75.82
0.87     0.36
     OUTFLOW: ID= 1 (0512)    4.70     0.82    3.08  75.75
0.76     0.45


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--------------------
| CALIB            |
| STANDHYD  (5122) |   Area    (ha)=   3.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=
57.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.65          1.25
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     161.25         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     159.59        141.05
               over (min)        5.00         15.00
     Storage Coeff.  (min)=       2.82 (ii)   10.39 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.28          0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.98          0.31
1.247 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62         52.94
77.27
     TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
     RUNOFF COEFFICIENT   =       0.94          0.52
0.76

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  71.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0119) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0512):      4.70   0.822     3.08    75.75
        + ID2= 2 (5122):      3.90   1.247     3.00    77.27
          ===============================================
          ID = 3 (0119):      8.60   1.969     3.00    76.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (5202) |   Area    (ha)=  29.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.85         14.85
     Dep. Storage     (mm)=       1.50          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     444.97         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     159.59        137.17
               over (min)        5.00         15.00
     Storage Coeff.  (min)=       5.19 (ii)   12.85 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.21          0.08

*TOTALS*
     PEAK FLOW       (cms)=       4.37          3.36
7.217 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=     100.12         53.16
69.59
     TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
     RUNOFF COEFFICIENT   =       0.99          0.52
0.68


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  72.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0521) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 815.4) ------>
              Distance      Elevation       Manning
                415.18        83.86         0.0900
                461.15        83.40         0.0900
                501.83        83.53    0.0900 /0.0700  Main
Channel
                513.93        82.96         0.0700      Main
Channel
                526.85        83.23    0.0700 /0.0900  Main
Channel
                569.63        83.21         0.0900
                610.76        83.63         0.0900
                663.54        83.88         0.0900

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.05    83.00    .378E+02       0.0          0.11
83.81
       0.09    83.05    .151E+03       0.0          0.17
52.79
       0.14    83.09    .340E+03       0.1          0.22
40.29
       0.18    83.14    .605E+03       0.3          0.27
33.26
       0.23    83.18    .946E+03       0.5          0.32
28.66
       0.27    83.23    .151E+04       0.9          0.33
27.77
       0.32    83.27    .323E+04       1.8          0.31
29.51
       0.37    83.32    .510E+04       3.2          0.34
26.44
       0.42    83.37    .713E+04       5.0          0.38
23.61
       0.46    83.42    .934E+04       7.3          0.42
21.44
       0.51    83.47    .121E+05      10.0          0.45
20.23
       0.56    83.52    .156E+05      13.4          0.47
19.44
       0.61    83.57    .196E+05      17.7          0.49
18.52
       0.66    83.61    .240E+05      22.8          0.52
17.49
       0.71    83.66    .286E+05      28.4          0.54
16.75
       0.75    83.71    .336E+05      34.7          0.56
16.14
       0.80    83.76    .390E+05      41.8          0.58
15.55
       0.85    83.81    .448E+05      49.8          0.60
14.99
       0.90    83.86    .510E+05      58.8          0.63
14.46

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (5202)   29.70     7.22    3.00  69.59
0.46     0.42
     OUTFLOW: ID= 1 (0521)   29.70     3.93    3.17  69.58
0.39     0.36


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--------------------
| CALIB              |
| STANDHYD  (5212) |   Area    (ha)=  15.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
66.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.78         3.93
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     323.52        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       161.71
              over (min)         5.00        10.00
     Storage Coeff.  (min)=       4.29 (ii)    9.17 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.23         0.12

*TOTALS*
     PEAK FLOW       (cms)=       4.44         1.27
5.713 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=      95.62        60.49
83.68
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.60
0.82

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0113) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0521):    29.70   3.931     3.17    69.58
        + ID2= 2 (5212):    15.70   5.713     3.00    83.68
          ================================================
          ID = 3 (0113):    45.40   8.845     3.00    74.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB              |
| NASHYD    (5011) |   Area    (ha)=  80.20   Curve Number
(CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.85

     Unit Hyd Qpeak  (cms)=   3.621

     PEAK FLOW       (cms)=   3.787 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  38.043
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.374

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (5012) |   Area    (ha)=  39.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
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                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.97        24.43
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     512.51        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       107.14
              over (min)         5.00        15.00
     Storage Coeff.  (min)=       5.65 (ii)   14.10 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.20         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.93         4.06
7.301 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        43.76
56.20
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.43
0.55


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  65.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0100) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5011):    80.20   3.787     3.83    38.04
        + ID2= 2 (5012):    39.40   7.301     3.00    56.20
          ================================================
          ID = 3 (0100):   119.60   8.229     3.00    44.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0502) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1537.5) ------>
              Distance      Elevation       Manning
                  0.00        89.30         0.1100
                  4.20        89.28         0.1100
                  9.03        88.80         0.1100
                 21.55        88.78         0.1100
                 29.06        88.24         0.1100
                 39.87        87.83         0.1100
                 55.54        87.84    0.1100 /0.0700  Main
Channel
                 57.54        86.84         0.0700      Main
Channel
                 59.04        86.84         0.0700      Main
Channel
                 61.04        87.84    0.0700 /0.1100  Main
Channel
                 74.10        87.86         0.1100
                 87.72        88.07         0.1100
                101.34        88.18         0.1100
                113.53        88.23         0.1100
                128.57        88.32         0.1100
                142.19        88.61         0.1100
                155.81        88.53         0.1100
                183.05        88.85         0.1100
                187.19        88.84         0.1100
                211.21        88.88         0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.10    86.94    .202E+03       0.0          0.25
78.80
       0.20    87.04    .452E+03       0.1          0.37
52.91
       0.30    87.14    .749E+03       0.3          0.47
42.34
       0.40    87.24    .109E+04       0.5          0.55
36.26
       0.50    87.34    .149E+04       0.8          0.62
32.18
       0.60    87.44    .193E+04       1.1          0.68
29.19
       0.70    87.54    .241E+04       1.5          0.74
26.87
       0.80    87.64    .295E+04       2.0          0.79
25.01
       0.90    87.74    .353E+04       2.5          0.84
23.46
       1.00    87.84    .421E+04       3.1          0.89
22.39
       1.10    87.94    .849E+04       4.5          0.63
31.56
       1.21    88.05    .150E+05       7.1          0.56
35.43
       1.33    88.17    .233E+05      10.6          0.54
36.49
       1.44    88.28    .346E+05      15.5          0.53
37.18
       1.56    88.40    .484E+05      22.8          0.56
35.35
       1.67    88.51    .634E+05      32.1          0.60
32.90
       1.79    88.63    .807E+05      41.2          0.61
32.65
       1.90    88.74    .101E+06      54.6          0.64
30.77
       2.02    88.86    .124E+06      64.7          0.62
31.85

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0100)  119.60     8.23    3.00  44.03
1.25     0.55
     OUTFLOW: ID= 1 (0502)  119.60     5.08    3.83  44.02
1.13     0.61


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--------------------
| CALIB              |
| STANDHYD  (5022) |   Area    (ha)=  51.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  48.00   Dir. Conn.(%)=
34.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      24.53        26.57
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     583.67        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       105.55
              over (min)         5.00        15.00
     Storage Coeff.  (min)=       6.11 (ii)   14.61 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.19         0.08

*TOTALS*
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```
     PEAK FLOW       (cms)=       7.13         4.26
10.662 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=     100.12        41.68
61.55
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.99         0.41
0.61


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0102) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0502):   119.60   5.084     3.83    44.02
        + ID2= 2 (5022):    51.10  10.662     3.00    61.55
          ================================================
          ID = 3 (0102):   170.70  13.583     3.00    49.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0503) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1157.9) ------>
              Distance      Elevation       Manning
                  0.00        86.78         0.0900
                 25.34        87.17         0.0900
                 68.44        87.04         0.0900
                117.13        86.81         0.0900
                125.36        85.21    0.0900 /0.0700  Main
Channel
                127.36        84.21         0.0700      Main
Channel
                128.86        84.21         0.0700      Main
Channel
                130.86        85.21    0.0700 /0.0900  Main
Channel
                131.88        86.36         0.0900
                140.63        86.77         0.0900
                168.26        86.90         0.0900
                169.81        87.10         0.0900
                202.11        87.50         0.0900
                239.06        87.35         0.0900
                270.29        87.83         0.0900
                283.90        87.90         0.0900
                297.51        87.86         0.0900
                324.73        87.89         0.0900
                351.95        87.78         0.0900
                388.59        87.46         0.0900

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.17    84.38    .114E+03       0.1          0.34
18.34
       0.33    84.54    .269E+03       0.4          0.50
12.51
       0.50    84.71    .465E+03       0.8          0.62
10.07
       0.67    84.88    .703E+03       1.4          0.72
8.63
       0.83    85.04    .982E+03       2.1          0.81
7.65
       1.00    85.21    .130E+04       3.1          0.89
6.93
       1.21    85.42    .177E+04       5.0          1.06
5.87
       1.41    85.62    .234E+04       7.4          1.17
5.28
       1.62    85.83    .300E+04      10.2          1.27
4.89
       1.83    86.04    .376E+04      13.6          1.35
4.60
       2.03    86.24    .462E+04      17.6          1.42
4.37
       2.24    86.45    .560E+04      22.1          1.47
4.22
       2.45    86.66    .695E+04      27.6          1.48
4.20
       2.66    86.87    .925E+04      31.2          1.25
4.94
       2.86    87.07    .168E+05      43.1          0.96
6.48
       3.07    87.28    .297E+05      67.7          0.85
7.30
       3.28    87.49    .456E+05     103.1          0.84
7.38
       3.48    87.69    .663E+05     159.6          0.89
6.93
       3.69    87.90    .907E+05     223.4          0.92
6.77

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0102)  170.70    13.58    3.00  49.27
1.82     1.35
     OUTFLOW: ID= 1 (0503)  170.70    12.35    3.08  49.27
1.75     1.32


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--------------------
| CALIB              |
| STANDHYD  (5032) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  76.00   Dir. Conn.(%)=
67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.49         3.31
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     303.32        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       145.90
              over (min)         5.00        10.00
     Storage Coeff.  (min)=       4.12 (ii)    8.90 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.24         0.12

*TOTALS*
     PEAK FLOW       (cms)=       3.98         0.96
4.940 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=      95.62        53.59
81.75
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.53
0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
```

```
        CN*  =  71.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0104) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------          (ha)    (cms)    (hrs)      (mm)
        ID1= 1 (0503):   170.70  12.355     3.08    49.27
      + ID2= 2 (5032):    13.80   4.940     3.00    81.75
        ===============================================
        ID = 3 (0104):   184.50  16.520     3.00    51.70

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0504) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 815.4) ------>
              Distance      Elevation       Manning
                 19.10         82.03         0.0900
                 29.01         83.14         0.0900
                 40.83         82.56         0.0900
                 81.51         82.27         0.0900
                122.18         82.68         0.0900
                169.31         82.61         0.0900
                217.10         82.90         0.0900
                229.61         83.66    0.0900 /0.0700  Main
Channel
                232.80         81.85         0.0700      Main
Channel
                243.24         83.87         0.0700      Main
Channel
                257.77         84.06         0.0900
                312.01         83.52         0.0900
                415.18         83.86         0.0900
                461.15         83.40         0.0900
                501.83         83.53         0.0900
                513.93         82.96         0.0900
                526.85         83.23         0.0900
                569.63         83.21         0.0900
                610.76         83.63         0.0900
                663.54         83.88         0.0900

     <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.11    81.96    .117E+02       0.0          0.18
23.95
      0.23    82.08    .492E+02       0.1          0.28
15.67
      0.34    82.19    .135E+03       0.2          0.34
13.00
      0.45    82.30    .312E+03       0.4          0.32
13.44
      0.57    82.42    .116E+04       1.2          0.28
15.74
      0.68    82.53    .287E+04       3.5          0.32
13.85
      0.79    82.64    .549E+04       7.0          0.33
13.13
      0.91    82.76    .101E+05      14.9          0.39
11.28
      1.02    82.87    .155E+05      27.5          0.47
9.38
      1.13    82.98    .214E+05      45.2          0.55
7.89
      1.25    83.10    .277E+05      67.2          0.64
6.87
      1.36    83.21    .344E+05      93.6          0.71
6.12
      1.47    83.32    .426E+05     125.3          0.77
5.67
      1.59    83.44    .516E+05     162.2          0.82
5.30
      1.70    83.55    .620E+05     204.2          0.86
5.06
      1.81    83.66    .747E+05     254.0          0.89
4.90
      1.95    83.80    .924E+05     324.9          0.92
4.74
      2.08    83.93    .113E+06     411.3          0.95
4.59
      2.21    84.06    .135E+06     515.5          1.00
4.37

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0104)  184.50     16.52    3.00  51.70
0.92     0.40
    OUTFLOW: ID= 1 (0504)  184.50     12.78    3.17  51.70
0.88     0.37

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-------------------
| CALIB            |
| STANDHYD  (5042) |   Area    (ha)=   7.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
65.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        5.77          1.92
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      226.57         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      159.59        140.83
                over (min)         5.00         10.00
     Storage Coeff.  (min)=        3.46 (ii)     8.38 (ii)
     Unit Hyd. Tpeak (min)=        5.00         10.00
     Unit Hyd. peak  (cms)=        0.26          0.12

*TOTALS*
     PEAK FLOW      (cms)=         2.18          0.55
2.728 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.00
3.00
     RUNOFF VOLUME    (mm)=       95.62         50.74
79.91
     TOTAL RAINFALL   (mm)=      101.62        101.62
101.62
     RUNOFF COEFFICIENT   =        0.94          0.50
0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0106) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------          (ha)    (cms)    (hrs)      (mm)
        ID1= 1 (0504):   184.50  12.778     3.17    51.70
      + ID2= 2 (5042):     7.70   2.728     3.00    79.91
```

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        ===============================================
        ID = 3 (0106):   192.20  13.694     3.08    52.83

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0114) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------          (ha)    (cms)    (hrs)      (mm)
        ID1= 1 (0106):   192.20  13.694     3.08    52.83
      + ID2= 2 (0113):    45.40   8.845     3.00    74.45
        ===============================================
        ID = 3 (0114):   237.60  21.769     3.00    56.96

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0505) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 553.6) ------>
              Distance      Elevation       Manning
                  0.00         81.24         0.1100
                 33.01         80.98         0.1100
                 49.97         81.27         0.1100
                 54.18         80.35         0.1100
                 60.88         81.23         0.1100
                 69.13         79.02         0.1100
                 92.42         79.04         0.1100
                 98.70         80.89         0.1100
                128.88         81.13         0.1100
                199.00         81.23         0.1100
                266.11         81.68         0.1100
                306.94         81.73         0.1100
                331.74         81.55    0.1100 /0.0700  Main
Channel
                336.74         80.15         0.0700      Main
Channel
                346.34         81.64    0.0700 /0.0900  Main
Channel
                394.77         81.68         0.0900
                431.64         81.44         0.0900
                477.44         82.08         0.0900
                481.25         82.81         0.0900
                501.51         83.16         0.0900

     <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.12    79.13    .418E+03       0.4          0.15
18.59
      0.23    79.25    .899E+03       1.3          0.25
11.41
      0.35    79.36    .140E+04       2.7          0.33
8.70
      0.46    79.48    .191E+04       4.4          0.39
7.22
      0.58    79.59    .244E+04       6.5          0.46
6.26
      0.69    79.71    .299E+04       8.9          0.51
5.58
      0.81    79.82    .355E+04      11.7          0.56
5.08
      0.92    79.94    .413E+04      14.7          0.61
4.68
      1.04    80.05    .472E+04      18.1          0.65
4.36
      1.15    80.17    .533E+04      21.7          0.70
4.09
      1.27    80.28    .598E+04      25.7          0.74
3.88
      1.38    80.40    .666E+04      29.7          0.76
3.74
      1.50    80.51    .740E+04      33.7          0.78
3.67
      1.61    80.63    .822E+04      38.1          0.79
3.59
      1.73    80.74    .909E+04      43.1          0.81
3.52
      1.84    80.86    .100E+05      48.6          0.83
3.45
      1.96    80.97    .111E+05      48.4          0.74
3.83
      2.07    81.09    .128E+05      43.8          0.59
4.86
      2.19    81.21    .155E+05      40.6          0.45
6.35

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0114)  237.60     21.77    3.00  56.96
1.15     0.70
    OUTFLOW: ID= 1 (0505)  237.60     20.93    3.08  56.96
1.13     0.69

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-------------------
| CALIB            |
| STANDHYD  (5052) |   Area    (ha)=  15.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=
65.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.77          4.13
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      325.58         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      159.59       ********
                over (min)         5.00         10.00
     Storage Coeff.  (min)=        4.30 (ii)     9.30 (ii)
     Unit Hyd. Tpeak (min)=        5.00         10.00
     Unit Hyd. peak  (cms)=        0.23          0.12

*TOTALS*
     PEAK FLOW      (cms)=         4.43          1.07
5.495 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.00
3.00
     RUNOFF VOLUME    (mm)=       95.62         49.62
79.52
     TOTAL RAINFALL   (mm)=      101.62        101.62
101.62
     RUNOFF COEFFICIENT   =        0.94          0.49
0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0108) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------          (ha)    (cms)    (hrs)      (mm)
        ID1= 1 (0505):   237.60  20.929     3.08    56.96
      + ID2= 2 (5052):    15.90   5.495     3.00    79.52
```

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        ===============================================
        ID = 3 (0108):   253.50  24.441     3.00    58.37

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0506) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 304.1) ------>
              Distance      Elevation       Manning
                  0.00         81.42         0.0900
                  7.45         81.36         0.0900
                 32.34         80.38         0.0900
                 45.97         80.05         0.0900
                 65.23         79.93         0.0900
                 84.49         80.35         0.0900
                113.49         80.02         0.0900
                136.48         80.07         0.0900
                188.81         79.81         0.0900
                197.86         79.25    0.0900 /0.0700  Main
Channel
                200.70         78.22         0.0700      Main
Channel
                203.29         79.35    0.0700 /0.0900  Main
Channel
                204.01         79.67         0.0900
                236.47         80.40         0.0900
                277.80         80.48         0.0900
                305.35         80.37         0.0900
                346.67         80.41         0.0900
                387.99         80.33         0.0900
                415.54         80.53         0.0900
                447.88         80.49         0.0900

     <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.11    78.34    .979E+01       0.0          0.23
21.53
      0.23    78.45    .392E+02       0.0          0.37
13.56
      0.34    78.56    .881E+02       0.1          0.48
10.35
      0.46    78.68    .157E+03       0.3          0.58
8.54
      0.57    78.79    .245E+03       0.6          0.67
7.36
      0.68    78.91    .352E+03       0.9          0.76
6.52
      0.80    79.02    .480E+03       1.4          0.84
5.88
      0.91    79.13    .627E+03       1.9          0.92
5.38
      1.03    79.25    .793E+03       2.7          0.99
4.98
      1.15    79.37    .103E+04       3.8          1.09
4.55
      1.28    79.50    .135E+04       5.2          1.16
4.28
      1.40    79.62    .175E+04       7.1          1.20
4.12
      1.52    79.75    .228E+04       9.3          1.21
4.08
      1.65    79.87    .318E+04      11.7          1.10
4.52
      1.77    80.00    .524E+04      15.8          0.90
5.52
      1.90    80.12    .973E+04      24.3          0.74
6.69
      2.02    80.24    .158E+05      39.7          0.75
6.62
      2.15    80.37    .230E+05      59.2          0.77
6.46
      2.27    80.49    .349E+05      90.3          0.77
6.44

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0108)  253.50     24.44    3.00  58.37
1.90     0.74
    OUTFLOW: ID= 1 (0506)  253.50     21.32    3.17  58.37
1.86     0.79


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-------------------
| CALIB            |
| STANDHYD  (5062) |   Area    (ha)=  11.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
65.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        8.78          2.92
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      279.28         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      159.59        149.80
                over (min)         5.00         10.00
     Storage Coeff.  (min)=        3.92 (ii)     8.84 (ii)
     Unit Hyd. Tpeak (min)=        5.00         10.00
     Unit Hyd. peak  (cms)=        0.24          0.12

*TOTALS*
     PEAK FLOW      (cms)=         3.28          0.88
4.160 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.00
3.00
     RUNOFF VOLUME    (mm)=       95.62         54.10
81.09
     TOTAL RAINFALL   (mm)=      101.62        101.62
101.62
     RUNOFF COEFFICIENT   =        0.94          0.53
0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0110) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------          (ha)    (cms)    (hrs)      (mm)
        ID1= 1 (0506):   253.50  21.319     3.17    58.37
      + ID2= 2 (5062):    11.70   4.160     3.00    81.09
        ===============================================
        ID = 3 (0110):   265.20  22.582     3.17    59.38

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0120) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK      R.V.
-------------------          (ha)    (cms)    (hrs)      (mm)
        ID1= 1 (0110):   265.20  22.582     3.17    59.38
      + ID2= 2 (0119):     8.60   1.969     3.00    76.44
```

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          ================================================
          ID = 3 (0120):   273.80  23.855     3.17    59.91

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5302) |   Area    (ha)=   5.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
56.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.83         1.97
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     196.64        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       119.48
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.18 (ii)   11.27 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.42         0.40
1.761 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        46.34
73.94
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.46
0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6102) |   Area    (ha)=  21.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.55        10.55
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     375.06        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       131.44
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.68 (ii)   12.47 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.14         2.30
5.089 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=     100.12        50.86
68.10
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.99         0.50
0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0611) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                <------ DATA FOR SECTION ( 940.0) ------>
                 Distance      Elevation        Manning
                    0.00         83.36         0.0900
                   12.33         84.54         0.0900
                   21.95         84.33     0.0900 /0.0700  Main
Channel
                   25.80         83.10         0.0700      Main
Channel
                   39.87         83.58     0.0700 /0.0900  Main
Channel
                   95.01         83.67         0.0900
                  132.30         84.45         0.0900

       <-------------------- TRAVEL TIME TABLE -----------------
---->
        DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.07    83.17    .442E+02       0.0          0.13
76.06
        0.14    83.24    .177E+03       0.1          0.20
47.91
        0.21    83.31    .398E+03       0.2          0.26
36.56
        0.28    83.38    .709E+03       0.4          0.32
30.22
        0.35    83.44    .113E+04       0.7          0.36
26.38
        0.41    83.51    .167E+04       1.2          0.41
23.66
        0.48    83.58    .232E+04       1.8          0.45
21.54
        0.56    83.66    .431E+04       3.1          0.42
23.06
        0.64    83.74    .779E+04       5.6          0.42
23.11
        0.72    83.82    .115E+05       9.1          0.46
20.97
        0.80    83.90    .154E+05      13.6          0.51
18.96
        0.88    83.98    .196E+05      18.9          0.55
17.31
        0.96    84.06    .240E+05      25.0          0.60
15.97
        1.04    84.14    .286E+05      32.1          0.65
14.88
        1.12    84.22    .334E+05      39.9          0.69
13.96
        1.20    84.30    .385E+05      48.6          0.73
13.19
        1.28    84.38    .438E+05      58.0          0.76
12.59
        1.36    84.46    .495E+05      68.4          0.80
12.06
        1.44    84.54    .555E+05      81.0          0.84
11.40

                                 <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6102)   21.10     5.09    3.00  68.10
0.63     0.42
     OUTFLOW: ID= 1 (0611)   21.10     2.83    3.17  68.08
0.55     0.42

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| CALIB            |
| STANDHYD  (6112) |   Area    (ha)=  11.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  72.00   Dir. Conn.(%)=
62.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.21         3.19
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     275.68        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       155.13
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.89 (ii)   11.18 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.09

*TOTALS*
     PEAK FLOW       (cms)=       3.05         0.87
3.805 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        57.95
81.31
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.57
0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0138) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0611):    21.10   2.828     3.17    68.08
        + ID2= 2 (6112):    11.40   3.805     3.00    81.31
          ================================================
          ID = 3 (0138):    32.50   6.164     3.00    72.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (6011) |   Area    (ha)=  44.10   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.83

     Unit Hyd Qpeak  (cms)=   2.027

     PEAK FLOW       (cms)=   1.942 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  35.157
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.346

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6012) |   Area    (ha)=  11.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
16.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.08         7.92
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     270.80        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59        91.88
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.85 (ii)   12.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.76         1.16
1.726 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        39.35
48.35
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.39
0.48

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0124) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6011):    44.10   1.942     3.83    35.16
        + ID2= 2 (6012):    11.00   1.726     3.00    48.35
          ================================================
          ID = 3 (0124):    55.10   2.327     3.50    37.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (6021) |   Area    (ha)=  43.60   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   1.753

     PEAK FLOW       (cms)=   1.734 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  35.157
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.346

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (6022) |   Area    (ha)=  12.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
23.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.51         8.39
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     293.26        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59        94.24
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.04 (ii)   12.94 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.28         1.26
2.325 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        39.77
52.62
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.39
0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0125) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6021):    43.60   1.734     4.00    35.16
        + ID2= 2 (6022):    12.90   2.325     3.00    52.62
          ================================================
          ID = 3 (0125):    56.50   2.680     3.00    39.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0126) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0124):    55.10   2.327     3.50    37.79
        + ID2= 2 (0125):    56.50   2.680     3.00    39.14
          ================================================
          ID = 3 (0126):   111.60   4.886     3.00    38.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0603) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                <------ DATA FOR SECTION (2135.9) ------>
                 Distance      Elevation        Manning
                    0.00         92.58         0.1400
                    8.54         92.59         0.1400
                   22.11         92.47         0.1400
                   48.74         91.83         0.1400
                   67.59         91.58         0.1400
                   86.45         91.21         0.1400
                  103.50         90.80         0.1400
                  118.09         90.23         0.1400
                  127.84         90.09     0.1400 /0.0700  Main
Channel
                  129.84         89.59         0.0700      Main
Channel
                  130.34         90.09     0.0700 /0.1400  Main
Channel
                  140.57         90.14         0.1400
                  161.87         90.11         0.1400
                  177.03         90.04         0.1400
                  188.67         89.87         0.1400
                  199.59         90.31         0.1400
                  212.02         90.96         0.1400
                  225.58         91.35         0.1400
                  252.71         91.66         0.1400
                  274.11         91.86         0.1400

       <-------------------- TRAVEL TIME TABLE -----------------
---->
        DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.12    89.71    .358E+02       0.0          0.19
81.29
        0.25    89.84    .143E+03       0.0          0.30
51.21
        0.37    89.96    .689E+03       0.2          0.23
67.44
        0.50    90.09    .278E+04       0.6          0.20
77.83
        0.67    90.26    .132E+05       3.4          0.23
65.31
        0.83    90.42    .262E+05       9.3          0.33
46.76
        1.00    90.59    .403E+05      17.9          0.41
37.64
        1.17    90.76    .556E+05      28.8          0.48
32.17
        1.33    90.92    .721E+05      42.0          0.53
28.63
        1.50    91.09    .903E+05      57.1          0.58
26.37
        1.67    91.26    .110E+06      74.7          0.62
24.65
        1.83    91.42    .133E+06      93.4          0.64
23.71
        2.00    91.59    .159E+06     113.6          0.66
23.26
        2.17    91.76    .188E+06     136.6          0.67
22.96
        2.33    91.92    .222E+06     168.5          0.70
21.97
        2.50    92.09    .258E+06     211.3          0.75
20.33
        2.67    92.26    .294E+06     258.5          0.81
18.98
        2.83    92.42    .332E+06     310.1          0.86
17.85
        3.00    92.59    .371E+06     358.0          0.88
17.29

                                 <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0126)  111.60     4.89    3.00  38.48
0.71     0.25
     OUTFLOW: ID= 1 (0603)  111.60     3.29    4.50  38.47
0.66     0.23
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-------------------
| CALIB             |
| STANDHYD  (6032) |   Area    (ha)=  34.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  47.00   Dir. Conn.(%)=
32.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       16.26        18.34
     Dep. Storage     (mm)=        1.50         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      480.28        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      159.59       134.53
                over (min)        5.00        15.00
     Storage Coeff.  (min)=        5.43 (ii)   13.15 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.20         0.08

*TOTALS*
     PEAK FLOW       (cms)=        4.62         4.02
8.033 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      100.12        52.78
67.93
     TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
     RUNOFF COEFFICIENT   =        0.99         0.52
0.67


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  72.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0128) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0603):   111.60   3.287     4.50    38.47
        + ID2= 2 (6032):    34.60   8.033     3.00    67.93
          ================================================
          ID = 3 (0128):   146.20   8.917     3.00    45.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0604) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
             <------ DATA FOR SECTION (1414.9) ------>
             Distance      Elevation      Manning
                 0.00         86.75        0.0900
                 3.09         87.40        0.0900
                18.33         87.41        0.0900
                35.33         86.99        0.0900
                73.84         86.75        0.0900
               103.33         86.41        0.0900
               120.33         86.11        0.0900
               129.46         86.13        0.0900
               143.37         85.32        0.0900
               154.33         85.02        0.0900
               161.57         85.09        0.0900
               163.05         84.78     0.0900 /0.0700  Main
Channel
               166.55         83.78        0.0700      Main
Channel
               168.05         84.78     0.0700 /0.1100  Main
Channel
               172.02         85.29        0.1100
               191.39         86.19        0.1100
               270.18         85.78        0.1100
               296.33         86.36        0.1100
               324.34         86.68        0.1100
               368.56         87.05        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.17    83.95    .465E+02       0.0          0.03
432.88
        0.33    84.11    .186E+03       0.0          0.04
272.70
        0.50    84.28    .418E+03       0.0          0.05
208.11
        0.67    84.45    .743E+03       0.1          0.06
171.79
        0.83    84.61    .116E+04       0.1          0.08
148.04
        1.00    84.78    .167E+04       0.2          0.09
131.10
        1.20    84.98    .252E+04       0.4          0.10
110.62
        1.41    85.19    .469E+04       0.6          0.09
121.59
        1.61    85.39    .842E+04       1.1          0.09
126.63
        1.81    85.59    .133E+05       1.8          0.09
121.99
        2.01    85.79    .192E+05       2.7          0.10
116.68
        2.22    86.00    .298E+05       4.0          0.09
125.45
        2.42    86.20    .487E+05       5.6          0.08
143.80
        2.62    86.40    .736E+05       9.0          0.08
137.02
        2.82    86.60    .102E+06      13.1          0.09
130.82
        3.03    86.81    .136E+06      18.1          0.09
125.42
        3.23    87.01    .178E+06      24.4          0.09
121.07
        3.43    87.21    .224E+06      34.2          0.10
108.80
        3.63    87.41    .271E+06      44.8          0.11
100.89

                                   <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (0128)  146.20     8.92    3.00  45.44
2.62      0.08
     OUTFLOW: ID= 1 (0604)  146.20     3.31    4.42  45.43
2.17      0.09

     **** WARNING:  COMPUTATIONS FAILED TO CONVERGE.

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| CALIB             |
| STANDHYD  (6042) |   Area    (ha)=  24.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=
69.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       18.72         5.28
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      400.00        40.00
     Mannings n          =       0.013        0.250
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```
     Max.Eff.Inten.(mm/hr)=      159.59       175.99
                over (min)        5.00        10.00
     Storage Coeff.  (min)=        4.87 (ii)    9.43 (ii)
     Unit Hyd. Tpeak (min)=        5.00        10.00
     Unit Hyd. peak  (cms)=        0.22         0.12

*TOTALS*
     PEAK FLOW       (cms)=        7.01         1.86
8.868 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=       95.62        63.99
85.81
     TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
     RUNOFF COEFFICIENT   =        0.94         0.63
0.84

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  79.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0130) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0604):   146.20   3.308     4.42    45.43
        + ID2= 2 (6042):    24.00   8.868     3.00    85.81
          ================================================
          ID = 3 (0130):   170.20  11.611     3.00    51.13

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0605) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
             <------ DATA FOR SECTION ( 801.4) ------>
             Distance      Elevation      Manning
                 0.00         82.95        0.1100
                 3.78         82.95        0.1100
                 9.24         82.49        0.1100
                50.67         82.10        0.1100
               105.12         82.17        0.1100
               119.34         81.56        0.1100
               150.67         81.66        0.1100
               157.23         82.37        0.1100
               190.03         82.57        0.1100
               223.75         82.27        0.1100
               252.32         82.50        0.1100
               254.65         81.95     0.1100 /0.0700  Main
Channel
               258.15         80.95        0.0700      Main
Channel
               259.65         81.95     0.0700 /0.1100  Main
Channel
               263.15         82.90        0.1100
               278.14         82.80        0.1100
               282.35         81.68        0.1100
               285.02         82.19        0.1100
               336.56         82.53        0.1100
               404.40         82.68        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.08    81.03    .125E+02       0.0          0.11
104.30
        0.17    81.12    .499E+02       0.0          0.18
65.70
        0.25    81.20    .112E+03       0.0          0.24
50.14
        0.33    81.28    .199E+03       0.1          0.29
41.39
        0.42    81.37    .312E+03       0.1          0.34
35.67
        0.50    81.45    .449E+03       0.2          0.38
31.59
        0.58    81.53    .611E+03       0.4          0.42
28.50
        0.67    81.62    .117E+04       0.5          0.33
36.10
        0.75    81.70    .316E+04       1.1          0.24
49.12
        0.83    81.78    .560E+04       2.1          0.27
45.15
        0.92    81.87    .827E+04       3.4          0.30
40.03
        1.00    81.95    .112E+05       5.2          0.33
35.88
        1.10    82.05    .151E+05       8.0          0.38
31.68
        1.21    82.16    .207E+05       8.8          0.30
39.37
        1.31    82.26    .306E+05      14.0          0.33
36.36
        1.41    82.36    .433E+05      20.3          0.34
35.59
        1.52    82.47    .606E+05      28.4          0.34
35.57
        1.62    82.57    .828E+05      41.0          0.36
33.68
        1.73    82.68    .109E+06      60.1          0.39
30.35

                                   <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (0130)  170.20    11.61    3.00  51.13
1.26      0.32
     OUTFLOW: ID= 1 (0605)  170.20     5.42    3.17  51.12
1.01      0.34


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-------------------
| ADD HYD   (0139) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0138):    32.50   6.164     3.00    72.72
        + ID2= 2 (0605):   170.20   5.422     3.17    51.12
          ================================================
          ID = 3 (0139):   202.70  10.166     3.00    54.58

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| STANDHYD  (6052) |   Area    (ha)=  15.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=
65.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.77         4.13
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      325.58        40.00
     Mannings n          =       0.013        0.250
```

```
     Max.Eff.Inten.(mm/hr)=      159.59       127.05
                over (min)        5.00        10.00
     Storage Coeff.  (min)=        4.30 (ii)    9.30 (ii)
     Unit Hyd. Tpeak (min)=        5.00        10.00
     Unit Hyd. peak  (cms)=        0.23         0.12

*TOTALS*
     PEAK FLOW       (cms)=        4.43         1.02
5.445 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=       95.62        47.46
78.76
     TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
     RUNOFF COEFFICIENT   =        0.94         0.47
0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0132) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0139):   202.70  10.166     3.00    54.58
        + ID2= 2 (6052):    15.90   5.445     3.00    78.76
          ================================================
          ID = 3 (0132):   218.60  15.611     3.00    56.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0530) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
             <------ DATA FOR SECTION ( 350.0) ------>
             Distance      Elevation      Manning
                 0.00         81.70        0.1100
                 3.84         81.72        0.1100
                 5.87         80.72        0.1100
                 9.38         81.42        0.1100
                49.64         81.07        0.1100
                80.61         80.72        0.1100
                85.61         81.14        0.1100
                93.32         80.00        0.1100
                95.04         80.45        0.1100
               102.72         80.66        0.1100
               110.13         78.93     0.1100 /0.0700  Main
Channel
               118.05         78.63        0.0700      Main
Channel
               124.40         78.89     0.0700 /0.1100  Main
Channel
               132.18         79.61        0.1100
               139.34         79.23        0.1100
               144.67         79.43        0.1100
               149.63         79.98        0.1100
               153.42         79.79        0.1100
               158.56         80.58        0.1100
               176.89         81.15        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.13    78.76    .190E+03       0.1          0.19
38.41
        0.26    78.89    .758E+03       0.5          0.31
24.20
        0.43    79.05    .189E+04       2.1          0.50
14.77
        0.59    79.22    .321E+04       4.7          0.65
11.35
        0.76    79.39    .498E+04       8.2          0.73
10.10
        0.93    79.55    .743E+04      13.1          0.78
9.48
        1.09    79.72    .103E+05      19.5          0.84
8.84
        1.26    79.89    .135E+05      27.1          0.89
8.29
        1.43    80.05    .171E+05      36.3          0.94
7.85
        1.59    80.22    .209E+05      47.2          1.00
7.39
        1.76    80.39    .251E+05      59.8          1.06
6.99
        1.93    80.56    .296E+05      73.5          1.10
6.70
        2.10    80.72    .348E+05      87.6          1.12
6.61
        2.26    80.89    .412E+05     102.8          1.11
6.68
        2.43    81.06    .495E+05     122.0          1.09
6.77
        2.60    81.22    .596E+05     146.2          1.09
6.80
        2.76    81.39    .714E+05     176.9          1.10
6.72
        2.93    81.56    .841E+05     215.0          1.13
6.52
        3.10    81.72    .970E+05     256.7          1.18
6.30

                                   <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (0132)  218.60    15.61    3.00  56.34
0.99      0.80
     OUTFLOW: ID= 1 (0530)  218.60    12.48    3.08  56.34
0.91      0.77


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-------------------
| ADD HYD   (0134) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0530):   218.60  12.480     3.08    56.34
        + ID2= 2 (5302):     5.80   1.761     3.00    73.94
          ================================================
          ID = 3 (0134):   224.40  13.339     3.08    56.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0135) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0120):   273.80  23.855     3.17    59.91
        + ID2= 2 (0134):   224.40  13.339     3.08    56.80
          ================================================
          ID = 3 (0135):   498.20  36.970     3.08    58.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ROUTE CHN (0507) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (  40.0) ------>
              Distance      Elevation       Manning
                  0.00          79.36        0.0900
                  7.45          79.32        0.0900
                 13.77          79.27        0.0900
                 20.24          79.24        0.0900
                 27.28          79.26        0.0900
                 34.16          79.13        0.0900
                 40.79          79.05        0.0900
                 47.58          79.05        0.0900
                 54.30          79.07        0.0900
                 60.87          79.24        0.0900
                 71.39          79.48        0.0900
                 73.53          78.96        0.0900
                 76.96          78.07        0.0900
                 82.21          77.08    0.0900 /0.0700  Main
Channel
                 85.82          76.28        0.0700      Main
Channel
                 89.97          76.89        0.0700      Main
Channel
                 91.35          77.38    0.0700 /0.0900  Main
Channel
                 95.27          78.68        0.0900
                 98.44          79.63        0.0900
                102.89          79.89        0.0900

       <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.16   76.44    .113E+03       0.0          0.14
88.10
        0.32   76.60    .451E+03       0.1          0.23
55.50
        0.49   76.76    .101E+04       0.4          0.30
42.35
        0.65   76.92    .180E+04       0.9          0.37
34.57
        0.81   77.09    .276E+04       1.6          0.44
28.86
        0.97   77.25    .388E+04       2.7          0.52
24.37
        1.14   77.41    .516E+04       4.0          0.59
21.56
        1.30   77.57    .660E+04       5.7          0.66
19.26
        1.46   77.74    .822E+04       7.8          0.72
17.67
        1.62   77.90    .100E+05      10.1          0.77
16.48
        1.79   78.06    .120E+05      12.8          0.82
15.54
        1.95   78.22    .141E+05      15.9          0.87
14.74
        2.11   78.39    .163E+05      19.4          0.91
14.06
        2.27   78.55    .187E+05      23.2          0.95
13.47
        2.44   78.71    .212E+05      27.3          0.99
12.95
        2.60   78.87    .239E+05      31.9          1.02
12.50
        2.76   79.04    .267E+05      36.8          1.06
12.10
        2.92   79.20    .320E+05      39.4          0.94
13.56
        3.09   79.36    .409E+05      45.7          0.85
14.94

                                       &lt;---- hydrograph ----&gt;   &lt;-
pipe / channel-&gt;
                                  AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                                  (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0135)  498.20   36.97    3.08  58.51
2.77     1.05
     OUTFLOW: ID= 1 (0507)  498.20   32.65    3.33  58.51
2.62     1.03


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| CALIB            |
| STANDHYD  (5072) |   Area    (ha)=  48.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
36.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      24.45        24.45
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     570.96        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       139.84
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       6.03 (ii)   13.63 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.19         0.08

*TOTALS*
     PEAK FLOW       (cms)=       7.24         5.52
11.930 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        55.09
69.68
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.54
0.69


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  74.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0122) |
|   1 + 2 =  3     |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0507):   498.20  32.651     3.33    58.51
        + ID2= 2 (5072):    48.90  11.930     3.00    69.68
          ===============================================
          ID = 3 (0122):   547.10  38.911     3.17    59.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (5402) |   Area    (ha)=   9.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.70         4.70
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     250.33        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       120.33
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.67 (ii)   11.74 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.43         0.95
2.231 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        46.47
63.67
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.46
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| STORE HYD (1505) |   AREA      (ha)=  30.00
| ID= 1 DT= 5.0min |   QPEAK    (cms)=   0.78
-------------------    TPEAK    (hrs)=  15.58
                       VOLUME    (mm)= 402.14

  TIME    FLOW |   TIME    FLOW |   TIME    FLOW |'  TIME    FLOW |
TIME   FLOW
   hrs     cms |   hrs      cms |   hrs      cms |'  hrs      cms |
hrs     cms
  0.00    0.00 | 31.33    0.10 | 62.67    0.25 | 94.00    0.26
|125.33   0.16
  0.08    0.00 | 31.42    0.10 | 62.75    0.25 | 94.08    0.26
|125.42   0.16
  0.17    0.00 | 31.50    0.10 | 62.83    0.25 | 94.17    0.25
|125.50   0.16
  0.25    0.00 | 31.58    0.10 | 62.92    0.25 | 94.25    0.25
|125.58   0.16
  0.33    0.00 | 31.67    0.10 | 63.00    0.25 | 94.33    0.25
|125.67   0.17
  0.42    0.00 | 31.75    0.10 | 63.08    0.25 | 94.42    0.25
|125.75   0.16
  0.50    0.00 | 31.83    0.10 | 63.17    0.25 | 94.50    0.25
|125.83   0.16
  0.58    0.00 | 31.92    0.10 | 63.25    0.24 | 94.58    0.25
|125.92   0.17
  0.67    0.00 | 32.00    0.10 | 63.33    0.24 | 94.67    0.24
|126.00   0.15
  0.75    0.00 | 32.08    0.10 | 63.42    0.24 | 94.75    0.25
|126.08   0.16
  0.83    0.00 | 32.17    0.10 | 63.50    0.23 | 94.83    0.24
|126.17   0.16
  0.92    0.00 | 32.25    0.10 | 63.58    0.24 | 94.92    0.25
|126.25   0.16
  1.00    0.00 | 32.33    0.10 | 63.67    0.24 | 95.00    0.25
|126.33   0.16
  1.08    0.00 | 32.42    0.10 | 63.75    0.24 | 95.08    0.25
|126.42   0.16
  1.17    0.00 | 32.50    0.10 | 63.83    0.23 | 95.17    0.24
|126.50   0.17
  1.25    0.00 | 32.58    0.10 | 63.92    0.23 | 95.25    0.21
|126.58   0.16
  1.33    0.00 | 32.67    0.10 | 64.00    0.23 | 95.33    0.25
|126.67   0.16
  1.42    0.00 | 32.75    0.10 | 64.08    0.23 | 95.42    0.22
|126.75   0.17
  1.50    0.00 | 32.83    0.10 | 64.17    0.23 | 95.50    0.23
|126.83   0.17
  1.58    0.00 | 32.92    0.10 | 64.25    0.24 | 95.58    0.22
|126.92   0.17
  1.67    0.00 | 33.00    0.10 | 64.33    0.23 | 95.67    0.24
|127.00   0.17
  1.75    0.00 | 33.08    0.10 | 64.42    0.23 | 95.75    0.26
|127.08   0.17
  1.83    0.00 | 33.17    0.10 | 64.50    0.23 | 95.83    0.24
|127.17   0.18
  1.92    0.00 | 33.25    0.11 | 64.58    0.23 | 95.92    0.23
|127.25   0.17
  2.00    0.00 | 33.33    0.11 | 64.67    0.24 | 96.00    0.24
|127.33   0.18
  2.08    0.00 | 33.42    0.11 | 64.75    0.24 | 96.08    0.24
|127.42   0.18
  2.17    0.00 | 33.50    0.11 | 64.83    0.24 | 96.17    0.24
|127.50   0.16
  2.25    0.00 | 33.58    0.11 | 64.92    0.24 | 96.25    0.24
|127.58   0.18
  2.33    0.00 | 33.67    0.11 | 65.00    0.24 | 96.33    0.24
|127.67   0.17
  2.42    0.00 | 33.75    0.11 | 65.08    0.23 | 96.42    0.24
|127.75   0.18
  2.50    0.00 | 33.83    0.11 | 65.17    0.23 | 96.50    0.24
|127.83   0.17
  2.58    0.00 | 33.92    0.11 | 65.25    0.23 | 96.58    0.23
|127.92   0.17
  2.67    0.00 | 34.00    0.11 | 65.33    0.23 | 96.67    0.24
|128.00   0.17
  2.75    0.00 | 34.08    0.11 | 65.42    0.22 | 96.75    0.23
|128.08   0.17
  2.83    0.00 | 34.17    0.11 | 65.50    0.22 | 96.83    0.23
|128.17   0.17
  2.92    0.00 | 34.25    0.11 | 65.58    0.22 | 96.92    0.24
|128.25   0.18
  3.00    0.00 | 34.33    0.11 | 65.67    0.22 | 97.00    0.23
|128.33   0.18
  3.08    0.00 | 34.42    0.11 | 65.75    0.22 | 97.08    0.22
|128.42   0.19
  3.17    0.00 | 34.50    0.11 | 65.83    0.22 | 97.17    0.23
|128.50   0.18
  3.25    0.00 | 34.58    0.11 | 65.92    0.21 | 97.25    0.22
|128.58   0.17
  3.33    0.00 | 34.67    0.11 | 66.00    0.21 | 97.33    0.25
|128.67   0.18
  3.42    0.00 | 34.75    0.11 | 66.08    0.21 | 97.42    0.22
|128.75   0.18
  3.50    0.00 | 34.83    0.11 | 66.17    0.20 | 97.50    0.24
|128.83   0.18
  3.58    0.00 | 34.92    0.11 | 66.25    0.20 | 97.58    0.23
|128.92   0.18
  3.67    0.00 | 35.00    0.11 | 66.33    0.20 | 97.67    0.22
|129.00   0.18
  3.75    0.00 | 35.08    0.11 | 66.42    0.20 | 97.75    0.23
|129.08   0.19
  3.83    0.00 | 35.17    0.11 | 66.50    0.19 | 97.83    0.22
|129.17   0.17
  3.92    0.00 | 35.25    0.11 | 66.58    0.20 | 97.92    0.21
|129.25   0.17
  4.00    0.00 | 35.33    0.11 | 66.67    0.20 | 98.00    0.22
|129.33   0.17
  4.08    0.00 | 35.42    0.11 | 66.75    0.20 | 98.08    0.23
|129.42   0.18
  4.17    0.00 | 35.50    0.11 | 66.83    0.19 | 98.17    0.21
|129.50   0.18
  4.25    0.00 | 35.58    0.11 | 66.92    0.19 | 98.25    0.21
|129.58   0.18
  4.33    0.00 | 35.67    0.11 | 67.00    0.20 | 98.33    0.23
|129.67   0.18
  4.42    0.00 | 35.75    0.11 | 67.08    0.20 | 98.42    0.21
|129.75   0.18
  4.50    0.00 | 35.83    0.11 | 67.17    0.20 | 98.50    0.21
|129.83   0.18
  4.58    0.00 | 35.92    0.11 | 67.25    0.20 | 98.58    0.23
|129.92   0.18
  4.67    0.00 | 36.00    0.11 | 67.33    0.20 | 98.67    0.22
|130.00   0.18
  4.75    0.00 | 36.08    0.11 | 67.42    0.21 | 98.75    0.23
|130.08   0.17
  4.83    0.00 | 36.17    0.11 | 67.50    0.22 | 98.83    0.24
|130.17   0.17
  4.92    0.00 | 36.25    0.11 | 67.58    0.22 | 98.92    0.22
|130.25   0.17
  5.00    0.00 | 36.33    0.11 | 67.67    0.23 | 99.00    0.20
|130.33   0.17
  5.08    0.00 | 36.42    0.12 | 67.75    0.24 | 99.08    0.20
|130.42   0.18
  5.17    0.00 | 36.50    0.12 | 67.83    0.26 | 99.17    0.22
|130.50   0.18
  5.25    0.00 | 36.58    0.12 | 67.92    0.27 | 99.25    0.21
|130.58   0.18
  5.33    0.00 | 36.67    0.12 | 68.00    0.28 | 99.33    0.22
|130.67   0.17
  5.42    0.00 | 36.75    0.12 | 68.08    0.31 | 99.42    0.21
|130.75   0.17
  5.50    0.00 | 36.83    0.12 | 68.17    0.32 | 99.50    0.20
|130.83   0.18
  5.58    0.00 | 36.92    0.12 | 68.25    0.34 | 99.58    0.21
|130.92   0.17
  5.67    0.00 | 37.00    0.12 | 68.33    0.35 | 99.67    0.20
|131.00   0.17
  5.75    0.00 | 37.08    0.12 | 68.42    0.38 | 99.75    0.19
|131.08   0.17
  5.83    0.00 | 37.17    0.12 | 68.50    0.39 | 99.83    0.20
|131.17   0.18
  5.92    0.00 | 37.25    0.12 | 68.58    0.40 | 99.92    0.22
|131.25   0.18
  6.00    0.00 | 37.33    0.12 | 68.67    0.42 |100.00    0.21
|131.33   0.17
  6.08    0.00 | 37.42    0.12 | 68.75    0.44 |100.08    0.20
|131.42   0.17
  6.17    0.00 | 37.50    0.12 | 68.83    0.46 |100.17    0.21
|131.50   0.17
  6.25    0.00 | 37.58    0.12 | 68.92    0.49 |100.25    0.19
|131.58   0.17
  6.33    0.00 | 37.67    0.13 | 69.00    0.51 |100.33    0.19
|131.67   0.17
  6.42    0.00 | 37.75    0.12 | 69.08    0.54 |100.42    0.19
|131.75   0.17
  6.50    0.00 | 37.83    0.12 | 69.17    0.56 |100.50    0.19
|131.83   0.17
  6.58    0.00 | 37.92    0.12 | 69.25    0.60 |100.58    0.19
|131.92   0.17
  6.67    0.00 | 38.00    0.12 | 69.33    0.64 |100.67    0.19
|132.00   0.16
  6.75    0.00 | 38.08    0.12 | 69.42    0.67 |100.75    0.21
|132.08   0.17
  6.83    0.00 | 38.17    0.12 | 69.50    0.67 |100.83    0.19
|132.17   0.17
  6.92    0.00 | 38.25    0.12 | 69.58    0.68 |100.92    0.19
|132.25   0.17
  7.00    0.00 | 38.33    0.12 | 69.67    0.65 |101.00    0.19
|132.33   0.17
  7.08    0.00 | 38.42    0.12 | 69.75    0.66 |101.08    0.19
|132.42   0.18
  7.17    0.00 | 38.50    0.12 | 69.83    0.66 |101.17    0.20
|132.50   0.17
  7.25    0.00 | 38.58    0.12 | 69.92    0.67 |101.25    0.19
|132.58   0.16
  7.33    0.00 | 38.67    0.13 | 70.00    0.66 |101.33    0.18
|132.67   0.17
  7.42    0.00 | 38.75    0.13 | 70.08    0.67 |101.42    0.19
|132.75   0.17
  7.50    0.00 | 38.83    0.13 | 70.17    0.67 |101.50    0.19
|132.83   0.17
  7.58    0.00 | 38.92    0.13 | 70.25    0.70 |101.58    0.19
|132.92   0.16
  7.67    0.00 | 39.00    0.13 | 70.33    0.74 |101.67    0.20
|133.00   0.17
  7.75    0.00 | 39.08    0.14 | 70.42    0.73 |101.75    0.19
|133.08   0.16
  7.83    0.00 | 39.17    0.14 | 70.50    0.74 |101.83    0.18
|133.17   0.16
  7.92    0.00 | 39.25    0.14 | 70.58    0.74 |101.92    0.19
|133.25   0.16
  8.00    0.00 | 39.33    0.14 | 70.67    0.74 |102.00    0.19
|133.33   0.15
  8.08    0.00 | 39.42    0.14 | 70.75    0.75 |102.08    0.19
|133.42   0.16
  8.17    0.00 | 39.50    0.15 | 70.83    0.75 |102.17    0.19
|133.50   0.16
  8.25    0.00 | 39.58    0.16 | 70.92    0.74 |102.25    0.18
|133.58   0.17
  8.33    0.00 | 39.67    0.16 | 71.00    0.74 |102.33    0.18
|133.67   0.16
  8.42    0.00 | 39.75    0.16 | 71.08    0.75 |102.42    0.19
|133.75   0.15
  8.50    0.00 | 39.83    0.16 | 71.17    0.77 |102.50    0.19
|133.83   0.16
  8.58    0.00 | 39.92    0.17 | 71.25    0.76 |102.58    0.19
|133.92   0.16
  8.67    0.00 | 40.00    0.17 | 71.33    0.76 |102.67    0.18
|134.00   0.16
  8.75    0.00 | 40.08    0.17 | 71.42    0.77 |102.75    0.20
|134.08   0.16
  8.83    0.00 | 40.17    0.17 | 71.50    0.76 |102.83    0.18
|134.17   0.15
  8.92    0.00 | 40.25    0.18 | 71.58    0.77 |102.92    0.18
|134.25   0.16
  9.00    0.00 | 40.33    0.18 | 71.67    0.76 |103.00    0.17
|134.33   0.16
  9.08    0.00 | 40.42    0.18 | 71.75    0.76 |103.08    0.17
|134.42   0.16
  9.17    0.00 | 40.50    0.18 | 71.83    0.78 |103.17    0.18
|134.50   0.16
  9.25    0.00 | 40.58    0.19 | 71.92    0.77 |103.25    0.18
|134.58   0.15
  9.33    0.00 | 40.67    0.19 | 72.00    0.76 |103.33    0.17
|134.67   0.16
  9.42    0.00 | 40.75    0.19 | 72.08    0.74 |103.42    0.17
|134.75   0.15
  9.50    0.00 | 40.83    0.19 | 72.17    0.75 |103.50    0.17
|134.83   0.15
  9.58    0.00 | 40.92    0.19 | 72.25    0.74 |103.58    0.18
|134.92   0.16
  9.67    0.00 | 41.00    0.19 | 72.33    0.72 |103.67    0.18
|135.00   0.15
  9.75    0.00 | 41.08    0.19 | 72.42    0.70 |103.75    0.18
|135.08   0.15
  9.83    0.00 | 41.17    0.20 | 72.50    0.70 |103.83    0.18
|135.17   0.15
  9.92    0.00 | 41.25    0.20 | 72.58    0.69 |103.92    0.19
|135.25   0.15
 10.00    0.00 | 41.33    0.21 | 72.67    0.70 |104.00    0.17
|135.33   0.15
 10.08    0.00 | 41.42    0.22 | 72.75    0.68 |104.08    0.18
|135.42   0.15
 10.17    0.00 | 41.50    0.23 | 72.83    0.67 |104.17    0.18
|135.50   0.15
 10.25    0.00 | 41.58    0.23 | 72.92    0.66 |104.25    0.17
|135.58   0.15
 10.33    0.00 | 41.67    0.23 | 73.00    0.64 |104.33    0.17
|135.67   0.14
 10.42    0.00 | 41.75    0.24 | 73.08    0.63 |104.42    0.17
|135.75   0.15
 10.50    0.00 | 41.83    0.25 | 73.17    0.63 |104.50    0.18
|135.83   0.16
 10.58    0.00 | 41.92    0.25 | 73.25    0.61 |104.58    0.17
|135.92   0.15
 10.67    0.00 | 42.00    0.26 | 73.33    0.62 |104.67    0.16
|136.00   0.15
 10.75    0.00 | 42.08    0.25 | 73.42    0.61 |104.75    0.16
|136.08   0.15
 10.83    0.00 | 42.17    0.26 | 73.50    0.62 |104.83    0.18
|136.17   0.15
 10.92    0.00 | 42.25    0.26 | 73.58    0.60 |104.92    0.16
|136.25   0.15
 11.00    0.00 | 42.33    0.26 | 73.67    0.62 |105.00    0.17
|136.33   0.15
 11.08    0.00 | 42.42    0.26 | 73.75    0.58 |105.08    0.16
|136.42   0.15
 11.17    0.00 | 42.50    0.26 | 73.83    0.59 |105.17    0.16
|136.50   0.15
 11.25    0.00 | 42.58    0.26 | 73.92    0.57 |105.25    0.16
|136.58   0.15
 11.33    0.00 | 42.67    0.26 | 74.00    0.57 |105.33    0.16
|136.67   0.14
 11.42    0.00 | 42.75    0.25 | 74.08    0.57 |105.42    0.16
|136.75   0.15
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11.50	0.00	42.83	0.26	74.17	0.56	105.50	0.16	136.83	0.14
11.58	0.00	42.92	0.25	74.25	0.58	105.58	0.16	136.92	0.14
11.67	0.00	43.00	0.25	74.33	0.58	105.67	0.16	137.00	0.14
11.75	0.00	43.08	0.25	74.42	0.58	105.75	0.17	137.08	0.15
11.83	0.00	43.17	0.25	74.50	0.59	105.83	0.16	137.17	0.14
11.92	0.00	43.25	0.25	74.58	0.60	105.92	0.16	137.25	0.15
12.00	0.00	43.33	0.25	74.67	0.57	106.00	0.16	137.33	0.15
12.08	0.00	43.42	0.25	74.75	0.56	106.08	0.16	137.42	0.14
12.17	0.00	43.50	0.25	74.83	0.54	106.17	0.16	137.50	0.14
12.25	0.00	43.58	0.25	74.92	0.56	106.25	0.17	137.58	0.14
12.33	0.00	43.67	0.25	75.00	0.53	106.33	0.16	137.67	0.15
12.42	0.00	43.75	0.25	75.08	0.51	106.42	0.16	137.75	0.14
12.50	0.00	43.83	0.26	75.17	0.51	106.50	0.16	137.83	0.14
12.58	0.00	43.92	0.26	75.25	0.51	106.58	0.16	137.92	0.14
12.67	0.00	44.00	0.26	75.33	0.51	106.67	0.16	138.00	0.14
12.75	0.00	44.08	0.26	75.42	0.50	106.75	0.16	138.08	0.14
12.83	0.00	44.17	0.26	75.50	0.50	106.83	0.15	138.17	0.14
12.92	0.00	44.25	0.27	75.58	0.49	106.92	0.15	138.25	0.14
13.00	0.00	44.33	0.26	75.67	0.49	107.00	0.16	138.33	0.14
13.08	0.00	44.42	0.26	75.75	0.49	107.08	0.16	138.42	0.14
13.17	0.00	44.50	0.26	75.83	0.48	107.17	0.16	138.50	0.14
13.25	0.00	44.58	0.26	75.92	0.47	107.25	0.15	138.58	0.14
13.33	0.00	44.67	0.26	76.00	0.47	107.33	0.16	138.67	0.14
13.42	0.00	44.75	0.26	76.08	0.48	107.42	0.16	138.75	0.14
13.50	0.00	44.83	0.26	76.17	0.46	107.50	0.15	138.83	0.14
13.58	0.00	44.92	0.26	76.25	0.45	107.58	0.16	138.92	0.14
13.67	0.00	45.00	0.26	76.33	0.45	107.67	0.15	139.00	0.14
13.75	0.00	45.08	0.26	76.42	0.43	107.75	0.15	139.08	0.14
13.83	0.00	45.17	0.25	76.50	0.44	107.83	0.16	139.17	0.13
13.92	0.00	45.25	0.25	76.58	0.46	107.92	0.16	139.25	0.14
14.00	0.00	45.33	0.25	76.67	0.43	108.00	0.16	139.33	0.14
14.08	0.00	45.42	0.25	76.75	0.44	108.08	0.15	139.42	0.14
14.17	0.00	45.50	0.25	76.83	0.43	108.17	0.15	139.50	0.14
14.25	0.00	45.58	0.25	76.92	0.45	108.25	0.15	139.58	0.13
14.33	0.00	45.67	0.25	77.00	0.42	108.33	0.16	139.67	0.14
14.42	0.00	45.75	0.25	77.08	0.43	108.42	0.16	139.75	0.14
14.50	0.00	45.83	0.26	77.17	0.43	108.50	0.15	139.83	0.13
14.58	0.00	45.92	0.25	77.25	0.42	108.58	0.15	139.92	0.14
14.67	0.00	46.00	0.26	77.33	0.41	108.67	0.15	140.00	0.14
14.75	0.00	46.08	0.26	77.42	0.43	108.75	0.16	140.08	0.13
14.83	0.00	46.17	0.25	77.50	0.41	108.83	0.15	140.17	0.13
14.92	0.69	46.25	0.26	77.58	0.43	108.92	0.15	140.25	0.13
15.00	0.69	46.33	0.26	77.67	0.39	109.00	0.15	140.33	0.13
15.08	0.71	46.42	0.26	77.75	0.39	109.08	0.15	140.42	0.14
15.17	0.74	46.50	0.26	77.83	0.37	109.17	0.15	140.50	0.13
15.25	0.74	46.58	0.26	77.92	0.39	109.25	0.15	140.58	0.13
15.33	0.74	46.67	0.26	78.00	0.39	109.33	0.14	140.67	0.13
15.42	0.77	46.75	0.26	78.08	0.39	109.42	0.15	140.75	0.13
15.50	0.76	46.83	0.25	78.17	0.37	109.50	0.15	140.83	0.13
15.58	0.78	46.92	0.25	78.25	0.36	109.58	0.14	140.92	0.13
15.67	0.78	47.00	0.25	78.33	0.37	109.67	0.15	141.00	0.13
15.75	0.77	47.08	0.25	78.42	0.38	109.75	0.14	141.08	0.13
15.83	0.77	47.17	0.26	78.50	0.36	109.83	0.15	141.17	0.13
15.92	0.77	47.25	0.26	78.58	0.36	109.92	0.14	141.25	0.13
16.00	0.76	47.33	0.26	78.67	0.36	110.00	0.14	141.33	0.13
16.08	0.74	47.42	0.26	78.75	0.37	110.08	0.14	141.42	0.13
16.17	0.74	47.50	0.26	78.83	0.34	110.17	0.14	141.50	0.13
16.25	0.74	47.58	0.25	78.92	0.35	110.25	0.14	141.58	0.13
16.33	0.72	47.67	0.26	79.00	0.36	110.33	0.15	141.67	0.13
16.42	0.69	47.75	0.26	79.08	0.35	110.42	0.15	141.75	0.13
16.50	0.69	47.83	0.26	79.17	0.35	110.50	0.14	141.83	0.13
16.58	0.67	47.92	0.26	79.25	0.36	110.58	0.14	141.92	0.13
16.67	0.66	48.00	0.25	79.33	0.36	110.67	0.14	142.00	0.13
16.75	0.64	48.08	0.25	79.42	0.33	110.75	0.15	142.08	0.12
16.83	0.63	48.17	0.26	79.50	0.33	110.83	0.14	142.17	0.13
16.92	0.63	48.25	0.25	79.58	0.33	110.92	0.15	142.25	0.13
17.00	0.60	48.33	0.25	79.67	0.32	111.00	0.15	142.33	0.13
17.08	0.58	48.42	0.25	79.75	0.33	111.08	0.14	142.42	0.12
17.17	0.58	48.50	0.25	79.83	0.33	111.17	0.14	142.50	0.13
17.25	0.57	48.58	0.25	79.92	0.32	111.25	0.14	142.58	0.13
17.33	0.56	48.67	0.24	80.00	0.33	111.33	0.15	142.67	0.13
17.42	0.55	48.75	0.24	80.08	0.34	111.42	0.14	142.75	0.13
17.50	0.54	48.83	0.24	80.17	0.32	111.50	0.15	142.83	0.12
17.58	0.51	48.92	0.24	80.25	0.31	111.58	0.14	142.92	0.13
17.67	0.50	49.00	0.24	80.33	0.33	111.67	0.14	143.00	0.12
17.75	0.48	49.08	0.25	80.42	0.31	111.75	0.14	143.08	0.12
17.83	0.47	49.17	0.24	80.50	0.32	111.83	0.14	143.17	0.12
17.92	0.47	49.25	0.24	80.58	0.31	111.92	0.14	143.25	0.12
18.00	0.45	49.33	0.24	80.67	0.31	112.00	0.15	143.33	0.12
18.08	0.44	49.42	0.23	80.75	0.33	112.08	0.15	143.42	0.12
18.17	0.41	49.50	0.23	80.83	0.31	112.17	0.14	143.50	0.12
18.25	0.42	49.58	0.24	80.92	0.32	112.25	0.14	143.58	0.12
18.33	0.40	49.67	0.23	81.00	0.32	112.33	0.14	143.67	0.12
18.42	0.39	49.75	0.24	81.08	0.31	112.42	0.15	143.75	0.12
18.50	0.38	49.83	0.24	81.17	0.31	112.50	0.15	143.83	0.12
18.58	0.38	49.92	0.23	81.25	0.31	112.58	0.15	143.92	0.12
18.67	0.37	50.00	0.23	81.33	0.31	112.67	0.15	144.00	0.12
18.75	0.37	50.08	0.23	81.42	0.31	112.75	0.14	144.08	0.12
18.83	0.36	50.17	0.24	81.50	0.32	112.83	0.15	144.17	0.12
18.92	0.35	50.25	0.23	81.58	0.32	112.92	0.14	144.25	0.12
19.00	0.34	50.33	0.23	81.67	0.34	113.00	0.15	144.33	0.12
19.08	0.34	50.42	0.23	81.75	0.34	113.08	0.15	144.42	0.12
19.17	0.34	50.50	0.23	81.83	0.35	113.17	0.14	144.50	0.12
19.25	0.34	50.58	0.23	81.92	0.37	113.25	0.15	144.58	0.12
19.33	0.33	50.67	0.23	82.00	0.36	113.33	0.15	144.67	0.12
19.42	0.33	50.75	0.23	82.08	0.37	113.42	0.14	144.75	0.12
19.50	0.32	50.83	0.23	82.17	0.38	113.50	0.14	144.83	0.12
19.58	0.32	50.92	0.23	82.25	0.36	113.58	0.14	144.92	0.12
19.67	0.32	51.00	0.23	82.33	0.35	113.67	0.14	145.00	0.12
19.75	0.31	51.08	0.23	82.42	0.37	113.75	0.14	145.08	0.12
19.83	0.30	51.17	0.23	82.50	0.37	113.83	0.14	145.17	0.12
19.92	0.30	51.25	0.23	82.58	0.36	113.92	0.14	145.25	0.12
20.00	0.29	51.33	0.23	82.67	0.38	114.00	0.14	145.33	0.12
20.08	0.29	51.42	0.23	82.75	0.38	114.08	0.14	145.42	0.12
20.17	0.28	51.50	0.23	82.83	0.41	114.17	0.14	145.50	0.12
20.25	0.28	51.58	0.23	82.92	0.40	114.25	0.14	145.58	0.12
20.33	0.28	51.67	0.23	83.00	0.40	114.33	0.14	145.67	0.12
20.42	0.27	51.75	0.23	83.08	0.40	114.42	0.14	145.75	0.12
20.50	0.27	51.83	0.23	83.17	0.44	114.50	0.15	145.83	0.12
20.58	0.26	51.92	0.23	83.25	0.44	114.58	0.14	145.92	0.12
20.67	0.27	52.00	0.23	83.33	0.42	114.67	0.14	146.00	0.12
20.75	0.26	52.08	0.24	83.42	0.42	114.75	0.14	146.08	0.11
20.83	0.26	52.17	0.24	83.50	0.42	114.83	0.15	146.17	0.11
20.92	0.25	52.25	0.24	83.58	0.41	114.92	0.14	146.25	0.11
21.00	0.25	52.33	0.25	83.67	0.41	115.00	0.15	146.33	0.12
21.08	0.25	52.42	0.25	83.75	0.42	115.08	0.14	146.42	0.11
21.17	0.24	52.50	0.25	83.83	0.41	115.17	0.14	146.50	0.12
21.25	0.25	52.58	0.25	83.92	0.41	115.25	0.14	146.58	0.12
21.33	0.24	52.67	0.25	84.00	0.43	115.33	0.15	146.67	0.11
21.42	0.24	52.75	0.25	84.08	0.40	115.42	0.14	146.75	0.12
21.50	0.24	52.83	0.25	84.17	0.42	115.50	0.15	146.83	0.11
21.58	0.23	52.92	0.25	84.25	0.41	115.58	0.14	146.92	0.12
21.67	0.23	53.00	0.27	84.33	0.42	115.67	0.14	147.00	0.11
21.75	0.23	53.08	0.27	84.42	0.42	115.75	0.14	147.08	0.12
21.83	0.23	53.17	0.28	84.50	0.43	115.83	0.14	147.17	0.11
21.92	0.23	53.25	0.28	84.58	0.44	115.92	0.14	147.25	0.12
22.00	0.23	53.33	0.28	84.67	0.42	116.00	0.15	147.33	0.12
22.08	0.22	53.42	0.28	84.75	0.44	116.08	0.14	147.42	0.11
22.17	0.22	53.50	0.28	84.83	0.45	116.17	0.15	147.50	0.11
22.25	0.22	53.58	0.29	84.92	0.45	116.25	0.14	147.58	0.11
22.33	0.22	53.67	0.29	85.00	0.46	116.33	0.14	147.67	0.11
22.42	0.21	53.75	0.29	85.08	0.47	116.42	0.14	147.75	0.11
22.50	0.21	53.83	0.30	85.17	0.46	116.50	0.14	147.83	0.11
22.58	0.21	53.92	0.30	85.25	0.46	116.58	0.14	147.92	0.11
22.67	0.21	54.00	0.30	85.33	0.44	116.67	0.14	148.00	0.11
22.75	0.21	54.08	0.30	85.42	0.45	116.75	0.14	148.08	0.11
22.83	0.20	54.17	0.31	85.50	0.45	116.83	0.14	148.17	0.11
22.92	0.20	54.25	0.30	85.58	0.45	116.92	0.14	148.25	0.11
23.00	0.20	54.33	0.31	85.67	0.45	117.00	0.14	148.33	0.11
23.08	0.20	54.42	0.30	85.75	0.46	117.08	0.14	148.42	0.11
23.17	0.20	54.50	0.31	85.83	0.45	117.17	0.14	148.50	0.11
23.25	0.20	54.58	0.32	85.92	0.47	117.25	0.14	148.58	0.11
23.33	0.19	54.67	0.32	86.00	0.44	117.33	0.14	148.67	0.11
23.42	0.19	54.75	0.32	86.08	0.45	117.42	0.14	148.75	0.11
23.50	0.19	54.83	0.32	86.17	0.43	117.50	0.14	148.83	0.11
23.58	0.19	54.92	0.32	86.25	0.43	117.58	0.14	148.92	0.11
23.67	0.19	55.00	0.32	86.33	0.43	117.67	0.13	149.00	0.11
23.75	0.18	55.08	0.32	86.42	0.43	117.75	0.13	149.08	0.11
23.83	0.18	55.17	0.32	86.50	0.45	117.83	0.14	149.17	0.11
23.92	0.18	55.25	0.33	86.58	0.42	117.92	0.13	149.25	0.11
24.00	0.18	55.33	0.33	86.67	0.42	118.00	0.13	149.33	0.11
24.08	0.18	55.42	0.33	86.75	0.43	118.08	0.13	149.42	0.11
24.17	0.18	55.50	0.33	86.83	0.41	118.17	0.13	149.50	0.11
24.25	0.17	55.58	0.32	86.92	0.40	118.25	0.13	149.58	0.11
24.33	0.18	55.67	0.32	87.00	0.40	118.33	0.13	149.67	0.11
24.42	0.17	55.75	0.32	87.08	0.39	118.42	0.13	149.75	0.11
24.50	0.17	55.83	0.32	87.17	0.39	118.50	0.13	149.83	0.11
24.58	0.17	55.92	0.32	87.25	0.39	118.58	0.13	149.92	0.11
24.67	0.17	56.00	0.32	87.33	0.37	118.67	0.13	150.00	0.11
24.75	0.16	56.08	0.32	87.42	0.37	118.75	0.13	150.08	0.11
24.83	0.16	56.17	0.32	87.50	0.38	118.83	0.13	150.17	0.11
24.92	0.16	56.25	0.32	87.58	0.37	118.92	0.13	150.25	0.11
25.00	0.16	56.33	0.32	87.67	0.36	119.00	0.13	150.33	0.11
25.08	0.16	56.42	0.32	87.75	0.38	119.08	0.13	150.42	0.11
25.17	0.16	56.50	0.32	87.83	0.38	119.17	0.13	150.50	0.11
25.25	0.16	56.58	0.31	87.92	0.34	119.25	0.13	150.58	0.11
25.33	0.15	56.67	0.31	88.00	0.35	119.33	0.13	150.67	0.11
25.42	0.16	56.75	0.32	88.08	0.34	119.42	0.13	150.75	0.11
25.50	0.15	56.83	0.31	88.17	0.35	119.50	0.13	150.83	0.11
25.58	0.15	56.92	0.31	88.25	0.34	119.58	0.13	150.92	0.11
25.67	0.15	57.00	0.31	88.33	0.36	119.67	0.13	151.00	0.11
25.75	0.15	57.08	0.31	88.42	0.33	119.75	0.13	151.08	0.11
25.83	0.15	57.17	0.31	88.50	0.33	119.83	0.13	151.17	0.11
25.92	0.15	57.25	0.31	88.58	0.34	119.92	0.13	151.25	0.11
26.00	0.15	57.33	0.30	88.67	0.33	120.00	0.13	151.33	0.11
26.08	0.15	57.42	0.30	88.75	0.33	120.08	0.13	151.42	0.11
26.17	0.15	57.50	0.30	88.83	0.32	120.17	0.13	151.50	0.11
26.25	0.14	57.58	0.30	88.92	0.30	120.25	0.14	151.58	0.11
26.33	0.14	57.67	0.31	89.00	0.31	120.33	0.14	151.67	0.11
26.42	0.14	57.75	0.30	89.08	0.31	120.42	0.13	151.75	0.11
26.50	0.14	57.83	0.30	89.17	0.30	120.50	0.14	151.83	0.11
26.58	0.14	57.92	0.30	89.25	0.31	120.58	0.14	151.92	0.11
26.67	0.14	58.00	0.29	89.33	0.32	120.67	0.14	152.00	0.11
26.75	0.14	58.08	0.29	89.42	0.31	120.75	0.14	152.08	0.11
26.83	0.14	58.17	0.29	89.50	0.30	120.83	0.14	152.17	0.11
26.92	0.14	58.25	0.29	89.58	0.29	120.92	0.14	152.25	0.11
27.00	0.14	58.33	0.29	89.67	0.29	121.00	0.14	152.33	0.10
27.08	0.13	58.42	0.29	89.75	0.29	121.08	0.14	152.42	0.11
27.17	0.13	58.50	0.29	89.83	0.28	121.17	0.14	152.50	0.11
27.25	0.13	58.58	0.29	89.92	0.30	121.25	0.14	152.58	0.10
27.33	0.13	58.67	0.28	90.00	0.31	121.33	0.14	152.67	0.10
27.42	0.13	58.75	0.28	90.08	0.31	121.42	0.14	152.75	0.10
27.50	0.13	58.83	0.28	90.17	0.30	121.50	0.14	152.83	0.10
27.58	0.13	58.92	0.29	90.25	0.30	121.58	0.14	152.92	0.10
27.67	0.13	59.00	0.29	90.33	0.31	121.67	0.14	153.00	0.11
27.75	0.13	59.08	0.29	90.42	0.30	121.75	0.14	153.08	0.10
27.83	0.13	59.17	0.28	90.50	0.31	121.83	0.14	153.17	0.10
27.92	0.12	59.25	0.28	90.58	0.31	121.92	0.14	153.25	0.11
28.00	0.13	59.33	0.28	90.67	0.31	122.00	0.15	153.33	0.10
28.08	0.12	59.42	0.27	90.75	0.31	122.08	0.14	153.42	0.11
28.17	0.12	59.50	0.27	90.83	0.30	122.17	0.14	153.50	0.10
28.25	0.12	59.58	0.27	90.92	0.31	122.25	0.14	153.58	0.10
28.33	0.12	59.67	0.26	91.00	0.30	122.33	0.14	153.67	0.10
28.42	0.12	59.75	0.26	91.08	0.30	122.42	0.15	153.75	0.11
28.50	0.12	59.83	0.26	91.17	0.32	122.50	0.15	153.83	0.10
28.58	0.12	59.92	0.26	91.25	0.30	122.58	0.15	153.92	0.10
28.67	0.12	60.00	0.25	91.33	0.28	122.67	0.14	154.00	0.10
28.75	0.12	60.08	0.25	91.42	0.30	122.75	0.15	154.08	0.10
28.83	0.12	60.17	0.25	91.50	0.28	122.83	0.14	154.17	0.10
28.92	0.12	60.25	0.25	91.58	0.31	122.92	0.14	154.25	0.10
29.00	0.12	60.33	0.25	91.67	0.28	123.00	0.15	154.33	0.10
29.08	0.12	60.42	0.24	91.75	0.30	123.08	0.15	154.42	0.10
29.17	0.11	60.50	0.24	91.83	0.31	123.17	0.15	154.50	0.10
29.25	0.11	60.58	0.24	91.92	0.27	123.25	0.15	154.58	0.10
29.33	0.11	60.67	0.23	92.00	0.28	123.33	0.15	154.67	0.10
29.42	0.11	60.75	0.24	92.08	0.29	123.42	0.15	154.75	0.10
29.50	0.11	60.83	0.23	92.17	0.27	123.50	0.15	154.83	0.10
29.58	0.11	60.92	0.23	92.25	0.28	123.58	0.15	154.92	0.10
29.67	0.11	61.00	0.23	92.33	0.28	123.67	0.15	155.00	0.10
29.75	0.11	61.08	0.23	92.42	0.31	123.75	0.15	155.08	0.10
29.83	0.11	61.17	0.23	92.50	0.28	123.83	0.15	155.17	0.10
29.92	0.11	61.25	0.22	92.58	0.28	123.92	0.15	155.25	0.10
30.00	0.11	61.33	0.23	92.67	0.28	124.00	0.15	155.33	0.10
30.08	0.11	61.42	0.23	92.75	0.28	124.08	0.15	155.42	0.10
30.17	0.11	61.50	0.24	92.83	0.27	124.17	0.15	155.50	0.10
30.25	0.11	61.58	0.24	92.92	0.28	124.25	0.15	155.58	0.10
30.33	0.11	61.67	0.23	93.00	0.28	124.33	0.14	155.67	0.10
30.42	0.11	61.75	0.23	93.08	0.27	124.42	0.15	155.75	0.10
30.50	0.11	61.83	0.23	93.17	0.29	124.50	0.15	155.83	0.10
30.58	0.11	61.92	0.23	93.25	0.28	124.58	0.16	155.92	0.10
30.67	0.11	62.00	0.23	93.33	0.26	124.67	0.15	156.00	0.10
30.75	0.11	62.08	0.23	93.42	0.27	124.75	0.15	156.08	0.10
30.83	0.11	62.17	0.23	93.50	0.27	124.83	0.15	156.17	0.10
30.92	0.11	62.25	0.23	93.58	0.26	124.92	0.17	156.25	0.10
31.00	0.11	62.33	0.24	93.67	0.26	125.00	0.16		
31.08	0.10	62.42	0.25	93.75	0.28	125.08	0.16		
31.17	0.10	62.50	0.25	93.83	0.25	125.17	0.16		
31.25	0.10	62.58	0.26	93.92	0.28	125.25	0.16		

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 | STORE HYD (1605) |   AREA      (ha)=  30.00
 | ID= 1 DT= 5.0min |   QPEAK     (cms)=   1.37
 -------------------    TPEAK     (hrs)=  71.92
                        VOLUME     (mm)= 625.27
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TIME hrs	FLOW cms	TIME hrs	FLOW cms	TIME hrs	FLOW cms	TIME hrs	FLOW cms	TIME hrs	FLOW cms
0.00	0.00	31.25	0.15	62.50	0.38	93.75	0.37	125.00	0.20
0.08	0.00	31.33	0.15	62.58	0.38	93.83	0.36	125.08	0.20
0.17	0.00	31.42	0.15	62.67	0.38	93.92	0.36	125.17	0.20
0.25	0.00	31.50	0.15	62.75	0.38	94.00	0.36	125.25	0.20
0.33	0.00	31.58	0.15	62.83	0.38	94.08	0.36	125.33	0.20
0.42	0.00	31.67	0.15	62.92	0.38	94.17	0.36	125.42	0.20
0.50	0.00	31.75	0.15	63.00	0.37	94.25	0.36	125.50	0.20
0.58	0.00	31.83	0.14	63.08	0.38	94.33	0.36	125.58	0.20
0.67	0.00	31.92	0.14	63.17	0.37	94.42	0.36	125.67	0.21
0.75	0.00	32.00	0.14	63.25	0.37	94.50	0.36	125.75	0.21
0.83	0.00	32.08	0.14	63.33	0.37	94.58	0.36	125.83	0.21
0.92	0.00	32.17	0.14	63.42	0.37	94.67	0.36	125.92	0.21
1.00	0.00	32.25	0.14	63.50	0.37	94.75	0.36	126.00	0.21
1.08	0.00	32.33	0.14	63.58	0.37	94.83	0.36	126.08	0.21
1.17	0.00	32.42	0.14	63.67	0.36	94.92	0.35	126.17	0.21
1.25	0.00	32.50	0.14	63.75	0.36	95.00	0.35	126.25	0.21
1.33	0.00	32.58	0.14	63.83	0.36	95.08	0.35	126.33	0.21
1.42	0.00	32.67	0.14	63.92	0.36	95.17	0.35	126.42	0.22
1.50	0.00	32.75	0.14	64.00	0.36	95.25	0.35	126.50	0.22
1.58	0.00	32.83	0.14	64.08	0.36	95.33	0.35	126.58	0.22
1.67	0.00	32.92	0.14	64.17	0.36	95.42	0.35	126.67	0.22
1.75	0.00	33.00	0.14	64.25	0.35	95.50	0.35	126.75	0.22
1.83	0.00	33.08	0.14	64.33	0.35	95.58	0.34	126.83	0.22
1.92	0.00	33.17	0.14	64.42	0.35	95.67	0.34	126.92	0.23
2.00	0.00	33.25	0.14	64.50	0.35	95.75	0.34	127.00	0.23
2.08	0.00	33.33	0.14	64.58	0.34	95.83	0.34	127.08	0.23
2.17	0.00	33.42	0.14	64.67	0.34	95.92	0.34	127.17	0.23
2.25	0.00	33.50	0.14	64.75	0.34	96.00	0.34	127.25	0.23
2.33	0.00	33.58	0.14	64.83	0.34	96.08	0.34	127.33	0.24
2.42	0.00	33.67	0.14	64.92	0.34	96.17	0.34	127.42	0.24
2.50	0.00	33.75	0.14	65.00	0.34	96.25	0.34	127.50	0.24
2.58	0.00	33.83	0.14	65.08	0.34	96.33	0.34	127.58	0.24
2.67	0.00	33.92	0.14	65.17	0.34	96.42	0.34	127.67	0.24
2.75	0.00	34.00	0.14	65.25	0.34	96.50	0.34	127.75	0.24
2.83	0.00	34.08	0.14	65.33	0.34	96.58	0.34	127.83	0.25
2.92	0.00	34.17	0.14	65.42	0.34	96.67	0.34	127.92	0.25
3.00	0.00	34.25	0.14	65.50	0.34	96.75	0.33	128.00	0.25
3.08	0.00	34.33	0.14	65.58	0.33	96.83	0.33	128.08	0.25
3.17	0.00	34.42	0.14	65.67	0.34	96.92	0.33	128.17	0.25
3.25	0.00	34.50	0.14	65.75	0.33	97.00	0.33	128.25	0.25
3.33	0.00	34.58	0.14	65.83	0.33	97.08	0.33	128.33	0.25
3.42	0.00	34.67	0.14	65.92	0.33	97.17	0.33	128.42	0.25
3.50	0.00	34.75	0.14	66.00	0.33	97.25	0.33	128.50	0.25
3.58	0.00	34.83	0.14	66.08	0.32	97.33	0.33	128.58	0.26
3.67	0.00	34.92	0.14	66.17	0.33	97.42	0.33	128.67	0.26
3.75	0.00	35.00	0.14	66.25	0.33	97.50	0.33	128.75	0.26
3.83	0.00	35.08	0.14	66.33	0.32	97.58	0.33	128.83	0.26
3.92	0.00	35.17	0.14	66.42	0.32	97.67	0.33	128.92	0.26
4.00	0.00	35.25	0.14	66.50	0.33	97.75	0.33	129.00	0.26
4.08	0.00	35.33	0.14	66.58	0.32	97.83	0.33	129.08	0.26
4.17	0.00	35.42	0.14	66.67	0.32	97.92	0.33	129.17	0.26
4.25	0.00	35.50	0.14	66.75	0.32	98.00	0.32	129.25	0.27
4.33	0.00	35.58	0.14	66.83	0.32	98.08	0.32	129.33	0.27
4.42	0.00	35.67	0.14	66.92	0.32	98.17	0.32	129.42	0.27
4.50	0.00	35.75	0.14	67.00	0.32	98.25	0.32	129.50	0.27
4.58	0.00	35.83	0.14	67.08	0.32	98.33	0.32	129.58	0.28
4.67	0.00	35.92	0.14	67.17	0.32	98.42	0.32	129.67	0.28
4.75	0.00	36.00	0.14	67.25	0.32	98.50	0.32	129.75	0.28
4.83	0.00	36.08	0.14	67.33	0.33	98.58	0.32	129.83	0.29
4.92	0.00	36.17	0.14	67.42	0.34	98.67	0.32	129.92	0.29
5.00	0.00	36.25	0.14	67.50	0.34	98.75	0.32	130.00	0.29
5.08	0.00	36.33	0.15	67.58	0.35	98.83	0.32	130.08	0.29
5.17	0.00	36.42	0.15	67.67	0.35	98.92	0.32	130.17	0.29
5.25	0.00	36.50	0.15	67.75	0.36	99.00	0.32	130.25	0.29
5.33	0.00	36.58	0.15	67.83	0.37	99.08	0.32	130.33	0.29
5.42	0.00	36.67	0.15	67.92	0.38	99.17	0.32	130.42	0.29
5.50	0.00	36.75	0.15	68.00	0.40	99.25	0.32	130.50	0.29
5.58	0.00	36.83	0.15	68.08	0.41	99.33	0.32	130.58	0.29
5.67	0.00	36.92	0.15	68.17	0.42	99.42	0.32	130.67	0.29
5.75	0.00	37.00	0.15	68.25	0.43	99.50	0.32	130.75	0.29
5.83	0.00	37.08	0.15	68.33	0.45	99.58	0.31	130.83	0.29
5.92	0.00	37.17	0.15	68.42	0.47	99.67	0.31	130.92	0.29
6.00	0.00	37.25	0.15	68.50	0.48	99.75	0.31	131.00	0.29
6.08	0.00	37.33	0.15	68.58	0.50	99.83	0.31	131.08	0.29
6.17	0.00	37.42	0.15	68.67	0.52	99.92	0.31	131.17	0.29
6.25	0.00	37.50	0.15	68.75	0.53	100.00	0.31	131.25	0.29
6.33	0.00	37.58	0.15	68.83	0.56	100.08	0.31	131.33	0.29
6.42	0.00	37.67	0.15	68.92	0.57	100.17	0.31	131.42	0.29
6.50	0.00	37.75	0.16	69.00	0.58	100.25	0.31	131.50	0.29
6.58	0.00	37.83	0.16	69.08	0.60	100.33	0.31	131.58	0.28
6.67	0.00	37.92	0.16	69.17	0.61	100.42	0.31	131.67	0.28
6.75	0.00	38.00	0.16	69.25	0.63	100.50	0.30	131.75	0.28
6.83	0.00	38.08	0.16	69.33	0.63	100.58	0.30	131.83	0.28
6.92	0.00	38.17	0.16	69.42	0.64	100.67	0.30	131.92	0.28
7.00	0.00	38.25	0.16	69.50	0.66	100.75	0.30	132.00	0.28
7.08	0.00	38.33	0.16	69.58	0.68	100.83	0.30	132.08	0.28
7.17	0.00	38.42	0.16	69.67	0.70	100.92	0.30	132.17	0.28
7.25	0.00	38.50	0.16	69.75	0.71	101.00	0.30	132.25	0.28
7.33	0.00	38.58	0.16	69.83	0.74	101.08	0.30	132.33	0.28
7.42	0.00	38.67	0.17	69.92	0.76	101.17	0.30	132.42	0.28
7.50	0.00	38.75	0.17	70.00	0.78	101.25	0.30	132.50	0.27
7.58	0.00	38.83	0.17	70.08	0.80	101.33	0.29	132.58	0.27
7.67	0.00	38.92	0.17	70.17	0.82	101.42	0.29	132.67	0.27
7.75	0.00	39.00	0.17	70.25	0.84	101.50	0.29	132.75	0.27
7.83	0.00	39.08	0.17	70.33	0.87	101.58	0.29	132.83	0.27
7.92	0.00	39.17	0.17	70.42	0.91	101.67	0.29	132.92	0.27
8.00	0.00	39.25	0.18	70.50	0.94	101.75	0.28	133.00	0.27
8.08	0.00	39.33	0.18	70.58	0.98	101.83	0.28	133.08	0.27
8.17	0.00	39.42	0.18	70.67	1.01	101.92	0.28	133.17	0.27
8.25	0.00	39.50	0.18	70.75	1.04	102.00	0.28	133.25	0.26
8.33	0.00	39.58	0.19	70.83	1.09	102.08	0.28	133.33	0.26
8.42	0.00	39.67	0.19	70.92	1.14	102.17	0.28	133.42	0.26
8.50	0.00	39.75	0.19	71.00	1.20	102.25	0.28	133.50	0.26
8.58	0.00	39.83	0.19	71.08	1.23	102.33	0.28	133.58	0.26
8.67	0.00	39.92	0.20	71.17	1.25	102.42	0.27	133.67	0.26
8.75	0.00	40.00	0.20	71.25	1.30	102.50	0.27	133.75	0.26
8.83	0.00	40.08	0.20	71.33	1.32	102.58	0.27	133.83	0.25
8.92	0.00	40.17	0.21	71.42	1.33	102.67	0.27	133.92	0.25
9.00	0.00	40.25	0.21	71.50	1.34	102.75	0.27	134.00	0.25
9.08	0.00	40.33	0.21	71.58	1.36	102.83	0.27	134.08	0.25
9.17	0.00	40.42	0.22	71.67	1.36	102.92	0.27	134.17	0.25
9.25	0.00	40.50	0.22	71.75	1.36	103.00	0.27	134.25	0.25
9.33	0.00	40.58	0.22	71.83	1.37	103.08	0.27	134.33	0.25
9.42	0.00	40.67	0.23	71.92	1.37	103.17	0.27	134.42	0.25
9.50	0.00	40.75	0.23	72.00	1.36	103.25	0.26	134.50	0.25
9.58	0.00	40.83	0.24	72.08	1.35	103.33	0.26	134.58	0.24
9.67	0.00	40.92	0.24	72.17	1.35	103.42	0.26	134.67	0.24
9.75	0.00	41.00	0.24	72.25	1.33	103.50	0.26	134.75	0.24
9.83	0.00	41.08	0.25	72.33	1.32	103.58	0.26	134.83	0.24
9.92	0.00	41.17	0.25	72.42	1.31	103.67	0.26	134.92	0.24
10.00	0.00	41.25	0.26	72.50	1.29	103.75	0.25	135.00	0.24
10.08	0.00	41.33	0.27	72.58	1.27	103.83	0.25	135.08	0.24
10.17	0.00	41.42	0.27	72.67	1.26	103.92	0.25	135.17	0.24
10.25	0.00	41.50	0.28	72.75	1.23	104.00	0.25	135.25	0.24
10.33	0.00	41.58	0.29	72.83	1.23	104.08	0.25	135.33	0.23
10.42	0.00	41.67	0.29	72.92	1.21	104.17	0.25	135.42	0.23
10.50	0.00	41.75	0.30	73.00	1.20	104.25	0.25	135.50	0.23
10.58	0.00	41.83	0.30	73.08	1.17	104.33	0.25	135.58	0.23
10.67	0.00	41.92	0.31	73.17	1.17	104.42	0.24	135.67	0.23
10.75	0.00	42.00	0.32	73.25	1.16	104.50	0.24	135.75	0.23
10.83	0.00	42.08	0.32	73.33	1.15	104.58	0.24	135.83	0.23
10.92	0.00	42.17	0.33	73.42	1.12	104.67	0.24	135.92	0.23
11.00	0.00	42.25	0.33	73.50	1.12	104.75	0.24	136.00	0.22
11.08	0.00	42.33	0.34	73.58	1.11	104.83	0.24	136.08	0.22
11.17	0.00	42.42	0.34	73.67	1.09	104.92	0.24	136.17	0.22
11.25	0.00	42.50	0.35	73.75	1.08	105.00	0.24	136.25	0.22
11.33	0.00	42.58	0.36	73.83	1.06	105.08	0.24	136.33	0.22
11.42	0.00	42.67	0.36	73.92	1.05	105.17	0.23	136.42	0.22
11.50	0.00	42.75	0.37	74.00	1.03	105.25	0.23	136.50	0.22
11.58	0.00	42.83	0.38	74.08	1.03	105.33	0.23	136.58	0.22
11.67	0.00	42.92	0.39	74.17	1.02	105.42	0.23	136.67	0.21
11.75	0.00	43.00	0.40	74.25	1.00	105.50	0.23	136.75	0.21
11.83	0.00	43.08	0.40	74.33	0.99	105.58	0.23	136.83	0.21
11.92	0.00	43.17	0.42	74.42	0.97	105.67	0.23	136.92	0.21
12.00	0.00	43.25	0.42	74.50	0.96	105.75	0.23	137.00	0.21
12.08	0.00	43.33	0.43	74.58	0.95	105.83	0.23	137.08	0.21
12.17	0.00	43.42	0.44	74.67	0.94	105.92	0.23	137.17	0.21
12.25	0.00	43.50	0.45	74.75	0.92	106.00	0.22	137.25	0.21
12.33	0.00	43.58	0.46	74.83	0.91	106.08	0.22	137.33	0.21
12.42	0.00	43.67	0.47	74.92	0.89	106.17	0.22	137.42	0.21
12.50	0.00	43.75	0.48	75.00	0.88	106.25	0.22	137.50	0.20
12.58	0.00	43.83	0.49	75.08	0.87	106.33	0.22	137.58	0.20
12.67	0.00	43.92	0.50	75.17	0.85	106.42	0.22	137.67	0.20
12.75	0.00	44.00	0.50	75.25	0.84	106.50	0.22	137.75	0.20
12.83	0.00	44.08	0.51	75.33	0.83	106.58	0.22	137.83	0.20
12.92	0.00	44.17	0.51	75.42	0.81	106.67	0.22	137.92	0.20
13.00	0.00	44.25	0.52	75.50	0.80	106.75	0.21	138.00	0.20
13.08	0.00	44.33	0.52	75.58	0.79	106.83	0.21	138.08	0.20
13.17	0.00	44.42	0.53	75.67	0.77	106.92	0.21	138.17	0.20
13.25	0.00	44.50	0.53	75.75	0.77	107.00	0.21	138.25	0.19
13.33	0.00	44.58	0.53	75.83	0.76	107.08	0.21	138.33	0.19
13.42	0.00	44.67	0.54	75.92	0.74	107.17	0.21	138.42	0.19
13.50	0.00	44.75	0.54	76.00	0.74	107.25	0.21	138.50	0.19
13.58	0.00	44.83	0.54	76.08	0.72	107.33	0.21	138.58	0.19
13.67	0.00	44.92	0.55	76.17	0.72	107.42	0.21	138.67	0.19
13.75	0.00	45.00	0.55	76.25	0.71	107.50	0.21	138.75	0.19
13.83	0.00	45.08	0.55	76.33	0.70	107.58	0.21	138.83	0.19
13.92	0.00	45.17	0.55	76.42	0.69	107.67	0.21	138.92	0.19
14.00	0.00	45.25	0.55	76.50	0.68	107.75	0.20	139.00	0.19
14.08	0.00	45.33	0.55	76.58	0.68	107.83	0.20	139.08	0.19
14.17	0.00	45.42	0.55	76.67	0.68	107.92	0.20	139.17	0.18
14.25	0.00	45.50	0.55	76.75	0.66	108.00	0.20	139.25	0.18
14.33	0.00	45.58	0.55	76.83	0.65	108.08	0.20	139.33	0.18
14.42	0.00	45.67	0.55	76.92	0.65	108.17	0.20	139.42	0.18
14.50	0.00	45.75	0.55	77.00	0.64	108.25	0.20	139.50	0.18
14.58	0.00	45.83	0.55	77.08	0.63	108.33	0.20	139.58	0.18
14.67	0.00	45.92	0.55	77.17	0.63	108.42	0.20	139.67	0.18
14.75	0.99	46.00	0.54	77.25	0.63	108.50	0.20	139.75	0.18
14.83	0.99	46.08	0.54	77.33	0.62	108.58	0.20	139.83	0.18
14.92	1.00	46.17	0.54	77.42	0.61	108.67	0.20	139.92	0.18
15.00	1.00	46.25	0.54	77.50	0.60	108.75	0.19	140.00	0.18
15.08	1.01	46.33	0.53	77.58	0.60	108.83	0.19	140.08	0.18
15.17	1.01	46.42	0.53	77.67	0.59	108.92	0.19	140.17	0.18
15.25	1.02	46.50	0.53	77.75	0.59	109.00	0.19	140.25	0.18
15.33	1.03	46.58	0.52	77.83	0.58	109.08	0.19	140.33	0.18
15.42	1.04	46.67	0.52	77.92	0.58	109.17	0.19	140.42	0.17
15.50	1.05	46.75	0.52	78.00	0.58	109.25	0.19	140.50	0.17
15.58	1.06	46.83	0.52	78.08	0.58	109.33	0.19	140.58	0.17
15.67	1.07	46.92	0.51	78.17	0.57	109.42	0.19	140.67	0.17
15.75	1.08	47.00	0.51	78.25	0.56	109.50	0.19	140.75	0.17
15.83	1.08	47.08	0.51	78.33	0.56	109.58	0.19	140.83	0.17
15.92	1.08	47.17	0.51	78.42	0.55	109.67	0.18	140.92	0.17
16.00	1.09	47.25	0.51	78.50	0.55	109.75	0.18	141.00	0.17
16.08	1.09	47.33	0.51	78.58	0.55	109.83	0.18	141.08	0.17
16.17	1.09	47.42	0.51	78.67	0.55	109.92	0.18	141.17	0.17
16.25	1.09	47.50	0.50	78.75	0.54	110.00	0.18	141.25	0.17
16.33	1.09	47.58	0.50	78.83	0.54	110.08	0.18	141.33	0.17
16.42	1.09	47.67	0.50	78.92	0.54	110.17	0.18	141.42	0.17
16.50	1.09	47.75	0.50	79.00	0.54	110.25	0.18	141.50	0.16
16.58	1.10	47.83	0.50	79.08	0.53	110.33	0.18	141.58	0.16
16.67	1.09	47.92	0.50	79.17	0.52	110.42	0.18	141.67	0.16
16.75	1.09	48.00	0.50	79.25	0.52	110.50	0.18	141.75	0.16
16.83	1.08	48.08	0.50	79.33	0.51	110.58	0.18	141.83	0.16
16.92	1.09	48.17	0.49	79.42	0.50	110.67	0.18	141.92	0.16
17.00	1.08	48.25	0.49	79.50	0.50	110.75	0.18	142.00	0.16
17.08	1.07	48.33	0.49	79.58	0.49	110.83	0.18	142.08	0.16
17.17	1.06	48.42	0.49	79.67	0.49	110.92	0.18	142.17	0.16
17.25	1.06	48.50	0.49	79.75	0.48	111.00	0.18	142.25	0.16
17.33	1.05	48.58	0.49	79.83	0.48	111.08	0.18	142.33	0.16
17.42	1.04	48.67	0.48	79.92	0.48	111.17	0.18	142.42	0.16
17.50	1.04	48.75	0.48	80.00	0.47	111.25	0.18	142.50	0.16
17.58	1.03	48.83	0.48	80.08	0.47	111.33	0.18	142.58	0.16
17.67	1.02	48.92	0.48	80.17	0.46	111.42	0.18	142.67	0.16
17.75	1.01	49.00	0.47	80.25	0.46	111.50	0.18	142.75	0.16
17.83	1.00	49.08	0.47	80.33	0.46	111.58	0.18	142.83	0.16
17.92	0.99	49.17	0.47	80.42	0.45	111.67	0.18	142.92	0.16
18.00	0.98	49.25	0.47	80.50	0.45	111.75	0.18	143.00	0.16
18.08	0.97	49.33	0.47	80.58	0.45	111.83	0.17	143.08	0.15
18.17	0.96	49.42	0.46	80.67	0.45	111.92	0.17	143.17	0.15
18.25	0.95	49.50	0.46	80.75	0.44	112.00	0.17	143.25	0.15
18.33	0.93	49.58	0.46	80.83	0.44	112.08	0.17	143.33	0.15
18.42	0.92	49.67	0.46	80.92	0.44	112.17	0.17	143.42	0.15
18.50	0.91	49.75	0.45	81.00	0.44	112.25	0.17	143.50	0.15
18.58	0.89	49.83	0.45	81.08	0.44	112.33	0.17	143.58	0.15
18.67	0.87	49.92	0.45	81.17	0.44	112.42	0.17	143.67	0.15
18.75	0.86	50.00	0.45	81.25	0.44	112.50	0.17	143.75	0.15
18.83	0.84	50.08	0.44	81.33	0.44	112.58	0.17	143.83	0.15
18.92	0.83	50.17	0.44	81.42	0.43	112.67	0.17	143.92	0.15
19.00	0.81	50.25	0.44	81.50	0.44	112.75	0.17	144.00	0.15
19.08	0.79	50.33	0.44	81.58	0.45	112.83	0.17	144.08	0.15
19.17	0.78	50.42	0.44	81.67	0.46	112.92	0.17	144.17	0.15
19.25	0.76	50.50	0.44	81.75	0.45	113.00	0.17	144.25	0.15

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 19.33    0.74 | 50.58    0.44 | 81.83    0.46 |113.08    0.17
|144.33    0.15
 19.42    0.72 | 50.67    0.44 | 81.92    0.46 |113.17    0.16
|144.42    0.15
 19.50    0.71 | 50.75    0.43 | 82.00    0.47 |113.25    0.16
|144.50    0.15
 19.58    0.69 | 50.83    0.43 | 82.08    0.47 |113.33    0.16
|144.58    0.15
 19.67    0.68 | 50.92    0.43 | 82.17    0.47 |113.42    0.16
|144.67    0.15
 19.75    0.66 | 51.00    0.43 | 82.25    0.48 |113.50    0.16
|144.75    0.15
 19.83    0.65 | 51.08    0.43 | 82.33    0.49 |113.58    0.16
|144.83    0.14
 19.92    0.64 | 51.17    0.43 | 82.42    0.49 |113.67    0.16
|144.92    0.14
 20.00    0.62 | 51.25    0.43 | 82.50    0.49 |113.75    0.16
|145.00    0.14
 20.08    0.61 | 51.33    0.43 | 82.58    0.49 |113.83    0.16
|145.08    0.14
 20.17    0.60 | 51.42    0.43 | 82.67    0.50 |113.92    0.16
|145.17    0.14
 20.25    0.58 | 51.50    0.43 | 82.75    0.50 |114.00    0.16
|145.25    0.14
 20.33    0.58 | 51.58    0.43 | 82.83    0.50 |114.08    0.16
|145.33    0.14
 20.42    0.56 | 51.67    0.43 | 82.92    0.50 |114.17    0.16
|145.42    0.14
 20.50    0.55 | 51.75    0.43 | 83.00    0.50 |114.25    0.16
|145.50    0.14
 20.58    0.54 | 51.83    0.43 | 83.08    0.50 |114.33    0.16
|145.58    0.14
 20.67    0.53 | 51.92    0.43 | 83.17    0.51 |114.42    0.16
|145.67    0.14
 20.75    0.52 | 52.00    0.43 | 83.25    0.51 |114.50    0.16
|145.75    0.14
 20.83    0.51 | 52.08    0.43 | 83.33    0.51 |114.58    0.16
|145.83    0.14
 20.92    0.50 | 52.17    0.43 | 83.42    0.51 |114.67    0.16
|145.92    0.14
 21.00    0.49 | 52.25    0.43 | 83.50    0.52 |114.75    0.16
|146.00    0.14
 21.08    0.49 | 52.33    0.43 | 83.58    0.52 |114.83    0.16
|146.08    0.14
 21.17    0.48 | 52.42    0.43 | 83.67    0.53 |114.92    0.16
|146.17    0.14
 21.25    0.47 | 52.50    0.43 | 83.75    0.53 |115.00    0.16
|146.25    0.14
 21.33    0.47 | 52.58    0.43 | 83.83    0.54 |115.08    0.16
|146.33    0.14
 21.42    0.46 | 52.67    0.43 | 83.92    0.55 |115.17    0.16
|146.42    0.14
 21.50    0.45 | 52.75    0.43 | 84.00    0.56 |115.25    0.16
|146.50    0.14
 21.58    0.45 | 52.83    0.43 | 84.08    0.57 |115.33    0.16
|146.58    0.14
 21.67    0.44 | 52.92    0.44 | 84.17    0.58 |115.42    0.16
|146.67    0.14
 21.75    0.43 | 53.00    0.44 | 84.25    0.60 |115.50    0.16
|146.75    0.14
 21.83    0.43 | 53.08    0.44 | 84.33    0.62 |115.58    0.16
|146.83    0.14
 21.92    0.42 | 53.17    0.44 | 84.42    0.64 |115.67    0.16
|146.92    0.13
 22.00    0.42 | 53.25    0.44 | 84.50    0.66 |115.75    0.16
|147.00    0.13
 22.08    0.41 | 53.33    0.45 | 84.58    0.69 |115.83    0.16
|147.08    0.13
 22.17    0.41 | 53.42    0.45 | 84.67    0.72 |115.92    0.16
|147.17    0.13
 22.25    0.40 | 53.50    0.45 | 84.75    0.74 |116.00    0.16
|147.25    0.13
 22.33    0.40 | 53.58    0.45 | 84.83    0.77 |116.08    0.15
|147.33    0.13
 22.42    0.39 | 53.67    0.46 | 84.92    0.79 |116.17    0.15
|147.42    0.13
 22.50    0.39 | 53.75    0.46 | 85.00    0.81 |116.25    0.15
|147.50    0.13
 22.58    0.38 | 53.83    0.46 | 85.08    0.82 |116.33    0.16
|147.58    0.13
 22.67    0.38 | 53.92    0.46 | 85.17    0.84 |116.42    0.16
|147.67    0.13
 22.75    0.37 | 54.00    0.47 | 85.25    0.85 |116.50    0.16
|147.75    0.13
 22.83    0.37 | 54.08    0.47 | 85.33    0.85 |116.58    0.16
|147.83    0.13
 22.92    0.36 | 54.17    0.47 | 85.42    0.86 |116.67    0.16
|147.92    0.13
 23.00    0.36 | 54.25    0.48 | 85.50    0.87 |116.75    0.16
|148.00    0.13
 23.08    0.36 | 54.33    0.48 | 85.58    0.86 |116.83    0.16
|148.08    0.13
 23.17    0.35 | 54.42    0.49 | 85.67    0.87 |116.92    0.16
|148.17    0.13
 23.25    0.35 | 54.50    0.49 | 85.75    0.86 |117.00    0.16
|148.25    0.13
 23.33    0.34 | 54.58    0.50 | 85.83    0.85 |117.08    0.16
|148.33    0.13
 23.42    0.34 | 54.67    0.50 | 85.92    0.85 |117.17    0.16
|148.42    0.13
 23.50    0.34 | 54.75    0.51 | 86.00    0.84 |117.25    0.16
|148.50    0.13
 23.58    0.33 | 54.83    0.52 | 86.08    0.83 |117.33    0.16
|148.58    0.13
 23.67    0.33 | 54.92    0.53 | 86.17    0.82 |117.42    0.16
|148.67    0.13
 23.75    0.32 | 55.00    0.53 | 86.25    0.81 |117.50    0.16
|148.75    0.13
 23.83    0.32 | 55.08    0.54 | 86.33    0.81 |117.58    0.16
|148.83    0.13
 23.92    0.32 | 55.17    0.55 | 86.42    0.79 |117.67    0.16
|148.92    0.13
 24.00    0.31 | 55.25    0.55 | 86.50    0.78 |117.75    0.16
|149.00    0.13
 24.08    0.31 | 55.33    0.55 | 86.58    0.77 |117.83    0.16
|149.08    0.13
 24.17    0.30 | 55.42    0.56 | 86.67    0.76 |117.92    0.16
|149.17    0.13
 24.25    0.30 | 55.50    0.56 | 86.75    0.74 |118.00    0.16
|149.25    0.12
 24.33    0.30 | 55.58    0.57 | 86.83    0.74 |118.08    0.16
|149.33    0.12
 24.42    0.30 | 55.67    0.57 | 86.92    0.73 |118.17    0.16
|149.42    0.12
 24.50    0.29 | 55.75    0.58 | 87.00    0.71 |118.25    0.16
|149.50    0.12
 24.58    0.29 | 55.83    0.58 | 87.08    0.71 |118.33    0.16
|149.58    0.12
 24.67    0.29 | 55.92    0.58 | 87.17    0.70 |118.42    0.16
|149.67    0.12
 24.75    0.28 | 56.00    0.58 | 87.25    0.68 |118.50    0.16
|149.75    0.12
 24.83    0.28 | 56.08    0.58 | 87.33    0.68 |118.58    0.15
|149.83    0.12
 24.92    0.28 | 56.17    0.58 | 87.42    0.66 |118.67    0.15
|149.92    0.12
 25.00    0.27 | 56.25    0.58 | 87.50    0.66 |118.75    0.15
|150.00    0.12
 25.08    0.27 | 56.33    0.58 | 87.58    0.65 |118.83    0.15
|150.08    0.12
 25.17    0.27 | 56.42    0.58 | 87.67    0.64 |118.92    0.15
|150.17    0.12
 25.25    0.27 | 56.50    0.59 | 87.75    0.63 |119.00    0.15
|150.25    0.12
 25.33    0.26 | 56.58    0.59 | 87.83    0.62 |119.08    0.15
|150.33    0.12
 25.42    0.26 | 56.67    0.59 | 87.92    0.62 |119.17    0.15
|150.42    0.12
 25.50    0.26 | 56.75    0.59 | 88.00    0.61 |119.25    0.15
|150.50    0.12
 25.58    0.25 | 56.83    0.59 | 88.08    0.60 |119.33    0.15
|150.58    0.12
 25.67    0.25 | 56.92    0.59 | 88.17    0.59 |119.42    0.15
|150.67    0.12
 25.75    0.25 | 57.00    0.59 | 88.25    0.58 |119.50    0.15
|150.75    0.12
 25.83    0.25 | 57.08    0.59 | 88.33    0.58 |119.58    0.15
|150.83    0.12
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 25.92    0.25 | 57.17    0.59 | 88.42    0.57 |119.67    0.15
|150.92    0.12
 26.00    0.24 | 57.25    0.59 | 88.50    0.57 |119.75    0.15
|151.00    0.12
 26.08    0.24 | 57.33    0.59 | 88.58    0.56 |119.83    0.16
|151.08    0.12
 26.17    0.24 | 57.42    0.59 | 88.67    0.55 |119.92    0.16
|151.17    0.12
 26.25    0.24 | 57.50    0.59 | 88.75    0.55 |120.00    0.16
|151.25    0.12
 26.33    0.23 | 57.58    0.58 | 88.83    0.54 |120.08    0.16
|151.33    0.12
 26.42    0.23 | 57.67    0.58 | 88.92    0.53 |120.17    0.16
|151.42    0.12
 26.50    0.23 | 57.75    0.58 | 89.00    0.53 |120.25    0.16
|151.50    0.12
 26.58    0.23 | 57.83    0.57 | 89.08    0.52 |120.33    0.16
|151.58    0.12
 26.67    0.23 | 57.92    0.57 | 89.17    0.51 |120.42    0.16
|151.67    0.12
 26.75    0.22 | 58.00    0.57 | 89.25    0.51 |120.50    0.16
|151.75    0.12
 26.83    0.22 | 58.08    0.57 | 89.33    0.50 |120.58    0.16
|151.83    0.12
 26.92    0.22 | 58.17    0.56 | 89.42    0.50 |120.67    0.16
|151.92    0.12
 27.00    0.22 | 58.25    0.56 | 89.50    0.49 |120.75    0.16
|152.00    0.12
 27.08    0.22 | 58.33    0.56 | 89.58    0.48 |120.83    0.16
|152.08    0.12
 27.17    0.21 | 58.42    0.55 | 89.67    0.48 |120.92    0.16
|152.17    0.12
 27.25    0.21 | 58.50    0.55 | 89.75    0.47 |121.00    0.16
|152.25    0.12
 27.33    0.21 | 58.58    0.54 | 89.83    0.47 |121.08    0.16
|152.33    0.11
 27.42    0.21 | 58.67    0.54 | 89.92    0.47 |121.17    0.17
|152.42    0.11
 27.50    0.21 | 58.75    0.53 | 90.00    0.47 |121.25    0.17
|152.50    0.11
 27.58    0.21 | 58.83    0.53 | 90.08    0.46 |121.33    0.17
|152.58    0.11
 27.67    0.20 | 58.92    0.52 | 90.17    0.46 |121.42    0.17
|152.67    0.11
 27.75    0.20 | 59.00    0.52 | 90.25    0.45 |121.50    0.17
|152.75    0.11
 27.83    0.20 | 59.08    0.52 | 90.33    0.45 |121.58    0.17
|152.83    0.11
 27.92    0.20 | 59.17    0.51 | 90.42    0.44 |121.67    0.17
|152.92    0.11
 28.00    0.19 | 59.25    0.51 | 90.50    0.44 |121.75    0.17
|153.00    0.11
 28.08    0.19 | 59.33    0.50 | 90.58    0.44 |121.83    0.17
|153.08    0.11
 28.17    0.19 | 59.42    0.50 | 90.67    0.43 |121.92    0.17
|153.17    0.11
 28.25    0.19 | 59.50    0.49 | 90.75    0.43 |122.00    0.17
|153.25    0.11
 28.33    0.19 | 59.58    0.49 | 90.83    0.43 |122.08    0.17
|153.33    0.11
 28.42    0.19 | 59.67    0.49 | 90.92    0.43 |122.17    0.17
|153.42    0.11
 28.50    0.19 | 59.75    0.48 | 91.00    0.42 |122.25    0.18
|153.50    0.11
 28.58    0.18 | 59.83    0.48 | 91.08    0.42 |122.33    0.18
|153.58    0.11
 28.67    0.18 | 59.92    0.47 | 91.17    0.42 |122.42    0.18
|153.67    0.11
 28.75    0.18 | 60.00    0.47 | 91.25    0.42 |122.50    0.18
|153.75    0.11
 28.83    0.18 | 60.08    0.47 | 91.33    0.41 |122.58    0.18
|153.83    0.11
 28.92    0.18 | 60.17    0.46 | 91.42    0.41 |122.67    0.18
|153.92    0.11
 29.00    0.18 | 60.25    0.46 | 91.50    0.41 |122.75    0.18
|154.00    0.11
 29.08    0.18 | 60.33    0.45 | 91.58    0.41 |122.83    0.18
|154.08    0.11
 29.17    0.18 | 60.42    0.45 | 91.67    0.41 |122.92    0.18
|154.17    0.11
 29.25    0.17 | 60.50    0.44 | 91.75    0.41 |123.00    0.18
|154.25    0.11
 29.33    0.17 | 60.58    0.44 | 91.83    0.40 |123.08    0.18
|154.33    0.11
 29.42    0.17 | 60.67    0.44 | 91.92    0.40 |123.17    0.18
|154.42    0.11
 29.50    0.17 | 60.75    0.43 | 92.00    0.40 |123.25    0.18
|154.50    0.11
 29.58    0.17 | 60.83    0.43 | 92.08    0.40 |123.33    0.18
|154.58    0.11
 29.67    0.17 | 60.92    0.42 | 92.17    0.40 |123.42    0.18
|154.67    0.11
 29.75    0.17 | 61.00    0.42 | 92.25    0.39 |123.50    0.18
|154.75    0.11
 29.83    0.17 | 61.08    0.42 | 92.33    0.39 |123.58    0.18
|154.83    0.11
 29.92    0.16 | 61.17    0.42 | 92.42    0.39 |123.67    0.18
|154.92    0.11
 30.00    0.16 | 61.25    0.41 | 92.50    0.39 |123.75    0.18
|155.00    0.11
 30.08    0.16 | 61.33    0.41 | 92.58    0.38 |123.83    0.18
|155.08    0.11
 30.17    0.16 | 61.42    0.40 | 92.67    0.38 |123.92    0.18
|155.17    0.11
 30.25    0.16 | 61.50    0.40 | 92.75    0.38 |124.00    0.18
|155.25    0.11
 30.33    0.16 | 61.58    0.40 | 92.83    0.38 |124.08    0.18
|155.33    0.11
 30.42    0.16 | 61.67    0.40 | 92.92    0.38 |124.17    0.18
|155.42    0.11
 30.50    0.16 | 61.75    0.39 | 93.00    0.37 |124.25    0.18
|155.50    0.11
 30.58    0.16 | 61.83    0.39 | 93.08    0.37 |124.33    0.19
|155.58    0.11
 30.67    0.16 | 61.92    0.39 | 93.17    0.37 |124.42    0.19
|155.67    0.11
 30.75    0.16 | 62.00    0.38 | 93.25    0.37 |124.50    0.19
|155.75    0.11
 30.83    0.15 | 62.08    0.38 | 93.33    0.37 |124.58    0.19
|155.83    0.10
 30.92    0.15 | 62.17    0.38 | 93.42    0.37 |124.67    0.20
|155.92    0.11
 31.00    0.15 | 62.25    0.38 | 93.50    0.37 |124.75    0.20
|156.00    0.10
 31.08    0.15 | 62.33    0.39 | 93.58    0.37 |124.83    0.20 |
 31.17    0.15 | 62.42    0.39 | 93.67    0.37 |124.92    0.20 |
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| CALIB           |
| STANDHYD  (6202) |   Area    (ha)=  12.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.00          6.00
     Dep. Storage     (mm)=       1.50          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     282.84         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     159.59        151.94
                over (min)       5.00         15.00
     Storage Coeff.  (min)=      3.95 (ii)   11.30 (ii)
     Unit Hyd. Tpeak (min)=      5.00         15.00
     Unit Hyd. peak  (cms)=      0.24          0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.81          1.60
3.196 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=     100.12         59.25
73.55
     TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
     RUNOFF COEFFICIENT   =       0.99          0.58
0.72
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***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0621) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
           <------ DATA FOR SECTION (1549.0) ------>
            Distance      Elevation       Manning
                0.00         87.56        0.0900
                3.37         87.60        0.0900
               16.78         87.21        0.0900
               31.08         87.29        0.0900
               43.62         87.28        0.0900
               62.88         87.41        0.0900
               68.00         87.22        0.0900
               96.20         87.43        0.0900
              112.60         86.39    0.0900 /0.0700  Main
Channel
              113.70         86.10        0.0700      Main
Channel
              114.40         86.51    0.0700 /0.0900  Main
Channel
              114.60         86.67        0.0900
              131.60         87.07        0.0900
              156.70         87.16        0.0900
              184.59         87.41        0.0900
              194.09         87.56        0.0900
              202.66         87.64        0.0900
              221.43         87.69        0.0900
              230.63         87.86        0.0900

       <-------------------- TRAVEL TIME TABLE -----------------
---->
    DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
     (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
    0.07   86.17   .898E+01       0.0          0.13
79.55
    0.14   86.24   .359E+02       0.0          0.21
50.11
    0.21   86.31   .808E+02       0.0          0.28
38.24
    0.29   86.39   .144E+03       0.1          0.33
31.57
    0.36   86.46   .256E+03       0.2          0.39
27.10
    0.44   86.54   .435E+03       0.3          0.42
25.03
    0.52   86.62   .680E+03       0.5          0.46
23.12
    0.60   86.70   .998E+03       0.8          0.48
21.78
    0.68   86.78   .150E+04       1.2          0.48
21.76
    0.76   86.85   .223E+04       1.7          0.48
21.78
    0.83   86.93   .319E+04       2.5          0.49
21.41
    0.91   87.01   .437E+04       3.5          0.51
20.74
    0.99   87.09   .580E+04       4.7          0.51
20.64
    1.07   87.17   .811E+04       6.2          0.48
21.90
    1.15   87.25   .113E+05       7.8          0.44
24.18
    1.23   87.32   .165E+05      10.6          0.41
26.00
    1.30   87.40   .239E+05      16.0          0.42
24.97
    1.38   87.48   .327E+05      24.3          0.47
22.45
    1.46   87.56   .419E+05      34.6          0.52
20.16

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
   INFLOW : ID= 2 (6202)    12.00      3.20     3.00  73.55
0.89     0.50
   OUTFLOW: ID= 1 (0621)    12.00      1.80     3.17  73.51
0.77     0.48


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| CALIB           |
| STANDHYD  (6212) |   Area    (ha)=  21.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  76.00   Dir. Conn.(%)=
67.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.49          5.21
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     380.35         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     159.59        173.44
                over (min)       5.00         10.00
     Storage Coeff.  (min)=      4.72 (ii)    9.50 (ii)
     Unit Hyd. Tpeak (min)=      5.00         10.00
     Unit Hyd. peak  (cms)=      0.22          0.12

*TOTALS*
     PEAK FLOW       (cms)=       6.17          1.80
7.979 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.00
3.00
     RUNOFF VOLUME    (mm)=      95.62         64.64
85.40
     TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
     RUNOFF COEFFICIENT   =       0.94          0.64
0.84

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  80.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0142) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0621):    12.00   1.804     3.17    73.51
       + ID2= 2 (6212):    21.70   7.979     3.00    85.40
         ===============================================
         ID = 3 (0142):    33.70   9.486     3.00    81.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0622) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
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            <------ DATA FOR SECTION ( 953.0) ------>
            Distance      Elevation       Manning
              16.75         82.21        0.1100
              30.34         82.03        0.1100
              44.96         81.97        0.1100
              58.95         81.94        0.1100
              71.21         81.85        0.1100
             100.74         81.58        0.1100
             112.29         81.50        0.1100
             121.63         81.56        0.1100
             127.04         81.66     0.1100 /0.0700  Main
Channel
             129.04         80.66        0.0700     Main
Channel
             130.04         80.66        0.0700     Main
Channel
             131.04         80.66        0.0700     Main
Channel
             133.04         81.66     0.0700 /0.1100  Main
Channel
             134.58         82.08        0.1100
             135.14         82.01        0.1100
             139.68         81.73        0.1100
             151.74         81.75        0.1100
             153.37         81.71        0.1100
             167.06         81.83        0.1100
             187.62         81.87        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.06    80.72    .649E+02      0.0          0.17
49.00
       0.12    80.79    .138E+03      0.1          0.25
32.10
       0.19    80.85    .218E+03      0.1          0.32
25.32
       0.25    80.91    .306E+03      0.2          0.38
21.50
       0.31    80.97    .401E+03      0.4          0.43
18.99
       0.37    81.04    .504E+03      0.5          0.47
17.19
       0.44    81.10    .615E+03      0.6          0.52
15.81
       0.50    81.16    .733E+03      0.8          0.55
14.71
       0.56    81.22    .860E+03      1.0          0.59
13.81
       0.62    81.29    .993E+03      1.3          0.62
13.06
       0.69    81.35    .113E+04      1.5          0.66
12.41
       0.75    81.41    .128E+04      1.8          0.69
11.84
       0.81    81.47    .144E+04      2.1          0.72
11.35
       0.87    81.54    .170E+04      2.5          0.71
11.50
       0.94    81.60    .245E+04      3.0          0.59
13.80
       1.00    81.66    .355E+04      3.7          0.51
16.06
       1.07    81.73    .511E+04      4.9          0.47
17.27
       1.14    81.80    .759E+04      6.7          0.43
18.98
       1.21    81.87    .109E+05      9.0          0.40
20.28

     **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0142)   33.70     9.49    3.00  81.17
1.18      0.41
     OUTFLOW: ID= 1 (0622)   33.70     5.45    3.08  81.16
1.09      0.46


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| CALIB             |
| STANDHYD  (6222) |   Area    (ha)=  16.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=
69.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      13.18         3.72
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     335.66        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       139.24
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       4.38 (ii)    8.94 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.23         0.12

*TOTALS*
     PEAK FLOW       (cms)=       4.99         1.02
6.011 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=      95.62        49.83
81.42
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.49
0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0144) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0622):    33.70   5.446     3.08    81.16
        + ID2= 2 (6222):    16.90   6.011     3.00    81.42
          =============================================
          ID = 3 (0144):    50.60  11.086     3.00    81.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| STANDHYD  (6232) |   Area    (ha)=  20.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.30        10.30
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     370.59        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       120.33
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.65 (ii)   12.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.07         2.02
4.766 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        46.47
63.67
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.46
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0146) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0144):    50.60  11.086     3.00    81.25
        + ID2= 2 (6232):    20.60   4.766     3.00    63.67
          =============================================
          ID = 3 (0146):    71.20  15.852     3.00    76.16

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| STANDHYD  (6302) |   Area    (ha)=   2.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=
58.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.79         0.81
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     131.66        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       170.10
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.50 (ii)    9.53 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.29         0.12

*TOTALS*
     PEAK FLOW       (cms)=       0.66         0.27
0.938 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=      95.62        64.25
82.44
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.63
0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0631) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
            <------ DATA FOR SECTION ( 788.2) ------>
            Distance      Elevation       Manning
               0.00         81.00        0.1100
              15.70         81.00        0.1100
              17.50         80.50     0.1100 /0.0700  Main
Channel
              18.50         80.50        0.0700     Main
Channel
              20.00         81.00     0.0700 /0.1100  Main
Channel
              24.00         81.00        0.1100
              38.00         81.50        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.03    80.53    .174E+02      0.0          0.10
100.96
       0.05    80.55    .375E+02      0.0          0.15
66.64
       0.08    80.58    .604E+02      0.0          0.19
52.98
       0.11    80.61    .861E+02      0.0          0.22
45.34
       0.13    80.63    .115E+03      0.0          0.25
40.34
       0.16    80.66    .146E+03      0.1          0.28
36.75
       0.18    80.68    .180E+03      0.1          0.30
34.02
       0.21    80.71    .217E+03      0.1          0.32
31.85
       0.24    80.74    .256E+03      0.1          0.34
30.07
       0.26    80.76    .298E+03      0.2          0.35
28.57
       0.29    80.79    .344E+03      0.2          0.37
27.28
       0.32    80.82    .391E+03      0.2          0.39
26.15
       0.34    80.84    .442E+03      0.3          0.40
25.16
       0.37    80.87    .495E+03      0.3          0.42
24.27
       0.39    80.89    .552E+03      0.4          0.43
23.48
       0.42    80.92    .611E+03      0.4          0.44
22.75
       0.45    80.95    .672E+03      0.5          0.46
22.09
       0.47    80.97    .737E+03      0.6          0.47
21.48
       0.50    81.00    .804E+03      0.6          0.48
20.91

     **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6302)    2.60     0.94    3.00  82.44
0.48      0.48
     OUTFLOW: ID= 1 (0631)    2.60     0.52    3.08  82.22
0.45      0.46


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| CALIB             |
| STANDHYD  (6312) |   Area    (ha)=   8.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=
59.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.16         2.64
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     242.21        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       132.91
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.60 (ii)   11.36 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.09

*TOTALS*
     PEAK FLOW       (cms)=       2.25         0.60
2.766 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        48.96
76.49
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.48
0.75

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0149) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0631):     2.60   0.519     3.08    82.22
        + ID2= 2 (6312):     8.80   2.766     3.00    76.49
          =============================================
          ID = 3 (0149):    11.40   3.220     3.00    77.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0632) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
            <------ DATA FOR SECTION ( 924.2) ------>
            Distance      Elevation       Manning
               0.00         82.50        0.1100
               6.00         82.00        0.1100
              11.00         81.00        0.1100
              12.00         80.00        0.1100
              13.50         79.50     0.1100 /0.0700  Main
Channel
              14.50         79.50        0.0700     Main
Channel
              16.00         80.00     0.0700 /0.1100  Main
Channel
              18.00         80.00        0.1100
              29.70         80.00        0.1100
              37.00         80.50        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.05    79.55    .330E+02      0.0          0.17
52.00
       0.11    79.61    .749E+02      0.0          0.26
35.21
       0.16    79.66    .126E+03      0.1          0.32
28.45
       0.21    79.71    .186E+03      0.1          0.37
24.60
       0.26    79.76    .255E+03      0.2          0.41
22.04
       0.32    79.82    .333E+03      0.3          0.45
20.16
       0.37    79.87    .420E+03      0.4          0.48
18.69
       0.42    79.92    .515E+03      0.5          0.51
17.51
       0.47    79.97    .620E+03      0.6          0.55
16.53
       0.53    80.03    .931E+03      0.8          0.48
18.86
       0.58    80.08    .146E+04      1.2          0.43
20.73
       0.63    80.13    .201E+04      1.6          0.44
20.51
       0.68    80.18    .258E+04      2.2          0.46
19.66
       0.74    80.24    .318E+04      2.8          0.48
18.66
       0.79    80.29    .380E+04      3.6          0.51
17.70
       0.84    80.34    .445E+04      4.4          0.54
16.82
       0.89    80.39    .511E+04      5.3          0.56
16.03
       0.95    80.45    .580E+04      6.3          0.59
15.32
       1.00    80.50    .652E+04      7.4          0.61
14.69

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0149)   11.40     3.22    3.00  77.80
0.76      0.50
     OUTFLOW: ID= 1 (0632)   11.40     1.86    3.08  77.77
0.65      0.45


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| CALIB             |
| STANDHYD  (6322) |   Area    (ha)=   5.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.65         2.65
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     187.97        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       120.33
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.09 (ii)   11.16 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.81         0.55
1.276 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
```

```
    RUNOFF VOLUME    (mm)=      95.62        46.47
63.67
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.46
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0174) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0632):     11.40   1.856     3.08    77.77
       + ID2= 2 (6322):      5.30   1.276     3.00    63.67
         ===============================================
         ID = 3 (0174):     16.70   2.956     3.00    73.30

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (6402) |   Area    (ha)=  16.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
66.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       12.60         4.20
    Dep. Storage     (mm)=        6.00         8.00
    Average Slope     (%)=        1.00         1.00
    Length            (m)=      334.66        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=      159.59       170.95
               over (min)        5.00        10.00
    Storage Coeff.  (min)=        4.37 (ii)    9.26 (ii)
    Unit Hyd. Tpeak (min)=        5.00        10.00
    Unit Hyd. peak  (cms)=        0.23         0.12

*TOTALS*
    PEAK FLOW       (cms)=        4.74         1.45
6.191 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.00
3.00
    RUNOFF VOLUME    (mm)=       95.62        64.35
84.99
    TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
    RUNOFF COEFFICIENT   =        0.94         0.63
0.84

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  80.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0641) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 910.0) ------>
              Distance      Elevation       Manning
                 0.00         83.92         0.1100
                 1.93         83.93         0.1100
                 3.02         83.94         0.1100
                 5.01         83.96         0.1100
                 6.81         83.80         0.1100
                 7.33         83.77         0.1100
                 8.42         83.41     0.1100 /0.0700  Main
Channel
                10.42         82.41         0.0700      Main
Channel
                11.17         82.41         0.0700      Main
Channel
                11.92         82.41         0.0700      Main
Channel
                13.92         83.41     0.0700 /0.1100  Main
Channel
                21.33         84.40         0.1100
                23.85         84.09         0.1100

       <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.10    82.51    .768E+02       0.0          0.24
32.02
       0.20    82.61    .172E+03       0.1          0.35
21.50
       0.30    82.71    .285E+03       0.3          0.44
17.20
       0.40    82.81    .416E+03       0.5          0.51
14.73
       0.50    82.91    .565E+03       0.7          0.58
13.08
       0.60    83.01    .732E+03       1.0          0.64
11.86
       0.70    83.11    .918E+03       1.4          0.69
10.92
       0.80    83.21    .112E+04       1.8          0.74
10.16
       0.90    83.31    .134E+04       2.3          0.79
9.53
       1.00    83.41    .158E+04       2.9          0.84
9.00
       1.11    83.52    .188E+04       3.8          0.92
8.20
       1.22    83.63    .224E+04       4.8          0.98
7.72
       1.33    83.74    .266E+04       6.0          1.02
7.39
       1.44    83.85    .315E+04       7.3          1.05
7.20
       1.55    83.96    .379E+04       8.7          1.04
7.24
       1.66    84.07    .471E+04      10.6          1.02
7.41
       1.77    84.18    .567E+04      12.7          1.01
7.46
       1.88    84.29    .673E+04      15.1          1.01
7.43
       1.99    84.40    .787E+04      17.8          1.02
7.36

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (6402)   16.80     6.19    3.00  84.99
1.35      1.02
    OUTFLOW: ID= 1 (0641)   16.80     5.07    3.00  84.98
1.24      0.98

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| CALIB            |
| STANDHYD  (6412) |   Area    (ha)=  13.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       10.47         3.13
    Dep. Storage     (mm)=        6.00         8.00
    Average Slope     (%)=        1.00         1.00
    Length            (m)=      301.11        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=      159.59      ********
               over (min)        5.00        10.00
    Storage Coeff.  (min)=        4.11 (ii)    8.80 (ii)
    Unit Hyd. Tpeak (min)=        5.00        10.00
    Unit Hyd. peak  (cms)=        0.24         0.12

*TOTALS*
    PEAK FLOW       (cms)=        3.92         1.00
4.917 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.00
3.00
    RUNOFF VOLUME    (mm)=       95.62        55.94
82.53
    TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
    RUNOFF COEFFICIENT   =        0.94         0.55
0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  72.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0184) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0641):     16.80   5.070     3.00    84.98
       + ID2= 2 (6412):     13.60   4.917     3.00    82.53
         ===============================================
         ID = 3 (0184):     30.40   9.987     3.00    83.88

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0642) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1099.5) ------>
              Distance      Elevation       Manning
                 0.00         85.00         0.1100
                14.50         80.00         0.1100
                15.30         80.00         0.1100
                16.80         79.50     0.1100 /0.0700  Main
Channel
                17.80         79.50         0.0700      Main
Channel
                19.30         80.00     0.0700 /0.1100  Main
Channel
                20.30         80.00         0.1100
                27.30         81.00         0.1100

       <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.08    79.58    .520E+02       0.0          0.24
36.74
       0.16    79.66    .124E+03       0.1          0.35
25.35
       0.24    79.74    .216E+03       0.2          0.43
20.68
       0.32    79.82    .328E+03       0.3          0.49
17.96
       0.39    79.89    .460E+03       0.5          0.55
16.11
       0.47    79.97    .611E+03       0.7          0.60
14.73
       0.55    80.05    .836E+03       1.0          0.62
14.31
       0.63    80.13    .112E+04       1.4          0.66
13.40
       0.71    80.21    .143E+04       1.9          0.70
12.62
       0.79    80.29    .178E+04       2.5          0.74
11.97
       0.87    80.37    .216E+04       3.2          0.78
11.42
       0.95    80.45    .258E+04       3.9          0.81
10.93
       1.03    80.53    .302E+04       4.8          0.85
10.51
       1.11    80.61    .350E+04       5.8          0.88
10.14
       1.18    80.68    .402E+04       6.8          0.91
9.80
       1.26    80.76    .456E+04       8.0          0.94
9.49
       1.34    80.84    .514E+04       9.3          0.96
9.21
       1.42    80.92    .575E+04      10.7          0.99
8.96
       1.50    81.00    .640E+04      12.2          1.02
8.72

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0184)   30.40     9.99    3.00  83.88
1.38      0.98
    OUTFLOW: ID= 1 (0642)   30.40     7.77    3.08  83.87
1.25      0.93

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--------------------
| CALIB            |
| STANDHYD  (6422) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        8.75         8.75
    Dep. Storage     (mm)=        6.00         8.00
    Average Slope     (%)=        1.00         1.00
    Length            (m)=      341.57        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=      159.59       137.17
               over (min)        5.00        15.00
    Storage Coeff.  (min)=        4.43 (ii)   12.09 (ii)
    Unit Hyd. Tpeak (min)=        5.00        15.00
    Unit Hyd. peak  (cms)=        0.23         0.09

*TOTALS*
    PEAK FLOW       (cms)=        2.62         2.03
4.345 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=       95.62        53.16
68.02
    TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
    RUNOFF COEFFICIENT   =        0.94         0.52
0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  72.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0187) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0642):     30.40   7.773     3.08    83.87
       + ID2= 2 (6422):     17.50   4.345     3.00    68.02
         ===============================================
         ID = 3 (0187):     47.90  11.464     3.00    78.08

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (6502) |   Area    (ha)=   9.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        4.55         4.55
    Dep. Storage     (mm)=        6.00         8.00
    Average Slope     (%)=        1.00         1.00
    Length            (m)=      246.31        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=      159.59       120.33
               over (min)        5.00        15.00
    Storage Coeff.  (min)=        3.64 (ii)   11.71 (ii)
    Unit Hyd. Tpeak (min)=        5.00        15.00
    Unit Hyd. peak  (cms)=        0.25         0.09

*TOTALS*
    PEAK FLOW       (cms)=        1.38         0.92
2.162 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=       95.62        46.47
63.67
    TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
    RUNOFF COEFFICIENT   =        0.94         0.46
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6602) |   Area    (ha)=  13.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        6.85         6.85
    Dep. Storage     (mm)=        6.00         8.00
    Average Slope     (%)=        1.00         1.00
    Length            (m)=      302.21        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=      159.59       157.97
               over (min)        5.00        15.00
    Storage Coeff.  (min)=        4.11 (ii)   11.35 (ii)
    Unit Hyd. Tpeak (min)=        5.00        15.00
    Unit Hyd. peak  (cms)=        0.24         0.09

*TOTALS*
    PEAK FLOW       (cms)=        2.06         1.91
3.720 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=       95.62        61.83
73.66
    TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
    RUNOFF COEFFICIENT   =        0.94         0.61
0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  79.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7302) |   Area    (ha)=   3.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        1.70         1.70
    Dep. Storage     (mm)=        6.00         8.00
    Average Slope     (%)=        1.00         1.00
    Length            (m)=      150.55        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=      159.59       120.33
               over (min)        5.00        15.00
    Storage Coeff.  (min)=        2.71 (ii)   10.78 (ii)
    Unit Hyd. Tpeak (min)=        5.00        15.00
    Unit Hyd. peak  (cms)=        0.29         0.09

*TOTALS*
    PEAK FLOW       (cms)=        0.52         0.36
0.825 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=       95.62        46.47
63.67
    TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
    RUNOFF COEFFICIENT   =        0.94         0.46
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7402) |   Area    (ha)=   3.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        1.85         1.85
```

```
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     157.06        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       120.33
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       2.78 (ii)   10.85 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.57         0.39
0.897 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        46.47
63.67
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.46
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (7101) |   Area    (ha)=  70.70   Curve Number
(CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.78

     Unit Hyd Qpeak  (cms)=   3.471

     PEAK FLOW       (cms)=   2.451 (i)
     TIME TO PEAK    (hrs)=   3.750
     RUNOFF VOLUME    (mm)=  26.715
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.263

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7102) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
33.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.88         9.62
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     341.57        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59        76.29
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.43 (ii)   14.11 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.47         1.11
3.376 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        31.42
52.61
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.31
0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0218) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7101):    70.70   2.451     3.75    26.71
        + ID2= 2 (7102):    17.50   3.376     3.00    52.61
          ===============================================
          ID = 3 (0218):    88.20   4.012     3.00    31.85

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0711) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1487.9) ------>
              Distance      Elevation       Manning
                 0.00          95.00        0.1100
                89.00          94.00        0.1100
               135.70          94.00    0.1100 /0.0700  Main
Channel
               137.20          93.50        0.0700      Main
Channel
               138.20          93.50        0.0700      Main
Channel
               139.70          94.00    0.0700 /0.1100  Main
Channel
               211.60          94.00        0.1100
               249.00          95.00        0.1100

       <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.07    93.57    .969E+02       0.0          0.20
95.33
        0.14    93.64    .228E+03       0.1          0.29
64.56
        0.21    93.71    .393E+03       0.1          0.36
51.73
        0.29    93.79    .593E+03       0.2          0.42
44.23
        0.36    93.86    .826E+03       0.4          0.48
39.15
        0.43    93.93    .109E+04       0.5          0.53
35.40
        0.50    94.00    .140E+04       0.7          0.57
32.52
        0.58    94.08    .133E+05       2.6          0.22
84.59
        0.67    94.17    .262E+05       6.5          0.28
67.17
        0.75    94.25    .400E+05      12.0          0.33
55.64
        0.83    94.33    .549E+05      19.0          0.39
48.10
        0.92    94.42    .707E+05      27.5          0.43
42.81
        1.00    94.50    .875E+05      37.5          0.48
38.86
        1.08    94.58    .105E+06      49.0          0.52
35.80
        1.17    94.67    .124E+06      62.0          0.56
33.34
        1.25    94.75    .144E+06      76.6          0.59
31.30
        1.33    94.83    .165E+06      92.7          0.63
29.59
        1.42    94.92    .186E+06     110.4          0.66
28.12
        1.50    95.00    .209E+06     129.7          0.69
26.84

                                      <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0218)   88.20     4.01    3.00  31.85
0.61     0.24
    OUTFLOW: ID= 1 (0711)   88.20     2.21    4.75  31.85
0.57     0.25


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--------------------
| CALIB            |
| NASHYD    (7111) |   Area    (ha)=  48.10   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.43

     Unit Hyd Qpeak  (cms)=   1.285

     PEAK FLOW       (cms)=   1.737 (i)
     TIME TO PEAK    (hrs)=   4.583
     RUNOFF VOLUME    (mm)=  43.287
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.426

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7112) |   Area    (ha)=  12.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  39.00   Dir. Conn.(%)=
27.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.76         7.44
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     285.19        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       115.88
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.97 (ii)   12.17 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.42         1.44
2.633 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        48.48
61.21
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.48
0.60

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0222) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7111):    48.10   1.737     4.58    43.29
        + ID2= 2 (7112):    12.20   2.633     3.00    61.21
          ===============================================
          ID = 3 (0222):    60.30   2.835     3.00    46.91

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0223) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0222):    60.30   2.835     3.00    46.91
        + ID2= 2 (0711):    88.20   2.205     4.75    31.85
          ===============================================
          ID = 3 (0223):   148.50   4.131     4.67    37.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (7011) |   Area    (ha)=  90.40   Curve Number
(CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.77

     Unit Hyd Qpeak  (cms)=   4.467

     PEAK FLOW       (cms)=   3.862 (i)
     TIME TO PEAK    (hrs)=   3.750
     RUNOFF VOLUME    (mm)=  32.446
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.319

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7012) |   Area    (ha)=  25.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
25.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.54        15.56
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     409.06        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59        90.54
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.93 (ii)   13.98 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.65         2.17
4.436 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        37.47
52.00
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.37
0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  59.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0205) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7011):    90.40   3.862     3.75    32.45
        + ID2= 2 (7012):    25.10   4.436     3.00    52.00
          ===============================================
          ID = 3 (0205):   115.50   5.475     3.00    36.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0702) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1184.6) ------>
              Distance      Elevation       Manning
                 0.00          93.00        0.1100
                56.00          92.00        0.1100
                65.40          92.00        0.1100
                74.80          91.50    0.1100 /0.0700  Main
Channel
                75.80          91.50        0.0700      Main
Channel
                77.30          92.00    0.0700 /0.1100  Main
Channel
               144.00          92.00        0.1100
               186.00          93.00        0.1100

       <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.08    91.58    .236E+03       0.0          0.13
200.27
        0.16    91.66    .689E+03       0.1          0.18
146.52
        0.24    91.74    .136E+04       0.2          0.22
121.67
        0.32    91.82    .225E+04       0.4          0.25
105.99
        0.39    91.89    .336E+04       0.6          0.28
94.79
        0.47    91.97    .468E+04       0.9          0.31
86.24
        0.55    92.05    .128E+05       1.5          0.19
142.36
        0.63    92.13    .251E+05       3.4          0.22
123.43
        0.71    92.21    .384E+05       6.1          0.26
104.46
        0.79    92.29    .526E+05       9.6          0.29
90.95
        0.87    92.37    .678E+05      13.9          0.33
81.16
        0.95    92.45    .840E+05      19.0          0.36
73.76
        1.03    92.53    .101E+06      24.8          0.39
67.97
        1.11    92.61    .119E+06      31.4          0.42
63.30
        1.18    92.68    .139E+06      38.8          0.45
59.44
        1.26    92.76    .159E+06      47.1          0.48
56.18
        1.34    92.84    .180E+06      56.1          0.50
53.38
        1.42    92.92    .202E+06      66.0          0.52
50.95
        1.50    93.00    .225E+06      76.8          0.55
48.81

                                      <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0205)  115.50     5.47    3.00  36.70
0.69     0.25
    OUTFLOW: ID= 1 (0702)  115.50     2.44    4.67  36.69
0.59     0.20


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--------------------
| CALIB            |
| NASHYD    (7021) |   Area    (ha)=   7.30   Curve Number
(CN)= 64.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.72

     Unit Hyd Qpeak  (cms)=   0.162

     PEAK FLOW       (cms)=   0.195 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  37.060
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.365

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7022) |   Area    (ha)=  35.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  48.00   Dir. Conn.(%)=
35.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.90        18.30
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     484.42        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       107.98
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       5.46 (ii)   13.89 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.20         0.08

*TOTALS*
     PEAK FLOW       (cms)=       5.14         3.08
7.706 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=     100.12        43.27
63.17
```

```
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.99         0.43
0.62

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  64.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0209) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7021):     7.30   0.195     4.92    37.06
        + ID2= 2 (7022):    35.20   7.706     3.00    63.17
          ===============================================
          ID = 3 (0209):    42.50   7.722     3.00    58.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0210) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0209):    42.50   7.722     3.00    58.69
        + ID2= 2 (0702):   115.50   2.443     4.67    36.69
          ===============================================
          ID = 3 (0210):   158.00   8.470     3.00    42.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0224) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0210):   158.00   8.470     3.00    42.60
        + ID2= 2 (0223):   148.50   4.131     4.67    37.96
          ===============================================
          ID = 3 (0224):   306.50  12.204     3.00    40.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0703) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (2329.2) ------>
               Distance      Elevation      Manning
                   0.00          88.00       0.1100
                  37.50          87.00       0.1100
                  51.30          86.00       0.1100
                  82.80          86.00       0.1100
                 107.50          87.00       0.1100
                 117.30          86.00       0.1100
                 125.90          86.00    0.1100 /0.0700  Main
Channel
                 127.40          85.50       0.0700      Main
Channel
                 128.40          85.50       0.0700      Main
Channel
                 129.90          86.00    0.0700 /0.1100  Main
Channel
                 133.00          86.00       0.1100
                 149.00          87.00       0.1100
                 193.00          88.00       0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.12   85.62    .787E+02       0.0          0.19
40.30
        0.25   85.75    .200E+03       0.1          0.28
27.58
        0.37   85.88    .365E+03       0.3          0.35
22.10
        0.50   86.00    .572E+03       0.5          0.41
18.84
        0.63   86.13    .372E+04       1.8          0.22
34.16
        0.77   86.27    .738E+04       4.4          0.27
28.02
        0.90   86.40    .116E+05       8.1          0.32
23.77
        1.03   86.53    .163E+05      13.0          0.37
20.89
        1.17   86.67    .215E+05      19.1          0.41
18.82
        1.30   86.80    .273E+05      26.4          0.44
17.24
        1.43   86.93    .336E+05      35.0          0.48
15.99
        1.57   87.07    .404E+05      44.9          0.51
15.00
        1.70   87.20    .479E+05      56.3          0.54
14.18
        1.83   87.33    .560E+05      69.3          0.57
13.47
        1.97   87.47    .648E+05      84.0          0.59
12.85
        2.10   87.60    .743E+05     100.6          0.62
12.31
        2.23   87.73    .844E+05     119.0          0.65
11.82
        2.37   87.87    .952E+05     139.3          0.67
11.39
        2.50   88.00    .107E+06     161.7          0.69
11.00

                                     <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (0224)  306.50     12.20     3.00  40.36
1.01     0.36
     OUTFLOW: ID= 1 (0703)  306.50      7.26     4.75  40.36
0.87     0.31

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--------------------
| CALIB            |
| STANDHYD  (7032) |   Area    (ha)=  23.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       17.94         5.36
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      394.12        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       125.14
                over (min)        5.00        10.00
     Storage Coeff.  (min)=        4.83 (ii)    9.50 (ii)
     Unit Hyd. Tpeak (min)=        5.00        10.00
     Unit Hyd. peak  (cms)=        0.22         0.12

*TOTALS*
     PEAK FLOW       (cms)=       6.71         1.28
7.995 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=      95.62        45.26
79.50
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.45
0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  63.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0215) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0703):   306.50   7.262     4.75    40.36
        + ID2= 2 (7032):    23.30   7.995     3.00    79.50
          ===============================================
          ID = 3 (0215):   329.80  13.310     3.00    43.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0704) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (2755.4) ------>
               Distance      Elevation      Manning
                   0.00          85.00       0.1100
                  25.00          84.00       0.1100
                  32.00          84.00    0.1100 /0.0700  Main
Channel
                  33.50          83.50       0.0700      Main
Channel
                  34.50          83.50       0.0700      Main
Channel
                  36.00          84.00    0.0700 /0.1100  Main
Channel
                  65.00          84.00       0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.03   83.53    .121E+02       0.0          0.12
61.52
        0.05   83.55    .259E+02       0.0          0.19
40.35
        0.08   83.58    .414E+02       0.0          0.24
31.84
        0.10   83.60    .585E+02       0.0          0.28
27.04
        0.13   83.63    .774E+02       0.1          0.31
23.87
        0.15   83.65    .979E+02       0.1          0.35
21.59
        0.18   83.68    .120E+03       0.1          0.38
19.84
        0.20   83.70    .144E+03       0.1          0.41
18.45
        0.23   83.73    .170E+03       0.2          0.43
17.31
        0.25   83.75    .197E+03       0.2          0.46
16.34
        0.28   83.78    .226E+03       0.2          0.48
15.52
        0.30   83.80    .257E+03       0.3          0.51
14.80
        0.33   83.83    .289E+03       0.3          0.53
14.16
        0.35   83.85    .323E+03       0.4          0.55
13.60
        0.38   83.88    .359E+03       0.5          0.57
13.09
        0.40   83.90    .396E+03       0.5          0.59
12.64
        0.43   83.93    .435E+03       0.6          0.61
12.22
        0.45   83.95    .476E+03       0.7          0.63
11.84
        0.48   83.98    .518E+03       0.8          0.65
11.49

     **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                     <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (0215)  329.80     13.31     3.00  43.12
0.47     0.65
     OUTFLOW: ID= 1 (0704)  329.80      9.59     3.17  43.12
0.48     0.65


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--------------------
| CALIB            |
| STANDHYD  (7042) |   Area    (ha)=  23.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       18.25         5.45
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      397.49        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       119.60
                over (min)        5.00        10.00
     Storage Coeff.  (min)=        4.85 (ii)    9.52 (ii)
     Unit Hyd. Tpeak (min)=        5.00        10.00
     Unit Hyd. peak  (cms)=        0.22         0.12

*TOTALS*
     PEAK FLOW       (cms)=       6.82         1.24
8.064 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        43.23
78.86
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.43
0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  61.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0229) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0704):   329.80   9.586     3.17    43.12
        + ID2= 2 (7042):    23.70   8.064     3.00    78.86
          ===============================================
          ID = 3 (0229):   353.50  15.927     3.00    45.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7202) |   Area    (ha)=  22.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       17.33         5.18
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      387.30        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       133.68
                over (min)        5.00        10.00
     Storage Coeff.  (min)=        4.77 (ii)    9.45 (ii)
     Unit Hyd. Tpeak (min)=        5.00        10.00
     Unit Hyd. peak  (cms)=        0.22         0.12

*TOTALS*
     PEAK FLOW       (cms)=       6.49         1.33
7.824 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=      95.62        48.40
80.51
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.48
0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0721) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 920.0) ------>
               Distance      Elevation      Manning
                   0.00          82.00       0.1100
                  41.00          82.00       0.1100
                  50.70          82.00       0.1100
                  57.80          81.00    0.1100 /0.0700  Main
Channel
                  59.30          79.84       0.0700      Main
Channel
                  60.30          79.84       0.0700      Main
Channel
                  61.80          81.00    0.0700 /0.1100  Main
Channel
                  63.30          81.00       0.1100
                  85.90          81.00       0.1100
                 100.00          82.00       0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.11   79.95    .515E+02       0.0          0.20
35.58
        0.21   80.05    .115E+03       0.1          0.30
24.20
        0.32   80.16    .192E+03       0.2          0.37
19.53
        0.42   80.26    .280E+03       0.3          0.43
16.82
        0.53   80.37    .381E+03       0.4          0.48
15.00
        0.63   80.47    .494E+03       0.6          0.53
13.65
        0.74   80.58    .620E+03       0.8          0.57
12.60
        0.84   80.68    .758E+03       1.1          0.61
11.75
        0.95   80.79    .908E+03       1.4          0.65
11.04
        1.05   80.89    .107E+04       1.7          0.69
10.44
        1.16   81.00    .125E+04       2.1          0.72
9.92
        1.28   81.12    .283E+04       3.2          0.49
14.61
        1.41   81.25    .455E+04       5.0          0.48
15.04
        1.53   81.37    .642E+04       7.4          0.50
14.36
        1.66   81.50    .843E+04      10.4          0.53
13.50
        1.78   81.62    .106E+05      13.9          0.57
12.67
        1.91   81.75    .129E+05      18.0          0.60
11.93
        2.03   81.87    .153E+05      22.6          0.63
11.29
        2.16   82.00    .179E+05      27.8          0.67
10.73

                                     <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (7202)   22.50      7.82     3.00  80.51
1.55     0.50
     OUTFLOW: ID= 1 (0721)   22.50      4.90     3.08  80.50
1.40     0.48

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| CALIB            |
| STANDHYD  (7212) |   Area    (ha)=  18.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       13.94         4.16
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      347.37        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       133.68
                over (min)        5.00        10.00
     Storage Coeff.  (min)=        4.47 (ii)    9.14 (ii)
     Unit Hyd. Tpeak (min)=        5.00        10.00
     Unit Hyd. peak  (cms)=        0.23         0.12

*TOTALS*
     PEAK FLOW       (cms)=       5.26         1.09
6.342 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.00
3.00
```

```
    RUNOFF VOLUME    (mm)=      95.62        48.39
80.51
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.48
0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0237) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0721):    22.50   4.897     3.08    80.50
        + ID2= 2 (7212):    18.10   6.342     3.00    80.51
          ================================================
          ID = 3 (0237):    40.60  10.986     3.00    80.50

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0238) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0229):   353.50  15.927     3.00    45.52
        + ID2= 2 (0237):    40.60  10.986     3.00    80.50
          ================================================
          ID = 3 (0238):   394.10  26.913     3.00    49.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0705) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (3276.8) ------>
               Distance      Elevation       Manning
                   0.00          80.50        0.1100
                   5.70          80.00        0.1100
                  14.00          79.00        0.1100
                  22.00          79.00     0.1100 /0.0700  Main
Channel
                  23.50          78.50        0.0700      Main
Channel
                  24.50          78.50        0.0700      Main
Channel
                  26.00          79.00     0.0700 /0.1100  Main
Channel
                  28.00          79.00        0.1100
                  41.00          80.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.07    78.57    .248E+02       0.0          0.26
18.45
        0.14    78.64    .584E+02       0.1          0.38
12.49
        0.21    78.71    .101E+03       0.2          0.48
10.01
        0.29    78.79    .152E+03       0.3          0.56
8.56
        0.36    78.86    .212E+03       0.5          0.63
7.58
        0.43    78.93    .280E+03       0.7          0.70
6.85
        0.50    79.00    .358E+03       0.9          0.76
6.29
        0.58    79.08    .712E+03       1.6          0.64
7.50
        0.67    79.17    .111E+04       2.5          0.65
7.35
        0.75    79.25    .155E+04       3.7          0.69
6.94
        0.83    79.33    .203E+04       5.2          0.73
6.52
        0.92    79.42    .255E+04       6.9          0.78
6.14
        1.00    79.50    .312E+04       9.0          0.82
5.81
        1.08    79.58    .373E+04      11.3          0.86
5.52
        1.17    79.67    .438E+04      13.9          0.90
5.27
        1.25    79.75    .507E+04      16.7          0.94
5.05
        1.33    79.83    .581E+04      20.0          0.98
4.85
        1.42    79.92    .659E+04      23.5          1.02
4.68
        1.50    80.00    .741E+04      27.3          1.06
4.52

                                    <---- hydrograph ---->    <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0238)  394.10     26.91    3.00  49.12
1.49      1.05
    OUTFLOW: ID= 1 (0705)  394.10     24.11    3.08  49.12
1.43      1.02

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--------------------
| CALIB            |
| STANDHYD  (7052) |   Area    (ha)=   6.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       3.40          3.40
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     212.92         40.00
    Mannings n          =       0.013         0.250

    Max.Eff.Inten.(mm/hr)=     159.59         83.23
              over (min)        5.00         15.00
    Storage Coeff.  (min)=       3.33 (ii)   12.69 (ii)
    Unit Hyd. Tpeak (min)=       5.00         15.00
    Unit Hyd. peak  (cms)=       0.26          0.08

*TOTALS*
    PEAK FLOW       (cms)=       1.04          0.45
1.409 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62         32.18
54.38
    TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
    RUNOFF COEFFICIENT   =       0.94          0.32
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
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```
            CN*  =  51.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0243) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0705):   394.10  24.114     3.08    49.12
        + ID2= 2 (7052):     6.80   1.409     3.00    54.38
          ================================================
          ID = 3 (0243):   400.90  24.912     3.08    49.21

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7502) |   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       2.75          2.75
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     191.49         40.00
    Mannings n          =       0.013         0.250

    Max.Eff.Inten.(mm/hr)=     159.59        120.33
              over (min)        5.00         15.00
    Storage Coeff.  (min)=       3.13 (ii)   11.20 (ii)
    Unit Hyd. Tpeak (min)=       5.00         15.00
    Unit Hyd. peak  (cms)=       0.27          0.09

*TOTALS*
    PEAK FLOW       (cms)=       0.84          0.57
1.323 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62         46.47
63.67
    TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
    RUNOFF COEFFICIENT   =       0.94          0.46
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   2 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\Jenny\AppD
|                  |              ata\Local\Temp\
|                  |              5cabfbfe-d340-4400-a9c0-
5faca896dcae\3d84088a
| Ptotal= 40.03 mm |    Comments: Mount Hope-6 hour SCS
Distribution Desig
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                 0.17    1.59 |  1.67    3.97 |  3.17    8.73 |
4.67    2.38
                 0.33    1.59 |  1.83    3.97 |  3.33    8.73 |
4.83    3.38
                 0.50    1.59 |  2.00    3.97 |  3.50    8.73 |
5.00    3.38
                 0.67    2.38 |  2.17    4.76 |  3.67    3.97 |
5.17    1.59
                 0.83    2.38 |  2.33    4.76 |  3.83    3.97 |
5.33    1.59
                 1.00    2.38 |  2.50    4.76 |  4.00    3.97 |
5.50    1.59
                 1.17    2.38 |  2.67   23.82 |  4.17    3.18 |
5.67    1.59
                 1.33    2.38 |  2.83   42.88 |  4.33    3.18 |
5.83    1.59
                 1.50    2.38 |  3.00   61.93 |  4.50    3.18 |
6.00    1.59

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--------------------
| CALIB            |
| STANDHYD  (5102) |   Area    (ha)=   1.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       1.09          0.61
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     106.46         40.00
    Mannings n          =       0.013         0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                             ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                0.083    1.59 | 1.583    3.97 | 3.083    8.73 |
4.58    2.38
                0.167    1.59 | 1.667    3.97 | 3.167    8.73 |
4.67    2.38
                0.250    1.59 | 1.750    3.97 | 3.250    8.73 |
4.75    3.38
                0.333    1.59 | 1.833    3.97 | 3.333    8.73 |
4.83    3.38
                0.417    1.59 | 1.917    3.97 | 3.417    8.73 |
4.92    3.38
                0.500    1.59 | 2.000    3.97 | 3.500    8.73 |
5.00    3.38
                0.583    2.38 | 2.083    4.76 | 3.583    3.97 |
5.08    1.59
                0.667    2.38 | 2.167    4.76 | 3.667    3.97 |
5.17    1.59
                0.750    2.38 | 2.250    4.76 | 3.750    3.97 |
5.25    1.59
                0.833    2.38 | 2.333    4.76 | 3.833    3.97 |
5.33    1.59
                0.917    2.38 | 2.417    4.76 | 3.917    3.97 |
5.42    1.59
                1.000    2.38 | 2.500    4.76 | 4.000    3.97 |
5.50    1.59
                1.083    2.38 | 2.583   23.82 | 4.083    3.18 |
5.58    1.59
                1.167    2.38 | 2.667   23.82 | 4.167    3.18 |
5.67    1.59
                1.250    2.38 | 2.750   42.88 | 4.250    3.18 |
5.75    1.59
                1.333    2.38 | 2.833   42.88 | 4.333    3.18 |
5.83    1.59
                1.417    2.38 | 2.917   61.93 | 4.417    3.18 |
5.92    1.59
                1.500    2.38 | 3.000   61.93 | 4.500    3.18 |
6.00    1.59
```

```
    Max.Eff.Inten.(mm/hr)=      61.93         16.27
              over (min)        5.00         25.00
    Storage Coeff.  (min)=       3.21 (ii)   21.18 (ii)
    Unit Hyd. Tpeak (min)=       5.00         25.00
    Unit Hyd. peak  (cms)=       0.27          0.05

*TOTALS*
    PEAK FLOW       (cms)=       0.15          0.02
0.158 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.33
3.00
    RUNOFF VOLUME    (mm)=      34.03          8.76
21.90
    TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
    RUNOFF COEFFICIENT   =       0.85          0.22
0.55

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0511) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation       Manning
                   0.00          81.24        0.1100
                  33.01          80.98        0.1100
                  49.97          81.27        0.1100
                  54.18          80.35        0.1100
                  60.88          81.23     0.1100 /0.0700  Main
Channel
                  69.13          79.02        0.0700      Main
Channel
                  92.42          79.04        0.0700      Main
Channel
                  98.70          80.89     0.0700 /0.1100  Main
Channel
                 128.88          81.13        0.1100
                 199.00          81.23        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.12    79.13    .361E+03       0.6          0.24
9.91
        0.23    79.25    .776E+03       2.1          0.40
6.09
        0.35    79.37    .121E+04       4.3          0.52
4.65
        0.47    79.48    .165E+04       7.1          0.63
3.85
        0.59    79.60    .211E+04      10.5          0.72
3.34
        0.70    79.72    .258E+04      14.4          0.81
2.98
        0.82    79.84    .307E+04      18.8          0.89
2.71
        0.94    79.95    .357E+04      23.8          0.97
2.50
        1.05    80.07    .408E+04      29.2          1.04
2.33
        1.17    80.19    .461E+04      35.1          1.10
2.19
        1.29    80.30    .515E+04      41.5          1.17
2.07
        1.41    80.42    .571E+04      48.4          1.23
1.97
        1.52    80.54    .631E+04      55.8          1.28
1.88
        1.64    80.66    .695E+04      63.8          1.33
1.81
        1.76    80.77    .762E+04      72.3          1.38
1.76
        1.87    80.89    .833E+04      81.4          1.42
1.71
        2.00    81.02    .931E+04      92.4          1.44
1.68
        2.13    81.14    .109E+05     104.8          1.39
1.74
        2.25    81.27    .140E+05     120.9          1.25
1.93

                                    <---- hydrograph ---->    <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (5102)    1.70      0.16    3.00  21.90
0.03      0.24
    OUTFLOW: ID= 1 (0511)    1.70      0.12    3.00  21.89
0.02      0.24


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--------------------
| CALIB            |
| STANDHYD  (5112) |   Area    (ha)=   3.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=
58.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       2.07          0.93
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     141.42         40.00
    Mannings n          =       0.013         0.250

    Max.Eff.Inten.(mm/hr)=      61.93         20.16
              over (min)        5.00         25.00
    Storage Coeff.  (min)=       3.81 (ii)   20.30 (ii)
    Unit Hyd. Tpeak (min)=       5.00         25.00
    Unit Hyd. peak  (cms)=       0.25          0.05

*TOTALS*
    PEAK FLOW       (cms)=       0.29          0.03
0.307 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.33
3.00
    RUNOFF VOLUME    (mm)=      34.03         10.52
24.15
    TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
    RUNOFF COEFFICIENT   =       0.85          0.26
0.60

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0117) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0511):     1.70   0.117     3.00    21.89
        + ID2= 2 (5112):     3.00   0.307     3.00    24.15
          ================================================
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```
          ID = 3 (0117):    4.70   0.424     3.00    23.33

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0512) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 484.2) ------>
              Distance      Elevation       Manning
                  0.00         80.80        0.0900
                  9.73         80.46        0.0900
                 14.10         82.04        0.0900
                 17.18         82.28        0.0900
                 41.13         82.12    0.0900 /0.0700  Main
Channel
                 46.88         79.71        0.0700      Main
Channel
                 51.41         80.90    0.0700 /0.0900  Main
Channel
                 94.29         80.56        0.0900
                175.64         80.72        0.0900
                192.09         80.85        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.13    79.84    .255E+02       0.0          0.14
54.71
       0.26    79.98    .102E+03       0.0          0.23
34.47
       0.40    80.11    .229E+03       0.1          0.30
26.30
       0.53    80.24    .408E+03       0.3          0.36
21.71
       0.66    80.37    .637E+03       0.6          0.42
18.71
       0.79    80.51    .934E+03       0.9          0.46
16.84
       0.93    80.64    .245E+04       1.6          0.31
24.96
       1.06    80.77    .873E+04       4.6          0.25
31.51
       1.19    80.90    .179E+05      11.4          0.30
26.08
       1.32    81.04    .278E+05      22.6          0.38
20.45
       1.46    81.17    .381E+05      37.5          0.46
16.91
       1.60    81.31    .484E+05      55.4          0.54
14.57
       1.74    81.45    .588E+05      76.0          0.61
12.90
       1.87    81.59    .693E+05      99.3          0.67
11.63
       2.01    81.72    .798E+05     125.0          0.73
10.64
       2.15    81.86    .903E+05     153.1          0.80
9.83
       2.29    82.00    .101E+06     183.5          0.85
9.16
       2.42    82.14    .112E+06     214.3          0.90
8.68
       2.56    82.27    .123E+06     244.4          0.93
8.40

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0117)    4.70     0.42    3.00  23.33
0.59     0.38
     OUTFLOW: ID= 1 (0512)    4.70     0.23    3.08  23.27
0.47     0.33


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-------------------
| CALIB            |
| STANDHYD  (5122) |   Area    (ha)=   3.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=
57.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.65         1.25
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     161.25        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        19.82
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       4.12 (ii)   20.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.24         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.37         0.04
0.390 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03        10.44
23.88
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.26
0.60

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  71.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0119) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0512):     4.70   0.234     3.08    23.27
        + ID2= 2 (5122):     3.90   0.390     3.00    23.88
          ===============================================
          ID = 3 (0119):     8.60   0.606     3.00    23.55

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (5202) |   Area    (ha)=  29.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.85        14.85
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     444.97        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        19.19
                over (min)       10.00        25.00
     Storage Coeff.  (min)=       7.58 (ii)   24.40 (ii)
     Unit Hyd. Tpeak (min)=      10.00        25.00
     Unit Hyd. peak  (cms)=       0.13         0.05
```

```
*TOTALS*
     PEAK FLOW       (cms)=       1.48         0.42
1.682 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      38.53        10.45
20.28
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.96         0.26
0.51


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  72.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0521) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 815.4) ------>
              Distance      Elevation       Manning
                415.18         83.86        0.0900
                461.15         83.40        0.0900
                501.83         83.53    0.0900 /0.0700  Main
Channel
                513.93         82.96        0.0700      Main
Channel
                526.85         83.23    0.0700 /0.0900  Main
Channel
                569.63         83.21        0.0900
                610.76         83.63        0.0900
                663.54         83.88        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.05    83.00    .378E+02       0.0          0.11
83.81
       0.09    83.05    .151E+03       0.0          0.17
52.79
       0.14    83.09    .340E+03       0.1          0.22
40.29
       0.18    83.14    .605E+03       0.3          0.27
33.26
       0.23    83.18    .946E+03       0.5          0.32
28.66
       0.27    83.23    .151E+04       0.9          0.33
27.77
       0.32    83.27    .323E+04       1.8          0.31
29.51
       0.37    83.32    .510E+04       3.2          0.34
26.44
       0.42    83.37    .713E+04       5.0          0.38
23.61
       0.46    83.42    .934E+04       7.3          0.42
21.44
       0.51    83.47    .121E+05      10.0          0.45
20.23
       0.56    83.52    .156E+05      13.4          0.47
19.44
       0.61    83.57    .196E+05      17.7          0.49
18.52
       0.66    83.61    .240E+05      22.8          0.52
17.49
       0.71    83.66    .286E+05      28.4          0.54
16.75
       0.75    83.71    .336E+05      34.7          0.56
16.14
       0.80    83.76    .390E+05      41.8          0.58
15.55
       0.85    83.81    .448E+05      49.8          0.60
14.99
       0.90    83.86    .510E+05      58.8          0.63
14.46

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (5202)   29.70     1.68    3.00  20.28
0.31     0.31
     OUTFLOW: ID= 1 (0521)   29.70     0.96    3.25  20.26
0.27     0.32


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-------------------
| CALIB            |
| STANDHYD  (5212) |   Area    (ha)=  15.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
66.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.78         3.93
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     323.52        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        29.70
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       6.26 (ii)   20.38 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.19         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.64         0.16
1.726 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03        12.97
26.87
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.32
0.67


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  77.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0113) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0521):    29.70   0.956     3.25    20.26
        + ID2= 2 (5212):    15.70   1.726     3.00    26.87
          ===============================================
          ID = 3 (0113):    45.40   2.386     3.00    22.55

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (5011) |   Area    (ha)=  80.20   Curve Number
(CN)= 65.0
```

```
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------    U.H. Tp(hrs)=   0.85

     Unit Hyd Qpeak  (cms)=   3.621

     PEAK FLOW       (cms)=   0.550 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=   6.078
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.152

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5012) |   Area    (ha)=  39.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.97        24.43
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     512.51        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        13.05
                over (min)       10.00        30.00
     Storage Coeff.  (min)=       8.25 (ii)   27.87 (ii)
     Unit Hyd. Tpeak (min)=      10.00        30.00
     Unit Hyd. peak  (cms)=       0.13         0.04

*TOTALS*
     PEAK FLOW       (cms)=       1.32         0.43
1.476 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      34.03         7.74
14.05
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.19
0.35


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  65.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0100) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5011):    80.20   0.550     3.92     6.08
        + ID2= 2 (5012):    39.40   1.476     3.00    14.05
          ===============================================
          ID = 3 (0100):   119.60   1.576     3.08     8.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0502) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1537.5) ------>
              Distance      Elevation       Manning
                  0.00         89.30        0.1100
                  4.20         89.28        0.1100
                  9.03         88.80        0.1100
                 21.55         88.78        0.1100
                 29.06         88.24        0.1100
                 39.87         87.83        0.1100
                 55.54         87.84    0.1100 /0.0700  Main
Channel
                 57.54         86.84        0.0700      Main
Channel
                 59.04         86.84        0.0700      Main
Channel
                 61.04         87.84    0.0700 /0.1100  Main
Channel
                 74.10         87.86        0.1100
                 87.72         88.07        0.1100
                101.34         88.18        0.1100
                113.53         88.23        0.1100
                128.57         88.32        0.1100
                142.19         88.61        0.1100
                155.81         88.53        0.1100
                183.05         88.85        0.1100
                187.19         88.84        0.1100
                211.21         88.88        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.10    86.94    .202E+03       0.0          0.25
78.80
       0.20    87.04    .452E+03       0.1          0.37
52.91
       0.30    87.14    .749E+03       0.3          0.47
42.34
       0.40    87.24    .109E+04       0.5          0.55
36.26
       0.50    87.34    .149E+04       0.8          0.62
32.18
       0.60    87.44    .193E+04       1.1          0.68
29.19
       0.70    87.54    .241E+04       1.5          0.74
26.87
       0.80    87.64    .295E+04       2.0          0.79
25.01
       0.90    87.74    .353E+04       2.5          0.84
23.46
       1.00    87.84    .421E+04       3.1          0.89
22.39
       1.10    87.94    .849E+04       4.5          0.63
31.56
       1.21    88.05    .150E+05       7.1          0.56
35.43
       1.33    88.17    .233E+05      10.6          0.54
36.49
       1.44    88.28    .346E+05      15.5          0.53
37.18
       1.56    88.40    .484E+05      22.8          0.56
35.35
       1.67    88.51    .634E+05      32.1          0.60
32.90
       1.79    88.63    .807E+05      41.2          0.61
32.65
       1.90    88.74    .101E+06      54.6          0.64
30.77
       2.02    88.86    .124E+06      64.7          0.62
31.85

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0100)  119.60     1.58    3.08   8.70
0.72     0.75
     OUTFLOW: ID= 1 (0502)  119.60     1.01    3.67   8.70
0.57     0.66
```

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--------------------
| CALIB             |
| STANDHYD  (5022) |   Area    (ha)=  51.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  48.00   Dir. Conn.(%)=
34.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      24.53         26.57
     Dep. Storage     (mm)=       1.50          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     583.67         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      61.93         12.66
                over (min)       10.00         30.00
     Storage Coeff.  (min)=       8.92 (ii)    28.78 (ii)
     Unit Hyd. Tpeak (min)=      10.00         30.00
     Unit Hyd. peak  (cms)=       0.12          0.04

*TOTALS*
     PEAK FLOW        (cms)=       2.37          0.45
2.535 (iii)
     TIME TO PEAK     (hrs)=       3.00          3.42
3.00
     RUNOFF VOLUME     (mm)=      38.53          7.27
17.90
     TOTAL RAINFALL    (mm)=      40.03         40.03
40.03
     RUNOFF COEFFICIENT   =       0.96          0.18
0.45


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  62.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0102) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0502):   119.60   1.014     3.67     8.70
       + ID2= 2 (5022):    51.10   2.535     3.00    17.90
         ==================================================
         ID = 3 (0102):   170.70   3.144     3.08    11.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0503) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
             <------ DATA FOR SECTION (1157.9) ------>
             Distance      Elevation      Manning
                 0.00          86.78       0.0900
                25.34          87.17       0.0900
                68.44          87.04       0.0900
               117.13          86.81       0.0900
               125.36          85.21    0.0900 /0.0700  Main
Channel
               127.36          84.21       0.0700     Main
Channel
               128.86          84.21       0.0700     Main
Channel
               130.86          85.21    0.0700 /0.0900  Main
Channel
               131.88          86.36       0.0900
               140.63          86.77       0.0900
               168.26          86.90       0.0900
               169.81          87.10       0.0900
               202.11          87.50       0.0900
               239.06          87.35       0.0900
               270.29          87.83       0.0900
               283.90          87.90       0.0900
               297.51          87.86       0.0900
               324.73          87.89       0.0900
               351.95          87.78       0.0900
               388.59          87.46       0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH     ELEV      VOLUME     FLOW RATE     VELOCITY
TRAV.TIME
        (m)       (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.17     84.38    .114E+03       0.1          0.34
18.34
       0.33     84.54    .269E+03       0.4          0.50
12.51
       0.50     84.71    .465E+03       0.8          0.62
10.07
       0.67     84.88    .703E+03       1.4          0.72
8.63
       0.83     85.04    .982E+03       2.1          0.81
7.65
       1.00     85.21    .130E+04       3.1          0.89
6.93
       1.21     85.42    .177E+04       5.0          1.06
5.87
       1.41     85.62    .234E+04       7.4          1.17
5.28
       1.62     85.83    .300E+04      10.2          1.27
4.89
       1.83     86.04    .376E+04      13.6          1.35
4.60
       2.03     86.24    .462E+04      17.6          1.42
4.37
       2.24     86.45    .560E+04      22.1          1.47
4.22
       2.45     86.66    .695E+04      27.6          1.48
4.20
       2.66     86.87    .925E+04      31.2          1.25
4.94
       2.86     87.07    .168E+05      43.1          0.96
6.48
       3.07     87.28    .297E+05      67.7          0.85
7.30
       3.28     87.49    .456E+05     103.1          0.84
7.38
       3.48     87.69    .663E+05     159.6          0.89
6.93
       3.69     87.90    .907E+05     223.4          0.92
6.77

                                       <---- hydrograph ---->   <-
pipe / channel->
                               AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0102)  170.70      3.14     3.08  11.45
1.00      0.90
     OUTFLOW: ID= 1 (0503)  170.70      2.81     3.17  11.45
0.94      0.86


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| CALIB             |
| STANDHYD  (5032) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  76.00   Dir. Conn.(%)=
67.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.49          3.31
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     303.32         40.00
     Mannings n          =       0.013         0.250
```

```
     Max.Eff.Inten.(mm/hr)=      61.93         20.79
                over (min)        5.00         25.00
     Storage Coeff.  (min)=       6.02 (ii)    22.31 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.19          0.05

*TOTALS*
     PEAK FLOW        (cms)=       1.48          0.11
1.529 (iii)
     TIME TO PEAK     (hrs)=       3.00          3.33
3.00
     RUNOFF VOLUME     (mm)=      34.03         10.67
26.32
     TOTAL RAINFALL    (mm)=      40.03         40.03
40.03
     RUNOFF COEFFICIENT   =       0.85          0.27
0.66


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  71.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0104) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0503):   170.70   2.806     3.17    11.45
       + ID2= 2 (5032):    13.80   1.529     3.00    26.32
         ==================================================
         ID = 3 (0104):   184.50   3.806     3.00    12.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0504) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
             <------ DATA FOR SECTION ( 815.4) ------>
             Distance      Elevation      Manning
                19.10          82.03       0.0900
                29.01          83.14       0.0900
                40.83          82.56       0.0900
                81.51          82.27       0.0900
               122.18          82.68       0.0900
               169.31          82.61       0.0900
               217.10          82.90       0.0900
               229.61          83.66    0.0900 /0.0700  Main
Channel
               232.80          81.85       0.0700     Main
Channel
               243.24          83.87       0.0700     Main
Channel
               257.77          84.06       0.0900
               312.01          83.52       0.0900
               415.18          83.86       0.0900
               461.15          83.40       0.0900
               501.83          83.53       0.0900
               513.93          82.96       0.0900
               526.85          83.23       0.0900
               569.63          83.21       0.0900
               610.76          83.63       0.0900
               663.54          83.88       0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH     ELEV      VOLUME     FLOW RATE     VELOCITY
TRAV.TIME
        (m)       (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.11     81.96    .117E+02       0.0          0.18
23.95
       0.23     82.08    .492E+02       0.1          0.28
15.67
       0.34     82.19    .135E+03       0.2          0.34
13.00
       0.45     82.30    .312E+03       0.4          0.32
13.44
       0.57     82.42    .116E+04       1.2          0.28
15.74
       0.68     82.53    .287E+04       3.5          0.32
13.85
       0.79     82.64    .549E+04       7.0          0.33
13.13
       0.91     82.76    .101E+05      14.9          0.39
11.28
       1.02     82.87    .155E+05      27.5          0.47
9.38
       1.13     82.98    .214E+05      45.2          0.55
7.89
       1.25     83.10    .277E+05      67.2          0.64
6.87
       1.36     83.21    .344E+05      93.6          0.71
6.12
       1.47     83.32    .426E+05     125.3          0.77
5.67
       1.59     83.44    .516E+05     162.2          0.82
5.30
       1.70     83.55    .620E+05     204.2          0.86
5.06
       1.81     83.66    .747E+05     254.0          0.89
4.90
       1.95     83.80    .924E+05     324.9          0.92
4.74
       2.08     83.93    .113E+06     411.3          0.95
4.59
       2.21     84.06    .135E+06     515.5          1.00
4.37

                                       <---- hydrograph ---->   <-
pipe / channel->
                               AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0104)  184.50      3.81     3.00  12.57
0.69      0.32
     OUTFLOW: ID= 1 (0504)  184.50      2.94     3.25  12.57
0.65      0.31


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| CALIB             |
| STANDHYD  (5042) |   Area    (ha)=   7.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
65.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.77          1.92
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     226.57         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      61.93         19.38
                over (min)        5.00         25.00
     Storage Coeff.  (min)=       5.05 (ii)    21.81 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.21          0.05

*TOTALS*
     PEAK FLOW        (cms)=       0.82          0.06
0.847 (iii)
     TIME TO PEAK     (hrs)=       3.00          3.33
3.00
     RUNOFF VOLUME     (mm)=      34.03          9.84
25.56
```

```
     TOTAL RAINFALL    (mm)=      40.03         40.03
40.03
     RUNOFF COEFFICIENT   =       0.85          0.25
0.64


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  68.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0106) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0504):   184.50   2.944     3.25    12.57
       + ID2= 2 (5042):     7.70   0.847     3.00    25.56
         ==================================================
         ID = 3 (0106):   192.20   3.159     3.25    13.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0114) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0106):   192.20   3.159     3.25    13.09
       + ID2= 2 (0113):    45.40   2.386     3.00    22.55
         ==================================================
         ID = 3 (0114):   237.60   5.293     3.00    14.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0505) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
             <------ DATA FOR SECTION ( 553.6) ------>
             Distance      Elevation      Manning
                 0.00          81.24       0.1100
                33.01          80.98       0.1100
                49.97          81.27       0.1100
                54.18          80.35       0.1100
                60.88          81.23       0.1100
                69.13          79.02       0.1100
                92.42          79.04       0.1100
                98.70          80.89       0.1100
               128.88          81.13       0.1100
               199.00          81.23       0.1100
               266.11          81.68       0.1100
               306.94          81.73       0.1100
               331.74          81.55    0.1100 /0.0700  Main
Channel
               336.74          80.15       0.0700     Main
Channel
               346.34          81.64    0.0700 /0.0900  Main
Channel
               394.77          81.68       0.0900
               431.64          81.44       0.0900
               477.44          82.08       0.0900
               481.25          82.81       0.0900
               501.51          83.16       0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH     ELEV      VOLUME     FLOW RATE     VELOCITY
TRAV.TIME
        (m)       (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.12     79.13    .418E+03       0.4          0.15
18.59
       0.23     79.25    .899E+03       1.3          0.25
11.41
       0.35     79.36    .140E+04       2.7          0.33
8.70
       0.46     79.48    .191E+04       4.4          0.39
7.22
       0.58     79.59    .244E+04       6.5          0.46
6.26
       0.69     79.71    .299E+04       8.9          0.51
5.58
       0.81     79.82    .355E+04      11.7          0.56
5.08
       0.92     79.94    .413E+04      14.7          0.61
4.68
       1.04     80.05    .472E+04      18.1          0.65
4.36
       1.15     80.17    .533E+04      21.7          0.70
4.09
       1.27     80.28    .598E+04      25.7          0.74
3.88
       1.38     80.40    .666E+04      29.7          0.76
3.74
       1.50     80.51    .740E+04      33.7          0.78
3.67
       1.61     80.63    .822E+04      38.1          0.79
3.59
       1.73     80.74    .909E+04      43.1          0.81
3.52
       1.84     80.86    .100E+05      48.6          0.83
3.45
       1.96     80.97    .111E+05      48.4          0.74
3.83
       2.07     81.09    .128E+05      43.8          0.59
4.86
       2.19     81.21    .155E+05      40.6          0.45
6.35

                                       <---- hydrograph ---->   <-
pipe / channel->
                               AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0114)  237.60      5.29     3.00  14.89
0.51      0.42
     OUTFLOW: ID= 1 (0505)  237.60      4.81     3.08  14.89
0.48      0.40


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| CALIB             |
| STANDHYD  (5052) |   Area    (ha)=  15.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=
65.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.77          4.13
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     325.58         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      61.93         17.84
                over (min)        5.00         25.00
     Storage Coeff.  (min)=       6.28 (ii)    23.60 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.19          0.05

*TOTALS*
     PEAK FLOW        (cms)=       1.64          0.11
1.692 (iii)
     TIME TO PEAK     (hrs)=       3.00          3.33
3.00
     RUNOFF VOLUME     (mm)=      34.03          9.46
25.43
```

```
    TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
    RUNOFF COEFFICIENT   =       0.85         0.24
0.64

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  68.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0108) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (0505):   237.60   4.806     3.08    14.89
     + ID2= 2 (5052):    15.90   1.692     3.00    25.43
       ================================================
       ID = 3 (0108):   253.50   5.941     3.00    15.55

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0506) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 304.1) ------>
              Distance      Elevation      Manning
                 0.00         81.42         0.0900
                 7.45         81.36         0.0900
                32.34         80.38         0.0900
                45.97         80.05         0.0900
                65.23         79.93         0.0900
                84.49         80.35         0.0900
               113.49         80.02         0.0900
               136.48         80.07         0.0900
               188.81         79.81         0.0900
               197.86         79.25    0.0900 /0.0700  Main
Channel
               200.70         78.22         0.0700      Main
Channel
               203.29         79.35    0.0700 /0.0900  Main
Channel
               204.01         79.67         0.0900
               236.47         80.40         0.0900
               277.80         80.48         0.0900
               305.35         80.37         0.0900
               346.67         80.41         0.0900
               387.99         80.33         0.0900
               415.54         80.53         0.0900
               447.88         80.49         0.0900

      <--------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.11    78.34    .979E+01      0.0          0.23
21.53
      0.23    78.45    .392E+02      0.0          0.37
13.56
      0.34    78.56    .881E+02      0.1          0.48
10.35
      0.46    78.68    .157E+03      0.3          0.58
8.54
      0.57    78.79    .245E+03      0.6          0.67
7.36
      0.68    78.91    .352E+03      0.9          0.76
6.52
      0.80    79.02    .480E+03      1.4          0.84
5.88
      0.91    79.13    .627E+03      1.9          0.92
5.38
      1.03    79.25    .793E+03      2.7          0.99
4.98
      1.15    79.37    .103E+04      3.8          1.09
4.55
      1.28    79.50    .135E+04      5.2          1.16
4.28
      1.40    79.62    .175E+04      7.1          1.20
4.12
      1.52    79.75    .228E+04      9.3          1.21
4.08
      1.65    79.87    .318E+04     11.7          1.10
4.52
      1.77    80.00    .524E+04     15.8          0.90
5.52
      1.90    80.12    .973E+04     24.3          0.74
6.69
      2.02    80.24    .158E+05     39.7          0.75
6.62
      2.15    80.37    .230E+05     59.2          0.77
6.46
      2.27    80.49    .349E+05     90.3          0.77
6.44

                                     <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0108)  253.50     5.94    3.00  15.55
1.32      1.17
    OUTFLOW: ID= 1 (0506)  253.50     5.71    3.08  15.55
1.31      1.17

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--------------------
| CALIB            |
| STANDHYD  (5062) |    Area    (ha)=  11.70
|ID= 1 DT= 5.0 min |    Total Imp(%)=  75.00   Dir. Conn.(%)=
65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        8.78          2.92
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      279.28         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=       61.93         21.58
               over (min)        5.00         25.00
    Storage Coeff.  (min)=        5.73 (ii)    21.78 (ii)
    Unit Hyd. Tpeak (min)=        5.00         25.00
    Unit Hyd. peak  (cms)=        0.20          0.05

*TOTALS*
    PEAK FLOW       (cms)=        1.22          0.10
1.272 (iii)
    TIME TO PEAK    (hrs)=        3.00          3.33
3.00
    RUNOFF VOLUME    (mm)=       34.03         10.86
25.92
    TOTAL RAINFALL   (mm)=       40.03         40.03
40.03
    RUNOFF COEFFICIENT   =        0.85          0.27
0.65

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  71.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0110) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (0506):   253.50   5.709     3.08    15.55
     + ID2= 2 (5062):    11.70   1.272     3.00    25.92
       ================================================
       ID = 3 (0110):   265.20   6.396     3.08    16.01

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0120) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (0110):   265.20   6.396     3.08    16.01
     + ID2= 2 (0119):     8.60   0.606     3.00    23.55
       ================================================
       ID = 3 (0120):   273.80   6.878     3.00    16.25

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5302) |    Area    (ha)=   5.80
|ID= 1 DT= 5.0 min |    Total Imp(%)=  66.00   Dir. Conn.(%)=
56.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        3.83          1.97
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      196.64         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=       61.93         15.25
               over (min)        5.00         25.00
    Storage Coeff.  (min)=        4.64 (ii)    23.08 (ii)
    Unit Hyd. Tpeak (min)=        5.00         25.00
    Unit Hyd. peak  (cms)=        0.22          0.05

*TOTALS*
    PEAK FLOW       (cms)=        0.54          0.05
0.558 (iii)
    TIME TO PEAK    (hrs)=        3.00          3.33
3.00
    RUNOFF VOLUME    (mm)=       34.03          8.49
22.79
    TOTAL RAINFALL   (mm)=       40.03         40.03
40.03
    RUNOFF COEFFICIENT   =        0.85          0.21
0.57

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6102) |    Area    (ha)=  21.10
|ID= 1 DT= 5.0 min |    Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       10.55         10.55
    Dep. Storage     (mm)=        1.50          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      375.06         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=       61.93         17.81
               over (min)        5.00         25.00
    Storage Coeff.  (min)=        6.84 (ii)    24.17 (ii)
    Unit Hyd. Tpeak (min)=        5.00         25.00
    Unit Hyd. peak  (cms)=        0.18          0.05

*TOTALS*
    PEAK FLOW       (cms)=        1.15          0.28
1.286 (iii)
    TIME TO PEAK    (hrs)=        3.00          3.33
3.00
    RUNOFF VOLUME    (mm)=       38.53          9.76
19.83
    TOTAL RAINFALL   (mm)=       40.03         40.03
40.03
    RUNOFF COEFFICIENT   =        0.96          0.24
0.50

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  70.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0611) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 940.0) ------>
              Distance      Elevation      Manning
                 0.00         83.36         0.0900
                12.33         84.54         0.0900
                21.95         84.33    0.0900 /0.0700  Main
Channel
                25.80         83.10         0.0700      Main
Channel
                39.87         83.58    0.0700 /0.0900  Main
Channel
                95.01         83.67         0.0900
               132.30         84.45         0.0900

      <--------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.07    83.17    .442E+02      0.0          0.13
76.06
      0.14    83.24    .177E+03      0.1          0.20
47.91
      0.21    83.31    .398E+03      0.2          0.26
36.56
      0.28    83.38    .709E+03      0.4          0.32
30.22
      0.35    83.44    .113E+04      0.7          0.36
26.38
      0.41    83.51    .167E+04      1.2          0.41
23.66
      0.48    83.58    .232E+04      1.8          0.45
21.54
      0.56    83.66    .431E+04      3.1          0.42
23.06
      0.64    83.74    .779E+04      5.6          0.42
23.11
      0.72    83.82    .115E+05      9.1          0.46
20.97
      0.80    83.90    .154E+05     13.6          0.51
18.96
      0.88    83.98    .196E+05     18.9          0.55
17.31
      0.96    84.06    .240E+05     25.0          0.60
15.97
```

```
      1.04    84.14    .286E+05     32.1          0.65
14.88
      1.12    84.22    .334E+05     39.9          0.69
13.96
      1.20    84.30    .385E+05     48.6          0.73
13.19
      1.28    84.38    .438E+05     58.0          0.76
12.59
      1.36    84.46    .495E+05     68.4          0.80
12.06
      1.44    84.54    .555E+05     81.0          0.84
11.40

                                     <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (6102)   21.10     1.29    3.00  19.83
0.43      0.41
    OUTFLOW: ID= 1 (0611)   21.10     0.69    3.08  19.81
0.34      0.36

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--------------------
| CALIB            |
| STANDHYD  (6112) |    Area    (ha)=  11.40
|ID= 1 DT= 5.0 min |    Total Imp(%)=  72.00   Dir. Conn.(%)=
62.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        8.21          3.19
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      275.68         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=       61.93         27.44
               over (min)        5.00         25.00
    Storage Coeff.  (min)=        5.69 (ii)    20.26 (ii)
    Unit Hyd. Tpeak (min)=        5.00         25.00
    Unit Hyd. peak  (cms)=        0.20          0.05

*TOTALS*
    PEAK FLOW       (cms)=        1.14          0.12
1.199 (iii)
    TIME TO PEAK    (hrs)=        3.00          3.33
3.00
    RUNOFF VOLUME    (mm)=       34.03         12.07
25.69
    TOTAL RAINFALL   (mm)=       40.03         40.03
40.03
    RUNOFF COEFFICIENT   =        0.85          0.30
0.64

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  75.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0138) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (0611):    21.10   0.688     3.08    19.81
     + ID2= 2 (6112):    11.40   1.199     3.00    25.69
       ================================================
       ID = 3 (0138):    32.50   1.802     3.00    21.87

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6011) |    Area    (ha)=  44.10   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |    Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------    U.H. Tp(hrs)=   0.83

    Unit Hyd Qpeak  (cms)=   2.027

    PEAK FLOW       (cms)=   0.275 (i)
    TIME TO PEAK    (hrs)=   3.917
    RUNOFF VOLUME    (mm)=   5.466
    TOTAL RAINFALL   (mm)=  40.032
    RUNOFF COEFFICIENT   =   0.137

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6012) |    Area    (ha)=  11.00
|ID= 1 DT= 5.0 min |    Total Imp(%)=  28.00   Dir. Conn.(%)=
16.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        3.08          7.92
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      270.80         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=       61.93          8.91
               over (min)        5.00         30.00
    Storage Coeff.  (min)=        5.63 (ii)    28.48 (ii)
    Unit Hyd. Tpeak (min)=        5.00         30.00
    Unit Hyd. peak  (cms)=        0.20          0.04

*TOTALS*
    PEAK FLOW       (cms)=        0.28          0.11
0.323 (iii)
    TIME TO PEAK    (hrs)=        3.00          3.42
3.00
    RUNOFF VOLUME    (mm)=       34.03          6.61
10.99
    TOTAL RAINFALL   (mm)=       40.03         40.03
40.03
    RUNOFF COEFFICIENT   =        0.85          0.17
0.27

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  62.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0124) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (6011):    44.10   0.275     3.92     5.47
     + ID2= 2 (6012):    11.00   0.323     3.00    10.99
       ================================================
       ID = 3 (0124):    55.10   0.372     3.75     6.57

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| NASHYD    (6021) |   Area    (ha)=  43.60   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   1.753

     PEAK FLOW       (cms)=   0.247 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=   5.466
     TOTAL RAINFALL   (mm)=  40.032
     RUNOFF COEFFICIENT   =   0.137

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6022) |   Area    (ha)=  12.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
23.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.51         8.39
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     293.26        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93         9.23
                over (min)       5.00        30.00
     Storage Coeff.  (min)=       5.90 (ii)   28.44 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.19         0.04

*TOTALS*
     PEAK FLOW       (cms)=       0.48         0.12
0.519 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      34.03         6.72
13.00
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.17
0.32

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0125) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6021):    43.60   0.247     4.08     5.47
        + ID2= 2 (6022):    12.90   0.519     3.00    13.00
          ===============================================
          ID = 3 (0125):    56.50   0.549     3.00     7.19

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0126) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0124):    55.10   0.372     3.75     6.57
        + ID2= 2 (0125):    56.50   0.549     3.00     7.19
          ===============================================
          ID = 3 (0126):   111.60   0.915     3.00     6.88

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0603) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
                 <------ DATA FOR SECTION (2135.9) ------>
               Distance      Elevation        Manning
                   0.00          92.58         0.1400
                   8.54          92.59         0.1400
                  22.11          92.47         0.1400
                  48.74          91.83         0.1400
                  67.59          91.58         0.1400
                  86.45          91.21         0.1400
                 103.50          90.80         0.1400
                 118.09          90.23         0.1400
                 127.84          90.09     0.1400 /0.0700  Main
Channel
                 129.84          89.59         0.0700      Main
Channel
                 130.34          90.09     0.0700 /0.1400  Main
Channel
                 140.57          90.14         0.1400
                 161.87          90.11         0.1400
                 177.03          90.04         0.1400
                 188.67          89.87         0.1400
                 199.59          90.31         0.1400
                 212.02          90.96         0.1400
                 225.58          91.35         0.1400
                 252.71          91.66         0.1400
                 274.11          91.86         0.1400

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.12    89.71    .358E+02       0.0          0.19
81.29
        0.25    89.84    .143E+03       0.0          0.30
51.21
        0.37    89.96    .689E+03       0.2          0.23
67.44
        0.50    90.09    .278E+04       0.6          0.20
77.83
        0.67    90.26    .132E+05       3.4          0.23
65.31
        0.83    90.42    .262E+05       9.3          0.33
46.76
        1.00    90.59    .403E+05      17.9          0.41
37.64
        1.17    90.76    .556E+05      28.8          0.48
32.17
        1.33    90.92    .721E+05      42.0          0.53
28.63
        1.50    91.09    .903E+05      57.1          0.58
26.37
        1.67    91.26    .110E+06      74.7          0.62
24.65
        1.83    91.42    .133E+06      93.4          0.64
23.71
        2.00    91.59    .159E+06     113.6          0.66
23.26
        2.17    91.76    .188E+06     136.6          0.67
22.96
        2.33    91.92    .222E+06     168.5          0.70
21.97
        2.50    92.09    .258E+06     211.3          0.75
20.33
        2.67    92.26    .294E+06     258.5          0.81
18.98
        2.83    92.42    .332E+06     310.1          0.86
17.85
        3.00    92.59    .371E+06     358.0          0.88
17.29

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK    TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)     (cms)    (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0126)  111.60      0.92     3.00   6.88
0.52      0.20
     OUTFLOW: ID= 1 (0603)  111.60      0.52     4.83   6.88
0.48      0.20

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-------------------
| CALIB             |
| STANDHYD  (6032) |   Area    (ha)=  34.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  47.00   Dir. Conn.(%)=
32.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.26        18.34
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     480.28        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        18.66
                over (min)      10.00        25.00
     Storage Coeff.  (min)=       7.93 (ii)   24.94 (ii)
     Unit Hyd. Tpeak (min)=      10.00        25.00
     Unit Hyd. peak  (cms)=       0.13         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.56         0.50
1.796 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      38.53        10.31
19.34
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.96         0.26
0.48

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0128) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0603):   111.60   0.522     4.83     6.88
        + ID2= 2 (6032):    34.60   1.796     3.00    19.34
          ===============================================
          ID = 3 (0128):   146.20   1.970     3.00     9.83

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0604) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
                 <------ DATA FOR SECTION (1414.9) ------>
               Distance      Elevation        Manning
                   0.00          86.75         0.0900
                   3.09          87.40         0.0900
                  18.33          87.41         0.0900
                  35.33          86.99         0.0900
                  73.84          86.75         0.0900
                 103.33          86.41         0.0900
                 120.33          86.11         0.0900
                 129.46          86.13         0.0900
                 143.37          85.32         0.0900
                 154.33          85.02         0.0900
                 161.57          85.09         0.0900
                 163.05          84.78     0.0900 /0.0700  Main
Channel
                 166.55          83.78         0.0700      Main
Channel
                 168.05          84.78     0.0700 /0.1100  Main
Channel
                 172.02          85.29         0.1100
                 191.39          86.19         0.1100
                 270.18          85.78         0.1100
                 296.33          86.36         0.1100
                 324.34          86.68         0.1100
                 368.56          87.05         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.17    83.95    .465E+02       0.0          0.03
432.88
        0.33    84.11    .186E+03       0.0          0.04
272.70
        0.50    84.28    .418E+03       0.0          0.05
208.11
        0.67    84.45    .743E+03       0.1          0.06
171.79
        0.83    84.61    .116E+04       0.1          0.08
148.04
        1.00    84.78    .167E+04       0.2          0.09
131.10
        1.20    84.98    .252E+04       0.4          0.10
110.62
        1.41    85.19    .469E+04       0.6          0.09
121.59
        1.61    85.39    .842E+04       1.1          0.09
126.63
        1.81    85.59    .133E+05       1.8          0.09
121.99
        2.01    85.79    .192E+05       2.7          0.10
116.68
        2.22    86.00    .298E+05       4.0          0.09
125.45
        2.42    86.20    .487E+05       5.6          0.08
143.80
        2.62    86.40    .736E+05       9.0          0.08
137.02
        2.82    86.60    .102E+06      13.1          0.09
130.82
        3.03    86.81    .136E+06      18.1          0.09
125.42
        3.23    87.01    .178E+06      24.4          0.09
121.07
        3.43    87.21    .224E+06      34.2          0.10
108.80
        3.63    87.41    .271E+06      44.8          0.11
100.89

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK    TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)     (cms)    (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0128)  146.20      1.97     3.00   9.83
1.84      0.09
     OUTFLOW: ID= 1 (0604)  146.20      0.74     3.17   9.82
1.45      0.09

     **** WARNING:  COMPUTATIONS FAILED TO CONVERGE.

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-------------------
| CALIB             |
| STANDHYD  (6042) |   Area    (ha)=  24.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=
69.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      18.72         5.28
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     400.00        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        34.27
                over (min)       5.00        25.00
     Storage Coeff.  (min)=       7.11 (ii)   20.44 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.17         0.05

*TOTALS*
     PEAK FLOW       (cms)=       2.57         0.25
2.697 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      34.03        14.35
27.93
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.36
0.70

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0130) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0604):   146.20   0.737     3.17     9.82
        + ID2= 2 (6042):    24.00   2.697     3.00    27.93
          ===============================================
          ID = 3 (0130):   170.20   3.292     3.00    12.37

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0605) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
                 <------ DATA FOR SECTION ( 801.4) ------>
               Distance      Elevation        Manning
                   0.00          82.95         0.1100
                   3.78          82.95         0.1100
                   9.24          82.49         0.1100
                  50.67          82.10         0.1100
                 105.12          82.17         0.1100
                 119.34          81.56         0.1100
                 150.67          81.66         0.1100
                 157.23          82.37         0.1100
                 190.03          82.57         0.1100
                 223.75          82.27         0.1100
                 252.32          82.50         0.1100
                 254.65          81.95     0.1100 /0.0700  Main
Channel
                 258.15          80.95         0.0700      Main
Channel
                 259.65          81.95     0.0700 /0.1100  Main
Channel
                 263.15          82.90         0.1100
                 278.14          82.80         0.1100
                 282.35          81.68         0.1100
                 285.02          82.19         0.1100
                 336.56          82.53         0.1100
                 404.40          82.68         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.08    81.03    .125E+02       0.0          0.11
104.30
        0.17    81.12    .499E+02       0.0          0.18
65.70
        0.25    81.20    .112E+03       0.0          0.24
50.14
        0.33    81.28    .199E+03       0.1          0.29
41.39
        0.42    81.37    .312E+03       0.1          0.34
35.67
        0.50    81.45    .449E+03       0.2          0.38
31.59
        0.58    81.53    .611E+03       0.4          0.42
28.50
        0.67    81.62    .117E+04       0.5          0.33
36.10
        0.75    81.70    .316E+04       1.1          0.24
49.12
        0.83    81.78    .560E+04       2.1          0.27
45.15
        0.92    81.87    .827E+04       3.4          0.30
40.03
        1.00    81.95    .112E+05       5.2          0.33
35.88
        1.10    82.05    .151E+05       8.0          0.38
31.68
        1.21    82.16    .207E+05       8.8          0.30
39.37
        1.31    82.26    .306E+05      14.0          0.33
36.36
        1.41    82.36    .433E+05      20.3          0.34
35.59
        1.52    82.47    .606E+05      28.4          0.34
35.57
        1.62    82.57    .828E+05      41.0          0.36
33.68
        1.73    82.68    .109E+06      60.1          0.39
30.35

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK    TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)     (cms)    (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0130)  170.20      3.29     3.00  12.37
0.91      0.29
     OUTFLOW: ID= 1 (0605)  170.20      1.27     3.50  12.37
0.77      0.25

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| ADD HYD   (0139) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0138):    32.50   1.802     3.00    21.87
        + ID2= 2 (0605):   170.20   1.267     3.50    12.37
          ===============================================
          ID = 3 (0139):   202.70   2.793     3.00    13.89
```

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    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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 --------------------
 | CALIB             |
 | STANDHYD  (6052) |   Area    (ha)=  15.90
 |ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=
65.00
 --------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.77         4.13
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      325.58        40.00
     Mannings n              =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=       61.93        16.60
                over (min)         5.00        25.00
     Storage Coeff.  (min)=        6.28 (ii)   24.10 (ii)
     Unit Hyd. Tpeak (min)=        5.00        25.00
     Unit Hyd. peak  (cms)=        0.19         0.05

 *TOTALS*
     PEAK FLOW       (cms)=        1.64         0.10
1.688 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=       34.03         8.85
25.22
     TOTAL RAINFALL   (mm)=       40.03        40.03
40.03
     RUNOFF COEFFICIENT   =        0.85         0.22
0.63


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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 --------------------
 | ADD HYD   (0132) |
 |   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
 --------------------          (ha)     (cms)     (hrs)      (mm)
          ID1= 1 (0139):   202.70   2.793     3.00    13.89
        + ID2= 2 (6052):    15.90   1.688     3.00    25.22
          ===============================================
          ID = 3 (0132):   218.60   4.480     3.00    14.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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 --------------------
 | ROUTE CHN (0530) |
 | IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
 --------------------
                 <------ DATA FOR SECTION ( 350.0) ------>
                  Distance      Elevation       Manning
                     0.00          81.70        0.1100
                     3.84          81.72        0.1100
                     5.87          80.72        0.1100
                     9.38          81.42        0.1100
                    49.64          81.07        0.1100
                    80.61          80.72        0.1100
                    85.61          81.14        0.1100
                    93.32          80.00        0.1100
                    95.04          80.45        0.1100
                   102.72          80.66        0.1100
                   110.13          78.93     0.1100 /0.0700  Main
Channel
                   118.05          78.63        0.0700      Main
Channel
                   124.40          78.89     0.0700 /0.1100  Main
Channel
                   132.18          79.61        0.1100
                   139.34          79.23        0.1100
                   144.67          79.43        0.1100
                   149.63          79.98        0.1100
                   153.42          79.79        0.1100
                   158.56          80.58        0.1100
                   176.89          81.15        0.1100

         <-------------------- TRAVEL TIME TABLE ------------------
---->
        DEPTH     ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)       (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.13     78.76    .190E+03        0.1          0.19
38.41
        0.26     78.89    .758E+03        0.5          0.31
24.20
        0.43     79.05    .189E+04        2.1          0.50
14.77
        0.59     79.22    .321E+04        4.7          0.65
11.35
        0.76     79.39    .498E+04        8.2          0.73
10.10
        0.93     79.55    .743E+04       13.1          0.78
9.48
        1.09     79.72    .103E+05       19.5          0.84
8.84
        1.26     79.89    .135E+05       27.1          0.89
8.29
        1.43     80.05    .171E+05       36.3          0.94
7.85
        1.59     80.22    .209E+05       47.2          1.00
7.39
        1.76     80.39    .251E+05       59.8          1.06
6.99
        1.93     80.56    .296E+05       73.5          1.10
6.70
        2.10     80.72    .348E+05       87.6          1.12
6.61
        2.26     80.89    .412E+05      102.8          1.11
6.68
        2.43     81.06    .495E+05      122.0          1.09
6.77
        2.60     81.22    .596E+05      146.2          1.09
6.80
        2.76     81.39    .714E+05      176.9          1.10
6.72
        2.93     81.56    .841E+05      215.0          1.13
6.52
        3.10     81.72    .970E+05      256.7          1.18
6.30

                                     <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0132)  218.60     4.48    3.00  14.71
0.58     0.63
     OUTFLOW: ID= 1 (0530)  218.60     3.37    3.08  14.71
0.51     0.56


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 --------------------
 | ADD HYD   (0134) |
 |   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
 --------------------          (ha)     (cms)     (hrs)      (mm)
          ID1= 1 (0530):   218.60   3.374     3.08    14.71
        + ID2= 2 (5302):     5.80   0.558     3.00    22.79
          ===============================================
          ID = 3 (0134):   224.40   3.640     3.08    14.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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 --------------------
 | ADD HYD   (0135) |
 |   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
 --------------------          (ha)     (cms)     (hrs)      (mm)
          ID1= 1 (0120):   273.80   6.878     3.00    16.25
        + ID2= 2 (0134):   224.40   3.640     3.08    14.92
          ===============================================
          ID = 3 (0135):   498.20  10.466     3.00    15.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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 --------------------
 | ROUTE CHN (0507) |
 | IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
 --------------------
                 <------ DATA FOR SECTION (  40.0) ------>
                  Distance      Elevation       Manning
                     0.00          79.36        0.0900
                     7.45          79.32        0.0900
                    13.77          79.27        0.0900
                    20.24          79.24        0.0900
                    27.28          79.26        0.0900
                    34.16          79.13        0.0900
                    40.79          79.05        0.0900
                    47.58          79.05        0.0900
                    54.30          79.07        0.0900
                    60.87          79.24        0.0900
                    71.39          79.48        0.0900
                    73.53          78.96        0.0900
                    76.96          78.07        0.0900
                    82.21          77.08     0.0900 /0.0700  Main
Channel
                    85.82          76.28        0.0700      Main
Channel
                    89.97          76.89        0.0700      Main
Channel
                    91.35          77.38     0.0700 /0.0900  Main
Channel
                    95.27          78.68        0.0900
                    98.44          79.63        0.0900
                   102.89          79.89        0.0900

         <-------------------- TRAVEL TIME TABLE ------------------
---->
        DEPTH     ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)       (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.16     76.44    .113E+03        0.0          0.14
88.10
        0.32     76.60    .451E+03        0.1          0.23
55.50
        0.49     76.76    .101E+04        0.4          0.30
42.35
        0.65     76.92    .180E+04        0.9          0.37
34.57
        0.81     77.09    .276E+04        1.6          0.44
28.86
        0.97     77.25    .388E+04        2.7          0.52
24.37
        1.14     77.41    .516E+04        4.0          0.59
21.56
        1.30     77.57    .660E+04        5.7          0.66
19.26
        1.46     77.74    .822E+04        7.8          0.72
17.67
        1.62     77.90    .100E+05       10.1          0.77
16.48
        1.79     78.06    .120E+05       12.8          0.82
15.54
        1.95     78.22    .141E+05       15.9          0.87
14.74
        2.11     78.39    .163E+05       19.4          0.91
14.06
        2.27     78.55    .187E+05       23.2          0.95
13.47
        2.44     78.71    .212E+05       27.3          0.99
12.95
        2.60     78.87    .239E+05       31.9          1.02
12.50
        2.76     79.04    .267E+05       36.8          1.06
12.10
        2.92     79.20    .320E+05       39.4          0.94
13.56
        3.09     79.36    .409E+05       45.7          0.85
14.94

                                     <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0135)  498.20    10.47    3.00  15.65
1.64     0.78
     OUTFLOW: ID= 1 (0507)  498.20     8.20    3.42  15.65
1.49     0.73


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 | CALIB             |
 | STANDHYD  (5072) |   Area    (ha)=  48.90
 |ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
36.00
 --------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       24.45        24.45
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      570.96        40.00
     Mannings n              =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=       61.93        20.04
                over (min)        10.00        30.00
     Storage Coeff.  (min)=        8.80 (ii)   25.33 (ii)
     Unit Hyd. Tpeak (min)=       10.00        30.00
     Unit Hyd. peak  (cms)=        0.12         0.04

 *TOTALS*
     PEAK FLOW       (cms)=        2.41         0.69
2.678 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=       34.03        11.03
19.31
     TOTAL RAINFALL   (mm)=       40.03        40.03
40.03
     RUNOFF COEFFICIENT   =        0.85         0.28
0.48


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  74.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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 | ADD HYD   (0122) |
 |   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
 --------------------          (ha)     (cms)     (hrs)      (mm)
          ID1= 1 (0507):   498.20   8.202     3.42    15.65
        + ID2= 2 (5072):    48.90   2.678     3.00    19.31
          ===============================================
          ID = 3 (0122):   547.10   9.684     3.25    15.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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 | CALIB             |
 | STANDHYD  (5402) |   Area    (ha)=   9.40
 |ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
 --------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        4.70         4.70
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      250.33        40.00
     Mannings n              =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=       61.93        15.40
                over (min)         5.00        25.00
     Storage Coeff.  (min)=        5.37 (ii)   23.73 (ii)
     Unit Hyd. Tpeak (min)=        5.00        25.00
     Unit Hyd. peak  (cms)=        0.21         0.05

 *TOTALS*
     PEAK FLOW       (cms)=        0.53         0.11
0.585 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=       34.03         8.53
17.45
     TOTAL RAINFALL   (mm)=       40.03        40.03
40.03
     RUNOFF COEFFICIENT   =        0.85         0.21
0.44


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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 | STORE HYD (1505) |   AREA       (ha)=  30.00
 | ID= 1 DT= 5.0min |   QPEAK     (cms)=   0.78
 --------------------   TPEAK     (hrs)=  15.58
                        VOLUME     (mm)= 402.14

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |'  TIME    FLOW |
TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |'   hrs     cms |
hrs     cms
  0.00    0.00 | 31.33    0.10 | 62.67    0.25 | 94.00    0.26
|125.33    0.16
  0.08    0.00 | 31.42    0.10 | 62.75    0.25 | 94.08    0.26
|125.42    0.16
  0.17    0.00 | 31.50    0.10 | 62.83    0.25 | 94.17    0.25
|125.50    0.16
  0.25    0.00 | 31.58    0.10 | 62.92    0.25 | 94.25    0.25
|125.58    0.16
  0.33    0.00 | 31.67    0.10 | 63.00    0.25 | 94.33    0.25
|125.67    0.17
  0.42    0.00 | 31.75    0.10 | 63.08    0.25 | 94.42    0.25
|125.75    0.16
  0.50    0.00 | 31.83    0.10 | 63.17    0.25 | 94.50    0.25
|125.83    0.16
  0.58    0.00 | 31.92    0.10 | 63.25    0.24 | 94.58    0.25
|125.92    0.17
  0.67    0.00 | 32.00    0.10 | 63.33    0.24 | 94.67    0.24
|126.00    0.15
  0.75    0.00 | 32.08    0.10 | 63.42    0.24 | 94.75    0.25
|126.08    0.16
  0.83    0.00 | 32.17    0.10 | 63.50    0.23 | 94.83    0.24
|126.17    0.16
  0.92    0.00 | 32.25    0.10 | 63.58    0.24 | 94.92    0.25
|126.25    0.16
  1.00    0.00 | 32.33    0.10 | 63.67    0.24 | 95.00    0.25
|126.33    0.16
  1.08    0.00 | 32.42    0.10 | 63.75    0.24 | 95.08    0.25
|126.42    0.16
  1.17    0.00 | 32.50    0.10 | 63.83    0.23 | 95.17    0.24
|126.50    0.17
  1.25    0.00 | 32.58    0.10 | 63.92    0.23 | 95.25    0.21
|126.58    0.16
  1.33    0.00 | 32.67    0.10 | 64.00    0.23 | 95.33    0.25
|126.67    0.16
  1.42    0.00 | 32.75    0.10 | 64.08    0.23 | 95.42    0.22
|126.75    0.17
  1.50    0.00 | 32.83    0.10 | 64.17    0.23 | 95.50    0.23
|126.83    0.17
  1.58    0.00 | 32.92    0.10 | 64.25    0.24 | 95.58    0.22
|126.92    0.17
  1.67    0.00 | 33.00    0.10 | 64.33    0.23 | 95.67    0.24
|127.00    0.17
  1.75    0.00 | 33.08    0.10 | 64.42    0.23 | 95.75    0.26
|127.08    0.17
  1.83    0.00 | 33.17    0.10 | 64.50    0.23 | 95.83    0.24
|127.17    0.18
  1.92    0.00 | 33.25    0.11 | 64.58    0.23 | 95.92    0.23
|127.25    0.17
  2.00    0.00 | 33.33    0.11 | 64.67    0.24 | 96.00    0.24
|127.33    0.18
  2.08    0.00 | 33.42    0.11 | 64.75    0.24 | 96.08    0.24
|127.42    0.18
  2.17    0.00 | 33.50    0.11 | 64.83    0.24 | 96.17    0.24
|127.50    0.16
  2.25    0.00 | 33.58    0.11 | 64.92    0.24 | 96.25    0.24
|127.58    0.18
  2.33    0.00 | 33.67    0.11 | 65.00    0.24 | 96.33    0.24
|127.67    0.17
  2.42    0.00 | 33.75    0.11 | 65.08    0.23 | 96.42    0.24
|127.75    0.18
  2.50    0.00 | 33.83    0.11 | 65.17    0.23 | 96.50    0.24
|127.83    0.17
  2.58    0.00 | 33.92    0.11 | 65.25    0.23 | 96.58    0.23
|127.92    0.17
  2.67    0.00 | 34.00    0.11 | 65.33    0.23 | 96.67    0.24
|128.00    0.17
  2.75    0.00 | 34.08    0.11 | 65.42    0.22 | 96.75    0.23
|128.08    0.17
  2.83    0.00 | 34.17    0.11 | 65.50    0.22 | 96.83    0.23
|128.17    0.17
  2.92    0.00 | 34.25    0.11 | 65.58    0.22 | 96.92    0.24
|128.25    0.18
  3.00    0.00 | 34.33    0.11 | 65.67    0.22 | 97.00    0.23
|128.33    0.18
  3.08    0.00 | 34.42    0.11 | 65.75    0.22 | 97.08    0.22
|128.42    0.19
  3.17    0.00 | 34.50    0.11 | 65.83    0.22 | 97.17    0.23
|128.50    0.18
  3.25    0.00 | 34.58    0.11 | 65.92    0.21 | 97.25    0.22
|128.58    0.17
  3.33    0.00 | 34.67    0.11 | 66.00    0.21 | 97.33    0.25
|128.67    0.18
  3.42    0.00 | 34.75    0.11 | 66.08    0.21 | 97.42    0.22
|128.75    0.18
  3.50    0.00 | 34.83    0.11 | 66.17    0.20 | 97.50    0.24
|128.83    0.18
  3.58    0.00 | 34.92    0.11 | 66.25    0.20 | 97.58    0.23
|128.92    0.18
  3.67    0.00 | 35.00    0.11 | 66.33    0.20 | 97.67    0.22
|129.00    0.18
  3.75    0.00 | 35.08    0.11 | 66.42    0.20 | 97.75    0.23
|129.08    0.19
  3.83    0.00 | 35.17    0.11 | 66.50    0.19 | 97.83    0.22
|129.17    0.17
  3.92    0.00 | 35.25    0.11 | 66.58    0.20 | 97.92    0.21
|129.25    0.17
  4.00    0.00 | 35.33    0.11 | 66.67    0.20 | 98.00    0.22
|129.33    0.17
  4.08    0.00 | 35.42    0.11 | 66.75    0.20 | 98.08    0.23
|129.42    0.18
  4.17    0.00 | 35.50    0.11 | 66.83    0.19 | 98.17    0.21
|129.50    0.18
  4.25    0.00 | 35.58    0.11 | 66.92    0.19 | 98.25    0.21
|129.58    0.18
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4.33	0.00	35.67	0.11	67.00	0.20	98.33	0.23	129.67	0.18
4.42	0.00	35.75	0.11	67.08	0.20	98.42	0.21	129.75	0.18
4.50	0.00	35.83	0.11	67.17	0.20	98.50	0.21	129.83	0.18
4.58	0.00	35.92	0.11	67.25	0.20	98.58	0.23	129.92	0.18
4.67	0.00	36.00	0.11	67.33	0.20	98.67	0.22	130.00	0.18
4.75	0.00	36.08	0.11	67.42	0.21	98.75	0.23	130.08	0.17
4.83	0.00	36.17	0.11	67.50	0.22	98.83	0.24	130.17	0.17
4.92	0.00	36.25	0.11	67.58	0.22	98.92	0.22	130.25	0.17
5.00	0.00	36.33	0.11	67.67	0.23	99.00	0.20	130.33	0.17
5.08	0.00	36.42	0.12	67.75	0.24	99.08	0.20	130.42	0.18
5.17	0.00	36.50	0.12	67.83	0.26	99.17	0.22	130.50	0.18
5.25	0.00	36.58	0.12	67.92	0.27	99.25	0.21	130.58	0.18
5.33	0.00	36.67	0.12	68.00	0.28	99.33	0.22	130.67	0.17
5.42	0.00	36.75	0.12	68.08	0.31	99.42	0.21	130.75	0.17
5.50	0.00	36.83	0.12	68.17	0.32	99.50	0.20	130.83	0.18
5.58	0.00	36.92	0.12	68.25	0.34	99.58	0.21	130.92	0.17
5.67	0.00	37.00	0.12	68.33	0.35	99.67	0.20	131.00	0.17
5.75	0.00	37.08	0.12	68.42	0.38	99.75	0.19	131.08	0.17
5.83	0.00	37.17	0.12	68.50	0.39	99.83	0.20	131.17	0.18
5.92	0.00	37.25	0.12	68.58	0.40	99.92	0.22	131.25	0.18
6.00	0.00	37.33	0.12	68.67	0.42	100.00	0.21	131.33	0.17
6.08	0.00	37.42	0.12	68.75	0.44	100.08	0.20	131.42	0.17
6.17	0.00	37.50	0.12	68.83	0.46	100.17	0.21	131.50	0.17
6.25	0.00	37.58	0.12	68.92	0.49	100.25	0.19	131.58	0.17
6.33	0.00	37.67	0.13	69.00	0.51	100.33	0.19	131.67	0.17
6.42	0.00	37.75	0.12	69.08	0.54	100.42	0.19	131.75	0.17
6.50	0.00	37.83	0.12	69.17	0.56	100.50	0.19	131.83	0.17
6.58	0.00	37.92	0.12	69.25	0.60	100.58	0.19	131.92	0.17
6.67	0.00	38.00	0.12	69.33	0.64	100.67	0.19	132.00	0.16
6.75	0.00	38.08	0.12	69.42	0.67	100.75	0.21	132.08	0.17
6.83	0.00	38.17	0.12	69.50	0.67	100.83	0.19	132.17	0.17
6.92	0.00	38.25	0.12	69.58	0.68	100.92	0.19	132.25	0.17
7.00	0.00	38.33	0.12	69.67	0.65	101.00	0.19	132.33	0.17
7.08	0.00	38.42	0.12	69.75	0.66	101.08	0.19	132.42	0.18
7.17	0.00	38.50	0.12	69.83	0.66	101.17	0.20	132.50	0.17
7.25	0.00	38.58	0.12	69.92	0.67	101.25	0.19	132.58	0.16
7.33	0.00	38.67	0.13	70.00	0.66	101.33	0.18	132.67	0.17
7.42	0.00	38.75	0.13	70.08	0.67	101.42	0.19	132.75	0.17
7.50	0.00	38.83	0.13	70.17	0.67	101.50	0.19	132.83	0.17
7.58	0.00	38.92	0.13	70.25	0.70	101.58	0.19	132.92	0.16
7.67	0.00	39.00	0.13	70.33	0.74	101.67	0.20	133.00	0.17
7.75	0.00	39.08	0.14	70.42	0.73	101.75	0.19	133.08	0.16
7.83	0.00	39.17	0.14	70.50	0.74	101.83	0.18	133.17	0.16
7.92	0.00	39.25	0.14	70.58	0.74	101.92	0.19	133.25	0.16
8.00	0.00	39.33	0.14	70.67	0.74	102.00	0.19	133.33	0.15
8.08	0.00	39.42	0.14	70.75	0.75	102.08	0.19	133.42	0.16
8.17	0.00	39.50	0.15	70.83	0.75	102.17	0.19	133.50	0.16
8.25	0.00	39.58	0.16	70.92	0.74	102.25	0.18	133.58	0.17
8.33	0.00	39.67	0.16	71.00	0.74	102.33	0.18	133.67	0.16
8.42	0.00	39.75	0.16	71.08	0.75	102.42	0.19	133.75	0.15
8.50	0.00	39.83	0.16	71.17	0.77	102.50	0.19	133.83	0.16
8.58	0.00	39.92	0.17	71.25	0.76	102.58	0.19	133.92	0.16
8.67	0.00	40.00	0.17	71.33	0.76	102.67	0.18	134.00	0.16
8.75	0.00	40.08	0.17	71.42	0.77	102.75	0.20	134.08	0.16
8.83	0.00	40.17	0.17	71.50	0.76	102.83	0.18	134.17	0.15
8.92	0.00	40.25	0.18	71.58	0.77	102.92	0.18	134.25	0.16
9.00	0.00	40.33	0.18	71.67	0.76	103.00	0.17	134.33	0.16
9.08	0.00	40.42	0.18	71.75	0.76	103.08	0.17	134.42	0.16
9.17	0.00	40.50	0.18	71.83	0.78	103.17	0.18	134.50	0.16
9.25	0.00	40.58	0.19	71.92	0.77	103.25	0.18	134.58	0.15
9.33	0.00	40.67	0.19	72.00	0.76	103.33	0.17	134.67	0.16
9.42	0.00	40.75	0.19	72.08	0.74	103.42	0.17	134.75	0.15
9.50	0.00	40.83	0.19	72.17	0.75	103.50	0.17	134.83	0.15
9.58	0.00	40.92	0.19	72.25	0.74	103.58	0.18	134.92	0.16
9.67	0.00	41.00	0.19	72.33	0.72	103.67	0.18	135.00	0.15
9.75	0.00	41.08	0.19	72.42	0.70	103.75	0.18	135.08	0.15
9.83	0.00	41.17	0.20	72.50	0.70	103.83	0.18	135.17	0.15
9.92	0.00	41.25	0.20	72.58	0.69	103.92	0.19	135.25	0.15
10.00	0.00	41.33	0.21	72.67	0.70	104.00	0.17	135.33	0.15
10.08	0.00	41.42	0.22	72.75	0.68	104.08	0.18	135.42	0.15
10.17	0.00	41.50	0.23	72.83	0.67	104.17	0.18	135.50	0.15
10.25	0.00	41.58	0.23	72.92	0.66	104.25	0.17	135.58	0.15
10.33	0.00	41.67	0.23	73.00	0.64	104.33	0.17	135.67	0.14
10.42	0.00	41.75	0.24	73.08	0.63	104.42	0.17	135.75	0.15
10.50	0.00	41.83	0.25	73.17	0.63	104.50	0.18	135.83	0.16
10.58	0.00	41.92	0.25	73.25	0.61	104.58	0.17	135.92	0.15
10.67	0.00	42.00	0.26	73.33	0.62	104.67	0.16	136.00	0.15
10.75	0.00	42.08	0.25	73.42	0.61	104.75	0.16	136.08	0.15
10.83	0.00	42.17	0.26	73.50	0.62	104.83	0.18	136.17	0.15
10.92	0.00	42.25	0.26	73.58	0.60	104.92	0.16	136.25	0.15
11.00	0.00	42.33	0.26	73.67	0.62	105.00	0.17	136.33	0.15
11.08	0.00	42.42	0.26	73.75	0.58	105.08	0.16	136.42	0.15
11.17	0.00	42.50	0.26	73.83	0.59	105.17	0.16	136.50	0.15
11.25	0.00	42.58	0.26	73.92	0.57	105.25	0.16	136.58	0.15
11.33	0.00	42.67	0.26	74.00	0.57	105.33	0.16	136.67	0.14
11.42	0.00	42.75	0.25	74.08	0.57	105.42	0.16	136.75	0.15
11.50	0.00	42.83	0.26	74.17	0.56	105.50	0.16	136.83	0.14
11.58	0.00	42.92	0.25	74.25	0.58	105.58	0.16	136.92	0.14
11.67	0.00	43.00	0.25	74.33	0.58	105.67	0.16	137.00	0.14
11.75	0.00	43.08	0.25	74.42	0.58	105.75	0.17	137.08	0.15
11.83	0.00	43.17	0.25	74.50	0.59	105.83	0.16	137.17	0.14
11.92	0.00	43.25	0.25	74.58	0.60	105.92	0.16	137.25	0.15
12.00	0.00	43.33	0.25	74.67	0.57	106.00	0.16	137.33	0.15
12.08	0.00	43.42	0.25	74.75	0.56	106.08	0.16	137.42	0.14
12.17	0.00	43.50	0.25	74.83	0.54	106.17	0.16	137.50	0.14
12.25	0.00	43.58	0.25	74.92	0.56	106.25	0.17	137.58	0.14
12.33	0.00	43.67	0.25	75.00	0.53	106.33	0.16	137.67	0.15
12.42	0.00	43.75	0.25	75.08	0.51	106.42	0.16	137.75	0.14
12.50	0.00	43.83	0.26	75.17	0.51	106.50	0.16	137.83	0.14
12.58	0.00	43.92	0.26	75.25	0.51	106.58	0.16	137.92	0.14
12.67	0.00	44.00	0.26	75.33	0.51	106.67	0.16	138.00	0.14
12.75	0.00	44.08	0.26	75.42	0.50	106.75	0.16	138.08	0.14
12.83	0.00	44.17	0.26	75.50	0.50	106.83	0.15	138.17	0.14
12.92	0.00	44.25	0.27	75.58	0.49	106.92	0.15	138.25	0.14
13.00	0.00	44.33	0.26	75.67	0.49	107.00	0.16	138.33	0.14
13.08	0.00	44.42	0.26	75.75	0.49	107.08	0.16	138.42	0.14
13.17	0.00	44.50	0.26	75.83	0.48	107.17	0.16	138.50	0.14
13.25	0.00	44.58	0.26	75.92	0.47	107.25	0.15	138.58	0.14
13.33	0.00	44.67	0.26	76.00	0.47	107.33	0.16	138.67	0.14
13.42	0.00	44.75	0.26	76.08	0.48	107.42	0.16	138.75	0.14
13.50	0.00	44.83	0.26	76.17	0.46	107.50	0.15	138.83	0.14
13.58	0.00	44.92	0.26	76.25	0.45	107.58	0.16	138.92	0.14
13.67	0.00	45.00	0.26	76.33	0.45	107.67	0.15	139.00	0.14
13.75	0.00	45.08	0.26	76.42	0.43	107.75	0.15	139.08	0.14
13.83	0.00	45.17	0.25	76.50	0.44	107.83	0.16	139.17	0.13
13.92	0.00	45.25	0.25	76.58	0.46	107.92	0.16	139.25	0.14
14.00	0.00	45.33	0.25	76.67	0.43	108.00	0.16	139.33	0.14
14.08	0.00	45.42	0.25	76.75	0.44	108.08	0.15	139.42	0.14
14.17	0.00	45.50	0.25	76.83	0.43	108.17	0.15	139.50	0.14
14.25	0.00	45.58	0.25	76.92	0.45	108.25	0.15	139.58	0.13
14.33	0.00	45.67	0.25	77.00	0.42	108.33	0.16	139.67	0.14
14.42	0.00	45.75	0.25	77.08	0.43	108.42	0.16	139.75	0.14
14.50	0.00	45.83	0.26	77.17	0.43	108.50	0.15	139.83	0.13
14.58	0.00	45.92	0.25	77.25	0.42	108.58	0.15	139.92	0.14
14.67	0.00	46.00	0.26	77.33	0.41	108.67	0.15	140.00	0.14
14.75	0.00	46.08	0.26	77.42	0.43	108.75	0.16	140.08	0.13
14.83	0.00	46.17	0.25	77.50	0.41	108.83	0.15	140.17	0.13
14.92	0.69	46.25	0.26	77.58	0.43	108.92	0.15	140.25	0.13
15.00	0.69	46.33	0.26	77.67	0.39	109.00	0.15	140.33	0.13
15.08	0.71	46.42	0.26	77.75	0.39	109.08	0.15	140.42	0.14
15.17	0.74	46.50	0.26	77.83	0.37	109.17	0.15	140.50	0.13
15.25	0.74	46.58	0.26	77.92	0.39	109.25	0.15	140.58	0.13
15.33	0.74	46.67	0.26	78.00	0.39	109.33	0.14	140.67	0.13
15.42	0.77	46.75	0.26	78.08	0.39	109.42	0.15	140.75	0.13
15.50	0.76	46.83	0.25	78.17	0.37	109.50	0.15	140.83	0.13
15.58	0.78	46.92	0.25	78.25	0.36	109.58	0.14	140.92	0.13
15.67	0.78	47.00	0.25	78.33	0.37	109.67	0.15	141.00	0.13
15.75	0.77	47.08	0.25	78.42	0.38	109.75	0.14	141.08	0.13
15.83	0.77	47.17	0.26	78.50	0.36	109.83	0.15	141.17	0.13
15.92	0.77	47.25	0.26	78.58	0.36	109.92	0.14	141.25	0.13
16.00	0.76	47.33	0.26	78.67	0.36	110.00	0.14	141.33	0.13
16.08	0.74	47.42	0.26	78.75	0.37	110.08	0.14	141.42	0.13
16.17	0.74	47.50	0.26	78.83	0.34	110.17	0.14	141.50	0.13
16.25	0.74	47.58	0.25	78.92	0.35	110.25	0.14	141.58	0.13
16.33	0.72	47.67	0.26	79.00	0.36	110.33	0.15	141.67	0.13
16.42	0.69	47.75	0.26	79.08	0.35	110.42	0.15	141.75	0.13
16.50	0.69	47.83	0.26	79.17	0.35	110.50	0.14	141.83	0.13
16.58	0.67	47.92	0.26	79.25	0.36	110.58	0.14	141.92	0.13
16.67	0.66	48.00	0.25	79.33	0.36	110.67	0.14	142.00	0.13
16.75	0.64	48.08	0.25	79.42	0.33	110.75	0.15	142.08	0.12
16.83	0.63	48.17	0.26	79.50	0.33	110.83	0.14	142.17	0.13
16.92	0.63	48.25	0.25	79.58	0.33	110.92	0.15	142.25	0.13
17.00	0.60	48.33	0.25	79.67	0.32	111.00	0.15	142.33	0.13
17.08	0.58	48.42	0.25	79.75	0.33	111.08	0.14	142.42	0.12
17.17	0.58	48.50	0.25	79.83	0.33	111.17	0.14	142.50	0.13
17.25	0.57	48.58	0.25	79.92	0.32	111.25	0.14	142.58	0.13
17.33	0.56	48.67	0.24	80.00	0.33	111.33	0.15	142.67	0.13
17.42	0.55	48.75	0.24	80.08	0.34	111.42	0.14	142.75	0.13
17.50	0.54	48.83	0.24	80.17	0.32	111.50	0.15	142.83	0.12
17.58	0.51	48.92	0.24	80.25	0.31	111.58	0.14	142.92	0.13
17.67	0.50	49.00	0.24	80.33	0.33	111.67	0.14	143.00	0.12
17.75	0.48	49.08	0.25	80.42	0.31	111.75	0.14	143.08	0.12
17.83	0.47	49.17	0.24	80.50	0.32	111.83	0.14	143.17	0.12
17.92	0.47	49.25	0.24	80.58	0.31	111.92	0.14	143.25	0.12
18.00	0.45	49.33	0.24	80.67	0.31	112.00	0.15	143.33	0.12
18.08	0.44	49.42	0.23	80.75	0.33	112.08	0.15	143.42	0.12
18.17	0.41	49.50	0.23	80.83	0.31	112.17	0.14	143.50	0.12
18.25	0.42	49.58	0.24	80.92	0.32	112.25	0.14	143.58	0.12
18.33	0.40	49.67	0.23	81.00	0.32	112.33	0.14	143.67	0.12
18.42	0.39	49.75	0.24	81.08	0.31	112.42	0.15	143.75	0.12
18.50	0.38	49.83	0.24	81.17	0.31	112.50	0.15	143.83	0.12
18.58	0.38	49.92	0.23	81.25	0.31	112.58	0.15	143.92	0.12
18.67	0.37	50.00	0.23	81.33	0.31	112.67	0.15	144.00	0.12
18.75	0.37	50.08	0.23	81.42	0.31	112.75	0.14	144.08	0.12
18.83	0.36	50.17	0.24	81.50	0.32	112.83	0.15	144.17	0.12
18.92	0.35	50.25	0.23	81.58	0.32	112.92	0.14	144.25	0.12
19.00	0.34	50.33	0.23	81.67	0.34	113.00	0.15	144.33	0.12
19.08	0.34	50.42	0.23	81.75	0.34	113.08	0.15	144.42	0.12
19.17	0.34	50.50	0.23	81.83	0.35	113.17	0.14	144.50	0.12
19.25	0.34	50.58	0.23	81.92	0.37	113.25	0.15	144.58	0.12
19.33	0.33	50.67	0.23	82.00	0.36	113.33	0.15	144.67	0.12
19.42	0.33	50.75	0.23	82.08	0.37	113.42	0.14	144.75	0.12
19.50	0.32	50.83	0.23	82.17	0.38	113.50	0.14	144.83	0.12
19.58	0.32	50.92	0.23	82.25	0.36	113.58	0.14	144.92	0.12
19.67	0.32	51.00	0.23	82.33	0.35	113.67	0.14	145.00	0.12
19.75	0.31	51.08	0.23	82.42	0.37	113.75	0.14	145.08	0.12
19.83	0.30	51.17	0.23	82.50	0.37	113.83	0.14	145.17	0.12
19.92	0.30	51.25	0.23	82.58	0.36	113.92	0.14	145.25	0.12
20.00	0.29	51.33	0.23	82.67	0.38	114.00	0.14	145.33	0.12
20.08	0.29	51.42	0.23	82.75	0.38	114.08	0.14	145.42	0.12
20.17	0.28	51.50	0.23	82.83	0.41	114.17	0.14	145.50	0.12
20.25	0.28	51.58	0.23	82.92	0.40	114.25	0.14	145.58	0.12
20.33	0.28	51.67	0.23	83.00	0.40	114.33	0.14	145.67	0.12
20.42	0.27	51.75	0.23	83.08	0.40	114.42	0.14	145.75	0.12
20.50	0.27	51.83	0.23	83.17	0.44	114.50	0.15	145.83	0.12
20.58	0.26	51.92	0.23	83.25	0.44	114.58	0.14	145.92	0.12
20.67	0.27	52.00	0.23	83.33	0.42	114.67	0.14	146.00	0.12
20.75	0.26	52.08	0.24	83.42	0.42	114.75	0.14	146.08	0.11
20.83	0.26	52.17	0.24	83.50	0.42	114.83	0.15	146.17	0.11
20.92	0.25	52.25	0.24	83.58	0.41	114.92	0.14	146.25	0.11
21.00	0.25	52.33	0.25	83.67	0.41	115.00	0.15	146.33	0.12
21.08	0.25	52.42	0.25	83.75	0.42	115.08	0.14	146.42	0.11
21.17	0.24	52.50	0.25	83.83	0.41	115.17	0.14	146.50	0.12
21.25	0.25	52.58	0.25	83.92	0.41	115.25	0.14	146.58	0.12
21.33	0.24	52.67	0.25	84.00	0.43	115.33	0.15	146.67	0.11
21.42	0.24	52.75	0.25	84.08	0.40	115.42	0.14	146.75	0.12
21.50	0.24	52.83	0.25	84.17	0.42	115.50	0.15	146.83	0.11
21.58	0.23	52.92	0.25	84.25	0.41	115.58	0.14	146.92	0.12
21.67	0.23	53.00	0.27	84.33	0.42	115.67	0.14	147.00	0.11
21.75	0.23	53.08	0.27	84.42	0.42	115.75	0.14	147.08	0.12
21.83	0.23	53.17	0.28	84.50	0.43	115.83	0.14	147.17	0.11
21.92	0.23	53.25	0.28	84.58	0.44	115.92	0.14	147.25	0.12
22.00	0.23	53.33	0.28	84.67	0.42	116.00	0.15	147.33	0.12
22.08	0.22	53.42	0.28	84.75	0.44	116.08	0.14	147.42	0.11
22.17	0.22	53.50	0.28	84.83	0.45	116.17	0.15	147.50	0.11
22.25	0.22	53.58	0.29	84.92	0.45	116.25	0.14	147.58	0.11
22.33	0.22	53.67	0.29	85.00	0.46	116.33	0.14	147.67	0.11
22.42	0.21	53.75	0.29	85.08	0.47	116.42	0.14	147.75	0.11
22.50	0.21	53.83	0.30	85.17	0.46	116.50	0.14	147.83	0.11
22.58	0.21	53.92	0.30	85.25	0.46	116.58	0.14	147.92	0.11
22.67	0.21	54.00	0.30	85.33	0.44	116.67	0.14	148.00	0.11
22.75	0.21	54.08	0.30	85.42	0.45	116.75	0.14	148.08	0.11
22.83	0.20	54.17	0.31	85.50	0.45	116.83	0.14	148.17	0.11
22.92	0.20	54.25	0.30	85.58	0.45	116.92	0.14	148.25	0.11
23.00	0.20	54.33	0.31	85.67	0.45	117.00	0.14	148.33	0.11
23.08	0.20	54.42	0.30	85.75	0.46	117.08	0.14	148.42	0.11
23.17	0.20	54.50	0.31	85.83	0.45	117.17	0.14	148.50	0.11
23.25	0.20	54.58	0.32	85.92	0.47	117.25	0.14	148.58	0.11
23.33	0.19	54.67	0.32	86.00	0.44	117.33	0.14	148.67	0.11
23.42	0.19	54.75	0.32	86.08	0.45	117.42	0.14	148.75	0.11
23.50	0.19	54.83	0.32	86.17	0.43	117.50	0.14	148.83	0.11
23.58	0.19	54.92	0.32	86.25	0.43	117.58	0.14	148.92	0.11
23.67	0.19	55.00	0.32	86.33	0.43	117.67	0.13	149.00	0.11
23.75	0.18	55.08	0.32	86.42	0.43	117.75	0.13	149.08	0.11
23.83	0.18	55.17	0.32	86.50	0.45	117.83	0.14	149.17	0.11
23.92	0.18	55.25	0.33	86.58	0.42	117.92	0.13	149.25	0.11
24.00	0.18	55.33	0.33	86.67	0.42	118.00	0.13	149.33	0.11

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 24.08   0.18 | 55.42   0.33 | 86.75   0.43 |118.08   0.13
|149.42   0.11
 24.17   0.18 | 55.50   0.33 | 86.83   0.41 |118.17   0.13
|149.50   0.11
 24.25   0.17 | 55.58   0.32 | 86.92   0.40 |118.25   0.13
|149.58   0.11
 24.33   0.18 | 55.67   0.32 | 87.00   0.40 |118.33   0.13
|149.67   0.11
 24.42   0.17 | 55.75   0.32 | 87.08   0.39 |118.42   0.13
|149.75   0.11
 24.50   0.17 | 55.83   0.32 | 87.17   0.39 |118.50   0.13
|149.83   0.11
 24.58   0.17 | 55.92   0.32 | 87.25   0.39 |118.58   0.13
|149.92   0.11
 24.67   0.17 | 56.00   0.32 | 87.33   0.37 |118.67   0.13
|150.00   0.11
 24.75   0.16 | 56.08   0.32 | 87.42   0.37 |118.75   0.13
|150.08   0.11
 24.83   0.16 | 56.17   0.32 | 87.50   0.38 |118.83   0.13
|150.17   0.11
 24.92   0.16 | 56.25   0.32 | 87.58   0.37 |118.92   0.13
|150.25   0.11
 25.00   0.16 | 56.33   0.32 | 87.67   0.36 |119.00   0.13
|150.33   0.11
 25.08   0.16 | 56.42   0.32 | 87.75   0.38 |119.08   0.13
|150.42   0.11
 25.17   0.16 | 56.50   0.32 | 87.83   0.38 |119.17   0.13
|150.50   0.11
 25.25   0.16 | 56.58   0.31 | 87.92   0.34 |119.25   0.13
|150.58   0.11
 25.33   0.15 | 56.67   0.31 | 88.00   0.35 |119.33   0.13
|150.67   0.11
 25.42   0.16 | 56.75   0.32 | 88.08   0.34 |119.42   0.13
|150.75   0.11
 25.50   0.15 | 56.83   0.31 | 88.17   0.35 |119.50   0.13
|150.83   0.11
 25.58   0.15 | 56.92   0.31 | 88.25   0.34 |119.58   0.13
|150.92   0.11
 25.67   0.15 | 57.00   0.31 | 88.33   0.36 |119.67   0.13
|151.00   0.11
 25.75   0.15 | 57.08   0.31 | 88.42   0.33 |119.75   0.13
|151.08   0.11
 25.83   0.15 | 57.17   0.31 | 88.50   0.33 |119.83   0.13
|151.17   0.11
 25.92   0.15 | 57.25   0.31 | 88.58   0.34 |119.92   0.13
|151.25   0.11
 26.00   0.15 | 57.33   0.30 | 88.67   0.33 |120.00   0.13
|151.33   0.11
 26.08   0.15 | 57.42   0.30 | 88.75   0.33 |120.08   0.13
|151.42   0.11
 26.17   0.15 | 57.50   0.30 | 88.83   0.32 |120.17   0.13
|151.50   0.11
 26.25   0.14 | 57.58   0.30 | 88.92   0.30 |120.25   0.14
|151.58   0.11
 26.33   0.14 | 57.67   0.31 | 89.00   0.31 |120.33   0.14
|151.67   0.11
 26.42   0.14 | 57.75   0.30 | 89.08   0.31 |120.42   0.13
|151.75   0.11
 26.50   0.14 | 57.83   0.30 | 89.17   0.30 |120.50   0.14
|151.83   0.11
 26.58   0.14 | 57.92   0.30 | 89.25   0.31 |120.58   0.14
|151.92   0.11
 26.67   0.14 | 58.00   0.29 | 89.33   0.32 |120.67   0.14
|152.00   0.11
 26.75   0.14 | 58.08   0.29 | 89.42   0.31 |120.75   0.14
|152.08   0.11
 26.83   0.14 | 58.17   0.29 | 89.50   0.30 |120.83   0.14
|152.17   0.11
 26.92   0.14 | 58.25   0.29 | 89.58   0.29 |120.92   0.14
|152.25   0.11
 27.00   0.14 | 58.33   0.29 | 89.67   0.29 |121.00   0.14
|152.33   0.10
 27.08   0.13 | 58.42   0.29 | 89.75   0.29 |121.08   0.14
|152.42   0.11
 27.17   0.13 | 58.50   0.29 | 89.83   0.28 |121.17   0.14
|152.50   0.11
 27.25   0.13 | 58.58   0.29 | 89.92   0.30 |121.25   0.14
|152.58   0.10
 27.33   0.13 | 58.67   0.28 | 90.00   0.31 |121.33   0.14
|152.67   0.10
 27.42   0.13 | 58.75   0.28 | 90.08   0.31 |121.42   0.14
|152.75   0.10
 27.50   0.13 | 58.83   0.28 | 90.17   0.30 |121.50   0.14
|152.83   0.10
 27.58   0.13 | 58.92   0.29 | 90.25   0.30 |121.58   0.14
|152.92   0.10
 27.67   0.13 | 59.00   0.29 | 90.33   0.31 |121.67   0.14
|153.00   0.11
 27.75   0.13 | 59.08   0.29 | 90.42   0.30 |121.75   0.14
|153.08   0.10
 27.83   0.13 | 59.17   0.28 | 90.50   0.31 |121.83   0.14
|153.17   0.10
 27.92   0.12 | 59.25   0.28 | 90.58   0.31 |121.92   0.14
|153.25   0.11
 28.00   0.13 | 59.33   0.28 | 90.67   0.31 |122.00   0.15
|153.33   0.10
 28.08   0.12 | 59.42   0.27 | 90.75   0.31 |122.08   0.14
|153.42   0.11
 28.17   0.12 | 59.50   0.27 | 90.83   0.30 |122.17   0.14
|153.50   0.10
 28.25   0.12 | 59.58   0.27 | 90.92   0.31 |122.25   0.14
|153.58   0.10
 28.33   0.12 | 59.67   0.26 | 91.00   0.30 |122.33   0.14
|153.67   0.10
 28.42   0.12 | 59.75   0.26 | 91.08   0.30 |122.42   0.15
|153.75   0.11
 28.50   0.12 | 59.83   0.26 | 91.17   0.32 |122.50   0.15
|153.83   0.10
 28.58   0.12 | 59.92   0.26 | 91.25   0.30 |122.58   0.15
|153.92   0.10
 28.67   0.12 | 60.00   0.25 | 91.33   0.28 |122.67   0.14
|154.00   0.10
 28.75   0.12 | 60.08   0.25 | 91.42   0.30 |122.75   0.15
|154.08   0.10
 28.83   0.12 | 60.17   0.25 | 91.50   0.28 |122.83   0.14
|154.17   0.10
 28.92   0.12 | 60.25   0.25 | 91.58   0.31 |122.92   0.14
|154.25   0.10
 29.00   0.12 | 60.33   0.25 | 91.67   0.28 |123.00   0.15
|154.33   0.10
 29.08   0.12 | 60.42   0.24 | 91.75   0.30 |123.08   0.15
|154.42   0.10
 29.17   0.11 | 60.50   0.24 | 91.83   0.31 |123.17   0.15
|154.50   0.10
 29.25   0.11 | 60.58   0.24 | 91.92   0.27 |123.25   0.15
|154.58   0.10
 29.33   0.11 | 60.67   0.23 | 92.00   0.28 |123.33   0.15
|154.67   0.10
 29.42   0.11 | 60.75   0.24 | 92.08   0.29 |123.42   0.15
|154.75   0.10
 29.50   0.11 | 60.83   0.23 | 92.17   0.27 |123.50   0.15
|154.83   0.10
 29.58   0.11 | 60.92   0.23 | 92.25   0.28 |123.58   0.15
|154.92   0.10
 29.67   0.11 | 61.00   0.23 | 92.33   0.28 |123.67   0.15
|155.00   0.10
 29.75   0.11 | 61.08   0.23 | 92.42   0.31 |123.75   0.15
|155.08   0.10
 29.83   0.11 | 61.17   0.23 | 92.50   0.28 |123.83   0.15
|155.17   0.10
 29.92   0.11 | 61.25   0.22 | 92.58   0.28 |123.92   0.15
|155.25   0.10
 30.00   0.11 | 61.33   0.23 | 92.67   0.28 |124.00   0.15
|155.33   0.10
 30.08   0.11 | 61.42   0.23 | 92.75   0.28 |124.08   0.15
|155.42   0.10
 30.17   0.11 | 61.50   0.24 | 92.83   0.27 |124.17   0.15
|155.50   0.10
 30.25   0.11 | 61.58   0.24 | 92.92   0.28 |124.25   0.15
|155.58   0.10
 30.33   0.11 | 61.67   0.23 | 93.00   0.28 |124.33   0.14
|155.67   0.10
 30.42   0.11 | 61.75   0.23 | 93.08   0.27 |124.42   0.15
|155.75   0.10
 30.50   0.11 | 61.83   0.23 | 93.17   0.29 |124.50   0.15
|155.83   0.10
 30.58   0.11 | 61.92   0.23 | 93.25   0.28 |124.58   0.16
|155.92   0.10
 30.67   0.11 | 62.00   0.23 | 93.33   0.26 |124.67   0.15
|156.00   0.10
 30.75   0.11 | 62.08   0.23 | 93.42   0.27 |124.75   0.15
|156.08   0.10
 30.83   0.11 | 62.17   0.23 | 93.50   0.27 |124.83   0.15
|156.17   0.10
 30.92   0.11 | 62.25   0.23 | 93.58   0.26 |124.92   0.17
|156.25   0.10
 31.00   0.11 | 62.33   0.24 | 93.67   0.26 |125.00   0.16 |
 31.08   0.10 | 62.42   0.25 | 93.75   0.28 |125.08   0.16 |
 31.17   0.10 | 62.50   0.25 | 93.83   0.25 |125.17   0.16 |
 31.25   0.10 | 62.58   0.26 | 93.92   0.28 |125.25   0.16 |
-----------------------------------------------------------------
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--------------------
| STORE HYD (1605) |   AREA      (ha)=  30.00
| ID= 1 DT= 5.0min |   QPEAK     (cms)=   1.37
--------------------   TPEAK     (hrs)=  71.92
                       VOLUME     (mm)= 625.27

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |'  TIME    FLOW |
TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |'   hrs     cms |
hrs     cms
  0.00    0.00 | 31.25    0.15 | 62.50    0.38 | 93.75    0.37
|125.00    0.20
  0.08    0.00 | 31.33    0.15 | 62.58    0.38 | 93.83    0.36
|125.08    0.20
  0.17    0.00 | 31.42    0.15 | 62.67    0.38 | 93.92    0.36
|125.17    0.20
  0.25    0.00 | 31.50    0.15 | 62.75    0.38 | 94.00    0.36
|125.25    0.20
  0.33    0.00 | 31.58    0.15 | 62.83    0.38 | 94.08    0.36
|125.33    0.20
  0.42    0.00 | 31.67    0.15 | 62.92    0.38 | 94.17    0.36
|125.42    0.20
  0.50    0.00 | 31.75    0.15 | 63.00    0.37 | 94.25    0.36
|125.50    0.20
  0.58    0.00 | 31.83    0.14 | 63.08    0.38 | 94.33    0.36
|125.58    0.20
  0.67    0.00 | 31.92    0.14 | 63.17    0.37 | 94.42    0.36
|125.67    0.21
  0.75    0.00 | 32.00    0.14 | 63.25    0.37 | 94.50    0.36
|125.75    0.21
  0.83    0.00 | 32.08    0.14 | 63.33    0.37 | 94.58    0.36
|125.83    0.21
  0.92    0.00 | 32.17    0.14 | 63.42    0.37 | 94.67    0.36
|125.92    0.21
  1.00    0.00 | 32.25    0.14 | 63.50    0.37 | 94.75    0.36
|126.00    0.21
  1.08    0.00 | 32.33    0.14 | 63.58    0.37 | 94.83    0.36
|126.08    0.21
  1.17    0.00 | 32.42    0.14 | 63.67    0.36 | 94.92    0.35
|126.17    0.21
  1.25    0.00 | 32.50    0.14 | 63.75    0.36 | 95.00    0.35
|126.25    0.21
  1.33    0.00 | 32.58    0.14 | 63.83    0.36 | 95.08    0.35
|126.33    0.21
  1.42    0.00 | 32.67    0.14 | 63.92    0.36 | 95.17    0.35
|126.42    0.22
  1.50    0.00 | 32.75    0.14 | 64.00    0.36 | 95.25    0.35
|126.50    0.22
  1.58    0.00 | 32.83    0.14 | 64.08    0.36 | 95.33    0.35
|126.58    0.22
  1.67    0.00 | 32.92    0.14 | 64.17    0.36 | 95.42    0.35
|126.67    0.22
  1.75    0.00 | 33.00    0.14 | 64.25    0.35 | 95.50    0.35
|126.75    0.22
  1.83    0.00 | 33.08    0.14 | 64.33    0.35 | 95.58    0.34
|126.83    0.22
  1.92    0.00 | 33.17    0.14 | 64.42    0.35 | 95.67    0.34
|126.92    0.23
  2.00    0.00 | 33.25    0.14 | 64.50    0.35 | 95.75    0.34
|127.00    0.23
  2.08    0.00 | 33.33    0.14 | 64.58    0.34 | 95.83    0.34
|127.08    0.23
  2.17    0.00 | 33.42    0.14 | 64.67    0.34 | 95.92    0.34
|127.17    0.23
  2.25    0.00 | 33.50    0.14 | 64.75    0.34 | 96.00    0.34
|127.25    0.23
  2.33    0.00 | 33.58    0.14 | 64.83    0.34 | 96.08    0.34
|127.33    0.24
  2.42    0.00 | 33.67    0.14 | 64.92    0.34 | 96.17    0.34
|127.42    0.24
  2.50    0.00 | 33.75    0.14 | 65.00    0.34 | 96.25    0.34
|127.50    0.24
  2.58    0.00 | 33.83    0.14 | 65.08    0.34 | 96.33    0.34
|127.58    0.24
  2.67    0.00 | 33.92    0.14 | 65.17    0.34 | 96.42    0.34
|127.67    0.24
  2.75    0.00 | 34.00    0.14 | 65.25    0.34 | 96.50    0.34
|127.75    0.24
  2.83    0.00 | 34.08    0.14 | 65.33    0.34 | 96.58    0.34
|127.83    0.25
  2.92    0.00 | 34.17    0.14 | 65.42    0.34 | 96.67    0.34
|127.92    0.25
  3.00    0.00 | 34.25    0.14 | 65.50    0.34 | 96.75    0.33
|128.00    0.25
  3.08    0.00 | 34.33    0.14 | 65.58    0.33 | 96.83    0.33
|128.08    0.25
  3.17    0.00 | 34.42    0.14 | 65.67    0.34 | 96.92    0.33
|128.17    0.25
  3.25    0.00 | 34.50    0.14 | 65.75    0.33 | 97.00    0.33
|128.25    0.25
  3.33    0.00 | 34.58    0.14 | 65.83    0.33 | 97.08    0.33
|128.33    0.25
  3.42    0.00 | 34.67    0.14 | 65.92    0.33 | 97.17    0.33
|128.42    0.25
  3.50    0.00 | 34.75    0.14 | 66.00    0.33 | 97.25    0.33
|128.50    0.25
  3.58    0.00 | 34.83    0.14 | 66.08    0.32 | 97.33    0.33
|128.58    0.26
  3.67    0.00 | 34.92    0.14 | 66.17    0.33 | 97.42    0.33
|128.67    0.26
  3.75    0.00 | 35.00    0.14 | 66.25    0.33 | 97.50    0.33
|128.75    0.26
  3.83    0.00 | 35.08    0.14 | 66.33    0.32 | 97.58    0.33
|128.83    0.26
  3.92    0.00 | 35.17    0.14 | 66.42    0.32 | 97.67    0.33
|128.92    0.26
  4.00    0.00 | 35.25    0.14 | 66.50    0.33 | 97.75    0.33
|129.00    0.26
  4.08    0.00 | 35.33    0.14 | 66.58    0.32 | 97.83    0.33
|129.08    0.26
  4.17    0.00 | 35.42    0.14 | 66.67    0.32 | 97.92    0.33
|129.17    0.26
  4.25    0.00 | 35.50    0.14 | 66.75    0.32 | 98.00    0.32
|129.25    0.27
  4.33    0.00 | 35.58    0.14 | 66.83    0.32 | 98.08    0.32
|129.33    0.27
  4.42    0.00 | 35.67    0.14 | 66.92    0.32 | 98.17    0.32
|129.42    0.27
  4.50    0.00 | 35.75    0.14 | 67.00    0.32 | 98.25    0.32
|129.50    0.27
  4.58    0.00 | 35.83    0.14 | 67.08    0.32 | 98.33    0.32
|129.58    0.28
  4.67    0.00 | 35.92    0.14 | 67.17    0.32 | 98.42    0.32
|129.67    0.28
  4.75    0.00 | 36.00    0.14 | 67.25    0.32 | 98.50    0.32
|129.75    0.28
  4.83    0.00 | 36.08    0.14 | 67.33    0.33 | 98.58    0.32
|129.83    0.29
  4.92    0.00 | 36.17    0.14 | 67.42    0.34 | 98.67    0.32
|129.92    0.29
  5.00    0.00 | 36.25    0.14 | 67.50    0.34 | 98.75    0.32
|130.00    0.29
  5.08    0.00 | 36.33    0.15 | 67.58    0.35 | 98.83    0.32
|130.08    0.29
  5.17    0.00 | 36.42    0.15 | 67.67    0.35 | 98.92    0.32
|130.17    0.29
  5.25    0.00 | 36.50    0.15 | 67.75    0.36 | 99.00    0.32
|130.25    0.29
  5.33    0.00 | 36.58    0.15 | 67.83    0.37 | 99.08    0.32
|130.33    0.29
  5.42    0.00 | 36.67    0.15 | 67.92    0.38 | 99.17    0.32
|130.42    0.29
  5.50    0.00 | 36.75    0.15 | 68.00    0.40 | 99.25    0.32
|130.50    0.29
  5.58    0.00 | 36.83    0.15 | 68.08    0.41 | 99.33    0.32
|130.58    0.29
  5.67    0.00 | 36.92    0.15 | 68.17    0.42 | 99.42    0.32
|130.67    0.29
  5.75    0.00 | 37.00    0.15 | 68.25    0.43 | 99.50    0.32
|130.75    0.29
  5.83    0.00 | 37.08    0.15 | 68.33    0.45 | 99.58    0.31
|130.83    0.29
  5.92    0.00 | 37.17    0.15 | 68.42    0.47 | 99.67    0.31
|130.92    0.29
  6.00    0.00 | 37.25    0.15 | 68.50    0.48 | 99.75    0.31
|131.00    0.29
  6.08    0.00 | 37.33    0.15 | 68.58    0.50 | 99.83    0.31
|131.08    0.29
  6.17    0.00 | 37.42    0.15 | 68.67    0.52 | 99.92    0.31
|131.17    0.29
  6.25    0.00 | 37.50    0.15 | 68.75    0.53 |100.00    0.31
|131.25    0.29
  6.33    0.00 | 37.58    0.15 | 68.83    0.56 |100.08    0.31
|131.33    0.29
  6.42    0.00 | 37.67    0.15 | 68.92    0.57 |100.17    0.31
|131.42    0.29
  6.50    0.00 | 37.75    0.16 | 69.00    0.58 |100.25    0.31
|131.50    0.29
  6.58    0.00 | 37.83    0.16 | 69.08    0.60 |100.33    0.31
|131.58    0.28
  6.67    0.00 | 37.92    0.16 | 69.17    0.61 |100.42    0.31
|131.67    0.28
  6.75    0.00 | 38.00    0.16 | 69.25    0.63 |100.50    0.30
|131.75    0.28
  6.83    0.00 | 38.08    0.16 | 69.33    0.63 |100.58    0.30
|131.83    0.28
  6.92    0.00 | 38.17    0.16 | 69.42    0.64 |100.67    0.30
|131.92    0.28
  7.00    0.00 | 38.25    0.16 | 69.50    0.66 |100.75    0.30
|132.00    0.28
  7.08    0.00 | 38.33    0.16 | 69.58    0.68 |100.83    0.30
|132.08    0.28
  7.17    0.00 | 38.42    0.16 | 69.67    0.70 |100.92    0.30
|132.17    0.28
  7.25    0.00 | 38.50    0.16 | 69.75    0.71 |101.00    0.30
|132.25    0.28
  7.33    0.00 | 38.58    0.16 | 69.83    0.74 |101.08    0.30
|132.33    0.28
  7.42    0.00 | 38.67    0.17 | 69.92    0.76 |101.17    0.30
|132.42    0.28
  7.50    0.00 | 38.75    0.17 | 70.00    0.78 |101.25    0.30
|132.50    0.27
  7.58    0.00 | 38.83    0.17 | 70.08    0.80 |101.33    0.29
|132.58    0.27
  7.67    0.00 | 38.92    0.17 | 70.17    0.82 |101.42    0.29
|132.67    0.27
  7.75    0.00 | 39.00    0.17 | 70.25    0.84 |101.50    0.29
|132.75    0.27
  7.83    0.00 | 39.08    0.17 | 70.33    0.87 |101.58    0.29
|132.83    0.27
  7.92    0.00 | 39.17    0.17 | 70.42    0.91 |101.67    0.29
|132.92    0.27
  8.00    0.00 | 39.25    0.18 | 70.50    0.94 |101.75    0.28
|133.00    0.27
  8.08    0.00 | 39.33    0.18 | 70.58    0.98 |101.83    0.28
|133.08    0.27
  8.17    0.00 | 39.42    0.18 | 70.67    1.01 |101.92    0.28
|133.17    0.27
  8.25    0.00 | 39.50    0.18 | 70.75    1.04 |102.00    0.28
|133.25    0.26
  8.33    0.00 | 39.58    0.19 | 70.83    1.09 |102.08    0.28
|133.33    0.26
  8.42    0.00 | 39.67    0.19 | 70.92    1.14 |102.17    0.28
|133.42    0.26
  8.50    0.00 | 39.75    0.19 | 71.00    1.20 |102.25    0.28
|133.50    0.26
  8.58    0.00 | 39.83    0.19 | 71.08    1.23 |102.33    0.28
|133.58    0.26
  8.67    0.00 | 39.92    0.20 | 71.17    1.25 |102.42    0.27
|133.67    0.26
  8.75    0.00 | 40.00    0.20 | 71.25    1.30 |102.50    0.27
|133.75    0.26
  8.83    0.00 | 40.08    0.20 | 71.33    1.32 |102.58    0.27
|133.83    0.25
  8.92    0.00 | 40.17    0.21 | 71.42    1.33 |102.67    0.27
|133.92    0.25
  9.00    0.00 | 40.25    0.21 | 71.50    1.34 |102.75    0.27
|134.00    0.25
  9.08    0.00 | 40.33    0.21 | 71.58    1.36 |102.83    0.27
|134.08    0.25
  9.17    0.00 | 40.42    0.22 | 71.67    1.36 |102.92    0.27
|134.17    0.25
  9.25    0.00 | 40.50    0.22 | 71.75    1.36 |103.00    0.27
|134.25    0.25
  9.33    0.00 | 40.58    0.22 | 71.83    1.37 |103.08    0.27
|134.33    0.25
  9.42    0.00 | 40.67    0.23 | 71.92    1.37 |103.17    0.27
|134.42    0.25
  9.50    0.00 | 40.75    0.23 | 72.00    1.36 |103.25    0.26
|134.50    0.25
  9.58    0.00 | 40.83    0.24 | 72.08    1.35 |103.33    0.26
|134.58    0.24
  9.67    0.00 | 40.92    0.24 | 72.17    1.35 |103.42    0.26
|134.67    0.24
  9.75    0.00 | 41.00    0.24 | 72.25    1.33 |103.50    0.26
|134.75    0.24
  9.83    0.00 | 41.08    0.25 | 72.33    1.32 |103.58    0.26
|134.83    0.24
  9.92    0.00 | 41.17    0.25 | 72.42    1.31 |103.67    0.26
|134.92    0.24
 10.00    0.00 | 41.25    0.26 | 72.50    1.29 |103.75    0.25
|135.00    0.24
 10.08    0.00 | 41.33    0.27 | 72.58    1.27 |103.83    0.25
|135.08    0.24
 10.17    0.00 | 41.42    0.27 | 72.67    1.26 |103.92    0.25
|135.17    0.24
 10.25    0.00 | 41.50    0.28 | 72.75    1.23 |104.00    0.25
|135.25    0.24
 10.33    0.00 | 41.58    0.29 | 72.83    1.23 |104.08    0.25
|135.33    0.23
 10.42    0.00 | 41.67    0.29 | 72.92    1.21 |104.17    0.25
|135.42    0.23
 10.50    0.00 | 41.75    0.30 | 73.00    1.20 |104.25    0.25
|135.50    0.23
 10.58    0.00 | 41.83    0.30 | 73.08    1.17 |104.33    0.25
|135.58    0.23
 10.67    0.00 | 41.92    0.31 | 73.17    1.17 |104.42    0.24
|135.67    0.23
 10.75    0.00 | 42.00    0.32 | 73.25    1.16 |104.50    0.24
|135.75    0.23
 10.83    0.00 | 42.08    0.32 | 73.33    1.15 |104.58    0.24
|135.83    0.23
 10.92    0.00 | 42.17    0.33 | 73.42    1.12 |104.67    0.24
|135.92    0.23
 11.00    0.00 | 42.25    0.33 | 73.50    1.12 |104.75    0.24
|136.00    0.22
 11.08    0.00 | 42.33    0.34 | 73.58    1.11 |104.83    0.24
|136.08    0.22
 11.17    0.00 | 42.42    0.34 | 73.67    1.09 |104.92    0.24
|136.17    0.22
 11.25    0.00 | 42.50    0.35 | 73.75    1.08 |105.00    0.24
|136.25    0.22
 11.33    0.00 | 42.58    0.36 | 73.83    1.06 |105.08    0.24
|136.33    0.22
 11.42    0.00 | 42.67    0.36 | 73.92    1.05 |105.17    0.23
|136.42    0.22
 11.50    0.00 | 42.75    0.37 | 74.00    1.03 |105.25    0.23
|136.50    0.22
 11.58    0.00 | 42.83    0.38 | 74.08    1.03 |105.33    0.23
|136.58    0.22
 11.67    0.00 | 42.92    0.39 | 74.17    1.02 |105.42    0.23
|136.67    0.21
 11.75    0.00 | 43.00    0.40 | 74.25    1.00 |105.50    0.23
|136.75    0.21
 11.83    0.00 | 43.08    0.40 | 74.33    0.99 |105.58    0.23
|136.83    0.21
 11.92    0.00 | 43.17    0.42 | 74.42    0.97 |105.67    0.23
|136.92    0.21
 12.00    0.00 | 43.25    0.42 | 74.50    0.96 |105.75    0.23
|137.00    0.21
 12.08    0.00 | 43.33    0.43 | 74.58    0.95 |105.83    0.23
|137.08    0.21
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 12.17   0.00 | 43.42   0.44 | 74.67   0.94 |105.92   0.23
|137.17   0.21
 12.25   0.00 | 43.50   0.45 | 74.75   0.92 |106.00   0.22
|137.25   0.21
 12.33   0.00 | 43.58   0.46 | 74.83   0.91 |106.08   0.22
|137.33   0.21
 12.42   0.00 | 43.67   0.47 | 74.92   0.89 |106.17   0.22
|137.42   0.21
 12.50   0.00 | 43.75   0.48 | 75.00   0.88 |106.25   0.22
|137.50   0.20
 12.58   0.00 | 43.83   0.49 | 75.08   0.87 |106.33   0.22
|137.58   0.20
 12.67   0.00 | 43.92   0.50 | 75.17   0.85 |106.42   0.22
|137.67   0.20
 12.75   0.00 | 44.00   0.50 | 75.25   0.84 |106.50   0.22
|137.75   0.20
 12.83   0.00 | 44.08   0.51 | 75.33   0.83 |106.58   0.22
|137.83   0.20
 12.92   0.00 | 44.17   0.51 | 75.42   0.81 |106.67   0.22
|137.92   0.20
 13.00   0.00 | 44.25   0.52 | 75.50   0.80 |106.75   0.21
|138.00   0.20
 13.08   0.00 | 44.33   0.52 | 75.58   0.79 |106.83   0.21
|138.08   0.20
 13.17   0.00 | 44.42   0.53 | 75.67   0.77 |106.92   0.21
|138.17   0.20
 13.25   0.00 | 44.50   0.53 | 75.75   0.77 |107.00   0.21
|138.25   0.19
 13.33   0.00 | 44.58   0.53 | 75.83   0.76 |107.08   0.21
|138.33   0.19
 13.42   0.00 | 44.67   0.54 | 75.92   0.74 |107.17   0.21
|138.42   0.19
 13.50   0.00 | 44.75   0.54 | 76.00   0.74 |107.25   0.21
|138.50   0.19
 13.58   0.00 | 44.83   0.54 | 76.08   0.72 |107.33   0.21
|138.58   0.19
 13.67   0.00 | 44.92   0.55 | 76.17   0.72 |107.42   0.21
|138.67   0.19
 13.75   0.00 | 45.00   0.55 | 76.25   0.71 |107.50   0.21
|138.75   0.19
 13.83   0.00 | 45.08   0.55 | 76.33   0.70 |107.58   0.21
|138.83   0.19
 13.92   0.00 | 45.17   0.55 | 76.42   0.69 |107.67   0.21
|138.92   0.19
 14.00   0.00 | 45.25   0.55 | 76.50   0.68 |107.75   0.20
|139.00   0.19
 14.08   0.00 | 45.33   0.55 | 76.58   0.68 |107.83   0.20
|139.08   0.19
 14.17   0.00 | 45.42   0.55 | 76.67   0.68 |107.92   0.20
|139.17   0.18
 14.25   0.00 | 45.50   0.55 | 76.75   0.66 |108.00   0.20
|139.25   0.18
 14.33   0.00 | 45.58   0.55 | 76.83   0.65 |108.08   0.20
|139.33   0.18
 14.42   0.00 | 45.67   0.55 | 76.92   0.65 |108.17   0.20
|139.42   0.18
 14.50   0.00 | 45.75   0.55 | 77.00   0.64 |108.25   0.20
|139.50   0.18
 14.58   0.00 | 45.83   0.55 | 77.08   0.63 |108.33   0.20
|139.58   0.18
 14.67   0.00 | 45.92   0.55 | 77.17   0.63 |108.42   0.20
|139.67   0.18
 14.75   0.99 | 46.00   0.54 | 77.25   0.63 |108.50   0.20
|139.75   0.18
 14.83   0.99 | 46.08   0.54 | 77.33   0.62 |108.58   0.20
|139.83   0.18
 14.92   1.00 | 46.17   0.54 | 77.42   0.61 |108.67   0.20
|139.92   0.18
 15.00   1.00 | 46.25   0.54 | 77.50   0.60 |108.75   0.19
|140.00   0.18
 15.08   1.01 | 46.33   0.53 | 77.58   0.60 |108.83   0.19
|140.08   0.18
 15.17   1.01 | 46.42   0.53 | 77.67   0.59 |108.92   0.19
|140.17   0.18
 15.25   1.02 | 46.50   0.53 | 77.75   0.59 |109.00   0.19
|140.25   0.18
 15.33   1.03 | 46.58   0.52 | 77.83   0.58 |109.08   0.19
|140.33   0.18
 15.42   1.04 | 46.67   0.52 | 77.92   0.58 |109.17   0.19
|140.42   0.17
 15.50   1.05 | 46.75   0.52 | 78.00   0.58 |109.25   0.19
|140.50   0.17
 15.58   1.06 | 46.83   0.52 | 78.08   0.58 |109.33   0.19
|140.58   0.17
 15.67   1.07 | 46.92   0.51 | 78.17   0.57 |109.42   0.19
|140.67   0.17
 15.75   1.08 | 47.00   0.51 | 78.25   0.56 |109.50   0.19
|140.75   0.17
 15.83   1.08 | 47.08   0.51 | 78.33   0.56 |109.58   0.19
|140.83   0.17
 15.92   1.08 | 47.17   0.51 | 78.42   0.55 |109.67   0.18
|140.92   0.17
 16.00   1.09 | 47.25   0.51 | 78.50   0.55 |109.75   0.18
|141.00   0.17
 16.08   1.09 | 47.33   0.51 | 78.58   0.55 |109.83   0.18
|141.08   0.17
 16.17   1.09 | 47.42   0.51 | 78.67   0.55 |109.92   0.18
|141.17   0.17
 16.25   1.09 | 47.50   0.50 | 78.75   0.54 |110.00   0.18
|141.25   0.17
 16.33   1.09 | 47.58   0.50 | 78.83   0.54 |110.08   0.18
|141.33   0.17
 16.42   1.09 | 47.67   0.50 | 78.92   0.54 |110.17   0.18
|141.42   0.17
 16.50   1.09 | 47.75   0.50 | 79.00   0.54 |110.25   0.18
|141.50   0.16
 16.58   1.10 | 47.83   0.50 | 79.08   0.53 |110.33   0.18
|141.58   0.16
 16.67   1.09 | 47.92   0.50 | 79.17   0.52 |110.42   0.18
|141.67   0.16
 16.75   1.09 | 48.00   0.50 | 79.25   0.52 |110.50   0.18
|141.75   0.16
 16.83   1.08 | 48.08   0.50 | 79.33   0.51 |110.58   0.18
|141.83   0.16
 16.92   1.09 | 48.17   0.49 | 79.42   0.50 |110.67   0.18
|141.92   0.16
 17.00   1.08 | 48.25   0.49 | 79.50   0.50 |110.75   0.18
|142.00   0.16
 17.08   1.07 | 48.33   0.49 | 79.58   0.49 |110.83   0.18
|142.08   0.16
 17.17   1.06 | 48.42   0.49 | 79.67   0.49 |110.92   0.18
|142.17   0.16
 17.25   1.06 | 48.50   0.49 | 79.75   0.48 |111.00   0.18
|142.25   0.16
 17.33   1.05 | 48.58   0.49 | 79.83   0.48 |111.08   0.18
|142.33   0.16
 17.42   1.04 | 48.67   0.48 | 79.92   0.48 |111.17   0.18
|142.42   0.16
 17.50   1.04 | 48.75   0.48 | 80.00   0.47 |111.25   0.18
|142.50   0.16
 17.58   1.03 | 48.83   0.48 | 80.08   0.47 |111.33   0.18
|142.58   0.16
 17.67   1.02 | 48.92   0.48 | 80.17   0.46 |111.42   0.18
|142.67   0.16
 17.75   1.01 | 49.00   0.47 | 80.25   0.46 |111.50   0.18
|142.75   0.16
 17.83   1.00 | 49.08   0.47 | 80.33   0.46 |111.58   0.18
|142.83   0.16
 17.92   0.99 | 49.17   0.47 | 80.42   0.45 |111.67   0.18
|142.92   0.16
 18.00   0.98 | 49.25   0.47 | 80.50   0.45 |111.75   0.18
|143.00   0.16
 18.08   0.97 | 49.33   0.47 | 80.58   0.45 |111.83   0.17
|143.08   0.15
 18.17   0.96 | 49.42   0.46 | 80.67   0.45 |111.92   0.17
|143.17   0.15
 18.25   0.95 | 49.50   0.46 | 80.75   0.44 |112.00   0.17
|143.25   0.15
 18.33   0.93 | 49.58   0.46 | 80.83   0.44 |112.08   0.17
|143.33   0.15
 18.42   0.92 | 49.67   0.46 | 80.92   0.44 |112.17   0.17
|143.42   0.15
 18.50   0.91 | 49.75   0.45 | 81.00   0.44 |112.25   0.17
|143.50   0.15
 18.58   0.89 | 49.83   0.45 | 81.08   0.44 |112.33   0.17
|143.58   0.15
 18.67   0.87 | 49.92   0.45 | 81.17   0.44 |112.42   0.17
|143.67   0.15
 18.75   0.86 | 50.00   0.45 | 81.25   0.44 |112.50   0.17
|143.75   0.15
 18.83   0.84 | 50.08   0.44 | 81.33   0.44 |112.58   0.17
|143.83   0.15
 18.92   0.83 | 50.17   0.44 | 81.42   0.43 |112.67   0.17
|143.92   0.15
 19.00   0.81 | 50.25   0.44 | 81.50   0.44 |112.75   0.17
|144.00   0.15
 19.08   0.79 | 50.33   0.44 | 81.58   0.45 |112.83   0.17
|144.08   0.15
 19.17   0.78 | 50.42   0.44 | 81.67   0.46 |112.92   0.17
|144.17   0.15
 19.25   0.76 | 50.50   0.44 | 81.75   0.45 |113.00   0.17
|144.25   0.15
 19.33   0.74 | 50.58   0.44 | 81.83   0.46 |113.08   0.17
|144.33   0.15
 19.42   0.72 | 50.67   0.44 | 81.92   0.46 |113.17   0.16
|144.42   0.15
 19.50   0.71 | 50.75   0.43 | 82.00   0.47 |113.25   0.16
|144.50   0.15
 19.58   0.69 | 50.83   0.43 | 82.08   0.47 |113.33   0.16
|144.58   0.15
 19.67   0.68 | 50.92   0.43 | 82.17   0.47 |113.42   0.16
|144.67   0.15
 19.75   0.66 | 51.00   0.43 | 82.25   0.48 |113.50   0.16
|144.75   0.15
 19.83   0.65 | 51.08   0.43 | 82.33   0.49 |113.58   0.16
|144.83   0.14
 19.92   0.64 | 51.17   0.43 | 82.42   0.49 |113.67   0.16
|144.92   0.14
 20.00   0.62 | 51.25   0.43 | 82.50   0.49 |113.75   0.16
|145.00   0.14
 20.08   0.61 | 51.33   0.43 | 82.58   0.49 |113.83   0.16
|145.08   0.14
 20.17   0.60 | 51.42   0.43 | 82.67   0.50 |113.92   0.16
|145.17   0.14
 20.25   0.58 | 51.50   0.43 | 82.75   0.50 |114.00   0.16
|145.25   0.14
 20.33   0.58 | 51.58   0.43 | 82.83   0.50 |114.08   0.16
|145.33   0.14
 20.42   0.56 | 51.67   0.43 | 82.92   0.50 |114.17   0.16
|145.42   0.14
 20.50   0.55 | 51.75   0.43 | 83.00   0.50 |114.25   0.16
|145.50   0.14
 20.58   0.54 | 51.83   0.43 | 83.08   0.50 |114.33   0.16
|145.58   0.14
 20.67   0.53 | 51.92   0.43 | 83.17   0.51 |114.42   0.16
|145.67   0.14
 20.75   0.52 | 52.00   0.43 | 83.25   0.51 |114.50   0.16
|145.75   0.14
 20.83   0.51 | 52.08   0.43 | 83.33   0.51 |114.58   0.16
|145.83   0.14
 20.92   0.50 | 52.17   0.43 | 83.42   0.51 |114.67   0.16
|145.92   0.14
 21.00   0.49 | 52.25   0.43 | 83.50   0.52 |114.75   0.16
|146.00   0.14
 21.08   0.49 | 52.33   0.43 | 83.58   0.52 |114.83   0.16
|146.08   0.14
 21.17   0.48 | 52.42   0.43 | 83.67   0.53 |114.92   0.16
|146.17   0.14
 21.25   0.47 | 52.50   0.43 | 83.75   0.53 |115.00   0.16
|146.25   0.14
 21.33   0.47 | 52.58   0.43 | 83.83   0.54 |115.08   0.16
|146.33   0.14
 21.42   0.46 | 52.67   0.43 | 83.92   0.55 |115.17   0.16
|146.42   0.14
 21.50   0.45 | 52.75   0.43 | 84.00   0.56 |115.25   0.16
|146.50   0.14
 21.58   0.45 | 52.83   0.43 | 84.08   0.57 |115.33   0.16
|146.58   0.14
 21.67   0.44 | 52.92   0.44 | 84.17   0.58 |115.42   0.16
|146.67   0.14
 21.75   0.43 | 53.00   0.44 | 84.25   0.60 |115.50   0.16
|146.75   0.14
 21.83   0.43 | 53.08   0.44 | 84.33   0.62 |115.58   0.16
|146.83   0.14
 21.92   0.42 | 53.17   0.44 | 84.42   0.64 |115.67   0.16
|146.92   0.13
 22.00   0.42 | 53.25   0.44 | 84.50   0.66 |115.75   0.16
|147.00   0.13
 22.08   0.41 | 53.33   0.45 | 84.58   0.69 |115.83   0.16
|147.08   0.13
 22.17   0.41 | 53.42   0.45 | 84.67   0.72 |115.92   0.16
|147.17   0.13
 22.25   0.40 | 53.50   0.45 | 84.75   0.74 |116.00   0.16
|147.25   0.13
 22.33   0.40 | 53.58   0.45 | 84.83   0.77 |116.08   0.15
|147.33   0.13
 22.42   0.39 | 53.67   0.46 | 84.92   0.79 |116.17   0.15
|147.42   0.13
 22.50   0.39 | 53.75   0.46 | 85.00   0.81 |116.25   0.16
|147.50   0.13
 22.58   0.38 | 53.83   0.46 | 85.08   0.82 |116.33   0.16
|147.58   0.13
 22.67   0.38 | 53.92   0.46 | 85.17   0.84 |116.42   0.16
|147.67   0.13
 22.75   0.37 | 54.00   0.47 | 85.25   0.85 |116.50   0.16
|147.75   0.13
 22.83   0.37 | 54.08   0.47 | 85.33   0.85 |116.58   0.16
|147.83   0.13
 22.92   0.36 | 54.17   0.47 | 85.42   0.86 |116.67   0.16
|147.92   0.13
 23.00   0.36 | 54.25   0.48 | 85.50   0.87 |116.75   0.16
|148.00   0.13
 23.08   0.36 | 54.33   0.48 | 85.58   0.86 |116.83   0.16
|148.08   0.13
 23.17   0.35 | 54.42   0.49 | 85.67   0.87 |116.92   0.16
|148.17   0.13
 23.25   0.35 | 54.50   0.49 | 85.75   0.86 |117.00   0.16
|148.25   0.13
 23.33   0.34 | 54.58   0.50 | 85.83   0.85 |117.08   0.16
|148.33   0.13
 23.42   0.34 | 54.67   0.50 | 85.92   0.85 |117.17   0.16
|148.42   0.13
 23.50   0.34 | 54.75   0.51 | 86.00   0.84 |117.25   0.16
|148.50   0.13
 23.58   0.33 | 54.83   0.52 | 86.08   0.83 |117.33   0.16
|148.58   0.13
 23.67   0.33 | 54.92   0.53 | 86.17   0.82 |117.42   0.16
|148.67   0.13
 23.75   0.32 | 55.00   0.53 | 86.25   0.81 |117.50   0.16
|148.75   0.13
 23.83   0.32 | 55.08   0.54 | 86.33   0.81 |117.58   0.16
|148.83   0.13
 23.92   0.32 | 55.17   0.55 | 86.42   0.79 |117.67   0.16
|148.92   0.13
 24.00   0.31 | 55.25   0.55 | 86.50   0.78 |117.75   0.16
|149.00   0.13
 24.08   0.31 | 55.33   0.55 | 86.58   0.77 |117.83   0.16
|149.08   0.13
 24.17   0.30 | 55.42   0.56 | 86.67   0.76 |117.92   0.16
|149.17   0.13
 24.25   0.30 | 55.50   0.56 | 86.75   0.74 |118.00   0.16
|149.25   0.12
 24.33   0.30 | 55.58   0.57 | 86.83   0.74 |118.08   0.16
|149.33   0.12
 24.42   0.30 | 55.67   0.57 | 86.92   0.73 |118.17   0.16
|149.42   0.12
 24.50   0.29 | 55.75   0.58 | 87.00   0.71 |118.25   0.16
|149.50   0.12
 24.58   0.29 | 55.83   0.58 | 87.08   0.71 |118.33   0.16
|149.58   0.12
 24.67   0.29 | 55.92   0.58 | 87.17   0.70 |118.42   0.16
|149.67   0.12
 24.75   0.28 | 56.00   0.58 | 87.25   0.68 |118.50   0.16
|149.75   0.12
 24.83   0.28 | 56.08   0.58 | 87.33   0.68 |118.58   0.15
|149.83   0.12
 24.92   0.28 | 56.17   0.58 | 87.42   0.66 |118.67   0.15
|149.92   0.12
 25.00   0.27 | 56.25   0.58 | 87.50   0.66 |118.75   0.15
|150.00   0.12
 25.08   0.27 | 56.33   0.58 | 87.58   0.65 |118.83   0.15
|150.08   0.12
 25.17   0.27 | 56.42   0.58 | 87.67   0.64 |118.92   0.15
|150.17   0.12
 25.25   0.27 | 56.50   0.59 | 87.75   0.63 |119.00   0.15
|150.25   0.12
 25.33   0.26 | 56.58   0.59 | 87.83   0.62 |119.08   0.15
|150.33   0.12
 25.42   0.26 | 56.67   0.59 | 87.92   0.62 |119.17   0.15
|150.42   0.12
 25.50   0.26 | 56.75   0.59 | 88.00   0.61 |119.25   0.15
|150.50   0.12
 25.58   0.25 | 56.83   0.59 | 88.08   0.60 |119.33   0.15
|150.58   0.12
 25.67   0.25 | 56.92   0.59 | 88.17   0.59 |119.42   0.15
|150.67   0.12
 25.75   0.25 | 57.00   0.59 | 88.25   0.58 |119.50   0.15
|150.75   0.12
 25.83   0.25 | 57.08   0.59 | 88.33   0.58 |119.58   0.15
|150.83   0.12
 25.92   0.25 | 57.17   0.59 | 88.42   0.57 |119.67   0.15
|150.92   0.12
 26.00   0.24 | 57.25   0.59 | 88.50   0.57 |119.75   0.15
|151.00   0.12
 26.08   0.24 | 57.33   0.59 | 88.58   0.56 |119.83   0.16
|151.08   0.12
 26.17   0.24 | 57.42   0.59 | 88.67   0.55 |119.92   0.16
|151.17   0.12
 26.25   0.24 | 57.50   0.59 | 88.75   0.55 |120.00   0.16
|151.25   0.12
 26.33   0.23 | 57.58   0.58 | 88.83   0.54 |120.08   0.16
|151.33   0.12
 26.42   0.23 | 57.67   0.58 | 88.92   0.53 |120.17   0.16
|151.42   0.12
 26.50   0.23 | 57.75   0.58 | 89.00   0.53 |120.25   0.16
|151.50   0.12
 26.58   0.23 | 57.83   0.57 | 89.08   0.52 |120.33   0.16
|151.58   0.12
 26.67   0.23 | 57.92   0.57 | 89.17   0.51 |120.42   0.16
|151.67   0.12
 26.75   0.22 | 58.00   0.57 | 89.25   0.51 |120.50   0.16
|151.75   0.12
 26.83   0.22 | 58.08   0.57 | 89.33   0.50 |120.58   0.16
|151.83   0.12
 26.92   0.22 | 58.17   0.56 | 89.42   0.50 |120.67   0.16
|151.92   0.12
 27.00   0.22 | 58.25   0.56 | 89.50   0.49 |120.75   0.16
|152.00   0.12
 27.08   0.22 | 58.33   0.56 | 89.58   0.48 |120.83   0.16
|152.08   0.12
 27.17   0.21 | 58.42   0.55 | 89.67   0.48 |120.92   0.16
|152.17   0.12
 27.25   0.21 | 58.50   0.55 | 89.75   0.47 |121.00   0.16
|152.25   0.12
 27.33   0.21 | 58.58   0.54 | 89.83   0.47 |121.08   0.16
|152.33   0.11
 27.42   0.21 | 58.67   0.54 | 89.92   0.47 |121.17   0.17
|152.42   0.11
 27.50   0.21 | 58.75   0.53 | 90.00   0.47 |121.25   0.17
|152.50   0.11
 27.58   0.21 | 58.83   0.53 | 90.08   0.46 |121.33   0.17
|152.58   0.11
 27.67   0.20 | 58.92   0.52 | 90.17   0.46 |121.42   0.17
|152.67   0.11
 27.75   0.20 | 59.00   0.52 | 90.25   0.45 |121.50   0.17
|152.75   0.11
 27.83   0.20 | 59.08   0.52 | 90.33   0.45 |121.58   0.17
|152.83   0.11
 27.92   0.20 | 59.17   0.51 | 90.42   0.44 |121.67   0.17
|152.92   0.11
 28.00   0.19 | 59.25   0.51 | 90.50   0.44 |121.75   0.17
|153.00   0.11
 28.08   0.19 | 59.33   0.50 | 90.58   0.44 |121.83   0.17
|153.08   0.11
 28.17   0.19 | 59.42   0.50 | 90.67   0.43 |121.92   0.17
|153.17   0.11
 28.25   0.19 | 59.50   0.49 | 90.75   0.43 |122.00   0.17
|153.25   0.11
 28.33   0.19 | 59.58   0.49 | 90.83   0.43 |122.08   0.17
|153.33   0.11
 28.42   0.19 | 59.67   0.49 | 90.92   0.43 |122.17   0.17
|153.42   0.11
 28.50   0.19 | 59.75   0.48 | 91.00   0.42 |122.25   0.18
|153.50   0.11
 28.58   0.18 | 59.83   0.48 | 91.08   0.42 |122.33   0.18
|153.58   0.11
 28.67   0.18 | 59.92   0.47 | 91.17   0.42 |122.42   0.18
|153.67   0.11
 28.75   0.18 | 60.00   0.47 | 91.25   0.42 |122.50   0.18
|153.75   0.11
 28.83   0.18 | 60.08   0.47 | 91.33   0.41 |122.58   0.18
|153.83   0.11
 28.92   0.18 | 60.17   0.46 | 91.42   0.41 |122.67   0.18
|153.92   0.11
 29.00   0.18 | 60.25   0.46 | 91.50   0.41 |122.75   0.18
|154.00   0.11
 29.08   0.18 | 60.33   0.45 | 91.58   0.41 |122.83   0.18
|154.08   0.11
 29.17   0.18 | 60.42   0.45 | 91.67   0.41 |122.92   0.18
|154.17   0.11
 29.25   0.17 | 60.50   0.44 | 91.75   0.41 |123.00   0.18
|154.25   0.11
 29.33   0.17 | 60.58   0.44 | 91.83   0.40 |123.08   0.18
|154.33   0.11
 29.42   0.17 | 60.67   0.44 | 91.92   0.40 |123.17   0.18
|154.42   0.11
 29.50   0.17 | 60.75   0.43 | 92.00   0.40 |123.25   0.18
|154.50   0.11
 29.58   0.17 | 60.83   0.43 | 92.08   0.40 |123.33   0.18
|154.58   0.11
 29.67   0.17 | 60.92   0.42 | 92.17   0.40 |123.42   0.18
|154.67   0.11
 29.75   0.17 | 61.00   0.42 | 92.25   0.39 |123.50   0.18
|154.75   0.11
 29.83   0.17 | 61.08   0.42 | 92.33   0.39 |123.58   0.18
|154.83   0.11
 29.92   0.16 | 61.17   0.42 | 92.42   0.39 |123.67   0.18
|154.92   0.11
 30.00   0.16 | 61.25   0.41 | 92.50   0.39 |123.75   0.18
|155.00   0.11
 30.08   0.16 | 61.33   0.41 | 92.58   0.38 |123.83   0.18
|155.08   0.11
 30.17   0.16 | 61.42   0.40 | 92.67   0.38 |123.92   0.18
|155.17   0.11
 30.25   0.16 | 61.50   0.40 | 92.75   0.38 |124.00   0.18
|155.25   0.11
 30.33   0.16 | 61.58   0.40 | 92.83   0.38 |124.08   0.18
|155.33   0.11
 30.42   0.16 | 61.67   0.40 | 92.92   0.38 |124.17   0.18
|155.42   0.11
 30.50   0.16 | 61.75   0.39 | 93.00   0.37 |124.25   0.18
|155.50   0.11
 30.58   0.16 | 61.83   0.39 | 93.08   0.37 |124.33   0.19
|155.58   0.11
 30.67   0.16 | 61.92   0.39 | 93.17   0.37 |124.42   0.19
|155.67   0.11
 30.75   0.16 | 62.00   0.38 | 93.25   0.37 |124.50   0.19
|155.75   0.11
 30.83   0.15 | 62.08   0.38 | 93.33   0.37 |124.58   0.19
|155.83   0.10
 30.92   0.15 | 62.17   0.38 | 93.42   0.37 |124.67   0.20
|155.92   0.11
 31.00   0.15 | 62.25   0.38 | 93.50   0.37 |124.75   0.20
|156.00   0.10
 31.08   0.15 | 62.33   0.39 | 93.58   0.37 |124.83   0.20 |
 31.17   0.15 | 62.42   0.39 | 93.67   0.37 |124.92   0.20 |
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| CALIB              |
| STANDHYD  (6202) |   Area    (ha)=  12.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.00          6.00
     Dep. Storage     (mm)=       1.50          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     282.84         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      61.93         27.21
                over (min)        5.00         25.00
     Storage Coeff.  (min)=       5.77 (ii)   20.40 (ii)
```

```
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.20         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.67         0.22
0.786 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      38.53        12.44
21.57
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.96         0.31
0.54


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0621) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1549.0) ------>
               Distance      Elevation       Manning
                   0.00          87.56        0.0900
                   3.37          87.60        0.0900
                  16.78          87.21        0.0900
                  31.08          87.29        0.0900
                  43.62          87.28        0.0900
                  62.88          87.41        0.0900
                  68.00          87.22        0.0900
                  96.20          87.43        0.0900
                 112.60          86.39    0.0900 /0.0700  Main
Channel
                 113.70          86.10        0.0700      Main
Channel
                 114.40          86.51    0.0700 /0.0900  Main
Channel
                 114.60          86.67        0.0900
                 131.60          87.07        0.0900
                 156.70          87.16        0.0900
                 184.59          87.41        0.0900
                 194.09          87.56        0.0900
                 202.66          87.64        0.0900
                 221.43          87.69        0.0900
                 230.63          87.86        0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    86.17    .898E+01       0.0          0.13
79.55
       0.14    86.24    .359E+02       0.0          0.21
50.11
       0.21    86.31    .808E+02       0.0          0.28
38.24
       0.29    86.39    .144E+03       0.1          0.33
31.57
       0.36    86.46    .256E+03       0.2          0.39
27.10
       0.44    86.54    .435E+03       0.3          0.42
25.03
       0.52    86.62    .680E+03       0.5          0.46
23.12
       0.60    86.70    .998E+03       0.8          0.48
21.78
       0.68    86.78    .150E+04       1.2          0.48
21.76
       0.76    86.85    .223E+04       1.7          0.48
21.78
       0.83    86.93    .319E+04       2.5          0.49
21.41
       0.91    87.01    .437E+04       3.5          0.51
20.74
       0.99    87.09    .580E+04       4.7          0.51
20.64
       1.07    87.17    .811E+04       6.2          0.48
21.90
       1.15    87.25    .113E+05       7.8          0.44
24.18
       1.23    87.32    .165E+05      10.6          0.41
26.00
       1.30    87.40    .239E+05      16.0          0.42
24.97
       1.38    87.48    .327E+05      24.3          0.47
22.45
       1.46    87.56    .419E+05      34.6          0.52
20.16

                                           <---- hydrograph ---->   <-
pipe / channel->
                                  AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                                  (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6202)    12.00     0.79     3.00  21.57
0.60     0.48
     OUTFLOW: ID= 1 (0621)    12.00     0.43     3.08  21.54
0.50     0.44


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| CALIB            |
| STANDHYD  (6212) |   Area    (ha)=  21.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  76.00   Dir. Conn.(%)=
67.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.49         5.21
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     380.35        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        34.03
                over (min)       5.00        25.00
     Storage Coeff.  (min)=       6.90 (ii)   20.27 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.18         0.05

*TOTALS*
     PEAK FLOW       (cms)=       2.27         0.24
2.394 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      34.03        14.56
27.61
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.36
0.69


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0142) |
|   1 +  2 =  3    |         AREA     QPEAK     TPEAK      R.V.
--------------------         (ha)     (cms)     (hrs)      (mm)
          ID1= 1 (0621):    12.00    0.432      3.08     21.54
        + ID2= 2 (6212):    21.70   2.394      3.00     27.61
          ===============================================
          ID = 3 (0142):    33.70   2.775      3.00     25.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0622) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 953.0) ------>
               Distance      Elevation       Manning
                  16.75          82.21        0.1100
                  30.34          82.03        0.1100
                  44.96          81.97        0.1100
                  58.95          81.94        0.1100
                  71.21          81.85        0.1100
                 100.74          81.58        0.1100
                 112.29          81.50        0.1100
                 121.63          81.56        0.1100
                 127.04          81.66    0.1100 /0.0700  Main
Channel
                 129.04          80.66        0.0700      Main
Channel
                 130.04          80.66        0.0700      Main
Channel
                 131.04          80.66        0.0700      Main
Channel
                 133.04          81.66    0.0700 /0.1100  Main
Channel
                 134.58          82.08        0.1100
                 135.14          82.01        0.1100
                 139.68          81.73        0.1100
                 151.74          81.75        0.1100
                 153.37          81.71        0.1100
                 167.06          81.83        0.1100
                 187.62          81.87        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.06    80.72    .649E+02       0.0          0.17
49.00
       0.12    80.79    .138E+03       0.1          0.25
32.10
       0.19    80.85    .218E+03       0.1          0.32
25.32
       0.25    80.91    .306E+03       0.2          0.38
21.50
       0.31    80.97    .401E+03       0.4          0.43
18.99
       0.37    81.04    .504E+03       0.5          0.47
17.19
       0.44    81.10    .615E+03       0.6          0.52
15.81
       0.50    81.16    .733E+03       0.8          0.55
14.71
       0.56    81.22    .860E+03       1.0          0.59
13.81
       0.62    81.29    .993E+03       1.3          0.62
13.06
       0.69    81.35    .113E+04       1.5          0.66
12.41
       0.75    81.41    .128E+04       1.8          0.69
11.84
       0.81    81.47    .144E+04       2.1          0.72
11.35
       0.87    81.54    .170E+04       2.5          0.71
11.50
       0.94    81.60    .245E+04       3.0          0.59
13.80
       1.00    81.66    .355E+04       3.7          0.51
16.06
       1.07    81.73    .511E+04       4.9          0.47
17.27
       1.14    81.80    .759E+04       6.7          0.43
18.98
       1.21    81.87    .109E+05       9.0          0.40
20.28

                                           <---- hydrograph ---->   <-
pipe / channel->
                                  AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                                  (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0142)    33.70     2.77     3.00  25.44
0.91     0.63
     OUTFLOW: ID= 1 (0622)    33.70     2.03     3.08  25.44
0.79     0.71


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| CALIB            |
| STANDHYD  (6222) |   Area    (ha)=  16.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=
69.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      13.18         3.72
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     335.66        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        18.96
                over (min)       5.00        25.00
     Storage Coeff.  (min)=       6.40 (ii)   23.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.18         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.84         0.11
1.896 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03         9.58
26.45
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.24
0.66


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0144) |
|   1 +  2 =  3    |         AREA     QPEAK     TPEAK      R.V.
--------------------         (ha)     (cms)     (hrs)      (mm)
          ID1= 1 (0622):    33.70   2.032      3.08     25.44
        + ID2= 2 (6222):    16.90   1.896      3.00     26.45
          ===============================================
          ID = 3 (0144):    50.60   3.768      3.00     25.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (6232) |   Area    (ha)=  20.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.30        10.30
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     370.59        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        15.40
                over (min)       5.00        30.00
     Storage Coeff.  (min)=       6.79 (ii)   25.16 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.18         0.04

*TOTALS*
     PEAK FLOW       (cms)=       1.13         0.22
1.214 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      34.03         8.53
17.46
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.21
0.44


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0146) |
|   1 +  2 =  3    |         AREA     QPEAK     TPEAK      R.V.
--------------------         (ha)     (cms)     (hrs)      (mm)
          ID1= 1 (0144):    50.60   3.768      3.00     25.78
        + ID2= 2 (6232):    20.60   1.214      3.00     17.46
          ===============================================
          ID = 3 (0146):    71.20   4.983      3.00     23.37

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6302) |   Area    (ha)=   2.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=
58.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.79         0.81
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     131.66        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        33.11
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       3.65 (ii)   17.17 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.25         0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.25         0.04
0.280 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      34.03        14.38
25.77
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.36
0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0631) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 788.2) ------>
               Distance      Elevation       Manning
                   0.00          81.00        0.1100
                  15.70          81.00        0.1100
                  17.50          80.50    0.1100 /0.0700  Main
Channel
                  18.50          80.50        0.0700      Main
Channel
                  20.00          81.00    0.0700 /0.1100  Main
Channel
                  24.00          81.00        0.1100
                  38.00          81.50        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.03    80.53    .174E+02       0.0          0.10
100.96
       0.05    80.55    .375E+02       0.0          0.15
66.64
       0.08    80.58    .604E+02       0.0          0.19
52.98
       0.11    80.61    .861E+02       0.0          0.22
45.34
       0.13    80.63    .115E+03       0.0          0.25
40.34
       0.16    80.66    .146E+03       0.1          0.28
36.75
       0.18    80.68    .180E+03       0.1          0.30
34.02
       0.21    80.71    .217E+03       0.1          0.32
31.85
       0.24    80.74    .256E+03       0.1          0.34
30.07
       0.26    80.76    .298E+03       0.2          0.35
28.57
       0.29    80.79    .344E+03       0.2          0.37
27.28
       0.32    80.82    .391E+03       0.2          0.39
26.15
       0.34    80.84    .442E+03       0.3          0.40
25.16
       0.37    80.87    .495E+03       0.3          0.42
24.27
       0.39    80.89    .552E+03       0.4          0.43
23.48
       0.42    80.92    .611E+03       0.4          0.44
22.75
       0.45    80.95    .672E+03       0.5          0.46
22.09
       0.47    80.97    .737E+03       0.6          0.47
21.48
       0.50    81.00    .804E+03       0.6          0.48
20.91

                                           <---- hydrograph ---->   <-
pipe / channel->
                                  AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                                  (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
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    INFLOW : ID= 2 (6302)    2.60     0.28    3.00  25.77
0.33     0.40
    OUTFLOW: ID= 1 (0631)    2.60     0.13    3.08  25.55
0.23     0.33


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| CALIB            |
| STANDHYD  (6312) |   Area    (ha)=   8.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=
59.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.16          2.64
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     242.21         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      61.93         17.77
                over (min)        5.00         25.00
     Storage Coeff.  (min)=       5.26 (ii)    22.60 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.21          0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.85          0.07
0.880 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03          9.29
23.89
     TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
     RUNOFF COEFFICIENT   =       0.85          0.23
0.60


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0149) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0631):     2.60   0.133     3.08    25.55
        + ID2= 2 (6312):     8.80   0.880     3.00    23.89
          ===============================================
          ID = 3 (0149):    11.40   1.003     3.00    24.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0632) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 924.2) ------>
              Distance      Elevation       Manning
                  0.00          82.50        0.1100
                  6.00          82.00        0.1100
                 11.00          81.00        0.1100
                 12.00          80.00        0.1100
                 13.50          79.50    0.1100 /0.0700  Main
Channel
                 14.50          79.50        0.0700      Main
Channel
                 16.00          80.00    0.0700 /0.1100  Main
Channel
                 18.00          80.00        0.1100
                 29.70          80.00        0.1100
                 37.00          80.50        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.05    79.55   .330E+02       0.0          0.17
52.00
       0.11    79.61   .749E+02       0.0          0.26
35.21
       0.16    79.66   .126E+03       0.1          0.32
28.45
       0.21    79.71   .186E+03       0.1          0.37
24.60
       0.26    79.76   .255E+03       0.2          0.41
22.04
       0.32    79.82   .333E+03       0.3          0.45
20.16
       0.37    79.87   .420E+03       0.4          0.48
18.69
       0.42    79.92   .515E+03       0.5          0.51
17.51
       0.47    79.97   .620E+03       0.6          0.55
16.53
       0.53    80.03   .931E+03       0.8          0.48
18.86
       0.58    80.08   .146E+04       1.2          0.43
20.73
       0.63    80.13   .201E+04       1.6          0.44
20.51
       0.68    80.18   .258E+04       2.2          0.46
19.66
       0.74    80.24   .318E+04       2.8          0.48
18.66
       0.79    80.29   .380E+04       3.6          0.51
17.70
       0.84    80.34   .445E+04       4.4          0.54
16.82
       0.89    80.39   .511E+04       5.3          0.56
16.03
       0.95    80.45   .580E+04       6.3          0.59
15.32
       1.00    80.50   .652E+04       7.4          0.61
14.69

                                   <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0149)   11.40     1.00    3.00  24.27
0.55     0.45
    OUTFLOW: ID= 1 (0632)   11.40     0.63    3.08  24.24
0.47     0.55


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| CALIB            |
| STANDHYD  (6322) |   Area    (ha)=   5.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.65          2.65
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     187.97         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      61.93         15.40
                over (min)        5.00         25.00
     Storage Coeff.  (min)=       4.52 (ii)    22.88 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
```

```
     Unit Hyd. peak  (cms)=       0.23          0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.31          0.06
0.337 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03          8.53
17.45
     TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
     RUNOFF COEFFICIENT   =       0.85          0.21
0.44

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0174) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0632):    11.40   0.627     3.08    24.24
        + ID2= 2 (6322):     5.30   0.337     3.00    17.45
          ===============================================
          ID = 3 (0174):    16.70   0.877     3.00    22.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6402) |   Area    (ha)=  16.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
66.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.60          4.20
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     334.66         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      61.93         33.34
                over (min)        5.00         20.00
     Storage Coeff.  (min)=       6.39 (ii)    19.87 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.18          0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.75          0.20
1.882 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=      34.03         14.43
27.36
     TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
     RUNOFF COEFFICIENT   =       0.85          0.36
0.68


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0641) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 910.0) ------>
              Distance      Elevation       Manning
                  0.00          83.92        0.1100
                  1.93          83.93        0.1100
                  3.02          83.94        0.1100
                  5.01          83.96        0.1100
                  6.81          83.80        0.1100
                  7.33          83.77        0.1100
                  8.42          83.41    0.1100 /0.0700  Main
Channel
                 10.42          82.41        0.0700      Main
Channel
                 11.17          82.41        0.0700      Main
Channel
                 11.92          82.41        0.0700      Main
Channel
                 13.92          83.41    0.0700 /0.1100  Main
Channel
                 21.33          84.40        0.1100
                 23.85          84.09        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.10    82.51   .768E+02       0.0          0.24
32.02
       0.20    82.61   .172E+03       0.1          0.35
21.50
       0.30    82.71   .285E+03       0.3          0.44
17.20
       0.40    82.81   .416E+03       0.5          0.51
14.73
       0.50    82.91   .565E+03       0.7          0.58
13.08
       0.60    83.01   .732E+03       1.0          0.64
11.86
       0.70    83.11   .918E+03       1.4          0.69
10.92
       0.80    83.21   .112E+04       1.8          0.74
10.16
       0.90    83.31   .134E+04       2.3          0.79
9.53
       1.00    83.41   .158E+04       2.9          0.84
9.00
       1.11    83.52   .188E+04       3.8          0.92
8.20
       1.22    83.63   .224E+04       4.8          0.98
7.72
       1.33    83.74   .266E+04       6.0          1.02
7.39
       1.44    83.85   .315E+04       7.3          1.05
7.20
       1.55    83.96   .379E+04       8.7          1.04
7.24
       1.66    84.07   .471E+04      10.6          1.02
7.41
       1.77    84.18   .567E+04      12.7          1.01
7.46
       1.88    84.29   .673E+04      15.1          1.01
7.43
       1.99    84.40   .787E+04      17.8          1.02
7.36

                                   <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (6402)   16.80     1.88    3.00  27.36
0.81     0.75
    OUTFLOW: ID= 1 (0641)   16.80     1.40    3.08  27.36
0.70     0.69
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| CALIB            |
| STANDHYD  (6412) |   Area    (ha)=  13.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
67.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.47          3.13
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     301.11         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      61.93         27.45
                over (min)        5.00         25.00
     Storage Coeff.  (min)=       6.00 (ii)    20.57 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.19          0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.46          0.12
1.515 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03         11.49
26.59
     TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
     RUNOFF COEFFICIENT   =       0.85          0.29
0.66


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0184) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0641):    16.80   1.397     3.08    27.36
        + ID2= 2 (6412):    13.60   1.515     3.00    26.59
          ===============================================
          ID = 3 (0184):    30.40   2.894     3.00    27.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0642) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1099.5) ------>
              Distance      Elevation       Manning
                  0.00          85.00        0.1100
                 14.50          80.00        0.1100
                 15.30          80.00        0.1100
                 16.80          79.50    0.1100 /0.0700  Main
Channel
                 17.80          79.50        0.0700      Main
Channel
                 19.30          80.00    0.0700 /0.1100  Main
Channel
                 20.30          80.00        0.1100
                 27.30          81.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.08    79.58   .520E+02       0.0          0.24
36.74
       0.16    79.66   .124E+03       0.1          0.35
25.35
       0.24    79.74   .216E+03       0.2          0.43
20.68
       0.32    79.82   .328E+03       0.3          0.49
17.96
       0.39    79.89   .460E+03       0.5          0.55
16.11
       0.47    79.97   .611E+03       0.7          0.60
14.73
       0.55    80.05   .836E+03       1.0          0.62
14.31
       0.63    80.13   .112E+04       1.4          0.66
13.40
       0.71    80.21   .143E+04       1.9          0.70
12.62
       0.79    80.29   .178E+04       2.5          0.74
11.97
       0.87    80.37   .216E+04       3.2          0.78
11.42
       0.95    80.45   .258E+04       3.9          0.81
10.93
       1.03    80.53   .302E+04       4.8          0.85
10.51
       1.11    80.61   .350E+04       5.8          0.88
10.14
       1.18    80.68   .402E+04       6.8          0.91
9.80
       1.26    80.76   .456E+04       8.0          0.94
9.49
       1.34    80.84   .514E+04       9.3          0.96
9.21
       1.42    80.92   .575E+04      10.7          0.99
8.96
       1.50    81.00   .640E+04      12.2          1.02
8.72

                                   <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0184)   30.40     2.89    3.00  27.01
0.84     0.76
    OUTFLOW: ID= 1 (0642)   30.40     2.09    3.08  27.01
0.74     0.72


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-------------------
| CALIB            |
| STANDHYD  (6422) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.75          8.75
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     341.57         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      61.93         19.19
                over (min)        5.00         25.00
     Storage Coeff.  (min)=       6.47 (ii)    23.28 (ii)
     Unit Hyd. Tpeak (min)=       5.00         25.00
     Unit Hyd. peak  (cms)=       0.18          0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.97          0.25
1.088 (iii)
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```
    TIME TO PEAK    (hrs)=       3.00         3.33
3.00
    RUNOFF VOLUME    (mm)=      34.03        10.45
18.70
    TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
    RUNOFF COEFFICIENT   =       0.85         0.26
0.47

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  72.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0187) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0642):    30.40   2.095     3.08    27.01
       + ID2= 2 (6422):    17.50   1.088     3.00    18.70
         ==================================================
         ID = 3 (0187):    47.90   2.906     3.00    23.97

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6502) |   Area    (ha)=   9.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       4.55          4.55
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     246.31         40.00
    Mannings n          =       0.013         0.250

    Max.Eff.Inten.(mm/hr)=      61.93         15.40
               over (min)       5.00         25.00
    Storage Coeff.  (min)=       5.31 (ii)    23.68 (ii)
    Unit Hyd. Tpeak (min)=       5.00         25.00
    Unit Hyd. peak  (cms)=       0.21          0.05

*TOTALS*
    PEAK FLOW       (cms)=       0.52          0.11
0.567 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.33
3.00
    RUNOFF VOLUME    (mm)=      34.03          8.53
17.45
    TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
    RUNOFF COEFFICIENT   =       0.85          0.21
0.44

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6602) |   Area    (ha)=  13.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       6.85          6.85
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     302.21         40.00
    Mannings n          =       0.013         0.250

    Max.Eff.Inten.(mm/hr)=      61.93         29.42
               over (min)       5.00         25.00
    Storage Coeff.  (min)=       6.01 (ii)    20.18 (ii)
    Unit Hyd. Tpeak (min)=       5.00         25.00
    Unit Hyd. peak  (cms)=       0.19          0.05

*TOTALS*
    PEAK FLOW       (cms)=       0.77          0.28
0.906 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.33
3.00
    RUNOFF VOLUME    (mm)=      34.03         13.37
20.60
    TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
    RUNOFF COEFFICIENT   =       0.85          0.33
0.51

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  79.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7302) |   Area    (ha)=   3.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       1.70          1.70
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     150.55         40.00
    Mannings n          =       0.013         0.250

    Max.Eff.Inten.(mm/hr)=      61.93         15.40
               over (min)       5.00         25.00
    Storage Coeff.  (min)=       3.96 (ii)    22.32 (ii)
    Unit Hyd. Tpeak (min)=       5.00         25.00
    Unit Hyd. peak  (cms)=       0.24          0.05

*TOTALS*
    PEAK FLOW       (cms)=       0.20          0.04
0.218 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.33
3.00
    RUNOFF VOLUME    (mm)=      34.03          8.53
17.45
    TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
    RUNOFF COEFFICIENT   =       0.85          0.21
0.44

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7402) |   Area    (ha)=   3.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
```

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--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       1.85          1.85
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     157.06         40.00
    Mannings n          =       0.013         0.250

    Max.Eff.Inten.(mm/hr)=      61.93         15.40
               over (min)       5.00         25.00
    Storage Coeff.  (min)=       4.06 (ii)    22.42 (ii)
    Unit Hyd. Tpeak (min)=       5.00         25.00
    Unit Hyd. peak  (cms)=       0.24          0.05

*TOTALS*
    PEAK FLOW       (cms)=       0.22          0.04
0.237 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.33
3.00
    RUNOFF VOLUME    (mm)=      34.03          8.53
17.45
    TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
    RUNOFF COEFFICIENT   =       0.85          0.21
0.44

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (7101) |   Area    (ha)=  70.70   Curve Number
(CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.78

    Unit Hyd Qpeak  (cms)=   3.471

    PEAK FLOW       (cms)=   0.322 (i)
    TIME TO PEAK    (hrs)=   3.833
    RUNOFF VOLUME    (mm)=   3.850
    TOTAL RAINFALL   (mm)=  40.032
    RUNOFF COEFFICIENT   =   0.096

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7102) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
33.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       7.88          9.62
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     341.57         40.00
    Mannings n          =       0.013         0.250

    Max.Eff.Inten.(mm/hr)=      61.93          6.11
               over (min)       5.00         35.00
    Storage Coeff.  (min)=       6.47 (ii)    33.04 (ii)
    Unit Hyd. Tpeak (min)=       5.00         35.00
    Unit Hyd. peak  (cms)=       0.18          0.03

*TOTALS*
    PEAK FLOW       (cms)=       0.91          0.09
0.939 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.50
3.00
    RUNOFF VOLUME    (mm)=      34.03          4.96
14.55
    TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
    RUNOFF COEFFICIENT   =       0.85          0.12
0.36

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  52.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0218) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (7101):    70.70   0.322     3.83     3.85
       + ID2= 2 (7102):    17.50   0.939     3.00    14.55
         ==================================================
         ID = 3 (0218):    88.20   0.994     3.00     5.97

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0711) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1487.9) ------>
              Distance      Elevation       Manning
                0.00          95.00         0.1100
               89.00          94.00         0.1100
              135.70          94.00    0.1100 /0.0700  Main
Channel
              137.20          93.50         0.0700     Main
Channel
              138.20          93.50         0.0700     Main
Channel
              139.70          94.00    0.0700 /0.1100  Main
Channel
              211.60          94.00         0.1100
              249.00          95.00         0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
         DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
          (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
         0.07    93.57   .969E+02        0.0          0.20
95.33
         0.14    93.64   .228E+03        0.1          0.29
64.56
         0.21    93.71   .393E+03        0.1          0.36
51.73
         0.29    93.79   .593E+03        0.2          0.42
44.23
         0.36    93.86   .826E+03        0.4          0.48
39.15
         0.43    93.93   .109E+04        0.5          0.53
35.40
         0.50    94.00   .140E+04        0.7          0.57
32.52
         0.58    94.08   .133E+05        2.6          0.22
84.59
         0.67    94.17   .262E+05        6.5          0.28
67.17
         0.75    94.25   .400E+05       12.0          0.33
55.64
         0.83    94.33   .549E+05       19.0          0.39
48.10
```

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         0.92    94.42   .707E+05       27.5          0.43
42.81
         1.00    94.50   .875E+05       37.5          0.48
38.86
         1.08    94.58   .105E+06       49.0          0.52
35.80
         1.17    94.67   .124E+06       62.0          0.56
33.34
         1.25    94.75   .144E+06       76.6          0.59
31.30
         1.33    94.83   .165E+06       92.7          0.63
29.59
         1.42    94.92   .186E+06      110.4          0.66
28.12
         1.50    95.00   .209E+06      129.7          0.69
26.84

                                   <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (0218)   88.20     0.99    3.00   5.97
0.51      0.46
     OUTFLOW: ID= 1 (0711)   88.20     0.46    3.58   5.97
0.41      0.51

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--------------------
| CALIB            |
| NASHYD    (7111) |   Area    (ha)=  48.10   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.43

    Unit Hyd Qpeak  (cms)=   1.285

    PEAK FLOW       (cms)=   0.272 (i)
    TIME TO PEAK    (hrs)=   4.750
    RUNOFF VOLUME    (mm)=   7.282
    TOTAL RAINFALL   (mm)=  40.032
    RUNOFF COEFFICIENT   =   0.182

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7112) |   Area    (ha)=  12.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  39.00   Dir. Conn.(%)=
27.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       4.76          7.44
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     285.19         40.00
    Mannings n          =       0.013         0.250

    Max.Eff.Inten.(mm/hr)=      61.93         14.88
               over (min)       5.00         25.00
    Storage Coeff.  (min)=       5.80 (ii)    24.42 (ii)
    Unit Hyd. Tpeak (min)=       5.00         25.00
    Unit Hyd. peak  (cms)=       0.20          0.05

*TOTALS*
    PEAK FLOW       (cms)=       0.53          0.16
0.604 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.33
3.00
    RUNOFF VOLUME    (mm)=      34.03          8.95
15.72
    TOTAL RAINFALL   (mm)=      40.03         40.03
40.03
    RUNOFF COEFFICIENT   =       0.85          0.22
0.39

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  70.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0222) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (7111):    48.10   0.272     4.75     7.28
       + ID2= 2 (7112):    12.20   0.604     3.00    15.72
         ==================================================
         ID = 3 (0222):    60.30   0.620     3.00     8.99

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0223) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0222):    60.30   0.620     3.00     8.99
       + ID2= 2 (0711):    88.20   0.465     3.58     5.97
         ==================================================
         ID = 3 (0223):   148.50   0.942     3.00     7.19

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (7011) |   Area    (ha)=  90.40   Curve Number
(CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.77

    Unit Hyd Qpeak  (cms)=   4.467

    PEAK FLOW       (cms)=   0.532 (i)
    TIME TO PEAK    (hrs)=   3.833
    RUNOFF VOLUME    (mm)=   4.920
    TOTAL RAINFALL   (mm)=  40.032
    RUNOFF COEFFICIENT   =   0.123

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7012) |   Area    (ha)=  25.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
25.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       9.54         15.56
    Dep. Storage     (mm)=       6.00          8.00
    Average Slope     (%)=       1.00          1.00
    Length            (m)=     409.06         40.00
    Mannings n          =       0.013         0.250

    Max.Eff.Inten.(mm/hr)=      61.93          8.70
               over (min)       5.00         35.00
    Storage Coeff.  (min)=       7.21 (ii)    30.28 (ii)
    Unit Hyd. Tpeak (min)=       5.00         35.00
    Unit Hyd. peak  (cms)=       0.17          0.04
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*TOTALS*
    PEAK FLOW       (cms)=       0.97         0.20
1.030 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.50
3.00
    RUNOFF VOLUME    (mm)=      34.03         6.23
13.18
    TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
    RUNOFF COEFFICIENT   =       0.85         0.16
0.33

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  59.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0205) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7011):    90.40   0.532    3.83     4.92
        + ID2= 2 (7012):    25.10   1.030    3.00    13.18
          ===============================================
          ID = 3 (0205):   115.50   1.123    3.00     6.71

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0702) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1184.6) ------>
              Distance      Elevation       Manning
                 0.00         93.00         0.1100
                56.00         92.00         0.1100
                65.40         92.00         0.1100
                74.80         91.50    0.1100 /0.0700  Main
Channel
                75.80         91.50         0.0700      Main
Channel
                77.30         92.00    0.0700 /0.1100  Main
Channel
               144.00         92.00         0.1100
               186.00         93.00         0.1100

         <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.08    91.58    .236E+03       0.0          0.13
200.27
     0.16    91.66    .689E+03       0.1          0.18
146.52
     0.24    91.74    .136E+04       0.2          0.22
121.67
     0.32    91.82    .225E+04       0.4          0.25
105.99
     0.39    91.89    .336E+04       0.6          0.28
94.79
     0.47    91.97    .468E+04       0.9          0.31
86.24
     0.55    92.05    .128E+05       1.5          0.19
142.36
     0.63    92.13    .251E+05       3.4          0.22
123.43
     0.71    92.21    .384E+05       6.1          0.26
104.46
     0.79    92.29    .526E+05       9.6          0.29
90.95
     0.87    92.37    .678E+05      13.9          0.33
81.16
     0.95    92.45    .840E+05      19.0          0.36
73.76
     1.03    92.53    .101E+06      24.8          0.39
67.97
     1.11    92.61    .119E+06      31.4          0.42
63.30
     1.18    92.68    .139E+06      38.8          0.45
59.44
     1.26    92.76    .159E+06      47.1          0.48
56.18
     1.34    92.84    .180E+06      56.1          0.50
53.38
     1.42    92.92    .202E+06      66.0          0.52
50.95
     1.50    93.00    .225E+06      76.8          0.55
48.81

                                       <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0205)  115.50     1.12    3.00   6.71
0.50     0.25
    OUTFLOW: ID= 1 (0702)  115.50     0.50    4.50   6.70
0.36     0.27

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-------------------
| CALIB            |
| NASHYD    (7021) |   Area    (ha)=   7.30   Curve Number
(CN)= 64.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------    U.H. Tp(hrs)=   1.72

    Unit Hyd Qpeak  (cms)=   0.162

    PEAK FLOW       (cms)=   0.029 (i)
    TIME TO PEAK    (hrs)=   5.167
    RUNOFF VOLUME    (mm)=   5.866
    TOTAL RAINFALL   (mm)=  40.032
    RUNOFF COEFFICIENT   =   0.147

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (7022) |   Area    (ha)=  35.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  48.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area      (ha)=      16.90        18.30
    Dep. Storage      (mm)=       1.50         8.00
    Average Slope      (%)=       1.00         1.00
    Length             (m)=     484.42        40.00
    Mannings n           =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=      61.93        13.15
               over (min)       10.00        30.00
    Storage Coeff.  (min)=       7.97 (ii)   27.54 (ii)
    Unit Hyd. Tpeak (min)=      10.00        30.00
    Unit Hyd. peak  (cms)=       0.13         0.04

*TOTALS*
    PEAK FLOW       (cms)=       1.73         0.33
1.854 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.42
3.00
    RUNOFF VOLUME    (mm)=      38.53         7.65
18.46
    TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
    RUNOFF COEFFICIENT   =       0.96         0.19
0.46

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  64.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0209) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7021):     7.30   0.029    5.17     5.87
        + ID2= 2 (7022):    35.20   1.854    3.00    18.46
          ===============================================
          ID = 3 (0209):    42.50   1.855    3.00    16.29

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0210) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0209):    42.50   1.855    3.00    16.29
        + ID2= 2 (0702):   115.50   0.498    4.50     6.70
          ===============================================
          ID = 3 (0210):   158.00   1.996    3.00     9.28

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0224) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0210):   158.00   1.996    3.00     9.28
        + ID2= 2 (0223):   148.50   0.942    3.00     7.19
          ===============================================
          ID = 3 (0224):   306.50   2.938    3.00     8.27

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0703) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (2329.2) ------>
              Distance      Elevation       Manning
                 0.00         88.00         0.1100
                37.50         87.00         0.1100
                51.30         86.00         0.1100
                82.80         86.00         0.1100
               107.50         87.00         0.1100
               117.30         86.00         0.1100
               125.90         86.00    0.1100 /0.0700  Main
Channel
               127.40         85.50         0.0700      Main
Channel
               128.40         85.50         0.0700      Main
Channel
               129.90         86.00    0.0700 /0.1100  Main
Channel
               133.00         86.00         0.1100
               149.00         87.00         0.1100
               193.00         88.00         0.1100

         <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.12    85.62    .787E+02       0.0          0.19
40.30
     0.25    85.75    .200E+03       0.1          0.28
27.58
     0.37    85.88    .365E+03       0.3          0.35
22.10
     0.50    86.00    .572E+03       0.5          0.41
18.84
     0.63    86.13    .372E+04       1.8          0.22
34.16
     0.77    86.27    .738E+04       4.4          0.27
28.02
     0.90    86.40    .116E+05       8.1          0.32
23.77
     1.03    86.53    .163E+05      13.0          0.37
20.89
     1.17    86.67    .215E+05      19.1          0.41
18.82
     1.30    86.80    .273E+05      26.4          0.44
17.24
     1.43    86.93    .336E+05      35.0          0.48
15.99
     1.57    87.07    .404E+05      44.9          0.51
15.00
     1.70    87.20    .479E+05      56.3          0.54
14.18
     1.83    87.33    .560E+05      69.3          0.57
13.47
     1.97    87.47    .648E+05      84.0          0.59
12.85
     2.10    87.60    .743E+05     100.6          0.62
12.31
     2.23    87.73    .844E+05     119.0          0.65
11.82
     2.37    87.87    .952E+05     139.3          0.67
11.39
     2.50    88.00    .107E+06     161.7          0.69
11.00

                                       <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0224)  306.50     2.94    3.00   8.27
0.69     0.24
    OUTFLOW: ID= 1 (0703)  306.50     1.64    3.83   8.27
0.61     0.24

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| CALIB            |
| STANDHYD  (7032) |   Area    (ha)=  23.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area      (ha)=      17.94         5.36
    Dep. Storage      (mm)=       6.00         8.00
    Average Slope      (%)=       1.00         1.00
    Length             (m)=     394.12        40.00
    Mannings n           =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=      61.93        16.04
               over (min)        5.00        30.00
    Storage Coeff.  (min)=       7.05 (ii)   25.11 (ii)
    Unit Hyd. Tpeak (min)=       5.00        30.00
    Unit Hyd. peak  (cms)=       0.17         0.04

*TOTALS*
    PEAK FLOW       (cms)=       2.46         0.12
2.509 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.42
3.00
    RUNOFF VOLUME    (mm)=      34.03         8.31
25.80
    TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
    RUNOFF COEFFICIENT   =       0.85         0.21
0.64

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  63.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0215) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0703):   306.50   1.643    3.83     8.27
        + ID2= 2 (7032):    23.30   2.509    3.00    25.80
          ===============================================
          ID = 3 (0215):   329.80   3.603    3.00     9.51

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0704) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (2755.4) ------>
              Distance      Elevation       Manning
                 0.00         85.00         0.1100
                25.00         84.00         0.1100
                32.00         84.00    0.1100 /0.0700  Main
Channel
                33.50         83.50         0.0700      Main
Channel
                34.50         83.50         0.0700      Main
Channel
                36.00         84.00    0.0700 /0.1100  Main
Channel
                65.00         84.00         0.1100

         <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.03    83.53    .121E+02       0.0          0.12
61.52
     0.05    83.55    .259E+02       0.0          0.19
40.35
     0.08    83.58    .414E+02       0.0          0.24
31.84
     0.10    83.60    .585E+02       0.0          0.28
27.04
     0.13    83.63    .774E+02       0.1          0.31
23.87
     0.15    83.65    .979E+02       0.1          0.35
21.59
     0.18    83.68    .120E+03       0.1          0.38
19.84
     0.20    83.70    .144E+03       0.1          0.41
18.45
     0.23    83.73    .170E+03       0.2          0.43
17.31
     0.25    83.75    .197E+03       0.2          0.46
16.34
     0.28    83.78    .226E+03       0.2          0.48
15.52
     0.30    83.80    .257E+03       0.3          0.51
14.80
     0.33    83.83    .289E+03       0.3          0.53
14.16
     0.35    83.85    .323E+03       0.4          0.55
13.60
     0.38    83.88    .359E+03       0.5          0.57
13.09
     0.40    83.90    .396E+03       0.5          0.59
12.64
     0.43    83.93    .435E+03       0.6          0.61
12.22
     0.45    83.95    .476E+03       0.7          0.63
11.84
     0.48    83.98    .518E+03       0.8          0.65
11.49

    **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                       <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0215)  329.80     3.60    3.00   9.51
0.47     0.65
    OUTFLOW: ID= 1 (0704)  329.80     2.48    3.17   9.51
0.48     0.65

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-------------------
| CALIB            |
| STANDHYD  (7042) |   Area    (ha)=  23.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area      (ha)=      18.25         5.45
    Dep. Storage      (mm)=       6.00         8.00
    Average Slope      (%)=       1.00         1.00
    Length             (m)=     397.49        40.00
    Mannings n           =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=      61.93        14.96
               over (min)        5.00        30.00
    Storage Coeff.  (min)=       7.08 (ii)   25.66 (ii)
    Unit Hyd. Tpeak (min)=       5.00        30.00
    Unit Hyd. peak  (cms)=       0.17         0.04

*TOTALS*
    PEAK FLOW       (cms)=       2.50         0.11
2.546 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.42
3.00
    RUNOFF VOLUME    (mm)=      34.03         7.78
25.63
    TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
    RUNOFF COEFFICIENT   =       0.85         0.19
0.64

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  61.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0229) |
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|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0704):   329.80   2.475     3.17     9.51
       + ID2= 2 (7042):    23.70   2.546     3.00    25.63
         ===============================================
         ID = 3 (0229):   353.50   4.647     3.00    10.59

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7202) |   Area    (ha)=  22.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      17.33         5.18
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     387.30        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        17.82
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       6.97 (ii)   24.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.17         0.05

*TOTALS*
     PEAK FLOW       (cms)=       2.38         0.14
2.447 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03         9.16
26.07
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.23
0.65

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ROUTE CHN (0721) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 920.0) ------>
              Distance      Elevation       Manning
                  0.00         82.00         0.1100
                 41.00         82.00         0.1100
                 50.70         82.00         0.1100
                 57.80         81.00    0.1100 /0.0700  Main
Channel
                 59.30         79.84         0.0700     Main
Channel
                 60.30         79.84         0.0700     Main
Channel
                 61.80         81.00    0.0700 /0.1100  Main
Channel
                 63.30         81.00         0.1100
                 85.90         81.00         0.1100
                100.00         82.00         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.11    79.95    .515E+02       0.0          0.20
35.58
       0.21    80.05    .115E+03       0.1          0.30
24.20
       0.32    80.16    .192E+03       0.2          0.37
19.53
       0.42    80.26    .280E+03       0.3          0.43
16.82
       0.53    80.37    .381E+03       0.4          0.48
15.00
       0.63    80.47    .494E+03       0.6          0.53
13.65
       0.74    80.58    .620E+03       0.8          0.57
12.60
       0.84    80.68    .758E+03       1.1          0.61
11.75
       0.95    80.79    .908E+03       1.4          0.65
11.04
       1.05    80.89    .107E+04       1.7          0.69
10.44
       1.16    81.00    .125E+04       2.1          0.72
9.92
       1.28    81.12    .283E+04       3.2          0.49
14.61
       1.41    81.25    .455E+04       5.0          0.48
15.04
       1.53    81.37    .642E+04       7.4          0.50
14.36
       1.66    81.50    .843E+04      10.4          0.53
13.50
       1.78    81.62    .106E+05      13.9          0.57
12.67
       1.91    81.75    .129E+05      18.0          0.60
11.93
       2.03    81.87    .153E+05      22.6          0.63
11.29
       2.16    82.00    .179E+05      27.8          0.67
10.73

                                 <---- hydrograph ---->   <-
pipe / channel->
                           AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                           (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (7202)   22.50     2.45    3.00  26.07
1.20      0.63
     OUTFLOW: ID= 1 (0721)   22.50     1.78    3.08  26.06
1.07      0.69

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-------------------
| CALIB            |
| STANDHYD  (7212) |   Area    (ha)=  18.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      13.94         4.16
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     347.37        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        17.82
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       6.53 (ii)   23.86 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.18         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.94         0.11
1.993 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03         9.16
26.07
```

```
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.23
0.65

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0237) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0721):    22.50   1.784     3.08    26.06
       + ID2= 2 (7212):    18.10   1.993     3.00    26.07
         ===============================================
         ID = 3 (0237):    40.60   3.761     3.00    26.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0238) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0229):   353.50   4.647     3.00    10.59
       + ID2= 2 (0237):    40.60   3.761     3.00    26.07
         ===============================================
         ID = 3 (0238):   394.10   8.408     3.00    12.18

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0705) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (3276.8) ------>
              Distance      Elevation       Manning
                  0.00         80.50         0.1100
                  5.70         80.00         0.1100
                 14.00         79.00         0.1100
                 22.00         79.00    0.1100 /0.0700  Main
Channel
                 23.50         78.50         0.0700     Main
Channel
                 24.50         78.50         0.0700     Main
Channel
                 26.00         79.00    0.0700 /0.1100  Main
Channel
                 28.00         79.00         0.1100
                 41.00         80.00         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.07    78.57    .248E+02       0.0          0.26
18.45
       0.14    78.64    .584E+02       0.1          0.38
12.49
       0.21    78.71    .101E+03       0.2          0.48
10.01
       0.29    78.79    .152E+03       0.3          0.56
8.56
       0.36    78.86    .212E+03       0.5          0.63
7.58
       0.43    78.93    .280E+03       0.7          0.70
6.85
       0.50    79.00    .358E+03       0.9          0.76
6.29
       0.58    79.08    .712E+03       1.6          0.64
7.50
       0.67    79.17    .111E+04       2.5          0.65
7.35
       0.75    79.25    .155E+04       3.7          0.69
6.94
       0.83    79.33    .203E+04       5.2          0.73
6.52
       0.92    79.42    .255E+04       6.9          0.78
6.14
       1.00    79.50    .312E+04       9.0          0.82
5.81
       1.08    79.58    .373E+04      11.3          0.86
5.52
       1.17    79.67    .438E+04      13.9          0.90
5.27
       1.25    79.75    .507E+04      16.7          0.94
5.05
       1.33    79.83    .581E+04      20.0          0.98
4.85
       1.42    79.92    .659E+04      23.5          1.02
4.68
       1.50    80.00    .741E+04      27.3          1.06
4.52

                                 <---- hydrograph ---->   <-
pipe / channel->
                           AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                           (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0238)  394.10     8.41    3.00  12.18
0.98      0.81
     OUTFLOW: ID= 1 (0705)  394.10     7.35    3.08  12.18
0.93      0.78

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-------------------
| CALIB            |
| STANDHYD  (7052) |   Area    (ha)=   6.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.40         3.40
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     212.92        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93         7.73
                over (min)        5.00        30.00
     Storage Coeff.  (min)=       4.87 (ii)   29.07 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.22         0.04

*TOTALS*
     PEAK FLOW       (cms)=       0.39         0.04
0.406 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      34.03         5.18
15.28
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.13
0.38

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  51.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
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     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0243) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0705):   394.10   7.354     3.08    12.18
       + ID2= 2 (7052):     6.80   0.406     3.00    15.28
         ===============================================
         ID = 3 (0243):   400.90   7.553     3.08    12.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (7502) |   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.75         2.75
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     191.49        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        15.40
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       4.57 (ii)   22.93 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.23         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.32         0.06
0.349 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      34.03         8.53
17.45
     TOTAL RAINFALL   (mm)=      40.03        40.03
40.03
     RUNOFF COEFFICIENT   =       0.85         0.21
0.44

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   3 **
  ****************************

-------------------
|    READ STORM    |    Filename: C:\Users\Jenny\AppD
|                  |              ata\Local\Temp\
|                  |              5cabfbfe-d340-4400-a9c0-
5faca896dcae\d8a4f659
| Ptotal= 56.50 mm |    Comments: Mount Hope-6 hour SCS
Distribution Desig
-------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                0.17    2.26 |  1.67    5.65 |  3.17   12.43 |
4.67    3.39
                0.33    2.26 |  1.83    5.65 |  3.33   12.43 |
4.83    3.39
                0.50    2.26 |  2.00    5.65 |  3.50   12.43 |
5.00    3.39
                0.67    3.39 |  2.17    6.78 |  3.67    5.65 |
5.17    2.26
                0.83    3.39 |  2.33    6.78 |  3.83    5.65 |
5.33    2.26
                1.00    3.39 |  2.50    6.78 |  4.00    5.65 |
5.50    2.26
                1.17    3.39 |  2.67   33.90 |  4.17    4.52 |
5.67    2.26
                1.33    3.39 |  2.83   61.02 |  4.33    4.52 |
5.83    2.26
                1.50    3.39 |  3.00   88.14 |  4.50    4.52 |
6.00    2.26

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-------------------
| CALIB            |
| STANDHYD  (5102) |   Area    (ha)=   1.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09         0.61
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     106.46        40.00
     Mannings n          =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
               0.083    2.26 | 1.583    5.65 | 3.083   12.43 |
4.58    3.39
               0.167    2.26 | 1.667    5.65 | 3.167   12.43 |
4.67    3.39
               0.250    2.26 | 1.750    5.65 | 3.250   12.43 |
4.75    3.39
               0.333    2.26 | 1.833    5.65 | 3.333   12.43 |
4.83    3.39
               0.417    2.26 | 1.917    5.65 | 3.417   12.43 |
4.92    3.39
               0.500    2.26 | 2.000    5.65 | 3.500   12.43 |
5.00    3.39
               0.583    3.39 | 2.083    6.78 | 3.583    5.65 |
5.08    2.26
               0.667    3.39 | 2.167    6.78 | 3.667    5.65 |
5.17    2.26
               0.750    3.39 | 2.250    6.78 | 3.750    5.65 |
5.25    2.26
               0.833    3.39 | 2.333    6.78 | 3.833    5.65 |
5.33    2.26
               0.917    3.39 | 2.417    6.78 | 3.917    5.65 |
5.42    2.26
               1.000    3.39 | 2.500    6.78 | 4.000    5.65 |
5.50    2.26
               1.083    3.39 | 2.583   33.90 | 4.083    4.52 |
5.58    2.26
               1.167    3.39 | 2.667   33.90 | 4.167    4.52 |
5.67    2.26
               1.250    3.39 | 2.750   61.02 | 4.250    4.52 |
5.75    2.26
               1.333    3.39 | 2.833   61.02 | 4.333    4.52 |
5.83    2.26
               1.417    3.39 | 2.917   88.14 | 4.417    4.52 |
5.92    2.26
               1.500    3.39 | 3.000   88.14 | 4.500    4.52 |
6.00    2.26

     Max.Eff.Inten.(mm/hr)=      88.14        38.44
                over (min)        5.00        20.00
```

```
     Storage Coeff.  (min)=       2.79 (ii)   15.53 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.28         0.07

*TOTALS*
     PEAK FLOW       (cms)=       0.21         0.04
0.240 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        17.16
34.49
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.30
0.61

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0511) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation       Manning
                   0.00          81.24        0.1100
                  33.01          80.98        0.1100
                  49.97          81.27        0.1100
                  54.18          80.35        0.1100
                  60.88          81.23    0.1100 /0.0700  Main
Channel
                  69.13          79.02        0.0700      Main
Channel
                  92.42          79.04        0.0700      Main
Channel
                  98.70          80.89    0.0700 /0.1100  Main
Channel
                 128.88          81.13        0.1100
                 199.00          81.23        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.12    79.13    .361E+03       0.6          0.24
9.91
        0.23    79.25    .776E+03       2.1          0.40
6.09
        0.35    79.37    .121E+04       4.3          0.52
4.65
        0.47    79.48    .165E+04       7.1          0.63
3.85
        0.59    79.60    .211E+04      10.5          0.72
3.34
        0.70    79.72    .258E+04      14.4          0.81
2.98
        0.82    79.84    .307E+04      18.8          0.89
2.71
        0.94    79.95    .357E+04      23.8          0.97
2.50
        1.05    80.07    .408E+04      29.2          1.04
2.33
        1.17    80.19    .461E+04      35.1          1.10
2.19
        1.29    80.30    .515E+04      41.5          1.17
2.07
        1.41    80.42    .571E+04      48.4          1.23
1.97
        1.52    80.54    .631E+04      55.8          1.28
1.88
        1.64    80.66    .695E+04      63.8          1.33
1.81
        1.76    80.77    .762E+04      72.3          1.38
1.76
        1.87    80.89    .833E+04      81.4          1.42
1.71
        2.00    81.02    .931E+04      92.4          1.44
1.68
        2.13    81.14    .109E+05     104.8          1.39
1.74
        2.25    81.27    .140E+05     120.9          1.25
1.93

                                    <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (5102)    1.70     0.24     3.00  34.49
0.05      0.24
     OUTFLOW: ID= 1 (0511)    1.70     0.18     3.00  34.48
0.03      0.24


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| CALIB            |
| STANDHYD  (5112) |   Area    (ha)=   3.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=
58.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.07         0.93
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     141.42        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        46.23
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.31 (ii)   15.14 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.26         0.07

*TOTALS*
     PEAK FLOW       (cms)=       0.42         0.07
0.468 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        20.13
37.74
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.36
0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0117) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0511):      1.70   0.176     3.00    34.48
        + ID2= 2 (5112):      3.00   0.468     3.00    37.74
          ===============================================
          ID = 3 (0117):      4.70   0.644     3.00    36.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ROUTE CHN (0512) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 484.2) ------>
               Distance      Elevation       Manning
                   0.00          80.80        0.0900
                   9.73          80.46        0.0900
                  14.10          82.04        0.0900
                  17.18          82.28        0.0900
                  41.13          82.12    0.0900 /0.0700  Main
Channel
                  46.88          79.71        0.0700      Main
Channel
                  51.41          80.90    0.0700 /0.0900  Main
Channel
                  94.29          80.56        0.0900
                 175.64          80.72        0.0900
                 192.09          80.85        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.13    79.84    .255E+02       0.0          0.14
54.71
        0.26    79.98    .102E+03       0.0          0.23
34.47
        0.40    80.11    .229E+03       0.1          0.30
26.30
        0.53    80.24    .408E+03       0.3          0.36
21.71
        0.66    80.37    .637E+03       0.6          0.42
18.71
        0.79    80.51    .934E+03       0.9          0.46
16.84
        0.93    80.64    .245E+04       1.6          0.31
24.96
        1.06    80.77    .873E+04       4.6          0.25
31.51
        1.19    80.90    .179E+05      11.4          0.30
26.08
        1.32    81.04    .278E+05      22.6          0.38
20.45
        1.46    81.17    .381E+05      37.5          0.46
16.91
        1.60    81.31    .484E+05      55.4          0.54
14.57
        1.74    81.45    .588E+05      76.0          0.61
12.90
        1.87    81.59    .693E+05      99.3          0.67
11.63
        2.01    81.72    .798E+05     125.0          0.73
10.64
        2.15    81.86    .903E+05     153.1          0.80
9.83
        2.29    82.00    .101E+06     183.5          0.85
9.16
        2.42    82.14    .112E+06     214.3          0.90
8.68
        2.56    82.27    .123E+06     244.4          0.93
8.40

                                    <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0117)    4.70     0.64     3.00  36.56
0.69      0.43
     OUTFLOW: ID= 1 (0512)    4.70     0.38     3.08  36.50
0.57      0.37


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--------------------
| CALIB            |
| STANDHYD  (5122) |   Area    (ha)=   3.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=
57.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.65         1.25
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     161.25        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        45.55
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.58 (ii)   15.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.26         0.07

*TOTALS*
     PEAK FLOW       (cms)=       0.53         0.09
0.597 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        20.00
37.38
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.35
0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0119) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0512):      4.70   0.384     3.08    36.50
        + ID2= 2 (5122):      3.90   0.597     3.00    37.38
          ===============================================
          ID = 3 (0119):      8.60   0.955     3.00    36.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5202) |   Area    (ha)=  29.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.85        14.85
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     444.97        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        44.29
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       6.58 (ii)   18.62 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.18         0.06

*TOTALS*
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```
     PEAK FLOW       (cms)=       2.33         0.99
2.985 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      55.00        20.06
32.29
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.97         0.36
0.57

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0521) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 815.4) ------>
               Distance      Elevation       Manning
                 415.18          83.86        0.0900
                 461.15          83.40        0.0900
                 501.83          83.53    0.0900 /0.0700  Main
Channel
                 513.93          82.96        0.0700      Main
Channel
                 526.85          83.23    0.0700 /0.0900  Main
Channel
                 569.63          83.21        0.0900
                 610.76          83.63        0.0900
                 663.54          83.88        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.05    83.00    .378E+02       0.0          0.11
83.81
        0.09    83.05    .151E+03       0.0          0.17
52.79
        0.14    83.09    .340E+03       0.1          0.22
40.29
        0.18    83.14    .605E+03       0.3          0.27
33.26
        0.23    83.18    .946E+03       0.5          0.32
28.66
        0.27    83.23    .151E+04       0.9          0.33
27.77
        0.32    83.27    .323E+04       1.8          0.31
29.51
        0.37    83.32    .510E+04       3.2          0.34
26.44
        0.42    83.37    .713E+04       5.0          0.38
23.61
        0.46    83.42    .934E+04       7.3          0.42
21.44
        0.51    83.47    .121E+05      10.0          0.45
20.23
        0.56    83.52    .156E+05      13.4          0.47
19.44
        0.61    83.57    .196E+05      17.7          0.49
18.52
        0.66    83.61    .240E+05      22.8          0.52
17.49
        0.71    83.66    .286E+05      28.4          0.54
16.75
        0.75    83.71    .336E+05      34.7          0.56
16.14
        0.80    83.76    .390E+05      41.8          0.58
15.55
        0.85    83.81    .448E+05      49.8          0.60
14.99
        0.90    83.86    .510E+05      58.8          0.63
14.46

                                    <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (5202)   29.70     2.98     3.00  32.29
0.36      0.34
     OUTFLOW: ID= 1 (0521)   29.70     1.50     3.25  32.28
0.30      0.31


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--------------------
| CALIB            |
| STANDHYD  (5212) |   Area    (ha)=  15.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
66.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.78         3.93
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     323.52        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        56.11
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.44 (ii)   16.38 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.20         0.06

*TOTALS*
     PEAK FLOW       (cms)=       2.39         0.36
2.634 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        24.08
41.52
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.43
0.73

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0113) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0521):     29.70   1.503     3.25    32.28
        + ID2= 2 (5212):     15.70   2.634     3.00    41.52
          ===============================================
          ID = 3 (0113):     45.40   3.870     3.00    35.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD   (5011) |   Area    (ha)=  80.20   Curve Number
(CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.85
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```
     Unit Hyd Qpeak  (cms)=   3.621

     PEAK FLOW       (cms)=   1.208 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=  12.696
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.225

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5012) |   Area    (ha)=  39.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.97        24.43
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     512.51        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        31.75
                over (min)       5.00        25.00
     Storage Coeff.  (min)=       7.16 (ii)   20.91 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.17         0.05

*TOTALS*
     PEAK FLOW       (cms)=       2.08         1.06
2.636 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      50.50        15.46
23.87
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.27
0.42

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  65.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0100) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5011):    80.20   1.208     3.92    12.70
        + ID2= 2 (5012):    39.40   2.636     3.00    23.87
          ===============================================
          ID = 3 (0100):   119.60   2.865     3.00    16.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0502) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1537.5) ------>
              Distance      Elevation      Manning
                  0.00          89.30       0.1100
                  4.20          89.28       0.1100
                  9.03          88.80       0.1100
                 21.55          88.78       0.1100
                 29.06          88.24       0.1100
                 39.87          87.83       0.1100
                 55.54          87.84    0.1100 /0.0700  Main
Channel
                 57.54          86.84       0.0700      Main
Channel
                 59.04          86.84       0.0700      Main
Channel
                 61.04          87.84    0.0700 /0.1100  Main
Channel
                 74.10          87.86       0.1100
                 87.72          88.07       0.1100
                101.34          88.18       0.1100
                113.53          88.23       0.1100
                128.57          88.32       0.1100
                142.19          88.61       0.1100
                155.81          88.53       0.1100
                183.05          88.85       0.1100
                187.19          88.84       0.1100
                211.21          88.88       0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.10   86.94   .202E+03       0.0          0.25
78.80
        0.20   87.04   .452E+03       0.1          0.37
52.91
        0.30   87.14   .749E+03       0.3          0.47
42.34
        0.40   87.24   .109E+04       0.5          0.55
36.26
        0.50   87.34   .149E+04       0.8          0.62
32.18
        0.60   87.44   .193E+04       1.1          0.68
29.19
        0.70   87.54   .241E+04       1.5          0.74
26.87
        0.80   87.64   .295E+04       2.0          0.79
25.01
        0.90   87.74   .353E+04       2.5          0.84
23.46
        1.00   87.84   .421E+04       3.1          0.89
22.39
        1.10   87.94   .849E+04       4.5          0.63
31.56
        1.21   88.05   .150E+05       7.1          0.56
35.43
        1.33   88.17   .233E+05      10.6          0.54
36.49
        1.44   88.28   .346E+05      15.5          0.53
37.18
        1.56   88.40   .484E+05      22.8          0.56
35.35
        1.67   88.51   .634E+05      32.1          0.60
32.90
        1.79   88.63   .807E+05      41.2          0.61
32.65
        1.90   88.74   .101E+06      54.6          0.64
30.77
        2.02   88.86   .124E+06      64.7          0.62
31.85

                                    <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0100)  119.60     2.86    3.00  16.38
0.96     0.87
    OUTFLOW: ID= 1 (0502)  119.60     2.02    3.58  16.37
0.81     0.80

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| CALIB            |
| STANDHYD  (5022) |   Area    (ha)=  51.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  48.00   Dir. Conn.(%)=
34.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      24.53        26.57
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     583.67        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        30.86
                over (min)      10.00        25.00
     Storage Coeff.  (min)=       7.74 (ii)   21.65 (ii)
     Unit Hyd. Tpeak (min)=      10.00        25.00
     Unit Hyd. peak  (cms)=       0.13         0.05

*TOTALS*
     PEAK FLOW       (cms)=       3.51         1.10
4.077 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      55.00        14.58
28.32
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.97         0.26
0.50

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0102) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0502):   119.60   2.022     3.58    16.37
        + ID2= 2 (5022):    51.10   4.077     3.00    28.32
          ===============================================
          ID = 3 (0102):   170.70   5.458     3.08    19.95

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0503) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1157.9) ------>
              Distance      Elevation      Manning
                  0.00          86.78       0.0900
                 25.34          87.17       0.0900
                 68.44          87.04       0.0900
                117.13          86.81       0.0900
                125.36          85.21    0.0900 /0.0700  Main
Channel
                127.36          84.21       0.0700      Main
Channel
                128.86          84.21       0.0700      Main
Channel
                130.86          85.21    0.0700 /0.0900  Main
Channel
                131.88          86.36       0.0900
                140.63          86.77       0.0900
                168.26          86.90       0.0900
                169.81          87.10       0.0900
                202.11          87.50       0.0900
                239.06          87.35       0.0900
                270.29          87.83       0.0900
                283.90          87.90       0.0900
                297.51          87.86       0.0900
                324.73          87.89       0.0900
                351.95          87.78       0.0900
                388.59          87.46       0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.17   84.38   .114E+03       0.1          0.34
18.34
        0.33   84.54   .269E+03       0.4          0.50
12.51
        0.50   84.71   .465E+03       0.8          0.62
10.07
        0.67   84.88   .703E+03       1.4          0.72
8.63
        0.83   85.04   .982E+03       2.1          0.81
7.65
        1.00   85.21   .130E+04       3.1          0.89
6.93
        1.21   85.42   .177E+04       5.0          1.06
5.87
        1.41   85.62   .234E+04       7.4          1.17
5.28
        1.62   85.83   .300E+04      10.2          1.27
4.89
        1.83   86.04   .376E+04      13.6          1.35
4.60
        2.03   86.24   .462E+04      17.6          1.42
4.37
        2.24   86.45   .560E+04      22.1          1.47
4.22
        2.45   86.66   .695E+04      27.6          1.48
4.20
        2.66   86.87   .925E+04      31.2          1.25
4.94
        2.86   87.07   .168E+05      43.1          0.96
6.48
        3.07   87.28   .297E+05      67.7          0.85
7.30
        3.28   87.49   .456E+05     103.1          0.84
7.38
        3.48   87.69   .663E+05     159.6          0.89
6.93
        3.69   87.90   .907E+05     223.4          0.92
6.77

                                    <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0102)  170.70     5.46    3.08  19.95
1.24     1.08
    OUTFLOW: ID= 1 (0503)  170.70     5.07    3.08  19.95
1.21     1.06

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--------------------
| CALIB            |
| STANDHYD  (5032) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  76.00   Dir. Conn.(%)=
67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.49         3.31
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     303.32        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        47.47
                over (min)       5.00        20.00
```

```
     Storage Coeff.  (min)=       5.23 (ii)   16.94 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.21         0.06

*TOTALS*
     PEAK FLOW       (cms)=       2.14         0.25
2.311 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        20.36
40.55
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.36
0.72

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0104) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0503):   170.70   5.070     3.08    19.95
        + ID2= 2 (5032):    13.80   2.311     3.00    40.55
          ===============================================
          ID = 3 (0104):   184.50   6.425     3.00    21.49

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0504) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 815.4) ------>
              Distance      Elevation      Manning
                 19.10          82.03       0.0900
                 29.01          83.14       0.0900
                 40.83          82.56       0.0900
                 81.51          82.27       0.0900
                122.18          82.68       0.0900
                169.31          82.61       0.0900
                217.10          82.90       0.0900
                229.61          83.66    0.0900 /0.0700  Main
Channel
                232.80          81.85       0.0700      Main
Channel
                243.24          83.87       0.0700      Main
Channel
                257.77          84.06       0.0900
                312.01          83.52       0.0900
                415.18          83.86       0.0900
                461.15          83.40       0.0900
                501.83          83.53       0.0900
                513.93          82.96       0.0900
                526.85          83.23       0.0900
                569.63          83.21       0.0900
                610.76          83.63       0.0900
                663.54          83.88       0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.11   81.96   .117E+02       0.0          0.18
23.95
        0.23   82.08   .492E+02       0.1          0.28
15.67
        0.34   82.19   .135E+03       0.2          0.34
13.00
        0.45   82.30   .312E+03       0.4          0.32
13.44
        0.57   82.42   .116E+04       1.2          0.28
15.74
        0.68   82.53   .287E+04       3.5          0.32
13.85
        0.79   82.64   .549E+04       7.0          0.33
13.13
        0.91   82.76   .101E+05      14.9          0.39
11.28
        1.02   82.87   .155E+05      27.5          0.47
9.38
        1.13   82.98   .214E+05      45.2          0.55
7.89
        1.25   83.10   .277E+05      67.2          0.64
6.87
        1.36   83.21   .344E+05      93.6          0.71
6.12
        1.47   83.32   .426E+05     125.3          0.77
5.67
        1.59   83.44   .516E+05     162.2          0.82
5.30
        1.70   83.55   .620E+05     204.2          0.86
5.06
        1.81   83.66   .747E+05     254.0          0.89
4.90
        1.95   83.80   .924E+05     324.9          0.92
4.74
        2.08   83.93   .113E+06     411.3          0.95
4.59
        2.21   84.06   .135E+06     515.5          1.00
4.37

                                    <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0104)  184.50     6.43    3.00  21.49
0.78     0.33
    OUTFLOW: ID= 1 (0504)  184.50     5.13    3.25  21.49
0.73     0.32

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--------------------
| CALIB            |
| STANDHYD  (5042) |   Area    (ha)=   7.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.77         1.92
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     226.57        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        44.72
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       4.39 (ii)   16.38 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.23         0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.18         0.14
1.275 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        18.94
39.45
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.34
0.70
```

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***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0106) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0504):   184.50   5.126     3.25    21.49
        + ID2= 2 (5042):     7.70   1.275     3.00    39.45
          ==================================================
          ID = 3 (0106):   192.20   5.468     3.25    22.21

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0114) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0106):   192.20   5.468     3.25    22.21
        + ID2= 2 (0113):    45.40   3.870     3.00    35.47
          ==================================================
          ID = 3 (0114):   237.60   8.746     3.00    24.74

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0505) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation       Manning
                   0.00          81.24        0.1100
                  33.01          80.98        0.1100
                  49.97          81.27        0.1100
                  54.18          80.35        0.1100
                  60.88          81.23        0.1100
                  69.13          79.02        0.1100
                  92.42          79.04        0.1100
                  98.70          80.89        0.1100
                 128.88          81.13        0.1100
                 199.00          81.23        0.1100
                 266.11          81.68        0.1100
                 306.94          81.73        0.1100
                 331.74          81.55     0.1100 /0.0700  Main
Channel
                 336.74          80.15        0.0700      Main
Channel
                 346.34          81.64     0.0700 /0.0900  Main
Channel
                 394.77          81.68        0.0900
                 431.64          81.44        0.0900
                 477.44          82.08        0.0900
                 481.25          82.81        0.0900
                 501.51          83.16        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12    79.13    .418E+03       0.4          0.15
18.59
       0.23    79.25    .899E+03       1.3          0.25
11.41
       0.35    79.36    .140E+04       2.7          0.33
8.70
       0.46    79.48    .191E+04       4.4          0.39
7.22
       0.58    79.59    .244E+04       6.5          0.46
6.26
       0.69    79.71    .299E+04       8.9          0.51
5.58
       0.81    79.82    .355E+04      11.7          0.56
5.08
       0.92    79.94    .413E+04      14.7          0.61
4.68
       1.04    80.05    .472E+04      18.1          0.65
4.36
       1.15    80.17    .533E+04      21.7          0.70
4.09
       1.27    80.28    .598E+04      25.7          0.74
3.88
       1.38    80.40    .666E+04      29.7          0.76
3.74
       1.50    80.51    .740E+04      33.7          0.78
3.67
       1.61    80.63    .822E+04      38.1          0.79
3.59
       1.73    80.74    .909E+04      43.1          0.81
3.52
       1.84    80.86    .100E+05      48.6          0.83
3.45
       1.96    80.97    .111E+05      48.4          0.74
3.83
       2.07    81.09    .128E+05      43.8          0.59
4.86
       2.19    81.21    .155E+05      40.6          0.45
6.35

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0114)  237.60     8.75    3.00  24.74
0.68     0.51
     OUTFLOW: ID= 1 (0505)  237.60     8.14    3.08  24.74
0.65     0.49

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-------------------
| CALIB            |
| STANDHYD  (5052) |   Area    (ha)=  15.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=
65.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.77        4.13
     Dep. Storage     (mm)=        6.00        8.00
     Average Slope     (%)=        1.00        1.00
     Length            (m)=      325.58       40.00
     Mannings n          =       0.013       0.250

     Max.Eff.Inten.(mm/hr)=       88.14       41.63
                over (min)         5.00       20.00
     Storage Coeff.  (min)=        5.46 (ii)  17.79 (ii)
     Unit Hyd. Tpeak (min)=        5.00       20.00
     Unit Hyd. peak  (cms)=        0.20        0.06

*TOTALS*
    PEAK FLOW       (cms)=        2.38         0.26
2.558 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=       50.50        18.34
39.24
    TOTAL RAINFALL   (mm)=       56.50        56.50
56.50
    RUNOFF COEFFICIENT   =        0.89         0.32
0.69
```

```
      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  68.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0108) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0505):   237.60   8.136     3.08    24.74
        + ID2= 2 (5052):    15.90   2.558     3.00    39.24
          ==================================================
          ID = 3 (0108):   253.50   9.827     3.00    25.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0506) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 304.1) ------>
               Distance      Elevation       Manning
                   0.00          81.42        0.0900
                   7.45          81.36        0.0900
                  32.34          80.38        0.0900
                  45.97          80.05        0.0900
                  65.23          79.93        0.0900
                  84.49          80.35        0.0900
                 113.49          80.02        0.0900
                 136.48          80.07        0.0900
                 188.81          79.81        0.0900
                 197.86          79.25     0.0900 /0.0700  Main
Channel
                 200.70          78.22        0.0700      Main
Channel
                 203.29          79.35     0.0700 /0.0900  Main
Channel
                 204.01          79.67        0.0900
                 236.47          80.40        0.0900
                 277.80          80.48        0.0900
                 305.35          80.37        0.0900
                 346.67          80.41        0.0900
                 387.99          80.33        0.0900
                 415.54          80.53        0.0900
                 447.88          80.49        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.11    78.34    .979E+01       0.0          0.23
21.53
       0.23    78.45    .392E+02       0.0          0.37
13.56
       0.34    78.56    .881E+02       0.1          0.48
10.35
       0.46    78.68    .157E+03       0.3          0.58
8.54
       0.57    78.79    .245E+03       0.6          0.67
7.36
       0.68    78.91    .352E+03       0.9          0.76
6.52
       0.80    79.02    .480E+03       1.4          0.84
5.88
       0.91    79.13    .627E+03       1.9          0.92
5.38
       1.03    79.25    .793E+03       2.7          0.99
4.98
       1.15    79.37    .103E+04       3.8          1.09
4.55
       1.28    79.50    .135E+04       5.2          1.16
4.28
       1.40    79.62    .175E+04       7.1          1.20
4.12
       1.52    79.75    .228E+04       9.3          1.21
4.08
       1.65    79.87    .318E+04      11.7          1.10
4.52
       1.77    80.00    .524E+04      15.8          0.90
5.52
       1.90    80.12    .973E+04      24.3          0.74
6.69
       2.02    80.24    .158E+05      39.7          0.75
6.62
       2.15    80.37    .230E+05      59.2          0.77
6.46
       2.27    80.49    .349E+05      90.3          0.77
6.44

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0108)  253.50     9.83    3.00  25.65
1.55     1.19
     OUTFLOW: ID= 1 (0506)  253.50     9.33    3.08  25.65
1.53     1.21

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-------------------
| CALIB            |
| STANDHYD  (5062) |   Area    (ha)=  11.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
65.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        8.78        2.92
     Dep. Storage     (mm)=        6.00        8.00
     Average Slope     (%)=        1.00        1.00
     Length            (m)=      279.28       40.00
     Mannings n          =       0.013       0.250

     Max.Eff.Inten.(mm/hr)=       88.14       49.01
                over (min)         5.00       20.00
     Storage Coeff.  (min)=        4.98 (ii)  16.53 (ii)
     Unit Hyd. Tpeak (min)=        5.00       20.00
     Unit Hyd. peak  (cms)=        0.22        0.06

*TOTALS*
    PEAK FLOW       (cms)=        1.77         0.23
1.929 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=       50.50        20.65
40.05
    TOTAL RAINFALL   (mm)=       56.50        56.50
56.50
    RUNOFF COEFFICIENT   =        0.89         0.37
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  71.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0110) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
```

```
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0506):   253.50   9.328     3.08    25.65
        + ID2= 2 (5062):    11.70   1.929     3.00    40.05
          ==================================================
          ID = 3 (0110):   265.20  10.344     3.08    26.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0120) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0110):   265.20  10.344     3.08    26.29
        + ID2= 2 (0119):     8.60   0.955     3.00    36.90
          ==================================================
          ID = 3 (0120):   273.80  11.063     3.00    26.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5302) |   Area    (ha)=   5.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
56.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        3.83        1.97
     Dep. Storage     (mm)=        6.00        8.00
     Average Slope     (%)=        1.00        1.00
     Length            (m)=      196.64       40.00
     Mannings n          =       0.013       0.250

     Max.Eff.Inten.(mm/hr)=       88.14       36.34
                over (min)         5.00       20.00
     Storage Coeff.  (min)=        4.03 (ii)  17.06 (ii)
     Unit Hyd. Tpeak (min)=        5.00       20.00
     Unit Hyd. peak  (cms)=        0.24        0.06

*TOTALS*
    PEAK FLOW       (cms)=        0.77         0.11
0.847 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=       50.50        16.72
35.64
    TOTAL RAINFALL   (mm)=       56.50        56.50
56.50
    RUNOFF COEFFICIENT   =        0.89         0.30
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6102) |   Area    (ha)=  21.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       10.55       10.55
     Dep. Storage     (mm)=        1.50        8.00
     Average Slope     (%)=        1.00        1.00
     Length            (m)=      375.06       40.00
     Mannings n          =       0.013       0.250

     Max.Eff.Inten.(mm/hr)=       88.14       41.57
                over (min)         5.00       20.00
     Storage Coeff.  (min)=        5.94 (ii)  18.28 (ii)
     Unit Hyd. Tpeak (min)=        5.00       20.00
     Unit Hyd. peak  (cms)=        0.19        0.06

*TOTALS*
    PEAK FLOW       (cms)=        1.68         0.66
2.121 (iii)
    TIME TO PEAK    (hrs)=        3.00         3.25
3.00
    RUNOFF VOLUME    (mm)=       55.00        18.90
31.54
    TOTAL RAINFALL   (mm)=       56.50        56.50
56.50
    RUNOFF COEFFICIENT   =        0.97         0.33
0.56


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  70.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0611) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 940.0) ------>
               Distance      Elevation       Manning
                   0.00          83.36        0.0900
                  12.33          84.54        0.0900
                  21.95          84.33     0.0900 /0.0700  Main
Channel
                  25.80          83.10        0.0700      Main
Channel
                  39.87          83.58     0.0700 /0.0900  Main
Channel
                  95.01          83.67        0.0900
                 132.30          84.45        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    83.17    .442E+02       0.0          0.13
76.06
       0.14    83.24    .177E+03       0.1          0.20
47.91
       0.21    83.31    .398E+03       0.2          0.26
36.56
       0.28    83.38    .709E+03       0.4          0.32
30.22
       0.35    83.44    .113E+04       0.7          0.36
26.38
       0.41    83.51    .167E+04       1.2          0.41
23.66
       0.48    83.58    .232E+04       1.8          0.45
21.54
       0.56    83.66    .431E+04       3.1          0.42
23.06
       0.64    83.74    .779E+04       5.6          0.42
23.11
       0.72    83.82    .115E+05       9.1          0.46
20.97
       0.80    83.90    .154E+05      13.6          0.51
18.96
       0.88    83.98    .196E+05      18.9          0.55
17.31
       0.96    84.06    .240E+05      25.0          0.60
15.97
       1.04    84.14    .286E+05      32.1          0.65
14.88
       1.12    84.22    .334E+05      39.9          0.69
13.96
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      1.20    84.30    .385E+05      48.6           0.73
13.19
      1.28    84.38    .438E+05      58.0           0.76
12.59
      1.36    84.46    .495E+05      68.4           0.80
12.06
      1.44    84.54    .555E+05      81.0           0.84
11.40

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6102)   21.10     2.12    3.00  31.54
0.50     0.44
     OUTFLOW: ID= 1 (0611)   21.10     1.19    3.17  31.52
0.42     0.41


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| CALIB              |
| STANDHYD  (6112) |   Area    (ha)=  11.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  72.00   Dir. Conn.(%)=
62.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.21         3.19
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     275.68        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        52.52
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.94 (ii)   16.18 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.22         0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.65          0.27
1.835 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50         22.66
39.92
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.40
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0138) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0611):    21.10   1.188     3.17    31.52
        + ID2= 2 (6112):    11.40   1.835     3.00    39.92
          ==================================================
          ID = 3 (0138):    32.50   2.856     3.00    34.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB              |
| NASHYD    (6011) |   Area    (ha)=  44.10   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.83

     Unit Hyd Qpeak  (cms)=   2.027

     PEAK FLOW       (cms)=   0.608 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=  11.521
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.204

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6012) |   Area    (ha)=  11.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
16.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.08         7.92
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     270.80        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        26.15
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.88 (ii)   19.74 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.22         0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.41          0.30
0.600 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50         13.46
19.39
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.24
0.34

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0124) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6011):    44.10   0.608     3.92    11.52
        + ID2= 2 (6012):    11.00   0.600     3.00    19.39
          ==================================================
          ID = 3 (0124):    55.10   0.784     3.50    13.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB              |
| NASHYD    (6021) |   Area    (ha)=  43.60   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   1.753

     PEAK FLOW       (cms)=   0.545 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  11.521
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.204

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6022) |   Area    (ha)=  12.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
23.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.51         8.39
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     293.26        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        26.96
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.12 (ii)   19.80 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.21         0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.69          0.33
0.896 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50         13.66
22.13
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.24
0.39

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0125) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6021):    43.60   0.545     4.00    11.52
        + ID2= 2 (6022):    12.90   0.896     3.00    22.13
          ==================================================
          ID = 3 (0125):    56.50   0.981     3.00    13.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0126) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0124):    55.10   0.784     3.50    13.09
        + ID2= 2 (0125):    56.50   0.981     3.00    13.94
          ==================================================
          ID = 3 (0126):   111.60   1.699     3.00    13.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0603) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (2135.9) ------>
               Distance      Elevation       Manning
                  0.00         92.58          0.1400
                  8.54         92.59          0.1400
                 22.11         92.47          0.1400
                 48.74         91.83          0.1400
                 67.59         91.58          0.1400
                 86.45         91.21          0.1400
                103.50         90.80          0.1400
                118.09         90.23          0.1400
                127.84         90.09      0.1400 /0.0700  Main
Channel
                129.84         89.59          0.0700      Main
Channel
                130.34         90.09      0.0700 /0.1400  Main
Channel
                140.57         90.14          0.1400
                161.87         90.11          0.1400
                177.03         90.04          0.1400
                188.67         89.87          0.1400
                199.59         90.31          0.1400
                212.02         90.96          0.1400
                225.58         91.35          0.1400
                252.71         91.66          0.1400
                274.11         91.86          0.1400

          <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12    89.71    .358E+02       0.0          0.19
81.29
       0.25    89.84    .143E+03       0.0          0.30
51.21
       0.37    89.96    .689E+03       0.2          0.23
67.44
       0.50    90.09    .278E+04       0.6          0.20
77.83
       0.67    90.26    .132E+05       3.4          0.23
65.31
       0.83    90.42    .262E+05       9.3          0.33
46.76
       1.00    90.59    .403E+05      17.9          0.41
37.64
       1.17    90.76    .556E+05      28.8          0.48
32.17
       1.33    90.92    .721E+05      42.0          0.53
28.63
       1.50    91.09    .903E+05      57.1          0.58
26.37
       1.67    91.26    .110E+06      74.7          0.62
24.65
       1.83    91.42    .133E+06      93.4          0.64
23.71
       2.00    91.59    .159E+06     113.6          0.66
23.26
       2.17    91.76    .188E+06     136.6          0.67
22.96
       2.33    91.92    .222E+06     168.5          0.70
21.97
       2.50    92.09    .258E+06     211.3          0.75
20.33
       2.67    92.26    .294E+06     258.5          0.81
18.98
       2.83    92.42    .332E+06     310.1          0.86
17.85
       3.00    92.59    .371E+06     358.0          0.88
17.29

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0126)  111.60     1.70    3.00  13.52
0.57     0.21
     OUTFLOW: ID= 1 (0603)  111.60     1.06    4.67  13.52
0.53     0.20


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--------------------
| CALIB              |
| STANDHYD  (6032) |   Area    (ha)=  34.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  47.00   Dir. Conn.(%)=
32.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.26        18.34
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     480.28        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        43.25
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       6.89 (ii)   19.04 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.18         0.06

*TOTALS*
     PEAK FLOW       (cms)=       2.46          1.18
3.238 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=      55.00         19.85
31.10
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.97          0.35
0.55

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0128) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0603):   111.60   1.061     4.67    13.52
        + ID2= 2 (6032):    34.60   3.238     3.00    31.10
          ==================================================
          ID = 3 (0128):   146.20   3.546     3.00    17.68

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0604) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1414.9) ------>
               Distance      Elevation       Manning
                  0.00         86.75          0.0900
                  3.09         87.40          0.0900
                 18.33         87.41          0.0900
                 35.33         86.99          0.0900
                 73.84         86.75          0.0900
                103.33         86.41          0.0900
                120.33         86.11          0.0900
                129.46         86.13          0.0900
                143.37         85.32          0.0900
                154.33         85.02          0.0900
                161.57         85.09          0.0900
                163.05         84.78      0.0900 /0.0700  Main
Channel
                166.55         83.78          0.0700      Main
Channel
                168.05         84.78      0.0700 /0.1100  Main
Channel
                172.02         85.29          0.1100
                191.39         86.19          0.1100
                270.18         85.78          0.1100
                296.33         86.36          0.1100
                324.34         86.68          0.1100
                368.56         87.05          0.1100

          <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.17    83.95    .465E+02       0.0          0.03
432.88
       0.33    84.11    .186E+03       0.0          0.04
272.70
       0.50    84.28    .418E+03       0.0          0.05
208.11
       0.67    84.45    .743E+03       0.1          0.06
171.79
       0.83    84.61    .116E+04       0.1          0.08
148.04
       1.00    84.78    .167E+04       0.2          0.09
131.10
       1.20    84.98    .252E+04       0.4          0.10
110.62
       1.41    85.19    .469E+04       0.6          0.09
121.59
       1.61    85.39    .842E+04       1.1          0.09
126.63
       1.81    85.59    .133E+05       1.8          0.09
121.99
       2.01    85.79    .192E+05       2.7          0.10
116.68
       2.22    86.00    .298E+05       4.0          0.09
125.45
       2.42    86.20    .487E+05       5.6          0.08
143.80
       2.62    86.40    .736E+05       9.0          0.08
137.02
       2.82    86.60    .102E+06      13.1          0.09
130.82
       3.03    86.81    .136E+06      18.1          0.09
125.42
       3.23    87.01    .178E+06      24.4          0.09
121.07
       3.43    87.21    .224E+06      34.2          0.10
108.80
       3.63    87.41    .271E+06      44.8          0.11
100.89

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0128)  146.20     3.55    3.00  17.68
2.15     0.09
     OUTFLOW: ID= 1 (0604)  146.20     1.28    3.25  17.67
1.74     0.09

     **** WARNING:  COMPUTATIONS FAILED TO CONVERGE.
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| CALIB |

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| CALIB              |
| STANDHYD  (6042) |   Area    (ha)=  24.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=
69.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      18.72          5.28
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     400.00         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         74.55
                over (min)        5.00         20.00
     Storage Coeff.  (min)=       6.17 (ii)    15.95 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.19          0.07

*TOTALS*
     PEAK FLOW       (cms)=       3.75          0.55
4.133 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50         26.16
42.95
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.46
0.76


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0130) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0604):   146.20   1.275     3.25    17.67
        + ID2= 2 (6042):    24.00   4.133     3.00    42.95
          ==================================================
          ID = 3 (0130):   170.20   5.256     3.00    21.23

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0605) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 801.4) ------>
               Distance      Elevation       Manning
                   0.00         82.95         0.1100
                   3.78         82.95         0.1100
                   9.24         82.49         0.1100
                  50.67         82.10         0.1100
                 105.12         82.17         0.1100
                 119.34         81.56         0.1100
                 150.67         81.66         0.1100
                 157.23         82.37         0.1100
                 190.03         82.57         0.1100
                 223.75         82.27         0.1100
                 252.32         82.50         0.1100
                 254.65         81.95     0.1100 /0.0700  Main
Channel
                 258.15         80.95         0.0700      Main
Channel
                 259.65         81.95     0.0700 /0.1100  Main
Channel
                 263.15         82.90         0.1100
                 278.14         82.80         0.1100
                 282.35         81.68         0.1100
                 285.02         82.19         0.1100
                 336.56         82.53         0.1100
                 404.40         82.68         0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.08    81.03    .125E+02       0.0          0.11
104.30
       0.17    81.12    .499E+02       0.0          0.18
65.70
       0.25    81.20    .112E+03       0.0          0.24
50.14
       0.33    81.28    .199E+03       0.1          0.29
41.39
       0.42    81.37    .312E+03       0.1          0.34
35.67
       0.50    81.45    .449E+03       0.2          0.38
31.59
       0.58    81.53    .611E+03       0.4          0.42
28.50
       0.67    81.62    .117E+04       0.5          0.33
36.10
       0.75    81.70    .316E+04       1.1          0.24
49.12
       0.83    81.78    .560E+04       2.1          0.27
45.15
       0.92    81.87    .827E+04       3.4          0.30
40.03
       1.00    81.95    .112E+05       5.2          0.33
35.88
       1.10    82.05    .151E+05       8.0          0.38
31.68
       1.21    82.16    .207E+05       8.8          0.30
39.37
       1.31    82.26    .306E+05      14.0          0.33
36.36
       1.41    82.36    .433E+05      20.3          0.34
35.59
       1.52    82.47    .606E+05      28.4          0.34
35.57
       1.62    82.57    .828E+05      41.0          0.36
33.68
       1.73    82.68    .109E+06      60.1          0.39
30.35

                                      <---- hydrograph ---->   <-
pipe / channel->
                                 AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                 (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0130)  170.20     5.26    3.00  21.23
1.00     0.33
     OUTFLOW: ID= 1 (0605)  170.20     2.13    3.33  21.23
0.84     0.27


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| ADD HYD   (0139) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0138):    32.50   2.856     3.00    34.46
        + ID2= 2 (0605):   170.20   2.126     3.33    21.23
          ==================================================
          ID = 3 (0139):   202.70   4.507     3.00    23.35

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| CALIB              |
| STANDHYD  (6052) |   Area    (ha)=  15.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=
65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.77          4.13
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     325.58         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         39.13
                over (min)        5.00         20.00
     Storage Coeff.  (min)=       5.46 (ii)    18.10 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.20          0.06

*TOTALS*
     PEAK FLOW       (cms)=       2.38          0.25
2.545 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50         17.30
38.88
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.31
0.69


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0132) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0139):   202.70   4.507     3.00    23.35
        + ID2= 2 (6052):    15.90   2.545     3.00    38.88
          ==================================================
          ID = 3 (0132):   218.60   7.052     3.00    24.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0530) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 350.0) ------>
               Distance      Elevation       Manning
                   0.00         81.70         0.1100
                   3.84         81.72         0.1100
                   5.87         80.72         0.1100
                   9.38         81.42         0.1100
                  49.64         81.07         0.1100
                  80.61         80.72         0.1100
                  85.61         81.14         0.1100
                  93.32         80.00         0.1100
                  95.04         80.45         0.1100
                 102.72         80.66         0.1100
                 110.13         78.93     0.1100 /0.0700  Main
Channel
                 118.05         78.63         0.0700      Main
Channel
                 124.40         78.89     0.0700 /0.1100  Main
Channel
                 132.18         79.61         0.1100
                 139.34         79.23         0.1100
                 144.67         79.43         0.1100
                 149.63         79.98         0.1100
                 153.42         79.79         0.1100
                 158.56         80.58         0.1100
                 176.89         81.15         0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.13    78.76    .190E+03       0.1          0.19
38.41
       0.26    78.89    .758E+03       0.5          0.31
24.20
       0.43    79.05    .189E+04       2.1          0.50
14.77
       0.59    79.22    .321E+04       4.7          0.65
11.35
       0.76    79.39    .498E+04       8.2          0.73
10.10
       0.93    79.55    .743E+04      13.1          0.78
9.48
       1.09    79.72    .103E+05      19.5          0.84
8.84
       1.26    79.89    .135E+05      27.1          0.89
8.29
       1.43    80.05    .171E+05      36.3          0.94
7.85
       1.59    80.22    .209E+05      47.2          1.00
7.39
       1.76    80.39    .251E+05      59.8          1.06
6.99
       1.93    80.56    .296E+05      73.5          1.10
6.70
       2.10    80.72    .348E+05      87.6          1.12
6.61
       2.26    80.89    .412E+05     102.8          1.11
6.68
       2.43    81.06    .495E+05     122.0          1.09
6.77
       2.60    81.22    .596E+05     146.2          1.09
6.80
       2.76    81.39    .714E+05     176.9          1.10
6.72
       2.93    81.56    .841E+05     215.0          1.13
6.52
       3.10    81.72    .970E+05     256.7          1.18
6.30

                                      <---- hydrograph ---->   <-
pipe / channel->
                                 AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                 (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0132)  218.60     7.05    3.00  24.48
0.70     0.70
     OUTFLOW: ID= 1 (0530)  218.60     5.59    3.08  24.48
0.63     0.67


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--------------------
| ADD HYD   (0134) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0530):   218.60   5.592     3.08    24.48
        + ID2= 2 (5302):     5.80   0.847     3.00    35.64
          ==================================================
          ID = 3 (0134):   224.40   5.992     3.08    24.77

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD   (0135) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0120):   273.80  11.063     3.00    26.62
        + ID2= 2 (0134):   224.40   5.992     3.08    24.77
          ==================================================
          ID = 3 (0135):   498.20  16.992     3.08    25.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0507) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (  40.0) ------>
               Distance      Elevation       Manning
                   0.00         79.36         0.0900
                   7.45         79.32         0.0900
                  13.77         79.27         0.0900
                  20.24         79.24         0.0900
                  27.28         79.26         0.0900
                  34.16         79.13         0.0900
                  40.79         79.05         0.0900
                  47.58         79.05         0.0900
                  54.30         79.07         0.0900
                  60.87         79.24         0.0900
                  71.39         79.48         0.0900
                  73.53         78.96         0.0900
                  76.96         78.07         0.0900
                  82.21         77.08     0.0900 /0.0700  Main
Channel
                  85.82         76.28         0.0700      Main
Channel
                  89.97         76.89         0.0700      Main
Channel
                  91.35         77.38     0.0700 /0.0900  Main
Channel
                  95.27         78.68         0.0900
                  98.44         79.63         0.0900
                 102.89         79.89         0.0900

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.16    76.44    .113E+03       0.0          0.14
88.10
       0.32    76.60    .451E+03       0.1          0.23
55.50
       0.49    76.76    .101E+04       0.4          0.30
42.35
       0.65    76.92    .180E+04       0.9          0.37
34.57
       0.81    77.09    .276E+04       1.6          0.44
28.86
       0.97    77.25    .388E+04       2.7          0.52
24.37
       1.14    77.41    .516E+04       4.0          0.59
21.56
       1.30    77.57    .660E+04       5.7          0.66
19.26
       1.46    77.74    .822E+04       7.8          0.72
17.67
       1.62    77.90    .100E+05      10.1          0.77
16.48
       1.79    78.06    .120E+05      12.8          0.82
15.54
       1.95    78.22    .141E+05      15.9          0.87
14.74
       2.11    78.39    .163E+05      19.4          0.91
14.06
       2.27    78.55    .187E+05      23.2          0.95
13.47
       2.44    78.71    .212E+05      27.3          0.99
12.95
       2.60    78.87    .239E+05      31.9          1.02
12.50
       2.76    79.04    .267E+05      36.8          1.06
12.10
       2.92    79.20    .320E+05      39.4          0.94
13.56
       3.09    79.36    .409E+05      45.7          0.85
14.94

                                      <---- hydrograph ---->   <-
pipe / channel->
                                 AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                 (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0135)  498.20    16.99    3.08  25.79
2.00     0.88
     OUTFLOW: ID= 1 (0507)  498.20    13.96    3.33  25.79
1.84     0.84


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--------------------
| CALIB              |
| STANDHYD  (5072) |   Area    (ha)=  48.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
36.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      24.45         24.45
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     570.96         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         45.91
                over (min)       10.00         20.00
     Storage Coeff.  (min)=       7.64 (ii)    19.51 (ii)
     Unit Hyd. Tpeak (min)=      10.00         20.00
     Unit Hyd. peak  (cms)=       0.13          0.06

*TOTALS*
     PEAK FLOW       (cms)=       3.56          1.66
4.659 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50         21.05
31.65
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.37
0.56


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  74.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0122) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0507):   498.20  13.960     3.33    25.79
        + ID2= 2 (5072):    48.90   4.659     3.00    31.65
          ==================================================
          ID = 3 (0122):   547.10  17.033     3.17    26.31

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| CALIB             |
| STANDHYD  (5402) |   Area    (ha)=   9.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.70          4.70
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     250.33         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         36.65
                over (min)        5.00         20.00
     Storage Coeff.  (min)=       4.66 (ii)   17.64 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.22          0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.77          0.26
0.947 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50         16.79
28.58
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.30
0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| STORE HYD (1505) |   AREA      (ha)=  30.00
| ID= 1 DT= 5.0min |   QPEAK     (cms)=   0.78
-------------------    TPEAK     (hrs)=  15.58
                       VOLUME     (mm)= 402.14

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |'  TIME    FLOW |
TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |'   hrs     cms |
hrs     cms
  0.00    0.00 | 31.33    0.10 | 62.67    0.25 | 94.00    0.26 |125.33    0.16
  0.08    0.00 | 31.42    0.10 | 62.75    0.25 | 94.08    0.26 |125.42    0.16
  0.17    0.00 | 31.50    0.10 | 62.83    0.25 | 94.17    0.25 |125.50    0.16
  0.25    0.00 | 31.58    0.10 | 62.92    0.25 | 94.25    0.25 |125.58    0.16
  0.33    0.00 | 31.67    0.10 | 63.00    0.25 | 94.33    0.25 |125.67    0.17
  0.42    0.00 | 31.75    0.10 | 63.08    0.25 | 94.42    0.25 |125.75    0.16
  0.50    0.00 | 31.83    0.10 | 63.17    0.25 | 94.50    0.25 |125.83    0.16
  0.58    0.00 | 31.92    0.10 | 63.25    0.24 | 94.58    0.25 |125.92    0.17
  0.67    0.00 | 32.00    0.10 | 63.33    0.24 | 94.67    0.24 |126.00    0.15
  0.75    0.00 | 32.08    0.10 | 63.42    0.24 | 94.75    0.25 |126.08    0.16
  0.83    0.00 | 32.17    0.10 | 63.50    0.23 | 94.83    0.24 |126.17    0.16
  0.92    0.00 | 32.25    0.10 | 63.58    0.24 | 94.92    0.25 |126.25    0.16
  1.00    0.00 | 32.33    0.10 | 63.67    0.24 | 95.00    0.25 |126.33    0.16
  1.08    0.00 | 32.42    0.10 | 63.75    0.24 | 95.08    0.25 |126.42    0.16
  1.17    0.00 | 32.50    0.10 | 63.83    0.23 | 95.17    0.24 |126.50    0.17
  1.25    0.00 | 32.58    0.10 | 63.92    0.23 | 95.25    0.21 |126.58    0.16
  1.33    0.00 | 32.67    0.10 | 64.00    0.23 | 95.33    0.25 |126.67    0.16
  1.42    0.00 | 32.75    0.10 | 64.08    0.23 | 95.42    0.22 |126.75    0.17
  1.50    0.00 | 32.83    0.10 | 64.17    0.23 | 95.50    0.23 |126.83    0.17
  1.58    0.00 | 32.92    0.10 | 64.25    0.24 | 95.58    0.22 |126.92    0.17
  1.67    0.00 | 33.00    0.10 | 64.33    0.23 | 95.67    0.24 |127.00    0.17
  1.75    0.00 | 33.08    0.10 | 64.42    0.23 | 95.75    0.26 |127.08    0.17
  1.83    0.00 | 33.17    0.10 | 64.50    0.23 | 95.83    0.24 |127.17    0.18
  1.92    0.00 | 33.25    0.11 | 64.58    0.23 | 95.92    0.23 |127.25    0.17
  2.00    0.00 | 33.33    0.11 | 64.67    0.24 | 96.00    0.24 |127.33    0.18
  2.08    0.00 | 33.42    0.11 | 64.75    0.24 | 96.08    0.24 |127.42    0.18
  2.17    0.00 | 33.50    0.11 | 64.83    0.24 | 96.17    0.24 |127.50    0.16
  2.25    0.00 | 33.58    0.11 | 64.92    0.24 | 96.25    0.24 |127.58    0.18
  2.33    0.00 | 33.67    0.11 | 65.00    0.24 | 96.33    0.24 |127.67    0.17
  2.42    0.00 | 33.75    0.11 | 65.08    0.23 | 96.42    0.24 |127.75    0.18
  2.50    0.00 | 33.83    0.11 | 65.17    0.23 | 96.50    0.24 |127.83    0.17
  2.58    0.00 | 33.92    0.11 | 65.25    0.23 | 96.58    0.23 |127.92    0.17
  2.67    0.00 | 34.00    0.11 | 65.33    0.23 | 96.67    0.24 |128.00    0.17
  2.75    0.00 | 34.08    0.11 | 65.42    0.22 | 96.75    0.23 |128.08    0.17
  2.83    0.00 | 34.17    0.11 | 65.50    0.22 | 96.83    0.23 |128.17    0.17
  2.92    0.00 | 34.25    0.11 | 65.58    0.22 | 96.92    0.24 |128.25    0.18
  3.00    0.00 | 34.33    0.11 | 65.67    0.22 | 97.00    0.23 |128.33    0.18
  3.08    0.00 | 34.42    0.11 | 65.75    0.22 | 97.08    0.22 |128.42    0.19
  3.17    0.00 | 34.50    0.11 | 65.83    0.22 | 97.17    0.23 |128.50    0.18
  3.25    0.00 | 34.58    0.11 | 65.92    0.21 | 97.25    0.22 |128.58    0.17
  3.33    0.00 | 34.67    0.11 | 66.00    0.21 | 97.33    0.25 |128.67    0.18
  3.42    0.00 | 34.75    0.11 | 66.08    0.21 | 97.42    0.22 |128.75    0.18
  3.50    0.00 | 34.83    0.11 | 66.17    0.20 | 97.50    0.24 |128.83    0.18
  3.58    0.00 | 34.92    0.11 | 66.25    0.20 | 97.58    0.23 |128.92    0.18
  3.67    0.00 | 35.00    0.11 | 66.33    0.20 | 97.67    0.22 |129.00    0.18
  3.75    0.00 | 35.08    0.11 | 66.42    0.20 | 97.75    0.23 |129.08    0.19
  3.83    0.00 | 35.17    0.11 | 66.50    0.19 | 97.83    0.22 |129.17    0.17
  3.92    0.00 | 35.25    0.11 | 66.58    0.20 | 97.92    0.21 |129.25    0.17
  4.00    0.00 | 35.33    0.11 | 66.67    0.20 | 98.00    0.22 |129.33    0.17
  4.08    0.00 | 35.42    0.11 | 66.75    0.20 | 98.08    0.23 |129.42    0.18
  4.17    0.00 | 35.50    0.11 | 66.83    0.19 | 98.17    0.21 |129.50    0.18
  4.25    0.00 | 35.58    0.11 | 66.92    0.19 | 98.25    0.21 |129.58    0.18
  4.33    0.00 | 35.67    0.11 | 67.00    0.20 | 98.33    0.23 |129.67    0.18
  4.42    0.00 | 35.75    0.11 | 67.08    0.20 | 98.42    0.21 |129.75    0.18
  4.50    0.00 | 35.83    0.11 | 67.17    0.20 | 98.50    0.21 |129.83    0.18
  4.58    0.00 | 35.92    0.11 | 67.25    0.20 | 98.58    0.23 |129.92    0.18
  4.67    0.00 | 36.00    0.11 | 67.33    0.20 | 98.67    0.22 |130.00    0.18
  4.75    0.00 | 36.08    0.11 | 67.42    0.21 | 98.75    0.23 |130.08    0.17
  4.83    0.00 | 36.17    0.11 | 67.50    0.22 | 98.83    0.24 |130.17    0.17
  4.92    0.00 | 36.25    0.11 | 67.58    0.22 | 98.92    0.22 |130.25    0.17
  5.00    0.00 | 36.33    0.11 | 67.67    0.23 | 99.00    0.20 |130.33    0.17
  5.08    0.00 | 36.42    0.12 | 67.75    0.24 | 99.08    0.20 |130.42    0.18
  5.17    0.00 | 36.50    0.12 | 67.83    0.26 | 99.17    0.22 |130.50    0.18
  5.25    0.00 | 36.58    0.12 | 67.92    0.27 | 99.25    0.21 |130.58    0.18
  5.33    0.00 | 36.67    0.12 | 68.00    0.28 | 99.33    0.22 |130.67    0.17
  5.42    0.00 | 36.75    0.12 | 68.08    0.31 | 99.42    0.21 |130.75    0.17
  5.50    0.00 | 36.83    0.12 | 68.17    0.32 | 99.50    0.20 |130.83    0.18
  5.58    0.00 | 36.92    0.12 | 68.25    0.34 | 99.58    0.21 |130.92    0.17
  5.67    0.00 | 37.00    0.12 | 68.33    0.35 | 99.67    0.20 |131.00    0.17
  5.75    0.00 | 37.08    0.12 | 68.42    0.38 | 99.75    0.19 |131.08    0.17
  5.83    0.00 | 37.17    0.12 | 68.50    0.39 | 99.83    0.20 |131.17    0.18
  5.92    0.00 | 37.25    0.12 | 68.58    0.40 | 99.92    0.22 |131.25    0.18
  6.00    0.00 | 37.33    0.12 | 68.67    0.42 |100.00    0.21 |131.33    0.17
  6.08    0.00 | 37.42    0.12 | 68.75    0.44 |100.08    0.20 |131.42    0.17
  6.17    0.00 | 37.50    0.12 | 68.83    0.46 |100.17    0.21 |131.50    0.17
  6.25    0.00 | 37.58    0.12 | 68.92    0.49 |100.25    0.19 |131.58    0.17
  6.33    0.00 | 37.67    0.13 | 69.00    0.51 |100.33    0.19 |131.67    0.17
  6.42    0.00 | 37.75    0.12 | 69.08    0.54 |100.42    0.19 |131.75    0.17
  6.50    0.00 | 37.83    0.12 | 69.17    0.56 |100.50    0.19 |131.83    0.17
  6.58    0.00 | 37.92    0.12 | 69.25    0.60 |100.58    0.19 |131.92    0.17
  6.67    0.00 | 38.00    0.12 | 69.33    0.64 |100.67    0.19 |132.00    0.16
  6.75    0.00 | 38.08    0.12 | 69.42    0.67 |100.75    0.21 |132.08    0.17
  6.83    0.00 | 38.17    0.12 | 69.50    0.67 |100.83    0.19 |132.17    0.17
  6.92    0.00 | 38.25    0.12 | 69.58    0.68 |100.92    0.19 |132.25    0.17
  7.00    0.00 | 38.33    0.12 | 69.67    0.65 |101.00    0.19 |132.33    0.17
  7.08    0.00 | 38.42    0.12 | 69.75    0.66 |101.08    0.19 |132.42    0.18
  7.17    0.00 | 38.50    0.12 | 69.83    0.66 |101.17    0.20 |132.50    0.17
  7.25    0.00 | 38.58    0.12 | 69.92    0.67 |101.25    0.19 |132.58    0.16
  7.33    0.00 | 38.67    0.13 | 70.00    0.66 |101.33    0.18 |132.67    0.17
  7.42    0.00 | 38.75    0.13 | 70.08    0.67 |101.42    0.19 |132.75    0.17
  7.50    0.00 | 38.83    0.13 | 70.17    0.67 |101.50    0.19 |132.83    0.17
  7.58    0.00 | 38.92    0.13 | 70.25    0.70 |101.58    0.19 |132.92    0.16
  7.67    0.00 | 39.00    0.13 | 70.33    0.74 |101.67    0.20 |133.00    0.17
  7.75    0.00 | 39.08    0.14 | 70.42    0.73 |101.75    0.19 |133.08    0.16
  7.83    0.00 | 39.17    0.14 | 70.50    0.74 |101.83    0.18 |133.17    0.16
  7.92    0.00 | 39.25    0.14 | 70.58    0.74 |101.92    0.19 |133.25    0.16
  8.00    0.00 | 39.33    0.14 | 70.67    0.74 |102.00    0.19 |133.33    0.15
  8.08    0.00 | 39.42    0.14 | 70.75    0.75 |102.08    0.19 |133.42    0.16
  8.17    0.00 | 39.50    0.15 | 70.83    0.75 |102.17    0.19 |133.50    0.16
  8.25    0.00 | 39.58    0.16 | 70.92    0.74 |102.25    0.18 |133.58    0.17
  8.33    0.00 | 39.67    0.16 | 71.00    0.74 |102.33    0.18 |133.67    0.16
  8.42    0.00 | 39.75    0.16 | 71.08    0.75 |102.42    0.19 |133.75    0.15
  8.50    0.00 | 39.83    0.16 | 71.17    0.77 |102.50    0.19 |133.83    0.16
  8.58    0.00 | 39.92    0.17 | 71.25    0.76 |102.58    0.19 |133.92    0.16
  8.67    0.00 | 40.00    0.17 | 71.33    0.76 |102.67    0.18 |134.00    0.16
  8.75    0.00 | 40.08    0.17 | 71.42    0.77 |102.75    0.20 |134.08    0.16
  8.83    0.00 | 40.17    0.17 | 71.50    0.76 |102.83    0.18 |134.17    0.15
  8.92    0.00 | 40.25    0.18 | 71.58    0.77 |102.92    0.18 |134.25    0.16
  9.00    0.00 | 40.33    0.18 | 71.67    0.76 |103.00    0.17 |134.33    0.16
  9.08    0.00 | 40.42    0.18 | 71.75    0.76 |103.08    0.17 |134.42    0.16
  9.17    0.00 | 40.50    0.18 | 71.83    0.78 |103.17    0.18 |134.50    0.16
  9.25    0.00 | 40.58    0.19 | 71.92    0.77 |103.25    0.18 |134.58    0.15
  9.33    0.00 | 40.67    0.19 | 72.00    0.76 |103.33    0.17 |134.67    0.16
  9.42    0.00 | 40.75    0.19 | 72.08    0.74 |103.42    0.17 |134.75    0.15
  9.50    0.00 | 40.83    0.19 | 72.17    0.75 |103.50    0.17 |134.83    0.15
  9.58    0.00 | 40.92    0.19 | 72.25    0.74 |103.58    0.18 |134.92    0.16
  9.67    0.00 | 41.00    0.19 | 72.33    0.72 |103.67    0.18 |135.00    0.15
  9.75    0.00 | 41.08    0.19 | 72.42    0.70 |103.75    0.18 |135.08    0.15
  9.83    0.00 | 41.17    0.20 | 72.50    0.70 |103.83    0.18 |135.17    0.15
  9.92    0.00 | 41.25    0.20 | 72.58    0.69 |103.92    0.19 |135.25    0.15
 10.00    0.00 | 41.33    0.21 | 72.67    0.70 |104.00    0.17 |135.33    0.15
 10.08    0.00 | 41.42    0.22 | 72.75    0.68 |104.08    0.18 |135.42    0.15
 10.17    0.00 | 41.50    0.23 | 72.83    0.67 |104.17    0.18 |135.50    0.15
 10.25    0.00 | 41.58    0.23 | 72.92    0.66 |104.25    0.17 |135.58    0.15
 10.33    0.00 | 41.67    0.23 | 73.00    0.64 |104.33    0.17 |135.67    0.14
 10.42    0.00 | 41.75    0.24 | 73.08    0.63 |104.42    0.17 |135.75    0.15
 10.50    0.00 | 41.83    0.25 | 73.17    0.63 |104.50    0.18 |135.83    0.16
 10.58    0.00 | 41.92    0.25 | 73.25    0.61 |104.58    0.17 |135.92    0.15
 10.67    0.00 | 42.00    0.26 | 73.33    0.62 |104.67    0.16 |136.00    0.15
 10.75    0.00 | 42.08    0.25 | 73.42    0.61 |104.75    0.16 |136.08    0.15
 10.83    0.00 | 42.17    0.26 | 73.50    0.62 |104.83    0.18 |136.17    0.15
 10.92    0.00 | 42.25    0.26 | 73.58    0.60 |104.92    0.16 |136.25    0.15
 11.00    0.00 | 42.33    0.26 | 73.67    0.62 |105.00    0.17 |136.33    0.15
 11.08    0.00 | 42.42    0.26 | 73.75    0.58 |105.08    0.16 |136.42    0.15
 11.17    0.00 | 42.50    0.26 | 73.83    0.59 |105.17    0.16 |136.50    0.15
 11.25    0.00 | 42.58    0.26 | 73.92    0.57 |105.25    0.16 |136.58    0.15
 11.33    0.00 | 42.67    0.26 | 74.00    0.57 |105.33    0.16 |136.67    0.14
 11.42    0.00 | 42.75    0.25 | 74.08    0.57 |105.42    0.16 |136.75    0.15
 11.50    0.00 | 42.83    0.26 | 74.17    0.56 |105.50    0.16 |136.83    0.14
 11.58    0.00 | 42.92    0.25 | 74.25    0.58 |105.58    0.16 |136.92    0.14
 11.67    0.00 | 43.00    0.25 | 74.33    0.58 |105.67    0.16 |137.00    0.14
 11.75    0.00 | 43.08    0.25 | 74.42    0.58 |105.75    0.17 |137.08    0.15
 11.83    0.00 | 43.17    0.25 | 74.50    0.59 |105.83    0.16 |137.17    0.14
 11.92    0.00 | 43.25    0.25 | 74.58    0.60 |105.92    0.16 |137.25    0.15
 12.00    0.00 | 43.33    0.25 | 74.67    0.57 |106.00    0.16 |137.33    0.15
 12.08    0.00 | 43.42    0.25 | 74.75    0.56 |106.08    0.16 |137.42    0.14
 12.17    0.00 | 43.50    0.25 | 74.83    0.54 |106.17    0.16 |137.50    0.14
 12.25    0.00 | 43.58    0.25 | 74.92    0.56 |106.25    0.17 |137.58    0.14
 12.33    0.00 | 43.67    0.25 | 75.00    0.53 |106.33    0.16 |137.67    0.15
 12.42    0.00 | 43.75    0.25 | 75.08    0.51 |106.42    0.16 |137.75    0.14
 12.50    0.00 | 43.83    0.26 | 75.17    0.51 |106.50    0.16 |137.83    0.14
 12.58    0.00 | 43.92    0.26 | 75.25    0.51 |106.58    0.16 |137.92    0.14
 12.67    0.00 | 44.00    0.26 | 75.33    0.51 |106.67    0.16 |138.00    0.14
 12.75    0.00 | 44.08    0.26 | 75.42    0.50 |106.75    0.16 |138.08    0.14
 12.83    0.00 | 44.17    0.26 | 75.50    0.50 |106.83    0.15 |138.17    0.14
 12.92    0.00 | 44.25    0.27 | 75.58    0.49 |106.92    0.15 |138.25    0.14
 13.00    0.00 | 44.33    0.26 | 75.67    0.49 |107.00    0.16 |138.33    0.14
 13.08    0.00 | 44.42    0.26 | 75.75    0.49 |107.08    0.16 |138.42    0.14
 13.17    0.00 | 44.50    0.26 | 75.83    0.48 |107.17    0.16 |138.50    0.14
 13.25    0.00 | 44.58    0.26 | 75.92    0.47 |107.25    0.15 |138.58    0.14
 13.33    0.00 | 44.67    0.26 | 76.00    0.47 |107.33    0.16 |138.67    0.14
 13.42    0.00 | 44.75    0.26 | 76.08    0.48 |107.42    0.16 |138.75    0.14
 13.50    0.00 | 44.83    0.26 | 76.17    0.46 |107.50    0.15 |138.83    0.14
 13.58    0.00 | 44.92    0.26 | 76.25    0.45 |107.58    0.16 |138.92    0.14
 13.67    0.00 | 45.00    0.26 | 76.33    0.45 |107.67    0.15 |139.00    0.14
 13.75    0.00 | 45.08    0.26 | 76.42    0.43 |107.75    0.15 |139.08    0.14
 13.83    0.00 | 45.17    0.25 | 76.50    0.44 |107.83    0.15 |139.17    0.13
 13.92    0.00 | 45.25    0.25 | 76.58    0.46 |107.92    0.16 |139.25    0.14
 14.00    0.00 | 45.33    0.25 | 76.67    0.43 |108.00    0.16 |139.33    0.14
 14.08    0.00 | 45.42    0.25 | 76.75    0.44 |108.08    0.15 |139.42    0.14
 14.17    0.00 | 45.50    0.25 | 76.83    0.43 |108.17    0.15 |139.50    0.14
 14.25    0.00 | 45.58    0.25 | 76.92    0.45 |108.25    0.15 |139.58    0.13
 14.33    0.00 | 45.67    0.25 | 77.00    0.42 |108.33    0.16 |139.67    0.14
 14.42    0.00 | 45.75    0.25 | 77.08    0.43 |108.42    0.16 |139.75    0.14
 14.50    0.00 | 45.83    0.26 | 77.17    0.43 |108.50    0.15 |139.83    0.13
 14.58    0.00 | 45.92    0.25 | 77.25    0.42 |108.58    0.15 |139.92    0.14
 14.67    0.00 | 46.00    0.26 | 77.33    0.41 |108.67    0.15 |140.00    0.14
 14.75    0.00 | 46.08    0.26 | 77.42    0.43 |108.75    0.16 |140.08    0.13
 14.83    0.00 | 46.17    0.25 | 77.50    0.41 |108.83    0.15 |140.17    0.13
 14.92    0.69 | 46.25    0.26 | 77.58    0.43 |108.92    0.15 |140.25    0.13
 15.00    0.69 | 46.33    0.26 | 77.67    0.39 |109.00    0.15 |140.33    0.13
 15.08    0.71 | 46.42    0.26 | 77.75    0.39 |109.08    0.15 |140.42    0.14
 15.17    0.74 | 46.50    0.26 | 77.83    0.37 |109.17    0.15 |140.50    0.13
 15.25    0.74 | 46.58    0.26 | 77.92    0.39 |109.25    0.15 |140.58    0.13
 15.33    0.74 | 46.67    0.26 | 78.00    0.39 |109.33    0.14 |140.67    0.13
 15.42    0.77 | 46.75    0.26 | 78.08    0.39 |109.42    0.15 |140.75    0.13
 15.50    0.76 | 46.83    0.25 | 78.17    0.37 |109.50    0.15 |140.83    0.13
 15.58    0.78 | 46.92    0.25 | 78.25    0.36 |109.58    0.14 |140.92    0.13
 15.67    0.78 | 47.00    0.25 | 78.33    0.37 |109.67    0.15 |141.00    0.13
 15.75    0.77 | 47.08    0.25 | 78.42    0.38 |109.75    0.14 |141.08    0.13
 15.83    0.77 | 47.17    0.26 | 78.50    0.36 |109.83    0.15 |141.17    0.13
 15.92    0.77 | 47.25    0.26 | 78.58    0.36 |109.92    0.14 |141.25    0.13
 16.00    0.76 | 47.33    0.26 | 78.67    0.36 |110.00    0.14 |141.33    0.13
 16.08    0.74 | 47.42    0.26 | 78.75    0.37 |110.08    0.14 |141.42    0.13
 16.17    0.74 | 47.50    0.26 | 78.83    0.34 |110.17    0.14 |141.50    0.13
 16.25    0.74 | 47.58    0.25 | 78.92    0.35 |110.25    0.14 |141.58    0.13
 16.33    0.72 | 47.67    0.26 | 79.00    0.36 |110.33    0.15 |141.67    0.13
 16.42    0.69 | 47.75    0.26 | 79.08    0.35 |110.42    0.15 |141.75    0.13
 16.50    0.69 | 47.83    0.26 | 79.17    0.35 |110.50    0.14 |141.83    0.13
 16.58    0.67 | 47.92    0.26 | 79.25    0.36 |110.58    0.14 |141.92    0.13
 16.67    0.66 | 48.00    0.25 | 79.33    0.36 |110.67    0.14 |142.00    0.13
 16.75    0.64 | 48.08    0.25 | 79.42    0.33 |110.75    0.14 |142.08    0.12
 16.83    0.63 | 48.17    0.26 | 79.50    0.33 |110.83    0.14 |142.17    0.13
 16.92    0.63 | 48.25    0.25 | 79.58    0.33 |110.92    0.15 |142.25    0.13
 17.00    0.60 | 48.33    0.25 | 79.67    0.32 |111.00    0.15 |142.33    0.13
 17.08    0.58 | 48.42    0.25 | 79.75    0.33 |111.08    0.14 |142.42    0.12
 17.17    0.58 | 48.50    0.25 | 79.83    0.33 |111.17    0.14 |142.50    0.13
 17.25    0.57 | 48.58    0.25 | 79.92    0.32 |111.25    0.14 |142.58    0.13
 17.33    0.56 | 48.67    0.24 | 80.00    0.33 |111.33    0.15 |142.67    0.13
 17.42    0.55 | 48.75    0.24 | 80.08    0.34 |111.42    0.14 |142.75    0.13
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 17.50    0.54 | 48.83    0.24 | 80.17    0.32 |111.50    0.15
|142.83    0.12
 17.58    0.51 | 48.92    0.24 | 80.25    0.31 |111.58    0.14
|142.92    0.13
 17.67    0.50 | 49.00    0.24 | 80.33    0.33 |111.67    0.14
|143.00    0.12
 17.75    0.48 | 49.08    0.25 | 80.42    0.31 |111.75    0.14
|143.08    0.12
 17.83    0.47 | 49.17    0.24 | 80.50    0.32 |111.83    0.14
|143.17    0.12
 17.92    0.47 | 49.25    0.24 | 80.58    0.31 |111.92    0.14
|143.25    0.12
 18.00    0.45 | 49.33    0.24 | 80.67    0.31 |112.00    0.15
|143.33    0.12
 18.08    0.44 | 49.42    0.23 | 80.75    0.33 |112.08    0.15
|143.42    0.12
 18.17    0.41 | 49.50    0.23 | 80.83    0.31 |112.17    0.14
|143.50    0.12
 18.25    0.42 | 49.58    0.24 | 80.92    0.32 |112.25    0.14
|143.58    0.12
 18.33    0.40 | 49.67    0.23 | 81.00    0.32 |112.33    0.14
|143.67    0.12
 18.42    0.39 | 49.75    0.24 | 81.08    0.31 |112.42    0.15
|143.75    0.12
 18.50    0.38 | 49.83    0.24 | 81.17    0.31 |112.50    0.14
|143.83    0.12
 18.58    0.38 | 49.92    0.23 | 81.25    0.31 |112.58    0.15
|143.92    0.12
 18.67    0.37 | 50.00    0.23 | 81.33    0.31 |112.67    0.15
|144.00    0.12
 18.75    0.37 | 50.08    0.23 | 81.42    0.31 |112.75    0.14
|144.08    0.12
 18.83    0.36 | 50.17    0.24 | 81.50    0.32 |112.83    0.15
|144.17    0.12
 18.92    0.35 | 50.25    0.23 | 81.58    0.32 |112.92    0.14
|144.25    0.12
 19.00    0.34 | 50.33    0.23 | 81.67    0.34 |113.00    0.15
|144.33    0.12
 19.08    0.34 | 50.42    0.23 | 81.75    0.34 |113.08    0.15
|144.42    0.12
 19.17    0.34 | 50.50    0.23 | 81.83    0.35 |113.17    0.14
|144.50    0.12
 19.25    0.34 | 50.58    0.23 | 81.92    0.37 |113.25    0.15
|144.58    0.12
 19.33    0.33 | 50.67    0.23 | 82.00    0.36 |113.33    0.15
|144.67    0.12
 19.42    0.33 | 50.75    0.23 | 82.08    0.37 |113.42    0.14
|144.75    0.12
 19.50    0.32 | 50.83    0.23 | 82.17    0.38 |113.50    0.14
|144.83    0.12
 19.58    0.32 | 50.92    0.23 | 82.25    0.36 |113.58    0.14
|144.92    0.12
 19.67    0.32 | 51.00    0.23 | 82.33    0.35 |113.67    0.14
|145.00    0.12
 19.75    0.31 | 51.08    0.23 | 82.42    0.37 |113.75    0.14
|145.08    0.12
 19.83    0.30 | 51.17    0.23 | 82.50    0.37 |113.83    0.14
|145.17    0.12
 19.92    0.30 | 51.25    0.23 | 82.58    0.36 |113.92    0.14
|145.25    0.12
 20.00    0.29 | 51.33    0.23 | 82.67    0.38 |114.00    0.14
|145.33    0.12
 20.08    0.29 | 51.42    0.23 | 82.75    0.38 |114.08    0.14
|145.42    0.12
 20.17    0.28 | 51.50    0.23 | 82.83    0.41 |114.17    0.14
|145.50    0.12
 20.25    0.28 | 51.58    0.23 | 82.92    0.40 |114.25    0.14
|145.58    0.12
 20.33    0.28 | 51.67    0.23 | 83.00    0.40 |114.33    0.14
|145.67    0.12
 20.42    0.27 | 51.75    0.23 | 83.08    0.40 |114.42    0.14
|145.75    0.12
 20.50    0.27 | 51.83    0.23 | 83.17    0.44 |114.50    0.15
|145.83    0.12
 20.58    0.26 | 51.92    0.23 | 83.25    0.44 |114.58    0.14
|145.92    0.12
 20.67    0.27 | 52.00    0.23 | 83.33    0.42 |114.67    0.14
|146.00    0.12
 20.75    0.26 | 52.08    0.24 | 83.42    0.42 |114.75    0.14
|146.08    0.11
 20.83    0.26 | 52.17    0.24 | 83.50    0.42 |114.83    0.15
|146.17    0.11
 20.92    0.25 | 52.25    0.24 | 83.58    0.41 |114.92    0.14
|146.25    0.11
 21.00    0.25 | 52.33    0.25 | 83.67    0.41 |115.00    0.15
|146.33    0.12
 21.08    0.25 | 52.42    0.25 | 83.75    0.42 |115.08    0.14
|146.42    0.11
 21.17    0.24 | 52.50    0.25 | 83.83    0.41 |115.17    0.14
|146.50    0.12
 21.25    0.25 | 52.58    0.25 | 83.92    0.41 |115.25    0.14
|146.58    0.12
 21.33    0.24 | 52.67    0.25 | 84.00    0.43 |115.33    0.15
|146.67    0.11
 21.42    0.24 | 52.75    0.25 | 84.08    0.40 |115.42    0.14
|146.75    0.12
 21.50    0.24 | 52.83    0.25 | 84.17    0.42 |115.50    0.15
|146.83    0.11
 21.58    0.23 | 52.92    0.25 | 84.25    0.41 |115.58    0.14
|146.92    0.12
 21.67    0.23 | 53.00    0.27 | 84.33    0.42 |115.67    0.14
|147.00    0.11
 21.75    0.23 | 53.08    0.27 | 84.42    0.42 |115.75    0.14
|147.08    0.12
 21.83    0.23 | 53.17    0.28 | 84.50    0.43 |115.83    0.14
|147.17    0.11
 21.92    0.23 | 53.25    0.28 | 84.58    0.44 |115.92    0.14
|147.25    0.12
 22.00    0.23 | 53.33    0.28 | 84.67    0.42 |116.00    0.15
|147.33    0.12
 22.08    0.22 | 53.42    0.28 | 84.75    0.44 |116.08    0.14
|147.42    0.11
 22.17    0.22 | 53.50    0.28 | 84.83    0.45 |116.17    0.15
|147.50    0.11
 22.25    0.22 | 53.58    0.29 | 84.92    0.45 |116.25    0.14
|147.58    0.11
 22.33    0.22 | 53.67    0.29 | 85.00    0.46 |116.33    0.14
|147.67    0.11
 22.42    0.21 | 53.75    0.29 | 85.08    0.47 |116.42    0.14
|147.75    0.11
 22.50    0.21 | 53.83    0.30 | 85.17    0.46 |116.50    0.14
|147.83    0.11
 22.58    0.21 | 53.92    0.30 | 85.25    0.46 |116.58    0.14
|147.92    0.11
 22.67    0.21 | 54.00    0.30 | 85.33    0.44 |116.67    0.14
|148.00    0.11
 22.75    0.21 | 54.08    0.30 | 85.42    0.45 |116.75    0.14
|148.08    0.11
 22.83    0.20 | 54.17    0.31 | 85.50    0.45 |116.83    0.14
|148.17    0.11
 22.92    0.20 | 54.25    0.30 | 85.58    0.45 |116.92    0.14
|148.25    0.11
 23.00    0.20 | 54.33    0.31 | 85.67    0.45 |117.00    0.14
|148.33    0.11
 23.08    0.20 | 54.42    0.30 | 85.75    0.46 |117.08    0.14
|148.42    0.11
 23.17    0.20 | 54.50    0.31 | 85.83    0.45 |117.17    0.14
|148.50    0.11
 23.25    0.20 | 54.58    0.32 | 85.92    0.47 |117.25    0.14
|148.58    0.11
 23.33    0.19 | 54.67    0.32 | 86.00    0.44 |117.33    0.14
|148.67    0.11
 23.42    0.19 | 54.75    0.32 | 86.08    0.45 |117.42    0.14
|148.75    0.11
 23.50    0.19 | 54.83    0.32 | 86.17    0.43 |117.50    0.14
|148.83    0.11
 23.58    0.19 | 54.92    0.32 | 86.25    0.43 |117.58    0.14
|148.92    0.11
 23.67    0.19 | 55.00    0.32 | 86.33    0.43 |117.67    0.13
|149.00    0.11
 23.75    0.18 | 55.08    0.32 | 86.42    0.43 |117.75    0.13
|149.08    0.11
 23.83    0.18 | 55.17    0.32 | 86.50    0.45 |117.83    0.14
|149.17    0.11
 23.92    0.18 | 55.25    0.33 | 86.58    0.42 |117.92    0.13
|149.25    0.11
 24.00    0.18 | 55.33    0.33 | 86.67    0.42 |118.00    0.13
|149.33    0.11
 24.08    0.18 | 55.42    0.33 | 86.75    0.43 |118.08    0.13
|149.42    0.11
 24.17    0.18 | 55.50    0.33 | 86.83    0.41 |118.17    0.13
|149.50    0.11
 24.25    0.17 | 55.58    0.32 | 86.92    0.40 |118.25    0.13
|149.58    0.11
 24.33    0.18 | 55.67    0.32 | 87.00    0.40 |118.33    0.13
|149.67    0.11
 24.42    0.17 | 55.75    0.32 | 87.08    0.39 |118.42    0.13
|149.75    0.11
 24.50    0.17 | 55.83    0.32 | 87.17    0.39 |118.50    0.13
|149.83    0.11
 24.58    0.17 | 55.92    0.32 | 87.25    0.39 |118.58    0.13
|149.92    0.11
 24.67    0.17 | 56.00    0.32 | 87.33    0.37 |118.67    0.13
|150.00    0.11
 24.75    0.16 | 56.08    0.32 | 87.42    0.37 |118.75    0.13
|150.08    0.11
 24.83    0.16 | 56.17    0.32 | 87.50    0.38 |118.83    0.13
|150.17    0.11
 24.92    0.16 | 56.25    0.32 | 87.58    0.37 |118.92    0.13
|150.25    0.11
 25.00    0.16 | 56.33    0.32 | 87.67    0.36 |119.00    0.13
|150.33    0.11
 25.08    0.16 | 56.42    0.32 | 87.75    0.38 |119.08    0.13
|150.42    0.11
 25.17    0.16 | 56.50    0.32 | 87.83    0.38 |119.17    0.13
|150.50    0.11
 25.25    0.16 | 56.58    0.31 | 87.92    0.34 |119.25    0.13
|150.58    0.11
 25.33    0.15 | 56.67    0.31 | 88.00    0.35 |119.33    0.13
|150.67    0.11
 25.42    0.16 | 56.75    0.32 | 88.08    0.34 |119.42    0.13
|150.75    0.11
 25.50    0.15 | 56.83    0.31 | 88.17    0.35 |119.50    0.13
|150.83    0.11
 25.58    0.15 | 56.92    0.31 | 88.25    0.34 |119.58    0.13
|150.92    0.11
 25.67    0.15 | 57.00    0.31 | 88.33    0.36 |119.67    0.13
|151.00    0.11
 25.75    0.15 | 57.08    0.31 | 88.42    0.33 |119.75    0.13
|151.08    0.11
 25.83    0.15 | 57.17    0.31 | 88.50    0.33 |119.83    0.13
|151.17    0.11
 25.92    0.15 | 57.25    0.31 | 88.58    0.34 |119.92    0.13
|151.25    0.11
 26.00    0.15 | 57.33    0.30 | 88.67    0.33 |120.00    0.13
|151.33    0.11
 26.08    0.15 | 57.42    0.30 | 88.75    0.33 |120.08    0.13
|151.42    0.11
 26.17    0.15 | 57.50    0.30 | 88.83    0.32 |120.17    0.13
|151.50    0.11
 26.25    0.14 | 57.58    0.30 | 88.92    0.30 |120.25    0.14
|151.58    0.11
 26.33    0.14 | 57.67    0.31 | 89.00    0.31 |120.33    0.14
|151.67    0.11
 26.42    0.14 | 57.75    0.30 | 89.08    0.31 |120.42    0.13
|151.75    0.11
 26.50    0.14 | 57.83    0.30 | 89.17    0.30 |120.50    0.14
|151.83    0.11
 26.58    0.14 | 57.92    0.30 | 89.25    0.31 |120.58    0.14
|151.92    0.11
 26.67    0.14 | 58.00    0.29 | 89.33    0.32 |120.67    0.14
|152.00    0.11
 26.75    0.14 | 58.08    0.29 | 89.42    0.31 |120.75    0.14
|152.08    0.11
 26.83    0.14 | 58.17    0.29 | 89.50    0.30 |120.83    0.14
|152.17    0.11
 26.92    0.14 | 58.25    0.29 | 89.58    0.29 |120.92    0.14
|152.25    0.11
 27.00    0.14 | 58.33    0.29 | 89.67    0.29 |121.00    0.14
|152.33    0.10
 27.08    0.13 | 58.42    0.29 | 89.75    0.29 |121.08    0.14
|152.42    0.11
 27.17    0.13 | 58.50    0.29 | 89.83    0.28 |121.17    0.14
|152.50    0.11
 27.25    0.13 | 58.58    0.29 | 89.92    0.30 |121.25    0.14
|152.58    0.10
 27.33    0.13 | 58.67    0.28 | 90.00    0.31 |121.33    0.14
|152.67    0.10
 27.42    0.13 | 58.75    0.28 | 90.08    0.31 |121.42    0.14
|152.75    0.10
 27.50    0.13 | 58.83    0.28 | 90.17    0.30 |121.50    0.14
|152.83    0.10
 27.58    0.13 | 58.92    0.29 | 90.25    0.30 |121.58    0.14
|152.92    0.10
 27.67    0.13 | 59.00    0.29 | 90.33    0.31 |121.67    0.14
|153.00    0.11
 27.75    0.13 | 59.08    0.29 | 90.42    0.30 |121.75    0.14
|153.08    0.10
 27.83    0.13 | 59.17    0.28 | 90.50    0.31 |121.83    0.14
|153.17    0.10
 27.92    0.12 | 59.25    0.28 | 90.58    0.31 |121.92    0.14
|153.25    0.11
 28.00    0.13 | 59.33    0.28 | 90.67    0.31 |122.00    0.15
|153.33    0.10
 28.08    0.12 | 59.42    0.27 | 90.75    0.31 |122.08    0.14
|153.42    0.11
 28.17    0.12 | 59.50    0.27 | 90.83    0.30 |122.17    0.14
|153.50    0.10
 28.25    0.12 | 59.58    0.27 | 90.92    0.31 |122.25    0.14
|153.58    0.10
 28.33    0.12 | 59.67    0.26 | 91.00    0.30 |122.33    0.14
|153.67    0.10
 28.42    0.12 | 59.75    0.26 | 91.08    0.30 |122.42    0.15
|153.75    0.11
 28.50    0.12 | 59.83    0.26 | 91.17    0.32 |122.50    0.15
|153.83    0.10
 28.58    0.12 | 59.92    0.26 | 91.25    0.30 |122.58    0.15
|153.92    0.10
 28.67    0.12 | 60.00    0.25 | 91.33    0.28 |122.67    0.14
|154.00    0.10
 28.75    0.12 | 60.08    0.25 | 91.42    0.30 |122.75    0.15
|154.08    0.10
 28.83    0.12 | 60.17    0.25 | 91.50    0.28 |122.83    0.14
|154.17    0.10
 28.92    0.12 | 60.25    0.25 | 91.58    0.31 |122.92    0.14
|154.25    0.10
 29.00    0.12 | 60.33    0.25 | 91.67    0.28 |123.00    0.15
|154.33    0.10
 29.08    0.12 | 60.42    0.24 | 91.75    0.30 |123.08    0.15
|154.42    0.10
 29.17    0.11 | 60.50    0.24 | 91.83    0.31 |123.17    0.15
|154.50    0.10
 29.25    0.11 | 60.58    0.24 | 91.92    0.27 |123.25    0.15
|154.58    0.10
 29.33    0.11 | 60.67    0.23 | 92.00    0.28 |123.33    0.15
|154.67    0.10
 29.42    0.11 | 60.75    0.24 | 92.08    0.29 |123.42    0.15
|154.75    0.10
 29.50    0.11 | 60.83    0.23 | 92.17    0.27 |123.50    0.15
|154.83    0.10
 29.58    0.11 | 60.92    0.23 | 92.25    0.28 |123.58    0.15
|154.92    0.10
 29.67    0.11 | 61.00    0.23 | 92.33    0.28 |123.67    0.15
|155.00    0.10
 29.75    0.11 | 61.08    0.23 | 92.42    0.31 |123.75    0.15
|155.08    0.10
 29.83    0.11 | 61.17    0.23 | 92.50    0.28 |123.83    0.15
|155.17    0.10
 29.92    0.11 | 61.25    0.22 | 92.58    0.28 |123.92    0.15
|155.25    0.10
 30.00    0.11 | 61.33    0.23 | 92.67    0.28 |124.00    0.15
|155.33    0.10
 30.08    0.11 | 61.42    0.23 | 92.75    0.28 |124.08    0.15
|155.42    0.10
 30.17    0.11 | 61.50    0.24 | 92.83    0.27 |124.17    0.15
|155.50    0.10
 30.25    0.11 | 61.58    0.24 | 92.92    0.28 |124.25    0.15
|155.58    0.10
 30.33    0.11 | 61.67    0.23 | 93.00    0.28 |124.33    0.14
|155.67    0.10
 30.42    0.11 | 61.75    0.23 | 93.08    0.27 |124.42    0.15
|155.75    0.10
 30.50    0.11 | 61.83    0.23 | 93.17    0.29 |124.50    0.15
|155.83    0.10
 30.58    0.11 | 61.92    0.23 | 93.25    0.28 |124.58    0.16
|155.92    0.10
 30.67    0.11 | 62.00    0.23 | 93.33    0.26 |124.67    0.15
|156.00    0.10
 30.75    0.11 | 62.08    0.23 | 93.42    0.27 |124.75    0.15
|156.08    0.10
 30.83    0.11 | 62.17    0.23 | 93.50    0.27 |124.83    0.15
|156.17    0.10
 30.92    0.11 | 62.25    0.23 | 93.58    0.26 |124.92    0.17
|156.25    0.10
 31.00    0.11 | 62.33    0.24 | 93.67    0.26 |125.00    0.16 |
 31.08    0.10 | 62.42    0.25 | 93.75    0.28 |125.08    0.16 |
 31.17    0.10 | 62.50    0.25 | 93.83    0.25 |125.17    0.16 |
 31.25    0.10 | 62.58    0.26 | 93.92    0.28 |125.25    0.16 |
---------------------------------------------------------------------
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| STORE HYD (1605) |   AREA      (ha)=  30.00
| ID= 1 DT= 5.0min |   QPEAK    (cms)=   1.37
--------------------   TPEAK    (hrs)=  71.92
                       VOLUME     (mm)= 625.27

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |'  TIME    FLOW |
TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |'   hrs     cms |
hrs     cms
  0.00    0.00 | 31.25    0.15 | 62.50    0.38 | 93.75    0.37
|125.00    0.20
  0.08    0.00 | 31.33    0.15 | 62.58    0.38 | 93.83    0.36
|125.08    0.20
  0.17    0.00 | 31.42    0.15 | 62.67    0.38 | 93.92    0.36
|125.17    0.20
  0.25    0.00 | 31.50    0.15 | 62.75    0.38 | 94.00    0.36
|125.25    0.20
  0.33    0.00 | 31.58    0.15 | 62.83    0.38 | 94.08    0.36
|125.33    0.20
  0.42    0.00 | 31.67    0.15 | 62.92    0.38 | 94.17    0.36
|125.42    0.20
  0.50    0.00 | 31.75    0.15 | 63.00    0.37 | 94.25    0.36
|125.50    0.20
  0.58    0.00 | 31.83    0.14 | 63.08    0.38 | 94.33    0.36
|125.58    0.20
  0.67    0.00 | 31.92    0.14 | 63.17    0.37 | 94.42    0.36
|125.67    0.21
  0.75    0.00 | 32.00    0.14 | 63.25    0.37 | 94.50    0.36
|125.75    0.21
  0.83    0.00 | 32.08    0.14 | 63.33    0.37 | 94.58    0.36
|125.83    0.21
  0.92    0.00 | 32.17    0.14 | 63.42    0.37 | 94.67    0.36
|125.92    0.21
  1.00    0.00 | 32.25    0.14 | 63.50    0.37 | 94.75    0.36
|126.00    0.21
  1.08    0.00 | 32.33    0.14 | 63.58    0.37 | 94.83    0.36
|126.08    0.21
  1.17    0.00 | 32.42    0.14 | 63.67    0.36 | 94.92    0.35
|126.17    0.21
  1.25    0.00 | 32.50    0.14 | 63.75    0.36 | 95.00    0.35
|126.25    0.21
  1.33    0.00 | 32.58    0.14 | 63.83    0.36 | 95.08    0.35
|126.33    0.21
  1.42    0.00 | 32.67    0.14 | 63.92    0.36 | 95.17    0.35
|126.42    0.22
  1.50    0.00 | 32.75    0.14 | 64.00    0.36 | 95.25    0.35
|126.50    0.22
  1.58    0.00 | 32.83    0.14 | 64.08    0.36 | 95.33    0.35
|126.58    0.22
  1.67    0.00 | 32.92    0.14 | 64.17    0.36 | 95.42    0.35
|126.67    0.22
  1.75    0.00 | 33.00    0.14 | 64.25    0.35 | 95.50    0.35
|126.75    0.22
  1.83    0.00 | 33.08    0.14 | 64.33    0.35 | 95.58    0.34
|126.83    0.22
  1.92    0.00 | 33.17    0.14 | 64.42    0.35 | 95.67    0.34
|126.92    0.23
  2.00    0.00 | 33.25    0.14 | 64.50    0.35 | 95.75    0.34
|127.00    0.23
  2.08    0.00 | 33.33    0.14 | 64.58    0.34 | 95.83    0.34
|127.08    0.23
  2.17    0.00 | 33.42    0.14 | 64.67    0.34 | 95.92    0.34
|127.17    0.23
  2.25    0.00 | 33.50    0.14 | 64.75    0.34 | 96.00    0.34
|127.25    0.23
  2.33    0.00 | 33.58    0.14 | 64.83    0.34 | 96.08    0.34
|127.33    0.24
  2.42    0.00 | 33.67    0.14 | 64.92    0.34 | 96.17    0.34
|127.42    0.24
  2.50    0.00 | 33.75    0.14 | 65.00    0.34 | 96.25    0.34
|127.50    0.24
  2.58    0.00 | 33.83    0.14 | 65.08    0.34 | 96.33    0.34
|127.58    0.24
  2.67    0.00 | 33.92    0.14 | 65.17    0.34 | 96.42    0.34
|127.67    0.24
  2.75    0.00 | 34.00    0.14 | 65.25    0.34 | 96.50    0.34
|127.75    0.24
  2.83    0.00 | 34.08    0.14 | 65.33    0.34 | 96.58    0.34
|127.83    0.25
  2.92    0.00 | 34.17    0.14 | 65.42    0.34 | 96.67    0.34
|127.92    0.25
  3.00    0.00 | 34.25    0.14 | 65.50    0.34 | 96.75    0.33
|128.00    0.25
  3.08    0.00 | 34.33    0.14 | 65.58    0.33 | 96.83    0.33
|128.08    0.25
  3.17    0.00 | 34.42    0.14 | 65.67    0.34 | 96.92    0.33
|128.17    0.25
  3.25    0.00 | 34.50    0.14 | 65.75    0.33 | 97.00    0.33
|128.25    0.25
  3.33    0.00 | 34.58    0.14 | 65.83    0.33 | 97.08    0.33
|128.33    0.25
  3.42    0.00 | 34.67    0.14 | 65.92    0.33 | 97.17    0.33
|128.42    0.25
  3.50    0.00 | 34.75    0.14 | 66.00    0.33 | 97.25    0.33
|128.50    0.25
  3.58    0.00 | 34.83    0.14 | 66.08    0.32 | 97.33    0.33
|128.58    0.26
  3.67    0.00 | 34.92    0.14 | 66.17    0.33 | 97.42    0.33
|128.67    0.26
  3.75    0.00 | 35.00    0.14 | 66.25    0.33 | 97.50    0.33
|128.75    0.26
  3.83    0.00 | 35.08    0.14 | 66.33    0.32 | 97.58    0.33
|128.83    0.26
  3.92    0.00 | 35.17    0.14 | 66.42    0.32 | 97.67    0.33
|128.92    0.26
  4.00    0.00 | 35.25    0.14 | 66.50    0.33 | 97.75    0.33
|129.00    0.26
  4.08    0.00 | 35.33    0.14 | 66.58    0.32 | 97.83    0.33
|129.08    0.26
  4.17    0.00 | 35.42    0.14 | 66.67    0.32 | 97.92    0.33
|129.17    0.26
  4.25    0.00 | 35.50    0.14 | 66.75    0.32 | 98.00    0.32
|129.25    0.27
  4.33    0.00 | 35.58    0.14 | 66.83    0.32 | 98.08    0.32
|129.33    0.27
  4.42    0.00 | 35.67    0.14 | 66.92    0.32 | 98.17    0.32
|129.42    0.27
  4.50    0.00 | 35.75    0.14 | 67.00    0.32 | 98.25    0.32
|129.50    0.27
  4.58    0.00 | 35.83    0.14 | 67.08    0.32 | 98.33    0.32
|129.58    0.28
  4.67    0.00 | 35.92    0.14 | 67.17    0.32 | 98.42    0.32
|129.67    0.28
  4.75    0.00 | 36.00    0.14 | 67.25    0.32 | 98.50    0.32
|129.75    0.28
  4.83    0.00 | 36.08    0.14 | 67.33    0.33 | 98.58    0.32
|129.83    0.29
  4.92    0.00 | 36.17    0.14 | 67.42    0.34 | 98.67    0.32
|129.92    0.29
  5.00    0.00 | 36.25    0.14 | 67.50    0.34 | 98.75    0.32
|130.00    0.29
  5.08    0.00 | 36.33    0.15 | 67.58    0.35 | 98.83    0.32
|130.08    0.29
  5.17    0.00 | 36.42    0.15 | 67.67    0.35 | 98.92    0.32
|130.17    0.29
  5.25    0.00 | 36.50    0.15 | 67.75    0.36 | 99.00    0.32
|130.25    0.29
  5.33    0.00 | 36.58    0.15 | 67.83    0.37 | 99.08    0.32
|130.33    0.29
  5.42    0.00 | 36.67    0.15 | 67.92    0.38 | 99.17    0.32
|130.42    0.29
  5.50    0.00 | 36.75    0.15 | 68.00    0.40 | 99.25    0.32
|130.50    0.29
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5.58	0.00	36.83	0.15	68.08	0.41	99.33	0.32	130.58	0.29
5.67	0.00	36.92	0.15	68.17	0.42	99.42	0.32	130.67	0.29
5.75	0.00	37.00	0.15	68.25	0.43	99.50	0.32	130.75	0.29
5.83	0.00	37.08	0.15	68.33	0.45	99.58	0.31	130.83	0.29
5.92	0.00	37.17	0.15	68.42	0.47	99.67	0.31	130.92	0.29
6.00	0.00	37.25	0.15	68.50	0.48	99.75	0.31	131.00	0.29
6.08	0.00	37.33	0.15	68.58	0.50	99.83	0.31	131.08	0.29
6.17	0.00	37.42	0.15	68.67	0.52	99.92	0.31	131.17	0.29
6.25	0.00	37.50	0.15	68.75	0.53	100.00	0.31	131.25	0.29
6.33	0.00	37.58	0.15	68.83	0.56	100.08	0.31	131.33	0.29
6.42	0.00	37.67	0.15	68.92	0.57	100.17	0.31	131.42	0.29
6.50	0.00	37.75	0.16	69.00	0.58	100.25	0.31	131.50	0.29
6.58	0.00	37.83	0.16	69.08	0.60	100.33	0.31	131.58	0.28
6.67	0.00	37.92	0.16	69.17	0.61	100.42	0.31	131.67	0.28
6.75	0.00	38.00	0.16	69.25	0.63	100.50	0.30	131.75	0.28
6.83	0.00	38.08	0.16	69.33	0.63	100.58	0.30	131.83	0.28
6.92	0.00	38.17	0.16	69.42	0.64	100.67	0.30	131.92	0.28
7.00	0.00	38.25	0.16	69.50	0.66	100.75	0.30	132.00	0.28
7.08	0.00	38.33	0.16	69.58	0.68	100.83	0.30	132.08	0.28
7.17	0.00	38.42	0.16	69.67	0.70	100.92	0.30	132.17	0.28
7.25	0.00	38.50	0.16	69.75	0.71	101.00	0.30	132.25	0.28
7.33	0.00	38.58	0.16	69.83	0.74	101.08	0.30	132.33	0.28
7.42	0.00	38.67	0.17	69.92	0.76	101.17	0.30	132.42	0.28
7.50	0.00	38.75	0.17	70.00	0.78	101.25	0.30	132.50	0.27
7.58	0.00	38.83	0.17	70.08	0.80	101.33	0.29	132.58	0.27
7.67	0.00	38.92	0.17	70.17	0.82	101.42	0.29	132.67	0.27
7.75	0.00	39.00	0.17	70.25	0.84	101.50	0.29	132.75	0.27
7.83	0.00	39.08	0.17	70.33	0.87	101.58	0.29	132.83	0.27
7.92	0.00	39.17	0.17	70.42	0.91	101.67	0.29	132.92	0.27
8.00	0.00	39.25	0.18	70.50	0.94	101.75	0.28	133.00	0.27
8.08	0.00	39.33	0.18	70.58	0.98	101.83	0.28	133.08	0.27
8.17	0.00	39.42	0.18	70.67	1.01	101.92	0.28	133.17	0.27
8.25	0.00	39.50	0.18	70.75	1.04	102.00	0.28	133.25	0.26
8.33	0.00	39.58	0.19	70.83	1.09	102.08	0.28	133.33	0.26
8.42	0.00	39.67	0.19	70.92	1.14	102.17	0.28	133.42	0.26
8.50	0.00	39.75	0.19	71.00	1.20	102.25	0.28	133.50	0.26
8.58	0.00	39.83	0.19	71.08	1.23	102.33	0.28	133.58	0.26
8.67	0.00	39.92	0.20	71.17	1.25	102.42	0.27	133.67	0.26
8.75	0.00	40.00	0.20	71.25	1.30	102.50	0.27	133.75	0.26
8.83	0.00	40.08	0.20	71.33	1.32	102.58	0.27	133.83	0.25
8.92	0.00	40.17	0.21	71.42	1.33	102.67	0.27	133.92	0.25
9.00	0.00	40.25	0.21	71.50	1.34	102.75	0.27	134.00	0.25
9.08	0.00	40.33	0.21	71.58	1.36	102.83	0.27	134.08	0.25
9.17	0.00	40.42	0.22	71.67	1.36	102.92	0.27	134.17	0.25
9.25	0.00	40.50	0.22	71.75	1.36	103.00	0.27	134.25	0.25
9.33	0.00	40.58	0.22	71.83	1.37	103.08	0.27	134.33	0.25
9.42	0.00	40.67	0.23	71.92	1.37	103.17	0.27	134.42	0.25
9.50	0.00	40.75	0.23	72.00	1.36	103.25	0.26	134.50	0.25
9.58	0.00	40.83	0.24	72.08	1.35	103.33	0.26	134.58	0.24
9.67	0.00	40.92	0.24	72.17	1.35	103.42	0.26	134.67	0.24
9.75	0.00	41.00	0.24	72.25	1.33	103.50	0.26	134.75	0.24
9.83	0.00	41.08	0.25	72.33	1.32	103.58	0.26	134.83	0.24
9.92	0.00	41.17	0.25	72.42	1.31	103.67	0.26	134.92	0.24
10.00	0.00	41.25	0.26	72.50	1.29	103.75	0.25	135.00	0.24
10.08	0.00	41.33	0.27	72.58	1.27	103.83	0.25	135.08	0.24
10.17	0.00	41.42	0.27	72.67	1.26	103.92	0.25	135.17	0.24
10.25	0.00	41.50	0.28	72.75	1.23	104.00	0.25	135.25	0.24
10.33	0.00	41.58	0.29	72.83	1.23	104.08	0.25	135.33	0.23
10.42	0.00	41.67	0.29	72.92	1.21	104.17	0.25	135.42	0.23
10.50	0.00	41.75	0.30	73.00	1.20	104.25	0.25	135.50	0.23
10.58	0.00	41.83	0.30	73.08	1.17	104.33	0.25	135.58	0.23
10.67	0.00	41.92	0.31	73.17	1.17	104.42	0.24	135.67	0.23
10.75	0.00	42.00	0.32	73.25	1.16	104.50	0.24	135.75	0.23
10.83	0.00	42.08	0.32	73.33	1.15	104.58	0.24	135.83	0.23
10.92	0.00	42.17	0.33	73.42	1.12	104.67	0.24	135.92	0.23
11.00	0.00	42.25	0.33	73.50	1.12	104.75	0.24	136.00	0.22
11.08	0.00	42.33	0.34	73.58	1.11	104.83	0.24	136.08	0.22
11.17	0.00	42.42	0.34	73.67	1.09	104.92	0.24	136.17	0.22
11.25	0.00	42.50	0.35	73.75	1.08	105.00	0.24	136.25	0.22
11.33	0.00	42.58	0.36	73.83	1.06	105.08	0.24	136.33	0.22
11.42	0.00	42.67	0.36	73.92	1.05	105.17	0.23	136.42	0.22
11.50	0.00	42.75	0.37	74.00	1.03	105.25	0.23	136.50	0.22
11.58	0.00	42.83	0.38	74.08	1.03	105.33	0.23	136.58	0.22
11.67	0.00	42.92	0.39	74.17	1.02	105.42	0.23	136.67	0.21
11.75	0.00	43.00	0.40	74.25	1.00	105.50	0.23	136.75	0.21
11.83	0.00	43.08	0.40	74.33	0.99	105.58	0.23	136.83	0.21
11.92	0.00	43.17	0.42	74.42	0.97	105.67	0.23	136.92	0.21
12.00	0.00	43.25	0.42	74.50	0.96	105.75	0.23	137.00	0.21
12.08	0.00	43.33	0.43	74.58	0.95	105.83	0.23	137.08	0.21
12.17	0.00	43.42	0.44	74.67	0.94	105.92	0.23	137.17	0.21
12.25	0.00	43.50	0.45	74.75	0.92	106.00	0.22	137.25	0.21
12.33	0.00	43.58	0.46	74.83	0.91	106.08	0.22	137.33	0.21
12.42	0.00	43.67	0.47	74.92	0.89	106.17	0.22	137.42	0.21
12.50	0.00	43.75	0.48	75.00	0.88	106.25	0.22	137.50	0.20
12.58	0.00	43.83	0.49	75.08	0.87	106.33	0.22	137.58	0.20
12.67	0.00	43.92	0.50	75.17	0.85	106.42	0.22	137.67	0.20
12.75	0.00	44.00	0.50	75.25	0.84	106.50	0.22	137.75	0.20
12.83	0.00	44.08	0.51	75.33	0.83	106.58	0.22	137.83	0.20
12.92	0.00	44.17	0.51	75.42	0.81	106.67	0.22	137.92	0.20
13.00	0.00	44.25	0.52	75.50	0.80	106.75	0.21	138.00	0.20
13.08	0.00	44.33	0.52	75.58	0.79	106.83	0.21	138.08	0.20
13.17	0.00	44.42	0.53	75.67	0.77	106.92	0.21	138.17	0.20
13.25	0.00	44.50	0.53	75.75	0.77	107.00	0.21	138.25	0.19
13.33	0.00	44.58	0.53	75.83	0.76	107.08	0.21	138.33	0.19
13.42	0.00	44.67	0.54	75.92	0.74	107.17	0.21	138.42	0.19
13.50	0.00	44.75	0.54	76.00	0.74	107.25	0.21	138.50	0.19
13.58	0.00	44.83	0.54	76.08	0.72	107.33	0.21	138.58	0.19
13.67	0.00	44.92	0.55	76.17	0.72	107.42	0.21	138.67	0.19
13.75	0.00	45.00	0.55	76.25	0.71	107.50	0.21	138.75	0.19
13.83	0.00	45.08	0.55	76.33	0.70	107.58	0.21	138.83	0.19
13.92	0.00	45.17	0.55	76.42	0.69	107.67	0.21	138.92	0.19
14.00	0.00	45.25	0.55	76.50	0.68	107.75	0.20	139.00	0.19
14.08	0.00	45.33	0.55	76.58	0.68	107.83	0.20	139.08	0.19
14.17	0.00	45.42	0.55	76.67	0.68	107.92	0.20	139.17	0.18
14.25	0.00	45.50	0.55	76.75	0.66	108.00	0.20	139.25	0.18
14.33	0.00	45.58	0.55	76.83	0.65	108.08	0.20	139.33	0.18
14.42	0.00	45.67	0.55	76.92	0.65	108.17	0.20	139.42	0.18
14.50	0.00	45.75	0.55	77.00	0.64	108.25	0.20	139.50	0.18
14.58	0.00	45.83	0.55	77.08	0.63	108.33	0.20	139.58	0.18
14.67	0.00	45.92	0.55	77.17	0.63	108.42	0.20	139.67	0.18
14.75	0.99	46.00	0.54	77.25	0.63	108.50	0.20	139.75	0.18
14.83	0.99	46.08	0.54	77.33	0.62	108.58	0.20	139.83	0.18
14.92	1.00	46.17	0.54	77.42	0.61	108.67	0.20	139.92	0.18
15.00	1.00	46.25	0.54	77.50	0.60	108.75	0.19	140.00	0.18
15.08	1.01	46.33	0.53	77.58	0.60	108.83	0.19	140.08	0.18
15.17	1.01	46.42	0.53	77.67	0.59	108.92	0.19	140.17	0.18
15.25	1.02	46.50	0.53	77.75	0.59	109.00	0.19	140.25	0.18
15.33	1.03	46.58	0.52	77.83	0.58	109.08	0.19	140.33	0.18
15.42	1.04	46.67	0.52	77.92	0.58	109.17	0.19	140.42	0.17
15.50	1.05	46.75	0.52	78.00	0.58	109.25	0.19	140.50	0.17
15.58	1.06	46.83	0.52	78.08	0.58	109.33	0.19	140.58	0.17
15.67	1.07	46.92	0.51	78.17	0.57	109.42	0.19	140.67	0.17
15.75	1.08	47.00	0.51	78.25	0.56	109.50	0.19	140.75	0.17
15.83	1.08	47.08	0.51	78.33	0.56	109.58	0.19	140.83	0.17
15.92	1.08	47.17	0.51	78.42	0.55	109.67	0.18	140.92	0.17
16.00	1.09	47.25	0.51	78.50	0.55	109.75	0.18	141.00	0.17
16.08	1.09	47.33	0.51	78.58	0.55	109.83	0.18	141.08	0.17
16.17	1.09	47.42	0.51	78.67	0.55	109.92	0.18	141.17	0.17
16.25	1.09	47.50	0.50	78.75	0.54	110.00	0.18	141.25	0.17
16.33	1.09	47.58	0.50	78.83	0.54	110.08	0.18	141.33	0.17
16.42	1.09	47.67	0.50	78.92	0.54	110.17	0.18	141.42	0.17
16.50	1.09	47.75	0.50	79.00	0.54	110.25	0.18	141.50	0.16
16.58	1.10	47.83	0.50	79.08	0.53	110.33	0.18	141.58	0.16
16.67	1.09	47.92	0.50	79.17	0.52	110.42	0.18	141.67	0.16
16.75	1.09	48.00	0.50	79.25	0.52	110.50	0.18	141.75	0.16
16.83	1.08	48.08	0.50	79.33	0.51	110.58	0.18	141.83	0.16
16.92	1.09	48.17	0.49	79.42	0.50	110.67	0.18	141.92	0.16
17.00	1.08	48.25	0.49	79.50	0.50	110.75	0.18	142.00	0.16
17.08	1.07	48.33	0.49	79.58	0.49	110.83	0.18	142.08	0.16
17.17	1.06	48.42	0.49	79.67	0.49	110.92	0.18	142.17	0.16
17.25	1.06	48.50	0.49	79.75	0.48	111.00	0.18	142.25	0.16
17.33	1.05	48.58	0.49	79.83	0.48	111.08	0.18	142.33	0.16
17.42	1.04	48.67	0.48	79.92	0.48	111.17	0.18	142.42	0.16
17.50	1.04	48.75	0.48	80.00	0.47	111.25	0.18	142.50	0.16
17.58	1.03	48.83	0.48	80.08	0.47	111.33	0.18	142.58	0.16
17.67	1.02	48.92	0.48	80.17	0.46	111.42	0.18	142.67	0.16
17.75	1.01	49.00	0.47	80.25	0.46	111.50	0.18	142.75	0.16
17.83	1.00	49.08	0.47	80.33	0.46	111.58	0.18	142.83	0.16
17.92	0.99	49.17	0.47	80.42	0.45	111.67	0.18	142.92	0.16
18.00	0.98	49.25	0.47	80.50	0.45	111.75	0.18	143.00	0.16
18.08	0.97	49.33	0.47	80.58	0.45	111.83	0.17	143.08	0.15
18.17	0.96	49.42	0.46	80.67	0.45	111.92	0.17	143.17	0.15
18.25	0.95	49.50	0.46	80.75	0.44	112.00	0.17	143.25	0.15
18.33	0.93	49.58	0.46	80.83	0.44	112.08	0.17	143.33	0.15
18.42	0.92	49.67	0.46	80.92	0.44	112.17	0.17	143.42	0.15
18.50	0.91	49.75	0.45	81.00	0.44	112.25	0.17	143.50	0.15
18.58	0.89	49.83	0.45	81.08	0.44	112.33	0.17	143.58	0.15
18.67	0.87	49.92	0.45	81.17	0.44	112.42	0.17	143.67	0.15
18.75	0.86	50.00	0.45	81.25	0.44	112.50	0.17	143.75	0.15
18.83	0.84	50.08	0.44	81.33	0.44	112.58	0.17	143.83	0.15
18.92	0.83	50.17	0.44	81.42	0.43	112.67	0.17	143.92	0.15
19.00	0.81	50.25	0.44	81.50	0.44	112.75	0.17	144.00	0.15
19.08	0.79	50.33	0.44	81.58	0.45	112.83	0.17	144.08	0.15
19.17	0.78	50.42	0.44	81.67	0.46	112.92	0.17	144.17	0.15
19.25	0.76	50.50	0.44	81.75	0.45	113.00	0.17	144.25	0.15
19.33	0.74	50.58	0.44	81.83	0.46	113.08	0.17	144.33	0.15
19.42	0.72	50.67	0.44	81.92	0.46	113.17	0.16	144.42	0.15
19.50	0.71	50.75	0.43	82.00	0.47	113.25	0.16	144.50	0.15
19.58	0.69	50.83	0.43	82.08	0.47	113.33	0.16	144.58	0.15
19.67	0.68	50.92	0.43	82.17	0.47	113.42	0.16	144.67	0.15
19.75	0.66	51.00	0.43	82.25	0.48	113.50	0.16	144.75	0.15
19.83	0.65	51.08	0.43	82.33	0.49	113.58	0.16	144.83	0.14
19.92	0.64	51.17	0.43	82.42	0.49	113.67	0.16	144.92	0.14
20.00	0.62	51.25	0.43	82.50	0.49	113.75	0.16	145.00	0.14
20.08	0.61	51.33	0.43	82.58	0.49	113.83	0.16	145.08	0.14
20.17	0.60	51.42	0.43	82.67	0.50	113.92	0.16	145.17	0.14
20.25	0.58	51.50	0.43	82.75	0.50	114.00	0.16	145.25	0.14
20.33	0.58	51.58	0.43	82.83	0.50	114.08	0.16	145.33	0.14
20.42	0.56	51.67	0.43	82.92	0.50	114.17	0.16	145.42	0.14
20.50	0.55	51.75	0.43	83.00	0.50	114.25	0.16	145.50	0.14
20.58	0.54	51.83	0.43	83.08	0.50	114.33	0.16	145.58	0.14
20.67	0.53	51.92	0.43	83.17	0.51	114.42	0.16	145.67	0.14
20.75	0.52	52.00	0.43	83.25	0.51	114.50	0.16	145.75	0.14
20.83	0.51	52.08	0.43	83.33	0.51	114.58	0.16	145.83	0.14
20.92	0.50	52.17	0.43	83.42	0.51	114.67	0.16	145.92	0.14
21.00	0.49	52.25	0.43	83.50	0.52	114.75	0.16	146.00	0.14
21.08	0.49	52.33	0.43	83.58	0.52	114.83	0.16	146.08	0.14
21.17	0.48	52.42	0.43	83.67	0.53	114.92	0.16	146.17	0.14
21.25	0.47	52.50	0.43	83.75	0.53	115.00	0.16	146.25	0.14
21.33	0.47	52.58	0.43	83.83	0.54	115.08	0.16	146.33	0.14
21.42	0.46	52.67	0.43	83.92	0.55	115.17	0.16	146.42	0.14
21.50	0.45	52.75	0.43	84.00	0.56	115.25	0.16	146.50	0.14
21.58	0.45	52.83	0.43	84.08	0.57	115.33	0.16	146.58	0.14
21.67	0.44	52.92	0.44	84.17	0.58	115.42	0.16	146.67	0.14
21.75	0.43	53.00	0.44	84.25	0.60	115.50	0.16	146.75	0.14
21.83	0.43	53.08	0.44	84.33	0.62	115.58	0.16	146.83	0.14
21.92	0.42	53.17	0.44	84.42	0.64	115.67	0.16	146.92	0.13
22.00	0.42	53.25	0.44	84.50	0.66	115.75	0.16	147.00	0.13
22.08	0.41	53.33	0.45	84.58	0.69	115.83	0.16	147.08	0.13
22.17	0.41	53.42	0.45	84.67	0.72	115.92	0.16	147.17	0.13
22.25	0.40	53.50	0.45	84.75	0.74	116.00	0.16	147.25	0.13
22.33	0.40	53.58	0.45	84.83	0.77	116.08	0.15	147.33	0.13
22.42	0.39	53.67	0.46	84.92	0.79	116.17	0.15	147.42	0.13
22.50	0.39	53.75	0.46	85.00	0.81	116.25	0.16	147.50	0.13
22.58	0.38	53.83	0.46	85.08	0.82	116.33	0.16	147.58	0.13
22.67	0.38	53.92	0.46	85.17	0.84	116.42	0.16	147.67	0.13
22.75	0.37	54.00	0.47	85.25	0.85	116.50	0.16	147.75	0.13
22.83	0.37	54.08	0.47	85.33	0.85	116.58	0.16	147.83	0.13
22.92	0.36	54.17	0.47	85.42	0.86	116.67	0.16	147.92	0.13
23.00	0.36	54.25	0.48	85.50	0.87	116.75	0.16	148.00	0.13
23.08	0.36	54.33	0.48	85.58	0.86	116.83	0.16	148.08	0.13
23.17	0.35	54.42	0.49	85.67	0.87	116.92	0.16	148.17	0.13
23.25	0.35	54.50	0.49	85.75	0.86	117.00	0.16	148.25	0.13
23.33	0.34	54.58	0.50	85.83	0.85	117.08	0.16	148.33	0.13
23.42	0.34	54.67	0.50	85.92	0.85	117.17	0.16	148.42	0.13
23.50	0.34	54.75	0.51	86.00	0.84	117.25	0.16	148.50	0.13
23.58	0.33	54.83	0.52	86.08	0.83	117.33	0.16	148.58	0.13
23.67	0.33	54.92	0.53	86.17	0.82	117.42	0.16	148.67	0.13
23.75	0.32	55.00	0.53	86.25	0.81	117.50	0.16	148.75	0.13
23.83	0.32	55.08	0.54	86.33	0.81	117.58	0.16	148.83	0.13
23.92	0.32	55.17	0.55	86.42	0.79	117.67	0.16	148.92	0.13
24.00	0.31	55.25	0.55	86.50	0.78	117.75	0.16	149.00	0.13
24.08	0.31	55.33	0.55	86.58	0.77	117.83	0.16	149.08	0.13
24.17	0.30	55.42	0.56	86.67	0.76	117.92	0.16	149.17	0.13
24.25	0.30	55.50	0.56	86.75	0.74	118.00	0.16	149.25	0.12
24.33	0.30	55.58	0.57	86.83	0.74	118.08	0.16	149.33	0.12
24.42	0.30	55.67	0.57	86.92	0.73	118.17	0.16	149.42	0.12
24.50	0.29	55.75	0.58	87.00	0.71	118.25	0.16	149.50	0.12
24.58	0.29	55.83	0.58	87.08	0.71	118.33	0.16	149.58	0.12
24.67	0.29	55.92	0.58	87.17	0.70	118.42	0.16	149.67	0.12
24.75	0.28	56.00	0.58	87.25	0.68	118.50	0.16	149.75	0.12
24.83	0.28	56.08	0.58	87.33	0.68	118.58	0.15	149.83	0.12
24.92	0.28	56.17	0.58	87.42	0.66	118.67	0.15	149.92	0.12
25.00	0.27	56.25	0.58	87.50	0.66	118.75	0.15	150.00	0.12
25.08	0.27	56.33	0.58	87.58	0.65	118.83	0.15	150.08	0.12
25.17	0.27	56.42	0.58	87.67	0.64	118.92	0.15	150.17	0.12
25.25	0.27	56.50	0.59	87.75	0.63	119.00	0.15	150.25	0.12

```
 25.33    0.26 | 56.58    0.59 | 87.83    0.62 |119.08    0.15
|150.33   0.12
 25.42    0.26 | 56.67    0.59 | 87.92    0.62 |119.17    0.15
|150.42   0.12
 25.50    0.26 | 56.75    0.59 | 88.00    0.61 |119.25    0.15
|150.50   0.12
 25.58    0.25 | 56.83    0.59 | 88.08    0.60 |119.33    0.15
|150.58   0.12
 25.67    0.25 | 56.92    0.59 | 88.17    0.59 |119.42    0.15
|150.67   0.12
 25.75    0.25 | 57.00    0.59 | 88.25    0.58 |119.50    0.15
|150.75   0.12
 25.83    0.25 | 57.08    0.59 | 88.33    0.58 |119.58    0.15
|150.83   0.12
 25.92    0.25 | 57.17    0.59 | 88.42    0.57 |119.67    0.15
|150.92   0.12
 26.00    0.24 | 57.25    0.59 | 88.50    0.57 |119.75    0.15
|151.00   0.12
 26.08    0.24 | 57.33    0.59 | 88.58    0.56 |119.83    0.16
|151.08   0.12
 26.17    0.24 | 57.42    0.59 | 88.67    0.55 |119.92    0.16
|151.17   0.12
 26.25    0.24 | 57.50    0.59 | 88.75    0.55 |120.00    0.16
|151.25   0.12
 26.33    0.23 | 57.58    0.58 | 88.83    0.54 |120.08    0.16
|151.33   0.12
 26.42    0.23 | 57.67    0.58 | 88.92    0.53 |120.17    0.16
|151.42   0.12
 26.50    0.23 | 57.75    0.58 | 89.00    0.53 |120.25    0.16
|151.50   0.12
 26.58    0.23 | 57.83    0.57 | 89.08    0.52 |120.33    0.16
|151.58   0.12
 26.67    0.23 | 57.92    0.57 | 89.17    0.51 |120.42    0.16
|151.67   0.12
 26.75    0.22 | 58.00    0.57 | 89.25    0.51 |120.50    0.16
|151.75   0.12
 26.83    0.22 | 58.08    0.57 | 89.33    0.50 |120.58    0.16
|151.83   0.12
 26.92    0.22 | 58.17    0.56 | 89.42    0.50 |120.67    0.16
|151.92   0.12
 27.00    0.22 | 58.25    0.56 | 89.50    0.49 |120.75    0.16
|152.00   0.12
 27.08    0.22 | 58.33    0.56 | 89.58    0.48 |120.83    0.16
|152.08   0.12
 27.17    0.21 | 58.42    0.55 | 89.67    0.48 |120.92    0.16
|152.17   0.12
 27.25    0.21 | 58.50    0.55 | 89.75    0.47 |121.00    0.16
|152.25   0.12
 27.33    0.21 | 58.58    0.54 | 89.83    0.47 |121.08    0.16
|152.33   0.11
 27.42    0.21 | 58.67    0.54 | 89.92    0.47 |121.17    0.17
|152.42   0.11
 27.50    0.21 | 58.75    0.53 | 90.00    0.47 |121.25    0.17
|152.50   0.11
 27.58    0.21 | 58.83    0.53 | 90.08    0.46 |121.33    0.17
|152.58   0.11
 27.67    0.20 | 58.92    0.52 | 90.17    0.46 |121.42    0.17
|152.67   0.11
 27.75    0.20 | 59.00    0.52 | 90.25    0.45 |121.50    0.17
|152.75   0.11
 27.83    0.20 | 59.08    0.52 | 90.33    0.45 |121.58    0.17
|152.83   0.11
 27.92    0.20 | 59.17    0.51 | 90.42    0.44 |121.67    0.17
|152.92   0.11
 28.00    0.19 | 59.25    0.51 | 90.50    0.44 |121.75    0.17
|153.00   0.11
 28.08    0.19 | 59.33    0.50 | 90.58    0.44 |121.83    0.17
|153.08   0.11
 28.17    0.19 | 59.42    0.50 | 90.67    0.43 |121.92    0.17
|153.17   0.11
 28.25    0.19 | 59.50    0.49 | 90.75    0.43 |122.00    0.17
|153.25   0.11
 28.33    0.19 | 59.58    0.49 | 90.83    0.43 |122.08    0.17
|153.33   0.11
 28.42    0.19 | 59.67    0.49 | 90.92    0.43 |122.17    0.17
|153.42   0.11
 28.50    0.19 | 59.75    0.48 | 91.00    0.42 |122.25    0.18
|153.50   0.11
 28.58    0.18 | 59.83    0.48 | 91.08    0.42 |122.33    0.18
|153.58   0.11
 28.67    0.18 | 59.92    0.47 | 91.17    0.42 |122.42    0.18
|153.67   0.11
 28.75    0.18 | 60.00    0.47 | 91.25    0.42 |122.50    0.18
|153.75   0.11
 28.83    0.18 | 60.08    0.47 | 91.33    0.41 |122.58    0.18
|153.83   0.11
 28.92    0.18 | 60.17    0.46 | 91.42    0.41 |122.67    0.18
|153.92   0.11
 29.00    0.18 | 60.25    0.46 | 91.50    0.41 |122.75    0.18
|154.00   0.11
 29.08    0.18 | 60.33    0.45 | 91.58    0.41 |122.83    0.18
|154.08   0.11
 29.17    0.18 | 60.42    0.45 | 91.67    0.41 |122.92    0.18
|154.17   0.11
 29.25    0.17 | 60.50    0.44 | 91.75    0.41 |123.00    0.18
|154.25   0.11
 29.33    0.17 | 60.58    0.44 | 91.83    0.40 |123.08    0.18
|154.33   0.11
 29.42    0.17 | 60.67    0.44 | 91.92    0.40 |123.17    0.18
|154.42   0.11
 29.50    0.17 | 60.75    0.43 | 92.00    0.40 |123.25    0.18
|154.50   0.11
 29.58    0.17 | 60.83    0.43 | 92.08    0.40 |123.33    0.18
|154.58   0.11
 29.67    0.17 | 60.92    0.42 | 92.17    0.40 |123.42    0.18
|154.67   0.11
 29.75    0.17 | 61.00    0.42 | 92.25    0.39 |123.50    0.18
|154.75   0.11
 29.83    0.17 | 61.08    0.42 | 92.33    0.39 |123.58    0.18
|154.83   0.11
 29.92    0.16 | 61.17    0.42 | 92.42    0.39 |123.67    0.18
|154.92   0.11
 30.00    0.16 | 61.25    0.41 | 92.50    0.39 |123.75    0.18
|155.00   0.11
 30.08    0.16 | 61.33    0.41 | 92.58    0.38 |123.83    0.18
|155.08   0.11
 30.17    0.16 | 61.42    0.40 | 92.67    0.38 |123.92    0.18
|155.17   0.11
 30.25    0.16 | 61.50    0.40 | 92.75    0.38 |124.00    0.18
|155.25   0.11
 30.33    0.16 | 61.58    0.40 | 92.83    0.38 |124.08    0.18
|155.33   0.11
 30.42    0.16 | 61.67    0.40 | 92.92    0.38 |124.17    0.18
|155.42   0.11
 30.50    0.16 | 61.75    0.39 | 93.00    0.37 |124.25    0.18
|155.50   0.11
 30.58    0.16 | 61.83    0.39 | 93.08    0.37 |124.33    0.19
|155.58   0.11
 30.67    0.16 | 61.92    0.39 | 93.17    0.37 |124.42    0.19
|155.67   0.11
 30.75    0.16 | 62.00    0.38 | 93.25    0.37 |124.50    0.19
|155.75   0.11
 30.83    0.15 | 62.08    0.38 | 93.33    0.37 |124.58    0.19
|155.83   0.10
 30.92    0.15 | 62.17    0.38 | 93.42    0.37 |124.67    0.20
|155.92   0.11
 31.00    0.15 | 62.25    0.38 | 93.50    0.37 |124.75    0.20
|156.00   0.10
 31.08    0.15 | 62.33    0.39 | 93.58    0.37 |124.83    0.20 |
 31.17    0.15 | 62.42    0.39 | 93.67    0.37 |124.92    0.20 |
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| CALIB              |
| STANDHYD  (6202) |   Area    (ha)=  12.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.00          6.00
     Dep. Storage     (mm)=       1.50          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     282.84         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         51.96
              over (min)          5.00         20.00
     Storage Coeff.  (min)=       5.01 (ii)   16.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.21          0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.98          0.50
1.322 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      55.00         23.32
34.41
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.97          0.41
0.61


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0621) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1549.0) ------>
                Distance      Elevation       Manning
                    0.00         87.56        0.0900
                    3.37         87.60        0.0900
                   16.78         87.21        0.0900
                   31.08         87.29        0.0900
                   43.62         87.28        0.0900
                   62.88         87.41        0.0900
                   68.00         87.22        0.0900
                   96.20         87.43        0.0900
                  112.60         86.39    0.0900 /0.0700  Main
Channel
                  113.70         86.10        0.0700      Main
Channel
                  114.40         86.51    0.0700 /0.0900  Main
Channel
                  114.60         86.67        0.0900
                  131.60         87.07        0.0900
                  156.70         87.16        0.0900
                  184.59         87.41        0.0900
                  194.09         87.56        0.0900
                  202.66         87.64        0.0900
                  221.43         87.69        0.0900
                  230.63         87.86        0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.07    86.17    .898E+01      0.0          0.13
79.55
      0.14    86.24    .359E+02      0.0          0.21
50.11
      0.21    86.31    .808E+02      0.0          0.28
38.24
      0.29    86.39    .144E+03      0.1          0.33
31.57
      0.36    86.46    .256E+03      0.2          0.39
27.10
      0.44    86.54    .435E+03      0.3          0.42
25.03
      0.52    86.62    .680E+03      0.5          0.46
23.12
      0.60    86.70    .998E+03      0.8          0.48
21.78
      0.68    86.78    .150E+04      1.2          0.48
21.76
      0.76    86.85    .223E+04      1.7          0.48
21.78
      0.83    86.93    .319E+04      2.5          0.49
21.41
      0.91    87.01    .437E+04      3.5          0.51
20.74
      0.99    87.09    .580E+04      4.7          0.51
20.64
      1.07    87.17    .811E+04      6.2          0.48
21.90
      1.15    87.25    .113E+05      7.8          0.44
24.18
      1.23    87.32    .165E+05     10.6          0.41
26.00
      1.30    87.40    .239E+05     16.0          0.42
24.97
      1.38    87.48    .327E+05     24.3          0.47
22.45
      1.46    87.56    .419E+05     34.6          0.52
20.16

                                   <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6202)   12.00     1.32     3.00  34.41
0.70      0.48
     OUTFLOW: ID= 1 (0621)   12.00     0.75     3.17  34.37
0.60      0.48


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| CALIB              |
| STANDHYD  (6212) |   Area    (ha)=  21.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  76.00   Dir. Conn.(%)=
67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.49          5.21
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     380.35         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         73.86
              over (min)          5.00         20.00
     Storage Coeff.  (min)=       5.99 (ii)   15.80 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.19          0.07

*TOTALS*
     PEAK FLOW       (cms)=       3.31          0.54
3.684 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50         26.52
42.59
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.47
0.75


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0142) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0621):    12.00   0.752     3.17    34.37
        + ID2= 2 (6212):    21.70   3.684     3.00    42.59
          ===============================================
          ID = 3 (0142):    33.70   4.313     3.00    39.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0622) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 953.0) ------>
                Distance      Elevation       Manning
                   16.75         82.21        0.1100
                   30.34         82.03        0.1100
                   44.96         81.97        0.1100
                   58.95         81.94        0.1100
                   71.21         81.85        0.1100
                  100.74         81.58        0.1100
                  112.29         81.50        0.1100
                  121.63         81.56        0.1100
                  127.04         81.66    0.1100 /0.0700  Main
Channel
                  129.04         80.66        0.0700      Main
Channel
                  130.04         80.66        0.0700      Main
Channel
                  131.04         80.66        0.0700      Main
Channel
                  133.04         81.66    0.0700 /0.1100  Main
Channel
                  134.58         82.08        0.1100
                  135.14         82.01        0.1100
                  139.68         81.73        0.1100
                  151.74         81.75        0.1100
                  153.37         81.71        0.1100
                  167.06         81.83        0.1100
                  187.62         81.87        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.06    80.72    .649E+02      0.0          0.17
49.00
      0.12    80.79    .138E+03      0.1          0.25
32.10
      0.19    80.85    .218E+03      0.1          0.32
25.32
      0.25    80.91    .306E+03      0.2          0.38
21.50
      0.31    80.97    .401E+03      0.4          0.43
18.99
      0.37    81.04    .504E+03      0.5          0.47
17.19
      0.44    81.10    .615E+03      0.6          0.52
15.81
      0.50    81.16    .733E+03      0.8          0.55
14.71
      0.56    81.22    .860E+03      1.0          0.59
13.81
      0.62    81.29    .993E+03      1.3          0.62
13.06
      0.69    81.35    .113E+04      1.5          0.66
12.41
      0.75    81.41    .128E+04      1.8          0.69
11.84
      0.81    81.47    .144E+04      2.1          0.72
11.35
      0.87    81.54    .170E+04      2.5          0.71
11.50
      0.94    81.60    .245E+04      3.0          0.59
13.80
      1.00    81.66    .355E+04      3.7          0.51
16.06
      1.07    81.73    .511E+04      4.9          0.47
17.27
      1.14    81.80    .759E+04      6.7          0.43
18.98
      1.21    81.87    .109E+05      9.0          0.40
20.28

                                   <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0142)   33.70     4.31     3.00  39.66
1.04      0.49
     OUTFLOW: ID= 1 (0622)   33.70     2.91     3.17  39.65
0.93      0.60


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--------------------
| CALIB              |
| STANDHYD  (6222) |   Area    (ha)=  16.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=
69.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      13.18          3.72
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     335.66         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      88.14         43.90
              over (min)          5.00         20.00
     Storage Coeff.  (min)=       5.56 (ii)   17.63 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.20          0.06

*TOTALS*
     PEAK FLOW       (cms)=       2.68          0.25
2.850 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50         18.50
40.58
     TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
     RUNOFF COEFFICIENT   =       0.89          0.33
0.72


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0144) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0622):    33.70   2.906     3.17    39.65
        + ID2= 2 (6222):    16.90   2.850     3.00    40.58
          ===============================================
          ID = 3 (0144):    50.60   5.408     3.00    39.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6232) |   Area    (ha)=  20.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
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--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.30        10.30
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     370.59        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        36.65
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       5.90 (ii)   18.88 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.19         0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.64         0.56
2.010 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50        16.79
28.59
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.30
0.51


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0146) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0144):    50.60   5.408     3.00    39.96
        + ID2= 2 (6232):    20.60   2.010     3.00    28.59
          ===============================================
          ID = 3 (0146):    71.20   7.418     3.00    36.67

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6302) |   Area    (ha)=   2.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=
58.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.79         0.81
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     131.66        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        72.16
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.17 (ii)   13.07 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.36         0.09
0.441 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      50.50        26.26
40.32
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.46
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0631) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 788.2) ------>
               Distance      Elevation       Manning
                   0.00          81.00        0.1100
                  15.70          81.00        0.1100
                  17.50          80.50    0.1100 /0.0700  Main
Channel
                  18.50          80.50        0.0700      Main
Channel
                  20.00          81.00    0.0700 /0.1100  Main
Channel
                  24.00          81.00        0.1100
                  38.00          81.50        0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.03    80.53    .174E+02       0.0          0.10
100.96
       0.05    80.55    .375E+02       0.0          0.15
66.64
       0.08    80.58    .604E+02       0.0          0.19
52.98
       0.11    80.61    .861E+02       0.0          0.22
45.34
       0.13    80.63    .115E+03       0.0          0.25
40.34
       0.16    80.66    .146E+03       0.1          0.28
36.75
       0.18    80.68    .180E+03       0.1          0.30
34.02
       0.21    80.71    .217E+03       0.1          0.32
31.85
       0.24    80.74    .256E+03       0.1          0.34
30.07
       0.26    80.76    .298E+03       0.2          0.35
28.57
       0.29    80.79    .344E+03       0.2          0.37
27.28
       0.32    80.82    .391E+03       0.2          0.39
26.15
       0.34    80.84    .442E+03       0.3          0.40
25.16
       0.37    80.87    .495E+03       0.3          0.42
24.27
       0.39    80.89    .552E+03       0.4          0.43
23.48
       0.42    80.92    .611E+03       0.4          0.44
22.75
       0.45    80.95    .672E+03       0.5          0.46
22.09
       0.47    80.97    .737E+03       0.6          0.47
21.48
       0.50    81.00    .804E+03       0.6          0.48
20.91

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6302)    2.60     0.44    3.00  40.32
0.42      0.44
     OUTFLOW: ID= 1 (0631)    2.60     0.23    3.08  40.10
0.30      0.38


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--------------------
| CALIB            |
| STANDHYD  (6312) |   Area    (ha)=   8.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=
59.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.16         2.64
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     242.21        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        41.50
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       4.57 (ii)   16.92 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.23         0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.22         0.17
1.337 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        18.04
37.19
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.32
0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0149) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0631):     2.60   0.229     3.08    40.10
        + ID2= 2 (6312):     8.80   1.337     3.00    37.19
          ===============================================
          ID = 3 (0149):    11.40   1.550     3.00    37.85

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0632) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 924.2) ------>
               Distance      Elevation       Manning
                   0.00          82.50        0.1100
                   6.00          82.00        0.1100
                  11.00          81.00        0.1100
                  12.00          80.00        0.1100
                  13.50          79.50    0.1100 /0.0700  Main
Channel
                  14.50          79.50        0.0700      Main
Channel
                  16.00          80.00    0.0700 /0.1100  Main
Channel
                  18.00          80.00        0.1100
                  29.70          80.00        0.1100
                  37.00          80.50        0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.05    79.55    .330E+02       0.0          0.17
52.00
       0.11    79.61    .749E+02       0.0          0.26
35.21
       0.16    79.66    .126E+03       0.1          0.32
28.45
       0.21    79.71    .186E+03       0.1          0.37
24.60
       0.26    79.76    .255E+03       0.2          0.41
22.04
       0.32    79.82    .333E+03       0.3          0.45
20.16
       0.37    79.87    .420E+03       0.4          0.48
18.69
       0.42    79.92    .515E+03       0.5          0.51
17.51
       0.47    79.97    .620E+03       0.6          0.55
16.53
       0.53    80.03    .931E+03       0.8          0.48
18.86
       0.58    80.08    .146E+04       1.2          0.43
20.73
       0.63    80.13    .201E+04       1.6          0.44
20.51
       0.68    80.18    .258E+04       2.2          0.46
19.66
       0.74    80.24    .318E+04       2.8          0.48
18.66
       0.79    80.29    .380E+04       3.6          0.51
17.70
       0.84    80.34    .445E+04       4.4          0.54
16.82
       0.89    80.39    .511E+04       5.3          0.56
16.03
       0.95    80.45    .580E+04       6.3          0.59
15.32
       1.00    80.50    .652E+04       7.4          0.61
14.69

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0149)   11.40     1.55    3.00  37.85
0.62      0.44
     OUTFLOW: ID= 1 (0632)   11.40     0.89    3.17  37.83
0.54      0.47


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--------------------
| CALIB            |
| STANDHYD  (6322) |   Area    (ha)=   5.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.65         2.65
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     187.97        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        36.65
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       3.92 (ii)   16.91 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.24         0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.44         0.15
0.543 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        16.79
28.58
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.30
0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0174) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0632):    11.40   0.894     3.17    37.83
        + ID2= 2 (6322):     5.30   0.543     3.00    28.58
          ===============================================
          ID = 3 (0174):    16.70   1.358     3.00    34.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6402) |   Area    (ha)=  16.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
66.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.60         4.20
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     334.66        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        72.59
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       5.55 (ii)   15.42 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.20         0.07

*TOTALS*
     PEAK FLOW       (cms)=       2.55         0.43
2.852 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        26.33
42.28
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.47
0.75


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0641) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 910.0) ------>
               Distance      Elevation       Manning
                   0.00          83.92        0.1100
                   1.93          83.93        0.1100
                   3.02          83.94        0.1100
                   5.01          83.96        0.1100
                   6.81          83.80        0.1100
                   7.33          83.77        0.1100
                   8.42          83.41    0.1100 /0.0700  Main
Channel
                  10.42          82.41        0.0700      Main
Channel
                  11.17          82.41        0.0700      Main
Channel
                  11.92          82.41        0.0700      Main
Channel
                  13.92          83.41    0.0700 /0.1100  Main
Channel
                  21.33          84.40        0.1100
                  23.85          84.09        0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.10    82.51    .768E+02       0.0          0.24
32.02
       0.20    82.61    .172E+03       0.1          0.35
21.50
       0.30    82.71    .285E+03       0.3          0.44
17.20
       0.40    82.81    .416E+03       0.5          0.51
14.73
       0.50    82.91    .565E+03       0.7          0.58
13.08
       0.60    83.01    .732E+03       1.0          0.64
11.86
       0.70    83.11    .918E+03       1.4          0.69
10.92
       0.80    83.21    .112E+04       1.8          0.74
10.16
       0.90    83.31    .134E+04       2.3          0.79
9.53
       1.00    83.41    .158E+04       2.9          0.84
9.00
       1.11    83.52    .188E+04       3.8          0.92
8.20
       1.22    83.63    .224E+04       4.8          0.98
7.72
       1.33    83.74    .266E+04       6.0          1.02
7.39
       1.44    83.85    .315E+04       7.3          1.05
7.20
       1.55    83.96    .379E+04       8.7          1.04
7.24
       1.66    84.07    .471E+04      10.6          1.02
7.41
       1.77    84.18    .567E+04      12.7          1.01
7.46
       1.88    84.29    .673E+04      15.1          1.01
7.43
       1.99    84.40    .787E+04      17.8          1.02
7.36

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6402)   16.80     2.85    3.00  42.28
0.99      0.83
```

```
    OUTFLOW: ID= 1 (0641)   16.80     2.18    3.00  42.27
0.86      0.77


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--------------------
| CALIB             |
| STANDHYD  (6412) |   Area    (ha)=  13.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       10.47          3.13
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      301.11         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=       88.14         52.75
              over (min)         5.00         20.00
    Storage Coeff.  (min)=       5.21 (ii)    16.43 (ii)
    Unit Hyd. Tpeak (min)=       5.00         20.00
    Unit Hyd. peak  (cms)=       0.21          0.06

*TOTALS*
    PEAK FLOW       (cms)=       2.11          0.27
2.294 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.17
3.00
    RUNOFF VOLUME    (mm)=      50.50         21.65
40.98
    TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
    RUNOFF COEFFICIENT   =       0.89          0.38
0.73


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  72.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0184) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0641):    16.80   2.184     3.00    42.27
       + ID2= 2 (6412):    13.60   2.294     3.00    40.98
         ===============================================
         ID = 3 (0184):    30.40   4.478     3.00    41.69

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0642) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1099.5) ------>
               Distance      Elevation       Manning
                  0.00          85.00        0.1100
                 14.50          80.00        0.1100
                 15.30          80.00        0.1100
                 16.80          79.50    0.1100 /0.0700  Main
Channel
                 17.80          79.50        0.0700      Main
Channel
                 19.30          80.00    0.0700 /0.1100  Main
Channel
                 20.30          80.00        0.1100
                 27.30          81.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.08    79.58   .520E+02       0.0           0.24
36.74
      0.16    79.66   .124E+03       0.1           0.35
25.35
      0.24    79.74   .216E+03       0.2           0.43
20.68
      0.32    79.82   .328E+03       0.3           0.49
17.96
      0.39    79.89   .460E+03       0.5           0.55
16.11
      0.47    79.97   .611E+03       0.7           0.60
14.73
      0.55    80.05   .836E+03       1.0           0.62
14.31
      0.63    80.13   .112E+04       1.4           0.66
13.40
      0.71    80.21   .143E+04       1.9           0.70
12.62
      0.79    80.29   .178E+04       2.5           0.74
11.97
      0.87    80.37   .216E+04       3.2           0.78
11.42
      0.95    80.45   .258E+04       3.9           0.81
10.93
      1.03    80.53   .302E+04       4.8           0.85
10.51
      1.11    80.61   .350E+04       5.8           0.88
10.14
      1.18    80.68   .402E+04       6.8           0.91
9.80
      1.26    80.76   .456E+04       8.0           0.94
9.49
      1.34    80.84   .514E+04       9.3           0.96
9.21
      1.42    80.92   .575E+04      10.7           0.99
8.96
      1.50    81.00   .640E+04      12.2           1.02
8.72

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0184)    30.40     4.48    3.00  41.69
1.00      0.83
    OUTFLOW: ID= 1 (0642)    30.40     3.36    3.08  41.69
0.89      0.79


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--------------------
| CALIB             |
| STANDHYD  (6422) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        8.75          8.75
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      341.57         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=       88.14         44.29
              over (min)         5.00         20.00
    Storage Coeff.  (min)=       5.62 (ii)    17.65 (ii)
    Unit Hyd. Tpeak (min)=       5.00         20.00
    Unit Hyd. peak  (cms)=       0.20          0.06

*TOTALS*
    PEAK FLOW       (cms)=       1.41          0.60
1.806 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.17
3.00
    RUNOFF VOLUME    (mm)=      50.50         20.06
30.72
    TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
    RUNOFF COEFFICIENT   =       0.89          0.36
0.54


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  72.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0187) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0642):    30.40   3.362     3.08    41.69
       + ID2= 2 (6422):    17.50   1.806     3.00    30.72
         ===============================================
         ID = 3 (0187):    47.90   4.797     3.00    37.68

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB             |
| STANDHYD  (6502) |   Area    (ha)=   9.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        4.55          4.55
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      246.31         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=       88.14         36.65
              over (min)         5.00         20.00
    Storage Coeff.  (min)=       4.61 (ii)    17.60 (ii)
    Unit Hyd. Tpeak (min)=       5.00         20.00
    Unit Hyd. peak  (cms)=       0.22          0.06

*TOTALS*
    PEAK FLOW       (cms)=       0.75          0.26
0.917 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.25
3.00
    RUNOFF VOLUME    (mm)=      50.50         16.79
28.58
    TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
    RUNOFF COEFFICIENT   =       0.89          0.30
0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB             |
| STANDHYD  (6602) |   Area    (ha)=  13.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        6.85          6.85
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      302.21         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=       88.14         55.44
              over (min)         5.00         20.00
    Storage Coeff.  (min)=       5.22 (ii)    16.22 (ii)
    Unit Hyd. Tpeak (min)=       5.00         20.00
    Unit Hyd. peak  (cms)=       0.21          0.06

*TOTALS*
    PEAK FLOW       (cms)=       1.11          0.62
1.536 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.17
3.00
    RUNOFF VOLUME    (mm)=      50.50         24.78
33.78
    TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
    RUNOFF COEFFICIENT   =       0.89          0.44
0.60


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  79.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB             |
| STANDHYD  (7302) |   Area    (ha)=   3.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        1.70          1.70
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      150.55         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=       88.14         36.65
              over (min)         5.00         20.00
    Storage Coeff.  (min)=       3.43 (ii)    16.42 (ii)
    Unit Hyd. Tpeak (min)=       5.00         20.00
    Unit Hyd. peak  (cms)=       0.26          0.06

*TOTALS*
    PEAK FLOW       (cms)=       0.29          0.10
0.352 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.17
3.00
    RUNOFF VOLUME    (mm)=      50.50         16.79
28.58
    TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
    RUNOFF COEFFICIENT   =       0.89          0.30
0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB             |
| STANDHYD  (7402) |   Area    (ha)=   3.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        1.85          1.85
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      157.06         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=       88.14         36.65
              over (min)         5.00         20.00
    Storage Coeff.  (min)=       3.52 (ii)    16.50 (ii)
    Unit Hyd. Tpeak (min)=       5.00         20.00
    Unit Hyd. peak  (cms)=       0.26          0.06

*TOTALS*
    PEAK FLOW       (cms)=       0.31          0.11
0.382 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.17
3.00
    RUNOFF VOLUME    (mm)=      50.50         16.79
28.58
    TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
    RUNOFF COEFFICIENT   =       0.89          0.30
0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB             |
| NASHYD    (7101) |   Area    (ha)=  70.70   Curve Number
(CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.78

    Unit Hyd Qpeak  (cms)=   3.471

    PEAK FLOW       (cms)=   0.731 (i)
    TIME TO PEAK    (hrs)=   3.833
    RUNOFF VOLUME    (mm)=   8.313
    TOTAL RAINFALL   (mm)=  56.500
    RUNOFF COEFFICIENT   =   0.147

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB             |
| STANDHYD  (7102) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
33.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=        7.88          9.62
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      341.57         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=       88.14         17.61
              over (min)         5.00         25.00
    Storage Coeff.  (min)=       5.62 (ii)    23.02 (ii)
    Unit Hyd. Tpeak (min)=       5.00         25.00
    Unit Hyd. peak  (cms)=       0.20          0.05

*TOTALS*
    PEAK FLOW       (cms)=       1.33          0.26
1.455 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.33
3.00
    RUNOFF VOLUME    (mm)=      50.50         10.29
23.56
    TOTAL RAINFALL   (mm)=      56.50         56.50
56.50
    RUNOFF COEFFICIENT   =       0.89          0.18
0.42


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  52.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0218) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (7101):    70.70   0.731     3.83     8.31
       + ID2= 2 (7102):    17.50   1.455     3.00    23.56
         ===============================================
         ID = 3 (0218):    88.20   1.607     3.00    11.34

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0711) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1487.9) ------>
               Distance      Elevation       Manning
                  0.00          95.00        0.1100
                 89.00          94.00        0.1100
                135.70          94.00    0.1100 /0.0700  Main
Channel
                137.20          93.50        0.0700      Main
Channel
                138.20          93.50        0.0700      Main
Channel
                139.70          94.00    0.0700 /0.1100  Main
Channel
                211.60          94.00        0.1100
                249.00          95.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.07    93.57   .969E+02       0.0           0.20
95.33
      0.14    93.64   .228E+03       0.1           0.29
64.56
      0.21    93.71   .393E+03       0.1           0.36
51.73
      0.29    93.79   .593E+03       0.2           0.42
44.23
      0.36    93.86   .826E+03       0.4           0.48
39.15
      0.43    93.93   .109E+04       0.5           0.53
35.40
      0.50    94.00   .140E+04       0.7           0.57
32.52
      0.58    94.08   .133E+05       2.6           0.22
84.59
      0.67    94.17   .262E+05       6.5           0.28
67.17
      0.75    94.25   .400E+05      12.0           0.33
55.64
```

```
      0.83    94.33    .549E+05      19.0          0.39
48.10
      0.92    94.42    .707E+05      27.5          0.43
42.81
      1.00    94.50    .875E+05      37.5          0.48
38.86
      1.08    94.58    .105E+06      49.0          0.52
35.80
      1.17    94.67    .124E+06      62.0          0.56
33.34
      1.25    94.75    .144E+06      76.6          0.59
31.30
      1.33    94.83    .165E+06      92.7          0.63
29.59
      1.42    94.92    .186E+06     110.4          0.66
28.12
      1.50    95.00    .209E+06     129.7          0.69
26.84

                              <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0218)   88.20     1.61    3.00  11.34
0.54     0.33
    OUTFLOW: ID= 1 (0711)   88.20     0.92    4.17  11.33
0.51     0.49


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-------------------
| CALIB             |
| NASHYD    (7111) |   Area    (ha)=  48.10   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.43

     Unit Hyd Qpeak  (cms)=   1.285

     PEAK FLOW       (cms)=   0.580 (i)
     TIME TO PEAK    (hrs)=   4.667
     RUNOFF VOLUME    (mm)=  14.948
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.265

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7112) |   Area    (ha)=  12.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  39.00   Dir. Conn.(%)=
27.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        4.76          7.44
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      285.19         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=       88.14         35.65
               over (min)         5.00         20.00
     Storage Coeff.  (min)=        5.04 (ii)    18.17 (ii)
     Unit Hyd. Tpeak (min)=        5.00         20.00
     Unit Hyd. peak  (cms)=        0.21          0.06

*TOTALS*
     PEAK FLOW       (cms)=        0.77          0.40
1.029 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=       50.50         17.63
26.50
     TOTAL RAINFALL   (mm)=       56.50         56.50
56.50
     RUNOFF COEFFICIENT   =        0.89          0.31
0.47


         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
              CN*  =  70.0    Ia = Dep. Storage  (Above)
        (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
              THAN THE STORAGE COEFFICIENT.
       (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0222) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7111):    48.10   0.580    4.67    14.95
        + ID2= 2 (7112):    12.20   1.029    3.00    26.50
          ===============================================
          ID = 3 (0222):    60.30   1.075    3.00    17.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0223) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0222):    60.30   1.075    3.00    17.29
        + ID2= 2 (0711):    88.20   0.918    4.17    11.33
          ===============================================
          ID = 3 (0223):   148.50   1.601    4.25    13.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (7011) |   Area    (ha)=  90.40   Curve Number
(CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.77

     Unit Hyd Qpeak  (cms)=   4.467

     PEAK FLOW       (cms)=   1.190 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  10.454
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.185

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7012) |   Area    (ha)=  25.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
25.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        9.54         15.56
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      409.06         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=       88.14         21.88
               over (min)         5.00         25.00
     Storage Coeff.  (min)=        6.26 (ii)    22.21 (ii)
     Unit Hyd. Tpeak (min)=        5.00         25.00
```

```
     Unit Hyd. peak  (cms)=        0.19          0.05

*TOTALS*
     PEAK FLOW       (cms)=        1.42          0.53
1.684 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=       50.50         12.71
22.16
     TOTAL RAINFALL   (mm)=       56.50         56.50
56.50
     RUNOFF COEFFICIENT   =        0.89          0.22
0.39


         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
              CN*  =  59.0    Ia = Dep. Storage  (Above)
        (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
              THAN THE STORAGE COEFFICIENT.
       (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0205) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7011):    90.40   1.190    3.83    10.45
        + ID2= 2 (7012):    25.10   1.684    3.00    22.16
          ===============================================
          ID = 3 (0205):   115.50   1.938    3.00    13.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0702) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1184.6) ------>
               Distance      Elevation       Manning
                  0.00          93.00         0.1100
                 56.00          92.00         0.1100
                 65.40          92.00         0.1100
                 74.80          91.50     0.1100 /0.0700  Main
Channel
                 75.80          91.50         0.0700      Main
Channel
                 77.30          92.00     0.0700 /0.1100  Main
Channel
                144.00          92.00         0.1100
                186.00          93.00         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.08    91.58    .236E+03       0.0          0.13
200.27
      0.16    91.66    .689E+03       0.1          0.18
146.52
      0.24    91.74    .136E+04       0.2          0.22
121.67
      0.32    91.82    .225E+04       0.4          0.25
105.99
      0.39    91.89    .336E+04       0.6          0.28
94.79
      0.47    91.97    .468E+04       0.9          0.31
86.24
      0.55    92.05    .128E+05       1.5          0.19
142.36
      0.63    92.13    .251E+05       3.4          0.22
123.43
      0.71    92.21    .384E+05       6.1          0.26
104.46
      0.79    92.29    .526E+05       9.6          0.29
90.95
      0.87    92.37    .678E+05      13.9          0.33
81.16
      0.95    92.45    .840E+05      19.0          0.36
73.76
      1.03    92.53    .101E+06      24.8          0.39
67.97
      1.11    92.61    .119E+06      31.4          0.42
63.30
      1.18    92.68    .139E+06      38.8          0.45
59.44
      1.26    92.76    .159E+06      47.1          0.48
56.18
      1.34    92.84    .180E+06      56.1          0.50
53.38
      1.42    92.92    .202E+06      66.0          0.52
50.95
      1.50    93.00    .225E+06      76.8          0.55
48.81

                              <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0205)  115.50     1.94    3.00  13.00
0.57     0.19
    OUTFLOW: ID= 1 (0702)  115.50     1.08    4.83  12.99
0.50     0.26


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-------------------
| CALIB             |
| NASHYD    (7021) |   Area    (ha)=   7.30   Curve Number
(CN)= 64.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.72

     Unit Hyd Qpeak  (cms)=   0.162

     PEAK FLOW       (cms)=   0.063 (i)
     TIME TO PEAK    (hrs)=   5.083
     RUNOFF VOLUME    (mm)=  12.291
     TOTAL RAINFALL   (mm)=  56.500
     RUNOFF COEFFICIENT   =   0.218

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7022) |   Area    (ha)=  35.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  48.00   Dir. Conn.(%)=
35.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       16.90         18.30
     Dep. Storage     (mm)=        1.50          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      484.42         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=       88.14         31.93
               over (min)         5.00         25.00
     Storage Coeff.  (min)=        6.92 (ii)    20.64 (ii)
     Unit Hyd. Tpeak (min)=        5.00         25.00
     Unit Hyd. peak  (cms)=        0.17          0.05

*TOTALS*
     PEAK FLOW       (cms)=        2.73          0.80
3.153 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.33
3.00
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     RUNOFF VOLUME    (mm)=       55.00         15.27
29.17
     TOTAL RAINFALL   (mm)=       56.50         56.50
56.50
     RUNOFF COEFFICIENT   =        0.97          0.27
0.52


         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
              CN*  =  64.0    Ia = Dep. Storage  (Above)
        (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
              THAN THE STORAGE COEFFICIENT.
       (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0209) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7021):     7.30   0.063    5.08    12.29
        + ID2= 2 (7022):    35.20   3.153    3.00    29.17
          ===============================================
          ID = 3 (0209):    42.50   3.157    3.00    26.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0210) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0209):    42.50   3.157    3.00    26.27
        + ID2= 2 (0702):   115.50   1.075    4.83    12.99
          ===============================================
          ID = 3 (0210):   158.00   3.378    3.00    16.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0224) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0210):   158.00   3.378    3.00    16.56
        + ID2= 2 (0223):   148.50   1.601    4.25    13.75
          ===============================================
          ID = 3 (0224):   306.50   4.915    3.00    15.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0703) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (2329.2) ------>
               Distance      Elevation       Manning
                  0.00          88.00         0.1100
                 37.50          87.00         0.1100
                 51.30          86.00         0.1100
                 82.80          86.00         0.1100
                107.50          87.00         0.1100
                117.30          86.00         0.1100
                125.90          86.00     0.1100 /0.0700  Main
Channel
                127.40          85.50         0.0700      Main
Channel
                128.40          85.50         0.0700      Main
Channel
                129.90          86.00     0.0700 /0.1100  Main
Channel
                133.00          86.00         0.1100
                149.00          87.00         0.1100
                193.00          88.00         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.12    85.62    .787E+02       0.0          0.19
40.30
      0.25    85.75    .200E+03       0.1          0.28
27.58
      0.37    85.88    .365E+03       0.3          0.35
22.10
      0.50    86.00    .572E+03       0.5          0.41
18.84
      0.63    86.13    .372E+04       1.8          0.22
34.16
      0.77    86.27    .738E+04       4.4          0.27
28.02
      0.90    86.40    .116E+05       8.1          0.32
23.77
      1.03    86.53    .163E+05      13.0          0.37
20.89
      1.17    86.67    .215E+05      19.1          0.41
18.82
      1.30    86.80    .273E+05      26.4          0.44
17.24
      1.43    86.93    .336E+05      35.0          0.48
15.99
      1.57    87.07    .404E+05      44.9          0.51
15.00
      1.70    87.20    .479E+05      56.3          0.54
14.18
      1.83    87.33    .560E+05      69.3          0.57
13.47
      1.97    87.47    .648E+05      84.0          0.59
12.85
      2.10    87.60    .743E+05     100.6          0.62
12.31
      2.23    87.73    .844E+05     119.0          0.65
11.82
      2.37    87.87    .952E+05     139.3          0.67
11.39
      2.50    88.00    .107E+06     161.7          0.69
11.00

                              <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0224)  306.50     4.91    3.00  15.20
0.79     0.28
    OUTFLOW: ID= 1 (0703)  306.50     2.95    4.58  15.20
0.69     0.24


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| CALIB             |
| STANDHYD  (7032) |   Area    (ha)=  23.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       17.94          5.36
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      394.12         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=       88.14         37.94
               over (min)         5.00         20.00
     Storage Coeff.  (min)=        6.12 (ii)    18.92 (ii)
     Unit Hyd. Tpeak (min)=        5.00         20.00
```

```
     Unit Hyd. peak  (cms)=       0.19         0.06

*TOTALS*
     PEAK FLOW       (cms)=       3.59         0.30
3.790 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50        16.30
39.56
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.29
0.70


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  63.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0215) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0703):   306.50   2.946     4.58    15.20
       + ID2= 2 (7032):    23.30   3.790     3.00    39.56
         ===============================================
         ID = 3 (0215):   329.80   5.656     3.00    16.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0704) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (2755.4) ------>
               Distance      Elevation       Manning
                  0.00         85.00         0.1100
                 25.00         84.00         0.1100
                 32.00         84.00     0.1100 /0.0700  Main
Channel
                 33.50         83.50         0.0700      Main
Channel
                 34.50         83.50         0.0700      Main
Channel
                 36.00         84.00     0.0700 /0.1100  Main
Channel
                 65.00         84.00         0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.03    83.53    .121E+02      0.0          0.12
61.52
       0.05    83.55    .259E+02      0.0          0.19
40.35
       0.08    83.58    .414E+02      0.0          0.24
31.84
       0.10    83.60    .585E+02      0.0          0.28
27.04
       0.13    83.63    .774E+02      0.1          0.31
23.87
       0.15    83.65    .979E+02      0.1          0.35
21.59
       0.18    83.68    .120E+03      0.1          0.38
19.84
       0.20    83.70    .144E+03      0.1          0.41
18.45
       0.23    83.73    .170E+03      0.2          0.43
17.31
       0.25    83.75    .197E+03      0.2          0.46
16.34
       0.28    83.78    .226E+03      0.2          0.48
15.52
       0.30    83.80    .257E+03      0.3          0.51
14.80
       0.33    83.83    .289E+03      0.3          0.53
14.16
       0.35    83.85    .323E+03      0.4          0.55
13.60
       0.38    83.88    .359E+03      0.5          0.57
13.09
       0.40    83.90    .396E+03      0.5          0.59
12.64
       0.43    83.93    .435E+03      0.6          0.61
12.22
       0.45    83.95    .476E+03      0.7          0.63
11.84
       0.48    83.98    .518E+03      0.8          0.65
11.49

     **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0215)  329.80     5.66    3.00  16.92
0.47     0.65
     OUTFLOW: ID= 1 (0704)  329.80     4.06    3.08  16.92
0.48     0.65

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| CALIB            |
| STANDHYD  (7042) |   Area    (ha)=  23.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      18.25         5.45
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     397.49        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        35.68
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       6.15 (ii)   19.27 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.19         0.06

*TOTALS*
     PEAK FLOW       (cms)=       3.65         0.29
3.837 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50        15.38
39.26
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.27
0.69


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  61.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0229) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0704):   329.80   4.060     3.08    16.92
       + ID2= 2 (7042):    23.70   3.837     3.00    39.26
         ===============================================
         ID = 3 (0229):   353.50   7.422     3.00    18.42

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (7202) |   Area    (ha)=  22.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      17.33         5.18
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     387.30        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        41.60
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       6.05 (ii)   18.40 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.19         0.06

*TOTALS*
     PEAK FLOW       (cms)=       3.47         0.33
3.690 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50        17.79
40.03
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.31
0.71


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0721) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 920.0) ------>
               Distance      Elevation       Manning
                  0.00         82.00         0.1100
                 41.00         82.00         0.1100
                 50.70         82.00         0.1100
                 57.80         81.00     0.1100 /0.0700  Main
Channel
                 59.30         79.84         0.0700      Main
Channel
                 60.30         79.84         0.0700      Main
Channel
                 61.80         81.00     0.0700 /0.1100  Main
Channel
                 63.30         81.00         0.1100
                 85.90         81.00         0.1100
                100.00         82.00         0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.11    79.95    .515E+02      0.0          0.20
35.58
       0.21    80.05    .115E+03      0.1          0.30
24.20
       0.32    80.16    .192E+03      0.2          0.37
19.53
       0.42    80.26    .280E+03      0.3          0.43
16.82
       0.53    80.37    .381E+03      0.4          0.48
15.00
       0.63    80.47    .494E+03      0.6          0.53
13.65
       0.74    80.58    .620E+03      0.8          0.57
12.60
       0.84    80.68    .758E+03      1.1          0.61
11.75
       0.95    80.79    .908E+03      1.4          0.65
11.04
       1.05    80.89    .107E+04      1.7          0.69
10.44
       1.16    81.00    .125E+04      2.1          0.72
9.92
       1.28    81.12    .283E+04      3.2          0.49
14.61
       1.41    81.25    .455E+04      5.0          0.48
15.04
       1.53    81.37    .642E+04      7.4          0.50
14.36
       1.66    81.50    .843E+04     10.4          0.53
13.50
       1.78    81.62    .106E+05     13.9          0.57
12.67
       1.91    81.75    .129E+05     18.0          0.60
11.93
       2.03    81.87    .153E+05     22.6          0.63
11.29
       2.16    82.00    .179E+05     27.8          0.67
10.73

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (7202)   22.50     3.69    3.00  40.03
1.32     0.49
     OUTFLOW: ID= 1 (0721)   22.50     2.60    3.08  40.02
1.21     0.60

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| CALIB            |
| STANDHYD  (7212) |   Area    (ha)=  18.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      13.94         4.16
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     347.37        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        41.60
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.67 (ii)   18.01 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.20         0.06

*TOTALS*
     PEAK FLOW       (cms)=       2.82         0.26
2.998 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      50.50        17.79
40.03
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.31
0.71


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0237) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0721):    22.50   2.601     3.08    40.02
       + ID2= 2 (7212):    18.10   2.998     3.00    40.03
         ===============================================
         ID = 3 (0237):    40.60   5.337     3.00    40.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0238) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0229):   353.50   7.422     3.00    18.42
       + ID2= 2 (0237):    40.60   5.337     3.00    40.03
         ===============================================
         ID = 3 (0238):   394.10  12.759     3.00    20.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0705) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (3276.8) ------>
               Distance      Elevation       Manning
                  0.00         80.50         0.1100
                  5.70         80.00         0.1100
                 14.00         79.00         0.1100
                 22.00         79.00     0.1100 /0.0700  Main
Channel
                 23.50         78.50         0.0700      Main
Channel
                 24.50         78.50         0.0700      Main
Channel
                 26.00         79.00     0.0700 /0.1100  Main
Channel
                 28.00         79.00         0.1100
                 41.00         80.00         0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    78.57    .248E+02      0.0          0.26
18.45
       0.14    78.64    .584E+02      0.1          0.38
12.49
       0.21    78.71    .101E+03      0.2          0.48
10.01
       0.29    78.79    .152E+03      0.3          0.56
8.56
       0.36    78.86    .212E+03      0.5          0.63
7.58
       0.43    78.93    .280E+03      0.7          0.70
6.85
       0.50    79.00    .358E+03      0.9          0.76
6.29
       0.58    79.08    .712E+03      1.6          0.64
7.50
       0.67    79.17    .111E+04      2.5          0.65
7.35
       0.75    79.25    .155E+04      3.7          0.69
6.94
       0.83    79.33    .203E+04      5.2          0.73
6.52
       0.92    79.42    .255E+04      6.9          0.78
6.14
       1.00    79.50    .312E+04      9.0          0.82
5.81
       1.08    79.58    .373E+04     11.3          0.86
5.52
       1.17    79.67    .438E+04     13.9          0.90
5.27
       1.25    79.75    .507E+04     16.7          0.94
5.05
       1.33    79.83    .581E+04     20.0          0.98
4.85
       1.42    79.92    .659E+04     23.5          1.02
4.68
       1.50    80.00    .741E+04     27.3          1.06
4.52

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0238)  394.10    12.76    3.00  20.64
1.13     0.89
     OUTFLOW: ID= 1 (0705)  394.10    11.38    3.08  20.64
1.09     0.86

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--------------------
| CALIB            |
| STANDHYD  (7052) |   Area    (ha)=   6.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.40         3.40
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     212.92        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        19.49
               over (min)        5.00        25.00
     Storage Coeff.  (min)=       4.23 (ii)   20.94 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.24         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.56         0.11
0.618 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      50.50        10.65
24.59
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.19
0.44

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  51.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
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     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0243) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0705):   394.10  11.378     3.08    20.64
        + ID2= 2 (7052):     6.80   0.618     3.00    24.59
          ===============================================
          ID = 3 (0243):   400.90  11.683     3.08    20.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7502) |   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.75         2.75
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     191.49        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      88.14        36.65
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.97 (ii)   16.95 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.24         0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.46         0.16
0.563 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      50.50        16.79
28.58
     TOTAL RAINFALL   (mm)=      56.50        56.50
56.50
     RUNOFF COEFFICIENT   =       0.89         0.30
0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   4 **
  ****************************


-------------------
|    READ STORM    |    Filename: C:\Users\Jenny\AppD
|                  |              ata\Local\Temp\
|                  |              5cabfbfe-d340-4400-a9c0-
5faca896dcae\66f16654
| Ptotal= 67.60 mm |    Comments: Mount Hope-6 hour SCS
Distribution Desig
-------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                 0.17    2.70 |  1.67    6.76 |  3.17   14.87 |
4.67    4.06
                 0.33    2.70 |  1.83    6.76 |  3.33   14.87 |
4.83    4.06
                 0.50    2.70 |  2.00    6.76 |  3.50   14.87 |
5.00    4.06
                 0.67    4.06 |  2.17    8.11 |  3.67    6.76 |
5.17    2.70
                 0.83    4.06 |  2.33    8.11 |  3.83    6.76 |
5.33    2.70
                 1.00    4.06 |  2.50    8.11 |  4.00    6.76 |
5.50    2.70
                 1.17    4.06 |  2.67   40.56 |  4.17    5.41 |
5.67    2.70
                 1.33    4.06 |  2.83   73.01 |  4.33    5.41 |
5.83    2.70
                 1.50    4.06 |  3.00  105.46 |  4.50    5.41 |
6.00    2.70

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-------------------
| CALIB             |
| STANDHYD  (5102) |   Area    (ha)=   1.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09         0.61
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     106.46        40.00
     Mannings n          =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                             ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                0.083    2.70 | 1.583    6.76 | 3.083   14.87 |
4.58    4.06
                0.167    2.70 | 1.667    6.76 | 3.167   14.87 |
4.67    4.06
                0.250    2.70 | 1.750    6.76 | 3.250   14.87 |
4.75    4.06
                0.333    2.70 | 1.833    6.76 | 3.333   14.87 |
4.83    4.06
                0.417    2.70 | 1.917    6.76 | 3.417   14.87 |
4.92    4.06
                0.500    2.70 | 2.000    6.76 | 3.500   14.87 |
5.00    4.06
                0.583    4.06 | 2.083    8.11 | 3.583    6.76 |
5.08    2.70
                0.667    4.06 | 2.167    8.11 | 3.667    6.76 |
5.17    2.70
                0.750    4.06 | 2.250    8.11 | 3.750    6.76 |
5.25    2.70
                0.833    4.06 | 2.333    8.11 | 3.833    6.76 |
5.33    2.70
                0.917    4.06 | 2.417    8.11 | 3.917    6.76 |
5.42    2.70
                1.000    4.06 | 2.500    8.11 | 4.000    6.76 |
5.50    2.70
                1.083    4.06 | 2.583   40.56 | 4.083    5.41 |
5.58    2.70
                1.167    4.06 | 2.667   40.56 | 4.167    5.41 |
5.67    2.70
                1.250    4.06 | 2.750   73.01 | 4.250    5.41 |
5.75    2.70
                1.333    4.06 | 2.833   73.01 | 4.333    5.41 |
5.83    2.70
                1.417    4.06 | 2.917  105.46 | 4.417    5.41 |
5.92    2.70
                1.500    4.06 | 3.000  105.46 | 4.500    5.41 |
6.00    2.70

     Max.Eff.Inten.(mm/hr)=     105.46        53.29
                over (min)        5.00        15.00
```

```
     Storage Coeff.  (min)=       2.60 (ii)   13.77 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.26         0.06
0.306 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60        23.76
43.43
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.35
0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ROUTE CHN (0511) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 553.6) ------>
              Distance      Elevation      Manning
                 0.00         81.24        0.1100
                33.01         80.98        0.1100
                49.97         81.27        0.1100
                54.18         80.35        0.1100
                60.88         81.23    0.1100 /0.0700  Main
Channel
                69.13         79.02        0.0700      Main
Channel
                92.42         79.04        0.0700      Main
Channel
                98.70         80.89    0.0700 /0.1100  Main
Channel
               128.88         81.13        0.1100
               199.00         81.23        0.1100

       <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)       (m/s)
(min)
      0.12    79.13    .361E+03       0.6         0.24
9.91
      0.23    79.25    .776E+03       2.1         0.40
6.09
      0.35    79.37    .121E+04       4.3         0.52
4.65
      0.47    79.48    .165E+04       7.1         0.63
3.85
      0.59    79.60    .211E+04      10.5         0.72
3.34
      0.70    79.72    .258E+04      14.4         0.81
2.98
      0.82    79.84    .307E+04      18.8         0.89
2.71
      0.94    79.95    .357E+04      23.8         0.97
2.50
      1.05    80.07    .408E+04      29.2         1.04
2.33
      1.17    80.19    .461E+04      35.1         1.10
2.19
      1.29    80.30    .515E+04      41.5         1.17
2.07
      1.41    80.42    .571E+04      48.4         1.23
1.97
      1.52    80.54    .631E+04      55.8         1.28
1.88
      1.64    80.66    .695E+04      63.8         1.33
1.81
      1.76    80.77    .762E+04      72.3         1.38
1.76
      1.87    80.89    .833E+04      81.4         1.42
1.71
      2.00    81.02    .931E+04      92.4         1.44
1.68
      2.13    81.14    .109E+05     104.8         1.39
1.74
      2.25    81.27    .140E+05     120.9         1.25
1.93

                                     <---- hydrograph ---->   <-
pipe / channel->
                                 AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                 (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (5102)     1.70     0.31    3.00  43.43
0.06     0.24
     OUTFLOW: ID= 1 (0511)     1.70     0.22    3.00  43.42
0.04     0.24


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-------------------
| CALIB             |
| STANDHYD  (5112) |   Area    (ha)=   3.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=
58.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.07         0.93
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     141.42        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        74.74
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.08 (ii)   12.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.50         0.11
0.595 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60        27.53
47.29
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.41
0.70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0117) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0511):     1.70   0.222     3.00    43.42
        + ID2= 2 (5112):     3.00   0.595     3.00    47.29
          ===============================================
          ID = 3 (0117):     4.70   0.817     3.00    45.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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-------------------
| ROUTE CHN (0512) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 484.2) ------>
              Distance      Elevation      Manning
                 0.00         80.80        0.0900
                 9.73         80.46        0.0900
                14.10         82.04        0.0900
                17.18         82.28        0.0900
                41.13         82.12    0.0900 /0.0700  Main
Channel
                46.88         79.71        0.0700      Main
Channel
                51.41         80.90    0.0700 /0.0900  Main
Channel
                94.29         80.56        0.0900
               175.64         80.72        0.0900
               192.09         80.85        0.0900

       <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)       (m/s)
(min)
      0.13    79.84    .255E+02       0.0         0.14
54.71
      0.26    79.98    .102E+03       0.0         0.23
34.47
      0.40    80.11    .229E+03       0.1         0.30
26.30
      0.53    80.24    .408E+03       0.3         0.36
21.71
      0.66    80.37    .637E+03       0.6         0.42
18.71
      0.79    80.51    .934E+03       0.9         0.46
16.84
      0.93    80.64    .245E+04       1.6         0.31
24.96
      1.06    80.77    .873E+04       4.6         0.25
31.51
      1.19    80.90    .179E+05      11.4         0.30
26.08
      1.32    81.04    .278E+05      22.6         0.38
20.45
      1.46    81.17    .381E+05      37.5         0.46
16.91
      1.60    81.31    .484E+05      55.4         0.54
14.57
      1.74    81.45    .588E+05      76.0         0.61
12.90
      1.87    81.59    .693E+05      99.3         0.67
11.63
      2.01    81.72    .798E+05     125.0         0.73
10.64
      2.15    81.86    .903E+05     153.1         0.80
9.83
      2.29    82.00    .101E+06     183.5         0.85
9.16
      2.42    82.14    .112E+06     214.3         0.90
8.68
      2.56    82.27    .123E+06     244.4         0.93
8.40

                                     <---- hydrograph ---->   <-
pipe / channel->
                                 AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                 (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0117)     4.70     0.82    3.00  45.89
0.75     0.45
     OUTFLOW: ID= 1 (0512)     4.70     0.50    3.08  45.83
0.63     0.40


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-------------------
| CALIB             |
| STANDHYD  (5122) |   Area    (ha)=   3.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=
57.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.65         1.25
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     161.25        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        73.73
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.33 (ii)   13.15 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.26         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.64         0.15
0.761 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60        27.37
46.88
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.40
0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0119) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0512):     4.70   0.501     3.08    45.83
        + ID2= 2 (5122):     3.90   0.761     3.00    46.88
          ===============================================
          ID = 3 (0119):     8.60   1.226     3.00    46.30

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (5202) |   Area    (ha)=  29.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.85        14.85
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     444.97        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        71.73
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       6.12 (ii)   16.05 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.19         0.06

*TOTALS*
```

```
    PEAK FLOW       (cms)=       2.82         1.47
3.834 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=      66.10        27.47
40.99
    TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
    RUNOFF COEFFICIENT   =       0.98         0.41
0.61

     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  72.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0521) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 815.4) ------>
               Distance      Elevation       Manning
                 415.18         83.86        0.0900
                 461.15         83.40        0.0900
                 501.83         83.53    0.0900 /0.0700  Main
Channel
                 513.93         82.96        0.0700      Main
Channel
                 526.85         83.23    0.0700 /0.0900  Main
Channel
                 569.63         83.21        0.0900
                 610.76         83.63        0.0900
                 663.54         83.88        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV     VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)     (cms)       (m/s)
(min)
     0.05    83.00   .378E+02       0.0          0.11
83.81
     0.09    83.05   .151E+03       0.0          0.17
52.79
     0.14    83.09   .340E+03       0.1          0.22
40.29
     0.18    83.14   .605E+03       0.3          0.27
33.26
     0.23    83.18   .946E+03       0.5          0.32
28.66
     0.27    83.23   .151E+04       0.9          0.33
27.77
     0.32    83.27   .323E+04       1.8          0.31
29.51
     0.37    83.32   .510E+04       3.2          0.34
26.44
     0.42    83.37   .713E+04       5.0          0.38
23.61
     0.46    83.42   .934E+04       7.3          0.42
21.44
     0.51    83.47   .121E+05      10.0          0.45
20.23
     0.56    83.52   .156E+05      13.4          0.47
19.44
     0.61    83.57   .196E+05      17.7          0.49
18.52
     0.66    83.61   .240E+05      22.8          0.52
17.49
     0.71    83.66   .286E+05      28.4          0.54
16.75
     0.75    83.71   .336E+05      34.7          0.56
16.14
     0.80    83.76   .390E+05      41.8          0.58
15.55
     0.85    83.81   .448E+05      49.8          0.60
14.99
     0.90    83.86   .510E+05      58.8          0.63
14.46

                                     <---- hydrograph ---->   <-
pipe / channel->
                           AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                           (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (5202)   29.70     3.83    3.00  40.99
0.38     0.36
    OUTFLOW: ID= 1 (0521)   29.70     1.93    3.25  40.98
0.32     0.31

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--------------------
| CALIB            |
| STANDHYD  (5212) |   Area    (ha)=  15.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
66.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      11.78         3.93
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     323.52        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=     105.46        88.37
              over (min)        5.00        15.00
    Storage Coeff.  (min)=       5.06 (ii)   14.19 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.21         0.08

*TOTALS*
    PEAK FLOW       (cms)=       2.89         0.54
3.333 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      61.60        32.42
51.68
    TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
    RUNOFF COEFFICIENT   =       0.91         0.48
0.76

     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  77.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0113) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0521):    29.70   1.933     3.25    40.98
        + ID2= 2 (5212):    15.70   3.333     3.00    51.68
          ===============================================
          ID = 3 (0113):    45.40   4.917     3.00    44.68

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5011) |   Area    (ha)=  80.20   Curve Number
(CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.85

    Unit Hyd Qpeak  (cms)=   3.621

    PEAK FLOW       (cms)=   1.741 (i)
    TIME TO PEAK    (hrs)=   3.917
    RUNOFF VOLUME    (mm)=  18.089
    TOTAL RAINFALL   (mm)=  67.600
    RUNOFF COEFFICIENT   =   0.268

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5012) |   Area    (ha)=  39.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      14.97        24.43
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     512.51        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=     105.46        44.47
              over (min)        5.00        20.00
    Storage Coeff.  (min)=       6.67 (ii)   18.68 (ii)
    Unit Hyd. Tpeak (min)=       5.00        20.00
    Unit Hyd. peak  (cms)=       0.18         0.06

*TOTALS*
    PEAK FLOW       (cms)=       2.53         1.64
3.612 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.25
3.00
    RUNOFF VOLUME    (mm)=      61.60        21.60
31.20
    TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
    RUNOFF COEFFICIENT   =       0.91         0.32
0.46

     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  65.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0100) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5011):    80.20   1.741     3.92    18.09
        + ID2= 2 (5012):    39.40   3.612     3.00    31.20
          ===============================================
          ID = 3 (0100):   119.60   3.973     3.00    22.41

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0502) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1537.5) ------>
               Distance      Elevation       Manning
                   0.00         89.30        0.1100
                   4.20         89.28        0.1100
                   9.03         88.80        0.1100
                  21.55         88.78        0.1100
                  29.06         88.24        0.1100
                  39.87         87.83        0.1100
                  55.54         87.84    0.1100 /0.0700  Main
Channel
                  57.54         86.84        0.0700      Main
Channel
                  59.04         86.84        0.0700      Main
Channel
                  61.04         87.84    0.0700 /0.1100  Main
Channel
                  74.10         87.86        0.1100
                  87.72         88.07        0.1100
                 101.34         88.18        0.1100
                 113.53         88.23        0.1100
                 128.57         88.32        0.1100
                 142.19         88.61        0.1100
                 155.81         88.53        0.1100
                 183.05         88.85        0.1100
                 187.19         88.84        0.1100
                 211.21         88.88        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV     VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)     (cms)       (m/s)
(min)
     0.10    86.94   .202E+03       0.0          0.25
78.80
     0.20    87.04   .452E+03       0.1          0.37
52.91
     0.30    87.14   .749E+03       0.3          0.47
42.34
     0.40    87.24   .109E+04       0.5          0.55
36.26
     0.50    87.34   .149E+04       0.8          0.62
32.18
     0.60    87.44   .193E+04       1.1          0.68
29.19
     0.70    87.54   .241E+04       1.5          0.74
26.87
     0.80    87.64   .295E+04       2.0          0.79
25.01
     0.90    87.74   .353E+04       2.5          0.84
23.46
     1.00    87.84   .421E+04       3.1          0.89
22.39
     1.10    87.94   .849E+04       4.5          0.63
31.56
     1.21    88.05   .150E+05       7.1          0.56
35.43
     1.33    88.17   .233E+05      10.6          0.54
36.49
     1.44    88.28   .346E+05      15.5          0.53
37.18
     1.56    88.40   .484E+05      22.8          0.56
35.35
     1.67    88.51   .634E+05      32.1          0.60
32.90
     1.79    88.63   .807E+05      41.2          0.61
32.65
     1.90    88.74   .101E+06      54.6          0.64
30.77
     2.02    88.86   .124E+06      64.7          0.62
31.85

                                     <---- hydrograph ---->   <-
pipe / channel->
                           AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                           (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0100)  119.60     3.97    3.00  22.41
1.06     0.71
    OUTFLOW: ID= 1 (0502)  119.60     2.86    3.58  22.41
0.96     0.87

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--------------------
| CALIB            |
| STANDHYD  (5022) |   Area    (ha)=  51.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  48.00   Dir. Conn.(%)=
34.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      24.53        26.57
    Dep. Storage     (mm)=       1.50         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     583.67        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=     105.46        43.34
              over (min)        5.00        20.00
    Storage Coeff.  (min)=       7.21 (ii)   19.35 (ii)
    Unit Hyd. Tpeak (min)=       5.00        20.00
    Unit Hyd. peak  (cms)=       0.17         0.06

*TOTALS*
    PEAK FLOW       (cms)=       4.58         1.71
5.699 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.25
3.00
    RUNOFF VOLUME    (mm)=      66.10        20.43
35.95
    TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
    RUNOFF COEFFICIENT   =       0.98         0.30
0.53

     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  62.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0102) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0502):   119.60   2.858     3.58    22.41
        + ID2= 2 (5022):    51.10   5.699     3.00    35.95
          ===============================================
          ID = 3 (0102):   170.70   7.319     3.00    26.46

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0503) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1157.9) ------>
               Distance      Elevation       Manning
                   0.00         86.78        0.0900
                  25.34         87.17        0.0900
                  68.44         87.04        0.0900
                 117.13         86.81        0.0900
                 125.36         85.21    0.0900 /0.0700  Main
Channel
                 127.36         84.21        0.0700      Main
Channel
                 128.86         84.21        0.0700      Main
Channel
                 130.86         85.21    0.0700 /0.0900  Main
Channel
                 131.88         86.36        0.0900
                 140.63         86.77        0.0900
                 168.26         86.90        0.0900
                 169.81         87.10        0.0900
                 202.11         87.50        0.0900
                 239.06         87.35        0.0900
                 270.29         87.83        0.0900
                 283.90         87.90        0.0900
                 297.51         87.86        0.0900
                 324.73         87.89        0.0900
                 351.95         87.78        0.0900
                 388.59         87.46        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV     VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)     (cms)       (m/s)
(min)
     0.17    84.38   .114E+03       0.1          0.34
18.34
     0.33    84.54   .269E+03       0.4          0.50
12.51
     0.50    84.71   .465E+03       0.8          0.62
10.07
     0.67    84.88   .703E+03       1.4          0.72
8.63
     0.83    85.04   .982E+03       2.1          0.81
7.65
     1.00    85.21   .130E+04       3.1          0.89
6.93
     1.21    85.42   .177E+04       5.0          1.06
5.87
     1.41    85.62   .234E+04       7.4          1.17
5.28
     1.62    85.83   .300E+04      10.2          1.27
4.89
     1.83    86.04   .376E+04      13.6          1.35
4.60
     2.03    86.24   .462E+04      17.6          1.42
4.37
     2.24    86.45   .560E+04      22.1          1.47
4.22
     2.45    86.66   .695E+04      27.6          1.48
4.20
     2.66    86.87   .925E+04      31.2          1.25
4.94
     2.86    87.07   .168E+05      43.1          0.96
6.48
     3.07    87.28   .297E+05      67.7          0.85
7.30
     3.28    87.49   .456E+05     103.1          0.84
7.38
     3.48    87.69   .663E+05     159.6          0.89
6.93
     3.69    87.90   .907E+05     223.4          0.92
6.77

                                     <---- hydrograph ---->   <-
pipe / channel->
                           AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                           (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0102)  170.70     7.32    3.00  26.46
1.41     1.17
    OUTFLOW: ID= 1 (0503)  170.70     6.58    3.08  26.46
1.34     1.13

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--------------------
| CALIB            |
| STANDHYD  (5032) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  76.00   Dir. Conn.(%)=
67.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      10.49         3.31
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     303.32        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=     105.46        76.59
              over (min)        5.00        15.00
```

```
     Storage Coeff.  (min)=       4.87 (ii)   14.53 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.59         0.38
2.901 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60        27.81
50.45
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.41
0.75

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0104) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0503):   170.70   6.580     3.08    26.46
        + ID2= 2 (5032):    13.80   2.901     3.00    50.45
          ==================================================
          ID = 3 (0104):   184.50   9.040     3.00    28.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0504) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 815.4) ------>
               Distance      Elevation       Manning
                  19.10         82.03         0.0900
                  29.01         83.14         0.0900
                  40.83         82.56         0.0900
                  81.51         82.27         0.0900
                 122.18         82.68         0.0900
                 169.31         82.61         0.0900
                 217.10         82.90         0.0900
                 229.61         83.66     0.0900 /0.0700  Main
Channel
                 232.80         81.85         0.0700      Main
Channel
                 243.24         83.87         0.0700      Main
Channel
                 257.77         84.06         0.0900
                 312.01         83.52         0.0900
                 415.18         83.86         0.0900
                 461.15         83.40         0.0900
                 501.83         83.53         0.0900
                 513.93         82.96         0.0900
                 526.85         83.23         0.0900
                 569.63         83.21         0.0900
                 610.76         83.63         0.0900
                 663.54         83.88         0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.11    81.96    .117E+02       0.0         0.18
23.95
        0.23    82.08    .492E+02       0.1         0.28
15.67
        0.34    82.19    .135E+03       0.2         0.34
13.00
        0.45    82.30    .312E+03       0.4         0.32
13.44
        0.57    82.42    .116E+04       1.2         0.28
15.74
        0.68    82.53    .287E+04       3.5         0.32
13.85
        0.79    82.64    .549E+04       7.0         0.33
13.13
        0.91    82.76    .101E+05      14.9         0.39
11.28
        1.02    82.87    .155E+05      27.5         0.47
9.38
        1.13    82.98    .214E+05      45.2         0.55
7.89
        1.25    83.10    .277E+05      67.2         0.64
6.87
        1.36    83.21    .344E+05      93.6         0.71
6.12
        1.47    83.32    .426E+05     125.3         0.77
5.67
        1.59    83.44    .516E+05     162.2         0.82
5.30
        1.70    83.55    .620E+05     204.2         0.86
5.06
        1.81    83.66    .747E+05     254.0         0.89
4.90
        1.95    83.80    .924E+05     324.9         0.92
4.74
        2.08    83.93    .113E+06     411.3         0.95
4.59
        2.21    84.06    .135E+06     515.5         1.00
4.37

                                   <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0104)  184.50     9.04    3.00  28.26
0.82      0.35
     OUTFLOW: ID= 1 (0504)  184.50     6.70    3.17  28.25
0.79      0.33

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--------------------
| CALIB            |
| STANDHYD  (5042) |   Area    (ha)=   7.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
65.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.77         1.92
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     226.57        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        72.79
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.09 (ii)   13.95 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.42         0.21
1.600 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60        26.01
49.14
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
```

```
     RUNOFF COEFFICIENT   =       0.91         0.38
0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0106) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0504):   184.50   6.702     3.17    28.25
        + ID2= 2 (5042):     7.70   1.600     3.00    49.14
          ==================================================
          ID = 3 (0106):   192.20   7.227     3.17    29.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0114) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0106):   192.20   7.227     3.17    29.09
        + ID2= 2 (0113):    45.40   4.917     3.00    44.68
          ==================================================
          ID = 3 (0114):   237.60  11.754     3.00    32.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0505) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation       Manning
                   0.00         81.24         0.1100
                  33.01         80.98         0.1100
                  49.97         81.27         0.1100
                  54.18         80.35         0.1100
                  60.88         81.23         0.1100
                  69.13         79.02         0.1100
                  92.42         79.04         0.1100
                  98.70         80.89         0.1100
                 128.88         81.13         0.1100
                 199.00         81.23         0.1100
                 266.11         81.68         0.1100
                 306.94         81.73         0.1100
                 331.74         81.55     0.1100 /0.0700  Main
Channel
                 336.74         80.15         0.0700      Main
Channel
                 346.34         81.64     0.0700 /0.0900  Main
Channel
                 394.77         81.68         0.0900
                 431.64         81.44         0.0900
                 477.44         82.08         0.0900
                 481.25         82.81         0.0900
                 501.51         83.16         0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.12    79.13    .418E+03       0.4         0.15
18.59
        0.23    79.25    .899E+03       1.3         0.25
11.41
        0.35    79.36    .140E+04       2.7         0.33
8.70
        0.46    79.48    .191E+04       4.4         0.39
7.22
        0.58    79.59    .244E+04       6.5         0.46
6.26
        0.69    79.71    .299E+04       8.9         0.51
5.58
        0.81    79.82    .355E+04      11.7         0.56
5.08
        0.92    79.94    .413E+04      14.7         0.61
4.68
        1.04    80.05    .472E+04      18.1         0.65
4.36
        1.15    80.17    .533E+04      21.7         0.70
4.09
        1.27    80.28    .598E+04      25.7         0.74
3.88
        1.38    80.40    .666E+04      29.7         0.76
3.74
        1.50    80.51    .740E+04      33.7         0.78
3.67
        1.61    80.63    .822E+04      38.1         0.79
3.59
        1.73    80.74    .909E+04      43.1         0.81
3.52
        1.84    80.86    .100E+05      48.6         0.83
3.45
        1.96    80.97    .111E+05      48.4         0.74
3.83
        2.07    81.09    .128E+05      43.8         0.59
4.86
        2.19    81.21    .155E+05      40.6         0.45
6.35

                                   <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0114)  237.60    11.75    3.00  32.07
0.81      0.56
     OUTFLOW: ID= 1 (0505)  237.60    11.04    3.08  32.07
0.78      0.55

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--------------------
| CALIB            |
| STANDHYD  (5052) |   Area    (ha)=  15.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=
65.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.77         4.13
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     325.58        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        57.40
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       5.08 (ii)   15.93 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.21         0.07

*TOTALS*
     PEAK FLOW       (cms)=       2.88         0.39
3.143 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        25.27
48.88
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
```

```
     RUNOFF COEFFICIENT   =       0.91         0.37
0.72

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0108) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0505):   237.60  11.037     3.08    32.07
        + ID2= 2 (5052):    15.90   3.143     3.00    48.88
          ==================================================
          ID = 3 (0108):   253.50  13.088     3.00    33.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0506) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 304.1) ------>
               Distance      Elevation       Manning
                   0.00         81.42         0.0900
                   7.45         81.36         0.0900
                  32.34         80.38         0.0900
                  45.97         80.05         0.0900
                  65.23         79.93         0.0900
                  84.49         80.35         0.0900
                 113.49         80.02         0.0900
                 136.48         80.07         0.0900
                 188.81         79.81         0.0900
                 197.86         79.25     0.0900 /0.0700  Main
Channel
                 200.70         78.22         0.0700      Main
Channel
                 203.29         79.35     0.0700 /0.0900  Main
Channel
                 204.01         79.67         0.0900
                 236.47         80.40         0.0900
                 277.80         80.48         0.0900
                 305.35         80.37         0.0900
                 346.67         80.41         0.0900
                 387.99         80.33         0.0900
                 415.54         80.53         0.0900
                 447.88         80.49         0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
        0.11    78.34    .979E+01       0.0         0.23
21.53
        0.23    78.45    .392E+02       0.0         0.37
13.56
        0.34    78.56    .881E+02       0.1         0.48
10.35
        0.46    78.68    .157E+03       0.3         0.58
8.54
        0.57    78.79    .245E+03       0.6         0.67
7.36
        0.68    78.91    .352E+03       0.9         0.76
6.52
        0.80    79.02    .480E+03       1.4         0.84
5.88
        0.91    79.13    .627E+03       1.9         0.92
5.38
        1.03    79.25    .793E+03       2.7         0.99
4.98
        1.15    79.37    .103E+04       3.8         1.09
4.55
        1.28    79.50    .135E+04       5.2         1.16
4.28
        1.40    79.62    .175E+04       7.1         1.20
4.12
        1.52    79.75    .228E+04       9.3         1.21
4.08
        1.65    79.87    .318E+04      11.7         1.10
4.52
        1.77    80.00    .524E+04      15.8         0.90
5.52
        1.90    80.12    .973E+04      24.3         0.74
6.69
        2.02    80.24    .158E+05      39.7         0.75
6.62
        2.15    80.37    .230E+05      59.2         0.77
6.46
        2.27    80.49    .349E+05      90.3         0.77
6.44

                                   <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0108)  253.50    13.09    3.00  33.12
1.69      1.02
     OUTFLOW: ID= 1 (0506)  253.50    12.04    3.17  33.12
1.66      1.07

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--------------------
| CALIB            |
| STANDHYD  (5062) |   Area    (ha)=  11.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
65.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.78         2.92
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     279.28        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        78.89
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.63 (ii)   14.18 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.14         0.35
2.430 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60        28.16
49.90
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.42
0.74

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0110) |
|  1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0506):   253.50  12.042     3.17    33.12
      + ID2= 2 (5062):    11.70   2.430     3.00    49.90
        ==================================================
        ID = 3 (0110):   265.20  13.070     3.08    33.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0120) |
|  1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0110):   265.20  13.070     3.08    33.86
      + ID2= 2 (0119):     8.60   1.226     3.00    46.30
        ==================================================
        ID = 3 (0120):   273.80  14.065     3.00    34.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5302) |   Area    (ha)=   5.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
56.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.83         1.97
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     196.64        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        50.53
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.75 (ii)   15.17 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.25         0.07

*TOTALS*
     PEAK FLOW       (cms)=       0.93         0.17
1.043 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        23.21
44.71
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.34
0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6102) |   Area    (ha)=  21.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.55        10.55
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     375.06        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        57.22
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.53 (ii)   16.39 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.20         0.06

*TOTALS*
     PEAK FLOW       (cms)=       2.03         0.97
2.701 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      66.10        26.01
40.04
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.98         0.38
0.59


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ROUTE CHN (0611) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 940.0) ------>
              Distance      Elevation       Manning
                 0.00         83.36         0.0900
                12.33         84.54         0.0900
                21.95         84.33     0.0900 /0.0700  Main
Channel
                25.80         83.10         0.0700      Main
Channel
                39.87         83.58     0.0700 /0.0900  Main
Channel
                95.01         83.67         0.0900
               132.30         84.45         0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    83.17    .442E+02       0.0          0.13
76.06
       0.14    83.24    .177E+03       0.1          0.20
47.91
       0.21    83.31    .398E+03       0.2          0.26
36.56
       0.28    83.38    .709E+03       0.4          0.32
30.22
       0.35    83.44    .113E+04       0.7          0.36
26.38
       0.41    83.51    .167E+04       1.2          0.41
23.66
       0.48    83.58    .232E+04       1.8          0.45
21.54
       0.56    83.66    .431E+04       3.1          0.42
23.06
       0.64    83.74    .779E+04       5.6          0.42
23.11
       0.72    83.82    .115E+05       9.1          0.46
20.97
       0.80    83.90    .154E+05      13.6          0.51
18.96
       0.88    83.98    .196E+05      18.9          0.55
17.31
       0.96    84.06    .240E+05      25.0          0.60
15.97
       1.04    84.14    .286E+05      32.1          0.65
14.88
       1.12    84.22    .334E+05      39.9          0.69
13.96
       1.20    84.30    .385E+05      48.6          0.73
13.19
       1.28    84.38    .438E+05      58.0          0.76
12.59
       1.36    84.46    .495E+05      68.4          0.80
12.06
       1.44    84.54    .555E+05      81.0          0.84
11.40

                                       <---- hydrograph ---->   <-
pipe / channel->
                                 AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                 (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6102)   21.10     2.70    3.00  40.04
0.54     0.43
     OUTFLOW: ID= 1 (0611)   21.10     1.56    3.17  40.02
0.46     0.43

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-------------------
| CALIB            |
| STANDHYD  (6112) |   Area    (ha)=  11.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  72.00   Dir. Conn.(%)=
62.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.21         3.19
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     275.68        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        83.50
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.60 (ii)   13.93 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.99         0.41
2.333 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60        30.68
49.85
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.45
0.74

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0138) |
|  1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0611):    21.10   1.563     3.17    40.02
      + ID2= 2 (6112):    11.40   2.333     3.00    49.85
        ==================================================
        ID = 3 (0138):    32.50   3.616     3.00    43.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (6011) |   Area    (ha)=  44.10   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.83

     Unit Hyd Qpeak  (cms)=   2.027

     PEAK FLOW       (cms)=   0.881 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  16.500
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.244

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6012) |   Area    (ha)=  11.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
16.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.08         7.92
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     270.80        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        37.03
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.55 (ii)   17.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.23         0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.50         0.45
0.795 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        19.00
25.82
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.28
0.38

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0124) |
|  1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (6011):    44.10   0.881     3.83    16.50
      + ID2= 2 (6012):    11.00   0.795     3.00    25.82
        ==================================================
        ID = 3 (0124):    55.10   1.120     3.50    18.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| NASHYD    (6021) |   Area    (ha)=  43.60   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   1.753

     PEAK FLOW       (cms)=   0.789 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  16.500
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.244

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6022) |   Area    (ha)=  12.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
23.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.51         8.39
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     293.26        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        38.11
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.77 (ii)   17.55 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.22         0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.83         0.49
1.157 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        19.26
28.99
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.28
0.43

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0125) |
|  1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (6021):    43.60   0.789     4.00    16.50
      + ID2= 2 (6022):    12.90   1.157     3.00    28.99
        ==================================================
        ID = 3 (0125):    56.50   1.292     3.00    19.35

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0126) |
|  1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0124):    55.10   1.120     3.50    18.36
      + ID2= 2 (0125):    56.50   1.292     3.00    19.35
        ==================================================
        ID = 3 (0126):   111.60   2.273     3.00    18.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0603) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (2135.9) ------>
              Distance      Elevation       Manning
                 0.00         92.58         0.1400
                 8.54         92.59         0.1400
                22.11         92.47         0.1400
                48.74         91.83         0.1400
                67.59         91.58         0.1400
                86.45         91.21         0.1400
               103.50         90.80         0.1400
               118.09         90.23         0.1400
               127.84         90.09     0.1400 /0.0700  Main
Channel
               129.84         89.59         0.0700      Main
Channel
               130.34         90.09     0.0700 /0.1400  Main
Channel
               140.57         90.14         0.1400
               161.87         90.11         0.1400
               177.03         90.04         0.1400
               188.67         89.87         0.1400
               199.59         90.31         0.1400
               212.02         90.96         0.1400
               225.58         91.35         0.1400
               252.71         91.66         0.1400
               274.11         91.86         0.1400

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12    89.71    .358E+02       0.0          0.19
81.29
       0.25    89.84    .143E+03       0.0          0.30
51.21
       0.37    89.96    .689E+03       0.2          0.23
67.44
       0.50    90.09    .278E+04       0.6          0.20
77.83
       0.67    90.26    .132E+05       3.4          0.23
65.31
       0.83    90.42    .262E+05       9.3          0.33
46.76
       1.00    90.59    .403E+05      17.9          0.41
37.64
       1.17    90.76    .556E+05      28.8          0.48
32.17
       1.33    90.92    .721E+05      42.0          0.53
28.63
       1.50    91.09    .903E+05      57.1          0.58
26.37
       1.67    91.26    .110E+06      74.7          0.62
24.65
       1.83    91.42    .133E+06      93.4          0.64
23.71
       2.00    91.59    .159E+06     113.6          0.66
23.26
       2.17    91.76    .188E+06     136.6          0.67
22.96
       2.33    91.92    .222E+06     168.5          0.70
21.97
       2.50    92.09    .258E+06     211.3          0.75
20.33
       2.67    92.26    .294E+06     258.5          0.81
18.98
```

```
       2.83    92.42    .332E+06     310.1          0.86
17.85
       3.00    92.59    .371E+06     358.0          0.88
17.29

                                          <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0126)  111.60     2.27    3.00  18.86
0.60     0.22
    OUTFLOW: ID= 1 (0603)  111.60     1.51    4.58  18.86
0.55     0.21


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--------------------
| CALIB             |
| STANDHYD  (6032) |   Area    (ha)=  34.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  47.00   Dir. Conn.(%)=
32.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.26       18.34
     Dep. Storage     (mm)=       1.50        8.00
     Average Slope     (%)=       1.00        1.00
     Length            (m)=     480.28       40.00
     Mannings n          =      0.013       0.250

     Max.Eff.Inten.(mm/hr)=     105.46       59.29
                over (min)       5.00       20.00
     Storage Coeff.  (min)=       6.41 (ii)   17.12 (ii)
     Unit Hyd. Tpeak (min)=       5.00       20.00
     Unit Hyd. peak  (cms)=       0.18        0.06

*TOTALS*
    PEAK FLOW       (cms)=       2.98         1.72
4.160 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=      66.10        27.22
39.66
    TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
    RUNOFF COEFFICIENT   =       0.98         0.40
0.59


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0128) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0603):   111.60   1.507      4.58    18.86
        + ID2= 2 (6032):    34.60   4.160      3.00    39.66
          ===============================================
          ID = 3 (0128):   146.20   4.569      3.00    23.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0604) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1414.9) ------>
               Distance       Elevation       Manning
                   0.00          86.75        0.0900
                   3.09          87.40        0.0900
                  18.33          87.41        0.0900
                  35.33          86.99        0.0900
                  73.84          86.75        0.0900
                 103.33          86.41        0.0900
                 120.33          86.11        0.0900
                 129.46          86.13        0.0900
                 143.37          85.32        0.0900
                 154.33          85.02        0.0900
                 161.57          85.09        0.0900
                 163.05          84.78     0.0900 /0.0700  Main
Channel
                 166.55          83.78        0.0700      Main
Channel
                 168.05          84.78     0.0700 /0.1100  Main
Channel
                 172.02          85.29        0.1100
                 191.39          86.19        0.1100
                 270.18          85.78        0.1100
                 296.33          86.36        0.1100
                 324.34          86.68        0.1100
                 368.56          87.05        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)     (cms)        (m/s)
(min)
       0.17    83.95    .465E+02       0.0          0.03
432.88
       0.33    84.11    .186E+03       0.0          0.04
272.70
       0.50    84.28    .418E+03       0.0          0.05
208.11
       0.67    84.45    .743E+03       0.1          0.06
171.79
       0.83    84.61    .116E+04       0.1          0.08
148.04
       1.00    84.78    .167E+04       0.2          0.09
131.10
       1.20    84.98    .252E+04       0.4          0.10
110.62
       1.41    85.19    .469E+04       0.6          0.09
121.59
       1.61    85.39    .842E+04       1.1          0.09
126.63
       1.81    85.59    .133E+05       1.8          0.09
121.99
       2.01    85.79    .192E+05       2.7          0.10
116.68
       2.22    86.00    .298E+05       4.0          0.09
125.45
       2.42    86.20    .487E+05       5.6          0.08
143.80
       2.62    86.40    .736E+05       9.0          0.08
137.02
       2.82    86.60    .102E+06      13.1          0.09
130.82
       3.03    86.81    .136E+06      18.1          0.09
125.42
       3.23    87.01    .178E+06      24.4          0.09
121.07
       3.43    87.21    .224E+06      34.2          0.10
108.80
       3.63    87.41    .271E+06      44.8          0.11
100.89

                                          <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0128)  146.20     4.57    3.00  23.78
2.29     0.08
    OUTFLOW: ID= 1 (0604)  146.20     1.72    3.33  23.77
1.80     0.09
```

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      **** WARNING:  COMPUTATIONS FAILED TO CONVERGE.

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--------------------
| CALIB             |
| STANDHYD  (6042) |   Area    (ha)=  24.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=
69.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      18.72        5.28
     Dep. Storage     (mm)=       6.00        8.00
     Average Slope     (%)=       1.00        1.00
     Length            (m)=     400.00       40.00
     Mannings n          =      0.013       0.250

     Max.Eff.Inten.(mm/hr)=     105.46       98.27
                over (min)       5.00       15.00
     Storage Coeff.  (min)=       5.75 (ii)   14.50 (ii)
     Unit Hyd. Tpeak (min)=       5.00       15.00
     Unit Hyd. peak  (cms)=       0.20        0.08

*TOTALS*
    PEAK FLOW       (cms)=       4.54         0.80
5.210 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      61.60        34.91
53.33
    TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
    RUNOFF COEFFICIENT   =       0.91         0.52
0.79


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0130) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0604):   146.20   1.721      3.33    23.77
        + ID2= 2 (6042):    24.00   5.210      3.00    53.33
          ===============================================
          ID = 3 (0130):   170.20   6.640      3.00    27.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0605) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 801.4) ------>
               Distance       Elevation       Manning
                   0.00          82.95        0.1100
                   3.78          82.95        0.1100
                   9.24          82.49        0.1100
                  50.67          82.10        0.1100
                 105.12          82.17        0.1100
                 119.34          81.56        0.1100
                 150.67          81.66        0.1100
                 157.23          82.37        0.1100
                 190.03          82.57        0.1100
                 223.75          82.27        0.1100
                 252.32          82.50        0.1100
                 254.65          81.95     0.1100 /0.0700  Main
Channel
                 258.15          80.95        0.0700      Main
Channel
                 259.65          81.95     0.0700 /0.1100  Main
Channel
                 263.15          82.90        0.1100
                 278.14          82.80        0.1100
                 282.35          81.68        0.1100
                 285.02          82.19        0.1100
                 336.56          82.53        0.1100
                 404.40          82.68        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)     (cms)        (m/s)
(min)
       0.08    81.03    .125E+02       0.0          0.11
104.30
       0.17    81.12    .499E+02       0.0          0.18
65.70
       0.25    81.20    .112E+03       0.0          0.24
50.14
       0.33    81.28    .199E+03       0.1          0.29
41.39
       0.42    81.37    .312E+03       0.1          0.34
35.67
       0.50    81.45    .449E+03       0.2          0.38
31.59
       0.58    81.53    .611E+03       0.4          0.42
28.50
       0.67    81.62    .117E+04       0.5          0.33
36.10
       0.75    81.70    .316E+04       1.1          0.24
49.12
       0.83    81.78    .560E+04       2.1          0.27
45.15
       0.92    81.87    .827E+04       3.4          0.30
40.03
       1.00    81.95    .112E+05       5.2          0.33
35.88
       1.10    82.05    .151E+05       8.0          0.38
31.68
       1.21    82.16    .207E+05       8.8          0.30
39.37
       1.31    82.26    .306E+05      14.0          0.33
36.36
       1.41    82.36    .433E+05      20.3          0.34
35.59
       1.52    82.47    .606E+05      28.4          0.34
35.57
       1.62    82.57    .828E+05      41.0          0.36
33.68
       1.73    82.68    .109E+06      60.1          0.39
30.35

                                          <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0130)  170.20     6.64    3.00  27.94
1.05     0.36
    OUTFLOW: ID= 1 (0605)  170.20     2.79    3.25  27.93
0.88     0.28


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--------------------
| ADD HYD   (0139) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0138):    32.50   3.616      3.00    43.47
        + ID2= 2 (0605):   170.20   2.790      3.25    27.93
          ===============================================
          ID = 3 (0139):   202.70   5.823      3.00    30.42
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     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB             |
| STANDHYD  (6052) |   Area    (ha)=  15.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=
65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.77        4.13
     Dep. Storage     (mm)=       6.00        8.00
     Average Slope     (%)=       1.00        1.00
     Length            (m)=     325.58       40.00
     Mannings n          =      0.013       0.250

     Max.Eff.Inten.(mm/hr)=     105.46       54.20
                over (min)       5.00       20.00
     Storage Coeff.  (min)=       5.08 (ii)   16.18 (ii)
     Unit Hyd. Tpeak (min)=       5.00       20.00
     Unit Hyd. peak  (cms)=       0.21        0.06

*TOTALS*
    PEAK FLOW       (cms)=       2.88         0.36
3.124 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=      61.60        23.93
48.42
    TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
    RUNOFF COEFFICIENT   =       0.91         0.35
0.72


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0132) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0139):   202.70   5.823      3.00    30.42
        + ID2= 2 (6052):    15.90   3.124      3.00    48.42
          ===============================================
          ID = 3 (0132):   218.60   8.947      3.00    31.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0530) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 350.0) ------>
               Distance       Elevation       Manning
                   0.00          81.70        0.1100
                   3.84          81.72        0.1100
                   5.87          80.72        0.1100
                   9.38          81.42        0.1100
                  49.64          81.07        0.1100
                  80.61          80.72        0.1100
                  85.61          81.14        0.1100
                  93.32          80.00        0.1100
                  95.04          80.45        0.1100
                 102.72          80.66        0.1100
                 110.13          78.93     0.1100 /0.0700  Main
Channel
                 118.05          78.63        0.0700      Main
Channel
                 124.40          78.89     0.0700 /0.1100  Main
Channel
                 132.18          79.61        0.1100
                 139.34          79.23        0.1100
                 144.67          79.43        0.1100
                 149.63          79.98        0.1100
                 153.42          79.79        0.1100
                 158.56          80.58        0.1100
                 176.89          81.15        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)     (cms)        (m/s)
(min)
       0.13    78.76    .190E+03       0.1          0.19
38.41
       0.26    78.89    .758E+03       0.5          0.31
24.20
       0.43    79.05    .189E+04       2.1          0.50
14.77
       0.59    79.22    .321E+04       4.7          0.65
11.35
       0.76    79.39    .498E+04       8.2          0.73
10.10
       0.93    79.55    .743E+04      13.1          0.78
9.48
       1.09    79.72    .103E+05      19.5          0.84
8.84
       1.26    79.89    .135E+05      27.1          0.89
8.29
       1.43    80.05    .171E+05      36.3          0.94
7.85
       1.59    80.22    .209E+05      47.2          1.00
7.39
       1.76    80.39    .251E+05      59.8          1.06
6.99
       1.93    80.56    .296E+05      73.5          1.10
6.70
       2.10    80.72    .348E+05      87.6          1.12
6.61
       2.26    80.89    .412E+05     102.8          1.11
6.68
       2.43    81.06    .495E+05     122.0          1.09
6.77
       2.60    81.22    .596E+05     146.2          1.09
6.80
       2.76    81.39    .714E+05     176.9          1.10
6.72
       2.93    81.56    .841E+05     215.0          1.13
6.52
       3.10    81.72    .970E+05     256.7          1.18
6.30

                                          <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0132)  218.60     8.95    3.00  31.73
0.79     0.74
    OUTFLOW: ID= 1 (0530)  218.60     7.08    3.08  31.73
0.71     0.70


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--------------------
| ADD HYD   (0134) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0530):   218.60   7.079      3.08    31.73
        + ID2= 2 (5302):     5.80   1.043      3.00    44.71
          ===============================================
          ID = 3 (0134):   224.40   7.569      3.08    32.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD   (0135) |
|   1 + 2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0120):   273.80  14.065     3.00    34.25
        + ID2= 2 (0134):   224.40   7.569     3.08    32.07
          ===============================================
          ID = 3 (0135):   498.20  21.527     3.00    33.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0507) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (  40.0) ------>
               Distance      Elevation       Manning
                   0.00          79.36        0.0900
                   7.45          79.32        0.0900
                  13.77          79.27        0.0900
                  20.24          79.24        0.0900
                  27.28          79.26        0.0900
                  34.16          79.13        0.0900
                  40.79          79.05        0.0900
                  47.58          79.05        0.0900
                  54.30          79.07        0.0900
                  60.87          79.24        0.0900
                  71.39          79.48        0.0900
                  73.53          78.96        0.0900
                  76.96          78.07        0.0900
                  82.21          77.08     0.0900 /0.0700  Main
Channel
                  85.82          76.28        0.0700      Main
Channel
                  89.97          76.89        0.0700      Main
Channel
                  91.35          77.38     0.0700 /0.0900  Main
Channel
                  95.27          78.68        0.0900
                  98.44          79.63        0.0900
                 102.89          79.89        0.0900

        <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)     (cms)       (m/s)
(min)
      0.16    76.44    .113E+03       0.0         0.14
88.10
      0.32    76.60    .451E+03       0.1         0.23
55.50
      0.49    76.76    .101E+04       0.4         0.30
42.35
      0.65    76.92    .180E+04       0.9         0.37
34.57
      0.81    77.09    .276E+04       1.6         0.44
28.86
      0.97    77.25    .388E+04       2.7         0.52
24.37
      1.14    77.41    .516E+04       4.0         0.59
21.56
      1.30    77.57    .660E+04       5.7         0.66
19.26
      1.46    77.74    .822E+04       7.8         0.72
17.67
      1.62    77.90    .100E+05      10.1         0.77
16.48
      1.79    78.06    .120E+05      12.8         0.82
15.54
      1.95    78.22    .141E+05      15.9         0.87
14.74
      2.11    78.39    .163E+05      19.4         0.91
14.06
      2.27    78.55    .187E+05      23.2         0.95
13.47
      2.44    78.71    .212E+05      27.3         0.99
12.95
      2.60    78.87    .239E+05      31.9         1.02
12.50
      2.76    79.04    .267E+05      36.8         1.06
12.10
      2.92    79.20    .320E+05      39.4         0.94
13.56
      3.09    79.36    .409E+05      45.7         0.85
14.94

                                  <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (0135)  498.20    21.53    3.00  33.27
2.20      0.93
     OUTFLOW: ID= 1 (0507)  498.20    18.25    3.33  33.27
2.05      0.89


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--------------------
| CALIB            |
| STANDHYD  (5072) |   Area    (ha)=  48.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
36.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       24.45        24.45
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      570.96        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      105.46        73.92
               over (min)          5.00        20.00
     Storage Coeff.  (min)=        7.11 (ii)   16.92 (ii)
     Unit Hyd. Tpeak (min)=        5.00        20.00
     Unit Hyd. peak  (cms)=        0.17         0.06

*TOTALS*
     PEAK FLOW       (cms)=        4.65         2.44
6.334 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=       61.60        28.72
40.55
     TOTAL RAINFALL   (mm)=       67.60        67.60
67.60
     RUNOFF COEFFICIENT   =        0.91         0.42
0.60


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  74.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0122) |
|   1 + 2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0507):   498.20  18.250     3.33    33.27
        + ID2= 2 (5072):    48.90   6.334     3.00    40.55
          ===============================================
          ID = 3 (0122):   547.10  21.743     3.25    33.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (5402) |   Area    (ha)=   9.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        4.70         4.70
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      250.33        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      105.46        50.94
               over (min)          5.00        20.00
     Storage Coeff.  (min)=        4.34 (ii)   15.72 (ii)
     Unit Hyd. Tpeak (min)=        5.00        20.00
     Unit Hyd. peak  (cms)=        0.23         0.07

*TOTALS*
     PEAK FLOW       (cms)=        0.93         0.39
1.198 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=       61.60        23.29
36.70
     TOTAL RAINFALL   (mm)=       67.60        67.60
67.60
     RUNOFF COEFFICIENT   =        0.91         0.34
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| STORE HYD (1505) |    AREA       (ha)=  30.00
| ID= 1 DT= 5.0min |    QPEAK     (cms)=   0.78
--------------------    TPEAK     (hrs)=  15.58
                        VOLUME     (mm)= 402.14

  TIME    FLOW |  TIME     FLOW |  TIME     FLOW |'  TIME     FLOW |
TIME    FLOW
   hrs     cms |   hrs      cms |   hrs      cms |'   hrs      cms |
hrs     cms
  0.00    0.00 | 31.33    0.10 | 62.67    0.25 | 94.00    0.26
|125.33    0.16
  0.08    0.00 | 31.42    0.10 | 62.75    0.25 | 94.08    0.26
|125.42    0.16
  0.17    0.00 | 31.50    0.10 | 62.83    0.25 | 94.17    0.25
|125.50    0.16
  0.25    0.00 | 31.58    0.10 | 62.92    0.25 | 94.25    0.25
|125.58    0.16
  0.33    0.00 | 31.67    0.10 | 63.00    0.25 | 94.33    0.25
|125.67    0.17
  0.42    0.00 | 31.75    0.10 | 63.08    0.25 | 94.42    0.25
|125.75    0.16
  0.50    0.00 | 31.83    0.10 | 63.17    0.25 | 94.50    0.25
|125.83    0.16
  0.58    0.00 | 31.92    0.10 | 63.25    0.24 | 94.58    0.25
|125.92    0.17
  0.67    0.00 | 32.00    0.10 | 63.33    0.24 | 94.67    0.24
|126.00    0.15
  0.75    0.00 | 32.08    0.10 | 63.42    0.24 | 94.75    0.25
|126.08    0.16
  0.83    0.00 | 32.17    0.10 | 63.50    0.23 | 94.83    0.24
|126.17    0.16
  0.92    0.00 | 32.25    0.10 | 63.58    0.24 | 94.92    0.25
|126.25    0.16
  1.00    0.00 | 32.33    0.10 | 63.67    0.24 | 95.00    0.25
|126.33    0.16
  1.08    0.00 | 32.42    0.10 | 63.75    0.24 | 95.08    0.25
|126.42    0.16
  1.17    0.00 | 32.50    0.10 | 63.83    0.23 | 95.17    0.24
|126.50    0.17
  1.25    0.00 | 32.58    0.10 | 63.92    0.23 | 95.25    0.21
|126.58    0.16
  1.33    0.00 | 32.67    0.10 | 64.00    0.23 | 95.33    0.25
|126.67    0.16
  1.42    0.00 | 32.75    0.10 | 64.08    0.23 | 95.42    0.22
|126.75    0.17
  1.50    0.00 | 32.83    0.10 | 64.17    0.23 | 95.50    0.23
|126.83    0.17
  1.58    0.00 | 32.92    0.10 | 64.25    0.24 | 95.58    0.22
|126.92    0.17
  1.67    0.00 | 33.00    0.10 | 64.33    0.23 | 95.67    0.24
|127.00    0.17
  1.75    0.00 | 33.08    0.10 | 64.42    0.23 | 95.75    0.26
|127.08    0.17
  1.83    0.00 | 33.17    0.10 | 64.50    0.23 | 95.83    0.24
|127.17    0.18
  1.92    0.00 | 33.25    0.11 | 64.58    0.23 | 95.92    0.23
|127.25    0.17
  2.00    0.00 | 33.33    0.11 | 64.67    0.24 | 96.00    0.24
|127.33    0.18
  2.08    0.00 | 33.42    0.11 | 64.75    0.24 | 96.08    0.24
|127.42    0.18
  2.17    0.00 | 33.50    0.11 | 64.83    0.24 | 96.17    0.24
|127.50    0.16
  2.25    0.00 | 33.58    0.11 | 64.92    0.24 | 96.25    0.24
|127.58    0.18
  2.33    0.00 | 33.67    0.11 | 65.00    0.24 | 96.33    0.24
|127.67    0.17
  2.42    0.00 | 33.75    0.11 | 65.08    0.23 | 96.42    0.24
|127.75    0.18
  2.50    0.00 | 33.83    0.11 | 65.17    0.23 | 96.50    0.24
|127.83    0.17
  2.58    0.00 | 33.92    0.11 | 65.25    0.23 | 96.58    0.23
|127.92    0.17
  2.67    0.00 | 34.00    0.11 | 65.33    0.23 | 96.67    0.24
|128.00    0.17
  2.75    0.00 | 34.08    0.11 | 65.42    0.22 | 96.75    0.23
|128.08    0.17
  2.83    0.00 | 34.17    0.11 | 65.50    0.22 | 96.83    0.23
|128.17    0.17
  2.92    0.00 | 34.25    0.11 | 65.58    0.22 | 96.92    0.24
|128.25    0.18
  3.00    0.00 | 34.33    0.11 | 65.67    0.22 | 97.00    0.23
|128.33    0.18
  3.08    0.00 | 34.42    0.11 | 65.75    0.22 | 97.08    0.22
|128.42    0.19
  3.17    0.00 | 34.50    0.11 | 65.83    0.22 | 97.17    0.23
|128.50    0.18
  3.25    0.00 | 34.58    0.11 | 65.92    0.21 | 97.25    0.22
|128.58    0.17
  3.33    0.00 | 34.67    0.11 | 66.00    0.21 | 97.33    0.25
|128.67    0.18
  3.42    0.00 | 34.75    0.11 | 66.08    0.21 | 97.42    0.22
|128.75    0.18
  3.50    0.00 | 34.83    0.11 | 66.17    0.20 | 97.50    0.24
|128.83    0.18
  3.58    0.00 | 34.92    0.11 | 66.25    0.20 | 97.58    0.23
|128.92    0.18
  3.67    0.00 | 35.00    0.11 | 66.33    0.20 | 97.67    0.22
|129.00    0.18
  3.75    0.00 | 35.08    0.11 | 66.42    0.20 | 97.75    0.23
|129.08    0.19
  3.83    0.00 | 35.17    0.11 | 66.50    0.19 | 97.83    0.22
|129.17    0.17
  3.92    0.00 | 35.25    0.11 | 66.58    0.20 | 97.92    0.21
|129.25    0.17
  4.00    0.00 | 35.33    0.11 | 66.67    0.20 | 98.00    0.22
|129.33    0.17
  4.08    0.00 | 35.42    0.11 | 66.75    0.20 | 98.08    0.23
|129.42    0.18
  4.17    0.00 | 35.50    0.11 | 66.83    0.19 | 98.17    0.21
|129.50    0.18
  4.25    0.00 | 35.58    0.11 | 66.92    0.19 | 98.25    0.21
|129.58    0.18
  4.33    0.00 | 35.67    0.11 | 67.00    0.20 | 98.33    0.23
|129.67    0.18
  4.42    0.00 | 35.75    0.11 | 67.08    0.20 | 98.42    0.21
|129.75    0.18
  4.50    0.00 | 35.83    0.11 | 67.17    0.20 | 98.50    0.21
|129.83    0.18
  4.58    0.00 | 35.92    0.11 | 67.25    0.20 | 98.58    0.23
|129.92    0.18
  4.67    0.00 | 36.00    0.11 | 67.33    0.20 | 98.67    0.22
|130.00    0.18
  4.75    0.00 | 36.08    0.11 | 67.42    0.21 | 98.75    0.23
|130.08    0.17
  4.83    0.00 | 36.17    0.11 | 67.50    0.22 | 98.83    0.24
|130.17    0.17
  4.92    0.00 | 36.25    0.11 | 67.58    0.22 | 98.92    0.22
|130.25    0.17
  5.00    0.00 | 36.33    0.11 | 67.67    0.23 | 99.00    0.20
|130.33    0.17
  5.08    0.00 | 36.42    0.12 | 67.75    0.24 | 99.08    0.20
|130.42    0.18
  5.17    0.00 | 36.50    0.12 | 67.83    0.26 | 99.17    0.22
|130.50    0.18
  5.25    0.00 | 36.58    0.12 | 67.92    0.27 | 99.25    0.21
|130.58    0.18
  5.33    0.00 | 36.67    0.12 | 68.00    0.28 | 99.33    0.22
|130.67    0.17
  5.42    0.00 | 36.75    0.12 | 68.08    0.31 | 99.42    0.21
|130.75    0.17
  5.50    0.00 | 36.83    0.12 | 68.17    0.32 | 99.50    0.20
|130.83    0.18
  5.58    0.00 | 36.92    0.12 | 68.25    0.34 | 99.58    0.21
|130.92    0.17
  5.67    0.00 | 37.00    0.12 | 68.33    0.35 | 99.67    0.20
|131.00    0.17
  5.75    0.00 | 37.08    0.12 | 68.42    0.38 | 99.75    0.19
|131.08    0.17
  5.83    0.00 | 37.17    0.12 | 68.50    0.39 | 99.83    0.20
|131.17    0.18
  5.92    0.00 | 37.25    0.12 | 68.58    0.40 | 99.92    0.22
|131.25    0.18
  6.00    0.00 | 37.33    0.12 | 68.67    0.42 |100.00    0.21
|131.33    0.17
  6.08    0.00 | 37.42    0.12 | 68.75    0.44 |100.08    0.20
|131.42    0.17
  6.17    0.00 | 37.50    0.12 | 68.83    0.46 |100.17    0.21
|131.50    0.17
  6.25    0.00 | 37.58    0.12 | 68.92    0.49 |100.25    0.19
|131.58    0.17
  6.33    0.00 | 37.67    0.13 | 69.00    0.51 |100.33    0.19
|131.67    0.17
  6.42    0.00 | 37.75    0.12 | 69.08    0.54 |100.42    0.19
|131.75    0.17
  6.50    0.00 | 37.83    0.12 | 69.17    0.56 |100.50    0.19
|131.83    0.17
  6.58    0.00 | 37.92    0.12 | 69.25    0.60 |100.58    0.19
|131.92    0.17
  6.67    0.00 | 38.00    0.12 | 69.33    0.64 |100.67    0.19
|132.00    0.16
  6.75    0.00 | 38.08    0.12 | 69.42    0.67 |100.75    0.21
|132.08    0.17
  6.83    0.00 | 38.17    0.12 | 69.50    0.67 |100.83    0.19
|132.17    0.17
  6.92    0.00 | 38.25    0.12 | 69.58    0.68 |100.92    0.19
|132.25    0.17
  7.00    0.00 | 38.33    0.12 | 69.67    0.65 |101.00    0.19
|132.33    0.17
  7.08    0.00 | 38.42    0.12 | 69.75    0.66 |101.08    0.19
|132.42    0.18
  7.17    0.00 | 38.50    0.12 | 69.83    0.66 |101.17    0.20
|132.50    0.17
  7.25    0.00 | 38.58    0.12 | 69.92    0.67 |101.25    0.19
|132.58    0.16
  7.33    0.00 | 38.67    0.13 | 70.00    0.66 |101.33    0.18
|132.67    0.17
  7.42    0.00 | 38.75    0.13 | 70.08    0.67 |101.42    0.19
|132.75    0.17
  7.50    0.00 | 38.83    0.13 | 70.17    0.67 |101.50    0.19
|132.83    0.17
  7.58    0.00 | 38.92    0.13 | 70.25    0.70 |101.58    0.19
|132.92    0.16
  7.67    0.00 | 39.00    0.13 | 70.33    0.74 |101.67    0.20
|133.00    0.17
  7.75    0.00 | 39.08    0.14 | 70.42    0.73 |101.75    0.19
|133.08    0.16
  7.83    0.00 | 39.17    0.14 | 70.50    0.74 |101.83    0.18
|133.17    0.16
  7.92    0.00 | 39.25    0.14 | 70.58    0.74 |101.92    0.19
|133.25    0.16
  8.00    0.00 | 39.33    0.14 | 70.67    0.74 |102.00    0.19
|133.33    0.15
  8.08    0.00 | 39.42    0.14 | 70.75    0.75 |102.08    0.19
|133.42    0.16
  8.17    0.00 | 39.50    0.15 | 70.83    0.75 |102.17    0.19
|133.50    0.16
  8.25    0.00 | 39.58    0.16 | 70.92    0.74 |102.25    0.18
|133.58    0.17
  8.33    0.00 | 39.67    0.16 | 71.00    0.74 |102.33    0.18
|133.67    0.16
  8.42    0.00 | 39.75    0.16 | 71.08    0.75 |102.42    0.19
|133.75    0.15
  8.50    0.00 | 39.83    0.16 | 71.17    0.77 |102.50    0.19
|133.83    0.16
  8.58    0.00 | 39.92    0.17 | 71.25    0.76 |102.58    0.19
|133.92    0.16
  8.67    0.00 | 40.00    0.17 | 71.33    0.76 |102.67    0.18
|134.00    0.16
  8.75    0.00 | 40.08    0.17 | 71.42    0.77 |102.75    0.20
|134.08    0.16
  8.83    0.00 | 40.17    0.17 | 71.50    0.76 |102.83    0.18
|134.17    0.15
  8.92    0.00 | 40.25    0.18 | 71.58    0.77 |102.92    0.18
|134.25    0.16
  9.00    0.00 | 40.33    0.18 | 71.67    0.76 |103.00    0.17
|134.33    0.16
  9.08    0.00 | 40.42    0.18 | 71.75    0.76 |103.08    0.17
|134.42    0.16
  9.17    0.00 | 40.50    0.18 | 71.83    0.78 |103.17    0.18
|134.50    0.16
  9.25    0.00 | 40.58    0.19 | 71.92    0.77 |103.25    0.18
|134.58    0.15
  9.33    0.00 | 40.67    0.19 | 72.00    0.76 |103.33    0.17
|134.67    0.16
  9.42    0.00 | 40.75    0.19 | 72.08    0.74 |103.42    0.17
|134.75    0.15
  9.50    0.00 | 40.83    0.19 | 72.17    0.75 |103.50    0.17
|134.83    0.15
  9.58    0.00 | 40.92    0.19 | 72.25    0.74 |103.58    0.18
|134.92    0.16
  9.67    0.00 | 41.00    0.19 | 72.33    0.72 |103.67    0.18
|135.00    0.15
  9.75    0.00 | 41.08    0.19 | 72.42    0.70 |103.75    0.18
|135.08    0.15
  9.83    0.00 | 41.17    0.20 | 72.50    0.70 |103.83    0.18
|135.17    0.15
  9.92    0.00 | 41.25    0.20 | 72.58    0.69 |103.92    0.19
|135.25    0.15
 10.00    0.00 | 41.33    0.21 | 72.67    0.70 |104.00    0.17
|135.33    0.15
 10.08    0.00 | 41.42    0.22 | 72.75    0.68 |104.08    0.18
|135.42    0.15
 10.17    0.00 | 41.50    0.23 | 72.83    0.67 |104.17    0.18
|135.50    0.15
 10.25    0.00 | 41.58    0.23 | 72.92    0.66 |104.25    0.17
|135.58    0.15
 10.33    0.00 | 41.67    0.23 | 73.00    0.64 |104.33    0.17
|135.67    0.14
 10.42    0.00 | 41.75    0.24 | 73.08    0.63 |104.42    0.17
|135.75    0.15
 10.50    0.00 | 41.83    0.25 | 73.17    0.63 |104.50    0.18
|135.83    0.16
 10.58    0.00 | 41.92    0.25 | 73.25    0.61 |104.58    0.17
|135.92    0.15
 10.67    0.00 | 42.00    0.26 | 73.33    0.62 |104.67    0.16
|136.00    0.15
 10.75    0.00 | 42.08    0.25 | 73.42    0.61 |104.75    0.16
|136.08    0.15
 10.83    0.00 | 42.17    0.26 | 73.50    0.62 |104.83    0.18
|136.17    0.15
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10.92	0.00	42.25	0.26	73.58	0.60	104.92	0.16	136.25	0.15
11.00	0.00	42.33	0.26	73.67	0.62	105.00	0.17	136.33	0.15
11.08	0.00	42.42	0.26	73.75	0.58	105.08	0.16	136.42	0.15
11.17	0.00	42.50	0.26	73.83	0.59	105.17	0.16	136.50	0.15
11.25	0.00	42.58	0.26	73.92	0.57	105.25	0.16	136.58	0.15
11.33	0.00	42.67	0.26	74.00	0.57	105.33	0.16	136.67	0.14
11.42	0.00	42.75	0.25	74.08	0.57	105.42	0.16	136.75	0.15
11.50	0.00	42.83	0.26	74.17	0.56	105.50	0.16	136.83	0.14
11.58	0.00	42.92	0.25	74.25	0.58	105.58	0.16	136.92	0.14
11.67	0.00	43.00	0.25	74.33	0.58	105.67	0.16	137.00	0.14
11.75	0.00	43.08	0.25	74.42	0.58	105.75	0.17	137.08	0.15
11.83	0.00	43.17	0.25	74.50	0.59	105.83	0.16	137.17	0.14
11.92	0.00	43.25	0.25	74.58	0.60	105.92	0.16	137.25	0.15
12.00	0.00	43.33	0.25	74.67	0.57	106.00	0.16	137.33	0.15
12.08	0.00	43.42	0.25	74.75	0.56	106.08	0.16	137.42	0.14
12.17	0.00	43.50	0.25	74.83	0.54	106.17	0.16	137.50	0.14
12.25	0.00	43.58	0.25	74.92	0.56	106.25	0.17	137.58	0.14
12.33	0.00	43.67	0.25	75.00	0.53	106.33	0.16	137.67	0.15
12.42	0.00	43.75	0.25	75.08	0.51	106.42	0.16	137.75	0.14
12.50	0.00	43.83	0.26	75.17	0.51	106.50	0.16	137.83	0.14
12.58	0.00	43.92	0.26	75.25	0.51	106.58	0.16	137.92	0.14
12.67	0.00	44.00	0.26	75.33	0.51	106.67	0.16	138.00	0.14
12.75	0.00	44.08	0.26	75.42	0.50	106.75	0.16	138.08	0.14
12.83	0.00	44.17	0.26	75.50	0.50	106.83	0.15	138.17	0.14
12.92	0.00	44.25	0.27	75.58	0.49	106.92	0.15	138.25	0.14
13.00	0.00	44.33	0.26	75.67	0.49	107.00	0.16	138.33	0.14
13.08	0.00	44.42	0.26	75.75	0.49	107.08	0.16	138.42	0.14
13.17	0.00	44.50	0.26	75.83	0.48	107.17	0.16	138.50	0.14
13.25	0.00	44.58	0.26	75.92	0.47	107.25	0.15	138.58	0.14
13.33	0.00	44.67	0.26	76.00	0.47	107.33	0.16	138.67	0.14
13.42	0.00	44.75	0.26	76.08	0.48	107.42	0.16	138.75	0.14
13.50	0.00	44.83	0.26	76.17	0.46	107.50	0.15	138.83	0.14
13.58	0.00	44.92	0.26	76.25	0.45	107.58	0.16	138.92	0.14
13.67	0.00	45.00	0.26	76.33	0.45	107.67	0.15	139.00	0.14
13.75	0.00	45.08	0.26	76.42	0.43	107.75	0.15	139.08	0.14
13.83	0.00	45.17	0.25	76.50	0.44	107.83	0.16	139.17	0.13
13.92	0.00	45.25	0.25	76.58	0.46	107.92	0.16	139.25	0.14
14.00	0.00	45.33	0.25	76.67	0.43	108.00	0.16	139.33	0.14
14.08	0.00	45.42	0.25	76.75	0.44	108.08	0.15	139.42	0.14
14.17	0.00	45.50	0.25	76.83	0.43	108.17	0.15	139.50	0.14
14.25	0.00	45.58	0.25	76.92	0.45	108.25	0.15	139.58	0.13
14.33	0.00	45.67	0.25	77.00	0.42	108.33	0.16	139.67	0.14
14.42	0.00	45.75	0.25	77.08	0.43	108.42	0.16	139.75	0.14
14.50	0.00	45.83	0.26	77.17	0.43	108.50	0.15	139.83	0.13
14.58	0.00	45.92	0.25	77.25	0.42	108.58	0.15	139.92	0.14
14.67	0.00	46.00	0.26	77.33	0.41	108.67	0.15	140.00	0.14
14.75	0.00	46.08	0.26	77.42	0.43	108.75	0.16	140.08	0.13
14.83	0.00	46.17	0.25	77.50	0.41	108.83	0.15	140.17	0.13
14.92	0.69	46.25	0.26	77.58	0.43	108.92	0.15	140.25	0.13
15.00	0.69	46.33	0.26	77.67	0.39	109.00	0.15	140.33	0.13
15.08	0.71	46.42	0.26	77.75	0.39	109.08	0.15	140.42	0.14
15.17	0.74	46.50	0.26	77.83	0.37	109.17	0.15	140.50	0.13
15.25	0.74	46.58	0.26	77.92	0.39	109.25	0.15	140.58	0.13
15.33	0.74	46.67	0.26	78.00	0.39	109.33	0.14	140.67	0.13
15.42	0.77	46.75	0.26	78.08	0.39	109.42	0.15	140.75	0.13
15.50	0.76	46.83	0.25	78.17	0.37	109.50	0.15	140.83	0.13
15.58	0.78	46.92	0.25	78.25	0.36	109.58	0.14	140.92	0.13
15.67	0.78	47.00	0.25	78.33	0.37	109.67	0.15	141.00	0.13
15.75	0.77	47.08	0.25	78.42	0.38	109.75	0.14	141.08	0.13
15.83	0.77	47.17	0.26	78.50	0.36	109.83	0.15	141.17	0.13
15.92	0.77	47.25	0.26	78.58	0.36	109.92	0.14	141.25	0.13
16.00	0.76	47.33	0.26	78.67	0.36	110.00	0.14	141.33	0.13
16.08	0.74	47.42	0.26	78.75	0.37	110.08	0.14	141.42	0.13
16.17	0.74	47.50	0.26	78.83	0.34	110.17	0.14	141.50	0.13
16.25	0.74	47.58	0.25	78.92	0.35	110.25	0.14	141.58	0.13
16.33	0.72	47.67	0.26	79.00	0.36	110.33	0.15	141.67	0.13
16.42	0.69	47.75	0.26	79.08	0.35	110.42	0.15	141.75	0.13
16.50	0.69	47.83	0.26	79.17	0.35	110.50	0.14	141.83	0.13
16.58	0.67	47.92	0.26	79.25	0.36	110.58	0.14	141.92	0.13
16.67	0.66	48.00	0.25	79.33	0.36	110.67	0.14	142.00	0.13
16.75	0.64	48.08	0.25	79.42	0.33	110.75	0.15	142.08	0.12
16.83	0.63	48.17	0.26	79.50	0.33	110.83	0.14	142.17	0.13
16.92	0.63	48.25	0.25	79.58	0.33	110.92	0.15	142.25	0.13
17.00	0.60	48.33	0.25	79.67	0.32	111.00	0.15	142.33	0.13
17.08	0.58	48.42	0.25	79.75	0.33	111.08	0.14	142.42	0.12
17.17	0.58	48.50	0.25	79.83	0.33	111.17	0.14	142.50	0.13
17.25	0.57	48.58	0.25	79.92	0.32	111.25	0.14	142.58	0.13
17.33	0.56	48.67	0.24	80.00	0.33	111.33	0.15	142.67	0.13
17.42	0.55	48.75	0.24	80.08	0.34	111.42	0.14	142.75	0.13
17.50	0.54	48.83	0.24	80.17	0.32	111.50	0.15	142.83	0.12
17.58	0.51	48.92	0.24	80.25	0.31	111.58	0.14	142.92	0.13
17.67	0.50	49.00	0.24	80.33	0.33	111.67	0.14	143.00	0.12
17.75	0.48	49.08	0.25	80.42	0.31	111.75	0.14	143.08	0.12
17.83	0.47	49.17	0.24	80.50	0.32	111.83	0.14	143.17	0.12
17.92	0.47	49.25	0.24	80.58	0.31	111.92	0.14	143.25	0.12
18.00	0.45	49.33	0.24	80.67	0.31	112.00	0.15	143.33	0.12
18.08	0.44	49.42	0.23	80.75	0.33	112.08	0.15	143.42	0.12
18.17	0.41	49.50	0.23	80.83	0.31	112.17	0.14	143.50	0.12
18.25	0.42	49.58	0.24	80.92	0.32	112.25	0.14	143.58	0.12
18.33	0.40	49.67	0.23	81.00	0.32	112.33	0.14	143.67	0.12
18.42	0.39	49.75	0.24	81.08	0.31	112.42	0.15	143.75	0.12
18.50	0.38	49.83	0.24	81.17	0.31	112.50	0.15	143.83	0.12
18.58	0.38	49.92	0.23	81.25	0.31	112.58	0.15	143.92	0.12
18.67	0.37	50.00	0.23	81.33	0.31	112.67	0.15	144.00	0.12
18.75	0.37	50.08	0.23	81.42	0.31	112.75	0.14	144.08	0.12
18.83	0.36	50.17	0.24	81.50	0.32	112.83	0.15	144.17	0.12
18.92	0.35	50.25	0.23	81.58	0.32	112.92	0.14	144.25	0.12
19.00	0.34	50.33	0.23	81.67	0.34	113.00	0.15	144.33	0.12
19.08	0.34	50.42	0.23	81.75	0.34	113.08	0.15	144.42	0.12
19.17	0.34	50.50	0.23	81.83	0.35	113.17	0.14	144.50	0.12
19.25	0.34	50.58	0.23	81.92	0.37	113.25	0.15	144.58	0.12
19.33	0.33	50.67	0.23	82.00	0.36	113.33	0.15	144.67	0.12
19.42	0.33	50.75	0.23	82.08	0.37	113.42	0.14	144.75	0.12
19.50	0.32	50.83	0.23	82.17	0.38	113.50	0.14	144.83	0.12
19.58	0.32	50.92	0.23	82.25	0.36	113.58	0.14	144.92	0.12
19.67	0.32	51.00	0.23	82.33	0.35	113.67	0.14	145.00	0.12
19.75	0.31	51.08	0.23	82.42	0.37	113.75	0.14	145.08	0.12
19.83	0.30	51.17	0.23	82.50	0.37	113.83	0.14	145.17	0.12
19.92	0.30	51.25	0.23	82.58	0.36	113.92	0.14	145.25	0.12
20.00	0.29	51.33	0.23	82.67	0.38	114.00	0.14	145.33	0.12
20.08	0.29	51.42	0.23	82.75	0.38	114.08	0.14	145.42	0.12
20.17	0.28	51.50	0.23	82.83	0.41	114.17	0.14	145.50	0.12
20.25	0.28	51.58	0.23	82.92	0.40	114.25	0.14	145.58	0.12
20.33	0.28	51.67	0.23	83.00	0.40	114.33	0.14	145.67	0.12
20.42	0.27	51.75	0.23	83.08	0.40	114.42	0.14	145.75	0.12
20.50	0.27	51.83	0.23	83.17	0.44	114.50	0.15	145.83	0.12
20.58	0.26	51.92	0.23	83.25	0.44	114.58	0.14	145.92	0.12
20.67	0.27	52.00	0.23	83.33	0.42	114.67	0.14	146.00	0.12
20.75	0.26	52.08	0.24	83.42	0.42	114.75	0.14	146.08	0.11
20.83	0.26	52.17	0.24	83.50	0.42	114.83	0.15	146.17	0.11
20.92	0.25	52.25	0.24	83.58	0.41	114.92	0.14	146.25	0.11
21.00	0.25	52.33	0.25	83.67	0.41	115.00	0.15	146.33	0.12
21.08	0.25	52.42	0.25	83.75	0.42	115.08	0.14	146.42	0.11
21.17	0.24	52.50	0.25	83.83	0.41	115.17	0.14	146.50	0.12
21.25	0.25	52.58	0.25	83.92	0.41	115.25	0.14	146.58	0.12
21.33	0.24	52.67	0.25	84.00	0.43	115.33	0.15	146.67	0.11
21.42	0.24	52.75	0.25	84.08	0.40	115.42	0.14	146.75	0.12
21.50	0.24	52.83	0.25	84.17	0.42	115.50	0.15	146.83	0.11
21.58	0.23	52.92	0.25	84.25	0.41	115.58	0.14	146.92	0.12
21.67	0.23	53.00	0.27	84.33	0.42	115.67	0.14	147.00	0.11
21.75	0.23	53.08	0.27	84.42	0.42	115.75	0.14	147.08	0.12
21.83	0.23	53.17	0.28	84.50	0.43	115.83	0.14	147.17	0.11
21.92	0.23	53.25	0.28	84.58	0.44	115.92	0.14	147.25	0.12
22.00	0.23	53.33	0.28	84.67	0.42	116.00	0.15	147.33	0.12
22.08	0.22	53.42	0.28	84.75	0.44	116.08	0.14	147.42	0.11
22.17	0.22	53.50	0.28	84.83	0.45	116.17	0.15	147.50	0.11
22.25	0.22	53.58	0.29	84.92	0.45	116.25	0.14	147.58	0.11
22.33	0.22	53.67	0.29	85.00	0.46	116.33	0.14	147.67	0.11
22.42	0.21	53.75	0.29	85.08	0.47	116.42	0.14	147.75	0.11
22.50	0.21	53.83	0.30	85.17	0.46	116.50	0.14	147.83	0.11
22.58	0.21	53.92	0.30	85.25	0.46	116.58	0.14	147.92	0.11
22.67	0.21	54.00	0.30	85.33	0.44	116.67	0.14	148.00	0.11
22.75	0.21	54.08	0.30	85.42	0.45	116.75	0.14	148.08	0.11
22.83	0.20	54.17	0.31	85.50	0.45	116.83	0.14	148.17	0.11
22.92	0.20	54.25	0.30	85.58	0.45	116.92	0.14	148.25	0.11
23.00	0.20	54.33	0.31	85.67	0.45	117.00	0.14	148.33	0.11
23.08	0.20	54.42	0.30	85.75	0.46	117.08	0.14	148.42	0.11
23.17	0.20	54.50	0.31	85.83	0.45	117.17	0.14	148.50	0.11
23.25	0.20	54.58	0.32	85.92	0.47	117.25	0.14	148.58	0.11
23.33	0.19	54.67	0.32	86.00	0.44	117.33	0.14	148.67	0.11
23.42	0.19	54.75	0.32	86.08	0.45	117.42	0.14	148.75	0.11
23.50	0.19	54.83	0.32	86.17	0.43	117.50	0.14	148.83	0.11
23.58	0.19	54.92	0.32	86.25	0.43	117.58	0.14	148.92	0.11
23.67	0.19	55.00	0.32	86.33	0.43	117.67	0.13	149.00	0.11
23.75	0.18	55.08	0.32	86.42	0.43	117.75	0.13	149.08	0.11
23.83	0.18	55.17	0.32	86.50	0.45	117.83	0.14	149.17	0.11
23.92	0.18	55.25	0.33	86.58	0.42	117.92	0.13	149.25	0.11
24.00	0.18	55.33	0.33	86.67	0.42	118.00	0.13	149.33	0.11
24.08	0.18	55.42	0.33	86.75	0.43	118.08	0.13	149.42	0.11
24.17	0.18	55.50	0.33	86.83	0.41	118.17	0.13	149.50	0.11
24.25	0.17	55.58	0.32	86.92	0.40	118.25	0.13	149.58	0.11
24.33	0.18	55.67	0.32	87.00	0.40	118.33	0.13	149.67	0.11
24.42	0.17	55.75	0.32	87.08	0.39	118.42	0.13	149.75	0.11
24.50	0.17	55.83	0.32	87.17	0.39	118.50	0.13	149.83	0.11
24.58	0.17	55.92	0.32	87.25	0.39	118.58	0.13	149.92	0.11
24.67	0.17	56.00	0.32	87.33	0.37	118.67	0.13	150.00	0.11
24.75	0.16	56.08	0.32	87.42	0.37	118.75	0.13	150.08	0.11
24.83	0.16	56.17	0.32	87.50	0.38	118.83	0.13	150.17	0.11
24.92	0.16	56.25	0.32	87.58	0.37	118.92	0.13	150.25	0.11
25.00	0.16	56.33	0.32	87.67	0.36	119.00	0.13	150.33	0.11
25.08	0.16	56.42	0.32	87.75	0.38	119.08	0.13	150.42	0.11
25.17	0.16	56.50	0.32	87.83	0.38	119.17	0.13	150.50	0.11
25.25	0.16	56.58	0.31	87.92	0.34	119.25	0.13	150.58	0.11
25.33	0.15	56.67	0.31	88.00	0.35	119.33	0.13	150.67	0.11
25.42	0.16	56.75	0.32	88.08	0.34	119.42	0.13	150.75	0.11
25.50	0.15	56.83	0.31	88.17	0.35	119.50	0.13	150.83	0.11
25.58	0.15	56.92	0.31	88.25	0.34	119.58	0.13	150.92	0.11
25.67	0.15	57.00	0.31	88.33	0.36	119.67	0.13	151.00	0.11
25.75	0.15	57.08	0.31	88.42	0.33	119.75	0.13	151.08	0.11
25.83	0.15	57.17	0.31	88.50	0.33	119.83	0.13	151.17	0.11
25.92	0.15	57.25	0.31	88.58	0.34	119.92	0.13	151.25	0.11
26.00	0.15	57.33	0.30	88.67	0.33	120.00	0.13	151.33	0.11
26.08	0.15	57.42	0.30	88.75	0.33	120.08	0.13	151.42	0.11
26.17	0.15	57.50	0.30	88.83	0.32	120.17	0.13	151.50	0.11
26.25	0.14	57.58	0.30	88.92	0.30	120.25	0.14	151.58	0.11
26.33	0.14	57.67	0.31	89.00	0.31	120.33	0.14	151.67	0.11
26.42	0.14	57.75	0.30	89.08	0.31	120.42	0.13	151.75	0.11
26.50	0.14	57.83	0.30	89.17	0.30	120.50	0.14	151.83	0.11
26.58	0.14	57.92	0.30	89.25	0.31	120.58	0.14	151.92	0.11
26.67	0.14	58.00	0.29	89.33	0.32	120.67	0.14	152.00	0.11
26.75	0.14	58.08	0.29	89.42	0.31	120.75	0.14	152.08	0.11
26.83	0.14	58.17	0.29	89.50	0.30	120.83	0.14	152.17	0.11
26.92	0.14	58.25	0.29	89.58	0.29	120.92	0.14	152.25	0.11
27.00	0.14	58.33	0.29	89.67	0.29	121.00	0.14	152.33	0.10
27.08	0.13	58.42	0.29	89.75	0.29	121.08	0.14	152.42	0.11
27.17	0.13	58.50	0.29	89.83	0.28	121.17	0.14	152.50	0.11
27.25	0.13	58.58	0.29	89.92	0.30	121.25	0.14	152.58	0.10
27.33	0.13	58.67	0.28	90.00	0.31	121.33	0.14	152.67	0.10
27.42	0.13	58.75	0.28	90.08	0.31	121.42	0.14	152.75	0.10
27.50	0.13	58.83	0.28	90.17	0.30	121.50	0.14	152.83	0.10
27.58	0.13	58.92	0.29	90.25	0.30	121.58	0.14	152.92	0.10
27.67	0.13	59.00	0.29	90.33	0.31	121.67	0.14	153.00	0.11
27.75	0.13	59.08	0.29	90.42	0.30	121.75	0.14	153.08	0.10
27.83	0.13	59.17	0.28	90.50	0.31	121.83	0.14	153.17	0.10
27.92	0.12	59.25	0.28	90.58	0.31	121.92	0.14	153.25	0.11
28.00	0.13	59.33	0.28	90.67	0.31	122.00	0.15	153.33	0.10
28.08	0.12	59.42	0.27	90.75	0.31	122.08	0.14	153.42	0.11
28.17	0.12	59.50	0.27	90.83	0.30	122.17	0.14	153.50	0.10
28.25	0.12	59.58	0.27	90.92	0.31	122.25	0.14	153.58	0.10
28.33	0.12	59.67	0.26	91.00	0.30	122.33	0.14	153.67	0.10
28.42	0.12	59.75	0.26	91.08	0.30	122.42	0.15	153.75	0.11
28.50	0.12	59.83	0.26	91.17	0.32	122.50	0.15	153.83	0.10
28.58	0.12	59.92	0.26	91.25	0.30	122.58	0.15	153.92	0.10
28.67	0.12	60.00	0.25	91.33	0.28	122.67	0.14	154.00	0.10
28.75	0.12	60.08	0.25	91.42	0.30	122.75	0.15	154.08	0.10
28.83	0.12	60.17	0.25	91.50	0.28	122.83	0.14	154.17	0.10
28.92	0.12	60.25	0.25	91.58	0.31	122.92	0.14	154.25	0.10
29.00	0.12	60.33	0.25	91.67	0.28	123.00	0.15	154.33	0.10
29.08	0.12	60.42	0.24	91.75	0.30	123.08	0.15	154.42	0.10
29.17	0.11	60.50	0.24	91.83	0.31	123.17	0.15	154.50	0.10
29.25	0.11	60.58	0.24	91.92	0.27	123.25	0.15	154.58	0.10
29.33	0.11	60.67	0.23	92.00	0.28	123.33	0.15	154.67	0.10
29.42	0.11	60.75	0.24	92.08	0.29	123.42	0.15	154.75	0.10
29.50	0.11	60.83	0.23	92.17	0.27	123.50	0.15	154.83	0.10
29.58	0.11	60.92	0.23	92.25	0.28	123.58	0.15	154.92	0.10
29.67	0.11	61.00	0.23	92.33	0.28	123.67	0.15	155.00	0.10
29.75	0.11	61.08	0.23	92.42	0.31	123.75	0.15	155.08	0.10
29.83	0.11	61.17	0.23	92.50	0.28	123.83	0.15	155.17	0.10
29.92	0.11	61.25	0.22	92.58	0.28	123.92	0.15	155.25	0.10
30.00	0.11	61.33	0.23	92.67	0.28	124.00	0.15	155.33	0.10
30.08	0.11	61.42	0.23	92.75	0.28	124.08	0.15	155.42	0.10
30.17	0.11	61.50	0.24	92.83	0.27	124.17	0.15	155.50	0.10
30.25	0.11	61.58	0.24	92.92	0.28	124.25	0.15	155.58	0.10
30.33	0.11	61.67	0.23	93.00	0.28	124.33	0.14	155.67	0.10
30.42	0.11	61.75	0.23	93.08	0.27	124.42	0.15	155.75	0.10
30.50	0.11	61.83	0.23	93.17	0.29	124.50	0.15	155.83	0.10
30.58	0.11	61.92	0.23	93.25	0.28	124.58	0.16	155.92	0.10

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 30.67    0.11 | 62.00    0.23 | 93.33    0.26 |124.67    0.15
|156.00   0.10
 30.75    0.11 | 62.08    0.23 | 93.42    0.27 |124.75    0.15
|156.08   0.10
 30.83    0.11 | 62.17    0.23 | 93.50    0.27 |124.83    0.15
|156.17   0.10
 30.92    0.11 | 62.25    0.23 | 93.58    0.26 |124.92    0.17
|156.25   0.10
 31.00    0.11 | 62.33    0.24 | 93.67    0.26 |125.00    0.16 |
 31.08    0.10 | 62.42    0.25 | 93.75    0.28 |125.08    0.16 |
 31.17    0.10 | 62.50    0.25 | 93.83    0.25 |125.17    0.16 |
 31.25    0.10 | 62.58    0.26 | 93.92    0.28 |125.25    0.16 |
------------------------------------------------------------------
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-------------------
| STORE HYD (1605) |   AREA      (ha)=  30.00
| ID= 1 DT= 5.0min |   QPEAK     (cms)=   1.37
-------------------    TPEAK     (hrs)=  71.92
                       VOLUME     (mm)= 625.27

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |' TIME    FLOW |
TIME   FLOW
   hrs    cms |   hrs     cms |   hrs     cms |'  hrs     cms |
hrs    cms
  0.00    0.00 | 31.25    0.15 | 62.50    0.38 | 93.75    0.37
|125.00   0.20
  0.08    0.00 | 31.33    0.15 | 62.58    0.38 | 93.83    0.36
|125.08   0.20
  0.17    0.00 | 31.42    0.15 | 62.67    0.38 | 93.92    0.36
|125.17   0.20
  0.25    0.00 | 31.50    0.15 | 62.75    0.38 | 94.00    0.36
|125.25   0.20
  0.33    0.00 | 31.58    0.15 | 62.83    0.38 | 94.08    0.36
|125.33   0.20
  0.42    0.00 | 31.67    0.15 | 62.92    0.38 | 94.17    0.36
|125.42   0.20
  0.50    0.00 | 31.75    0.15 | 63.00    0.37 | 94.25    0.36
|125.50   0.20
  0.58    0.00 | 31.83    0.14 | 63.08    0.38 | 94.33    0.36
|125.58   0.20
  0.67    0.00 | 31.92    0.14 | 63.17    0.37 | 94.42    0.36
|125.67   0.21
  0.75    0.00 | 32.00    0.14 | 63.25    0.37 | 94.50    0.36
|125.75   0.21
  0.83    0.00 | 32.08    0.14 | 63.33    0.37 | 94.58    0.36
|125.83   0.21
  0.92    0.00 | 32.17    0.14 | 63.42    0.37 | 94.67    0.36
|125.92   0.21
  1.00    0.00 | 32.25    0.14 | 63.50    0.37 | 94.75    0.36
|126.00   0.21
  1.08    0.00 | 32.33    0.14 | 63.58    0.37 | 94.83    0.36
|126.08   0.21
  1.17    0.00 | 32.42    0.14 | 63.67    0.36 | 94.92    0.35
|126.17   0.21
  1.25    0.00 | 32.50    0.14 | 63.75    0.36 | 95.00    0.35
|126.25   0.21
  1.33    0.00 | 32.58    0.14 | 63.83    0.36 | 95.08    0.35
|126.33   0.21
  1.42    0.00 | 32.67    0.14 | 63.92    0.36 | 95.17    0.35
|126.42   0.22
  1.50    0.00 | 32.75    0.14 | 64.00    0.36 | 95.25    0.35
|126.50   0.22
  1.58    0.00 | 32.83    0.14 | 64.08    0.36 | 95.33    0.35
|126.58   0.22
  1.67    0.00 | 32.92    0.14 | 64.17    0.36 | 95.42    0.35
|126.67   0.22
  1.75    0.00 | 33.00    0.14 | 64.25    0.35 | 95.50    0.35
|126.75   0.22
  1.83    0.00 | 33.08    0.14 | 64.33    0.35 | 95.58    0.34
|126.83   0.22
  1.92    0.00 | 33.17    0.14 | 64.42    0.35 | 95.67    0.34
|126.92   0.23
  2.00    0.00 | 33.25    0.14 | 64.50    0.35 | 95.75    0.34
|127.00   0.23
  2.08    0.00 | 33.33    0.14 | 64.58    0.34 | 95.83    0.34
|127.08   0.23
  2.17    0.00 | 33.42    0.14 | 64.67    0.34 | 95.92    0.34
|127.17   0.23
  2.25    0.00 | 33.50    0.14 | 64.75    0.34 | 96.00    0.34
|127.25   0.23
  2.33    0.00 | 33.58    0.14 | 64.83    0.34 | 96.08    0.34
|127.33   0.24
  2.42    0.00 | 33.67    0.14 | 64.92    0.34 | 96.17    0.34
|127.42   0.24
  2.50    0.00 | 33.75    0.14 | 65.00    0.34 | 96.25    0.34
|127.50   0.24
  2.58    0.00 | 33.83    0.14 | 65.08    0.34 | 96.33    0.34
|127.58   0.24
  2.67    0.00 | 33.92    0.14 | 65.17    0.34 | 96.42    0.34
|127.67   0.24
  2.75    0.00 | 34.00    0.14 | 65.25    0.34 | 96.50    0.34
|127.75   0.24
  2.83    0.00 | 34.08    0.14 | 65.33    0.34 | 96.58    0.34
|127.83   0.25
  2.92    0.00 | 34.17    0.14 | 65.42    0.34 | 96.67    0.34
|127.92   0.25
  3.00    0.00 | 34.25    0.14 | 65.50    0.34 | 96.75    0.33
|128.00   0.25
  3.08    0.00 | 34.33    0.14 | 65.58    0.33 | 96.83    0.33
|128.08   0.25
  3.17    0.00 | 34.42    0.14 | 65.67    0.34 | 96.92    0.33
|128.17   0.25
  3.25    0.00 | 34.50    0.14 | 65.75    0.33 | 97.00    0.33
|128.25   0.25
  3.33    0.00 | 34.58    0.14 | 65.83    0.33 | 97.08    0.33
|128.33   0.25
  3.42    0.00 | 34.67    0.14 | 65.92    0.33 | 97.17    0.33
|128.42   0.25
  3.50    0.00 | 34.75    0.14 | 66.00    0.33 | 97.25    0.33
|128.50   0.25
  3.58    0.00 | 34.83    0.14 | 66.08    0.32 | 97.33    0.33
|128.58   0.26
  3.67    0.00 | 34.92    0.14 | 66.17    0.33 | 97.42    0.33
|128.67   0.26
  3.75    0.00 | 35.00    0.14 | 66.25    0.33 | 97.50    0.33
|128.75   0.26
  3.83    0.00 | 35.08    0.14 | 66.33    0.32 | 97.58    0.33
|128.83   0.26
  3.92    0.00 | 35.17    0.14 | 66.42    0.32 | 97.67    0.33
|128.92   0.26
  4.00    0.00 | 35.25    0.14 | 66.50    0.33 | 97.75    0.33
|129.00   0.26
  4.08    0.00 | 35.33    0.14 | 66.58    0.32 | 97.83    0.33
|129.08   0.26
  4.17    0.00 | 35.42    0.14 | 66.67    0.32 | 97.92    0.33
|129.17   0.26
  4.25    0.00 | 35.50    0.14 | 66.75    0.32 | 98.00    0.32
|129.25   0.27
  4.33    0.00 | 35.58    0.14 | 66.83    0.32 | 98.08    0.32
|129.33   0.27
  4.42    0.00 | 35.67    0.14 | 66.92    0.32 | 98.17    0.32
|129.42   0.27
  4.50    0.00 | 35.75    0.14 | 67.00    0.32 | 98.25    0.32
|129.50   0.27
  4.58    0.00 | 35.83    0.14 | 67.08    0.32 | 98.33    0.32
|129.58   0.28
  4.67    0.00 | 35.92    0.14 | 67.17    0.32 | 98.42    0.32
|129.67   0.28
  4.75    0.00 | 36.00    0.14 | 67.25    0.32 | 98.50    0.32
|129.75   0.28
  4.83    0.00 | 36.08    0.14 | 67.33    0.33 | 98.58    0.32
|129.83   0.29
  4.92    0.00 | 36.17    0.14 | 67.42    0.34 | 98.67    0.32
|129.92   0.29
  5.00    0.00 | 36.25    0.14 | 67.50    0.34 | 98.75    0.32
|130.00   0.29
  5.08    0.00 | 36.33    0.15 | 67.58    0.35 | 98.83    0.32
|130.08   0.29
  5.17    0.00 | 36.42    0.15 | 67.67    0.35 | 98.92    0.32
|130.17   0.29
  5.25    0.00 | 36.50    0.15 | 67.75    0.36 | 99.00    0.32
|130.25   0.29
  5.33    0.00 | 36.58    0.15 | 67.83    0.37 | 99.08    0.32
|130.33   0.29
  5.42    0.00 | 36.67    0.15 | 67.92    0.38 | 99.17    0.32
|130.42   0.29
  5.50    0.00 | 36.75    0.15 | 68.00    0.40 | 99.25    0.32
|130.50   0.29
  5.58    0.00 | 36.83    0.15 | 68.08    0.41 | 99.33    0.32
|130.58   0.29
  5.67    0.00 | 36.92    0.15 | 68.17    0.42 | 99.42    0.32
|130.67   0.29
  5.75    0.00 | 37.00    0.15 | 68.25    0.43 | 99.50    0.32
|130.75   0.29
  5.83    0.00 | 37.08    0.15 | 68.33    0.45 | 99.58    0.31
|130.83   0.29
  5.92    0.00 | 37.17    0.15 | 68.42    0.47 | 99.67    0.31
|130.92   0.29
  6.00    0.00 | 37.25    0.15 | 68.50    0.48 | 99.75    0.31
|131.00   0.29
  6.08    0.00 | 37.33    0.15 | 68.58    0.50 | 99.83    0.31
|131.08   0.29
  6.17    0.00 | 37.42    0.15 | 68.67    0.52 | 99.92    0.31
|131.17   0.29
  6.25    0.00 | 37.50    0.15 | 68.75    0.53 |100.00    0.31
|131.25   0.29
  6.33    0.00 | 37.58    0.15 | 68.83    0.56 |100.08    0.31
|131.33   0.29
  6.42    0.00 | 37.67    0.15 | 68.92    0.57 |100.17    0.31
|131.42   0.29
  6.50    0.00 | 37.75    0.16 | 69.00    0.58 |100.25    0.31
|131.50   0.29
  6.58    0.00 | 37.83    0.16 | 69.08    0.60 |100.33    0.31
|131.58   0.28
  6.67    0.00 | 37.92    0.16 | 69.17    0.61 |100.42    0.31
|131.67   0.28
  6.75    0.00 | 38.00    0.16 | 69.25    0.63 |100.50    0.30
|131.75   0.28
  6.83    0.00 | 38.08    0.16 | 69.33    0.63 |100.58    0.30
|131.83   0.28
  6.92    0.00 | 38.17    0.16 | 69.42    0.64 |100.67    0.30
|131.92   0.28
  7.00    0.00 | 38.25    0.16 | 69.50    0.66 |100.75    0.30
|132.00   0.28
  7.08    0.00 | 38.33    0.16 | 69.58    0.68 |100.83    0.30
|132.08   0.28
  7.17    0.00 | 38.42    0.16 | 69.67    0.70 |100.92    0.30
|132.17   0.28
  7.25    0.00 | 38.50    0.16 | 69.75    0.71 |101.00    0.30
|132.25   0.28
  7.33    0.00 | 38.58    0.16 | 69.83    0.74 |101.08    0.30
|132.33   0.28
  7.42    0.00 | 38.67    0.17 | 69.92    0.76 |101.17    0.30
|132.42   0.28
  7.50    0.00 | 38.75    0.17 | 70.00    0.78 |101.25    0.30
|132.50   0.27
  7.58    0.00 | 38.83    0.17 | 70.08    0.80 |101.33    0.29
|132.58   0.27
  7.67    0.00 | 38.92    0.17 | 70.17    0.82 |101.42    0.29
|132.67   0.27
  7.75    0.00 | 39.00    0.17 | 70.25    0.84 |101.50    0.29
|132.75   0.27
  7.83    0.00 | 39.08    0.17 | 70.33    0.87 |101.58    0.29
|132.83   0.27
  7.92    0.00 | 39.17    0.17 | 70.42    0.91 |101.67    0.29
|132.92   0.27
  8.00    0.00 | 39.25    0.18 | 70.50    0.94 |101.75    0.28
|133.00   0.27
  8.08    0.00 | 39.33    0.18 | 70.58    0.98 |101.83    0.28
|133.08   0.27
  8.17    0.00 | 39.42    0.18 | 70.67    1.01 |101.92    0.28
|133.17   0.27
  8.25    0.00 | 39.50    0.18 | 70.75    1.04 |102.00    0.28
|133.25   0.26
  8.33    0.00 | 39.58    0.19 | 70.83    1.09 |102.08    0.28
|133.33   0.26
  8.42    0.00 | 39.67    0.19 | 70.92    1.14 |102.17    0.28
|133.42   0.26
  8.50    0.00 | 39.75    0.19 | 71.00    1.20 |102.25    0.28
|133.50   0.26
  8.58    0.00 | 39.83    0.19 | 71.08    1.23 |102.33    0.28
|133.58   0.26
  8.67    0.00 | 39.92    0.20 | 71.17    1.25 |102.42    0.27
|133.67   0.26
  8.75    0.00 | 40.00    0.20 | 71.25    1.30 |102.50    0.27
|133.75   0.26
  8.83    0.00 | 40.08    0.20 | 71.33    1.32 |102.58    0.27
|133.83   0.25
  8.92    0.00 | 40.17    0.21 | 71.42    1.33 |102.67    0.27
|133.92   0.25
  9.00    0.00 | 40.25    0.21 | 71.50    1.34 |102.75    0.27
|134.00   0.25
  9.08    0.00 | 40.33    0.21 | 71.58    1.36 |102.83    0.27
|134.08   0.25
  9.17    0.00 | 40.42    0.22 | 71.67    1.36 |102.92    0.27
|134.17   0.25
  9.25    0.00 | 40.50    0.22 | 71.75    1.36 |103.00    0.27
|134.25   0.25
  9.33    0.00 | 40.58    0.22 | 71.83    1.37 |103.08    0.27
|134.33   0.25
  9.42    0.00 | 40.67    0.23 | 71.92    1.37 |103.17    0.27
|134.42   0.25
  9.50    0.00 | 40.75    0.23 | 72.00    1.36 |103.25    0.26
|134.50   0.25
  9.58    0.00 | 40.83    0.24 | 72.08    1.35 |103.33    0.26
|134.58   0.24
  9.67    0.00 | 40.92    0.24 | 72.17    1.35 |103.42    0.26
|134.67   0.24
  9.75    0.00 | 41.00    0.24 | 72.25    1.33 |103.50    0.26
|134.75   0.24
  9.83    0.00 | 41.08    0.25 | 72.33    1.32 |103.58    0.26
|134.83   0.24
  9.92    0.00 | 41.17    0.25 | 72.42    1.31 |103.67    0.26
|134.92   0.24
 10.00    0.00 | 41.25    0.26 | 72.50    1.29 |103.75    0.25
|135.00   0.24
 10.08    0.00 | 41.33    0.27 | 72.58    1.27 |103.83    0.25
|135.08   0.24
 10.17    0.00 | 41.42    0.27 | 72.67    1.26 |103.92    0.25
|135.17   0.24
 10.25    0.00 | 41.50    0.28 | 72.75    1.23 |104.00    0.25
|135.25   0.24
 10.33    0.00 | 41.58    0.29 | 72.83    1.23 |104.08    0.25
|135.33   0.23
 10.42    0.00 | 41.67    0.29 | 72.92    1.21 |104.17    0.25
|135.42   0.23
 10.50    0.00 | 41.75    0.30 | 73.00    1.20 |104.25    0.25
|135.50   0.23
 10.58    0.00 | 41.83    0.30 | 73.08    1.17 |104.33    0.25
|135.58   0.23
 10.67    0.00 | 41.92    0.31 | 73.17    1.17 |104.42    0.24
|135.67   0.23
 10.75    0.00 | 42.00    0.32 | 73.25    1.16 |104.50    0.24
|135.75   0.23
 10.83    0.00 | 42.08    0.32 | 73.33    1.15 |104.58    0.24
|135.83   0.23
 10.92    0.00 | 42.17    0.33 | 73.42    1.12 |104.67    0.24
|135.92   0.23
 11.00    0.00 | 42.25    0.33 | 73.50    1.12 |104.75    0.24
|136.00   0.22
 11.08    0.00 | 42.33    0.34 | 73.58    1.11 |104.83    0.24
|136.08   0.22
 11.17    0.00 | 42.42    0.34 | 73.67    1.09 |104.92    0.24
|136.17   0.22
 11.25    0.00 | 42.50    0.35 | 73.75    1.08 |105.00    0.24
|136.25   0.22
 11.33    0.00 | 42.58    0.36 | 73.83    1.06 |105.08    0.24
|136.33   0.22
 11.42    0.00 | 42.67    0.36 | 73.92    1.05 |105.17    0.23
|136.42   0.22
 11.50    0.00 | 42.75    0.37 | 74.00    1.03 |105.25    0.23
|136.50   0.22
 11.58    0.00 | 42.83    0.38 | 74.08    1.03 |105.33    0.23
|136.58   0.22
 11.67    0.00 | 42.92    0.39 | 74.17    1.02 |105.42    0.23
|136.67   0.21
 11.75    0.00 | 43.00    0.40 | 74.25    1.00 |105.50    0.23
|136.75   0.21
 11.83    0.00 | 43.08    0.40 | 74.33    0.99 |105.58    0.23
|136.83   0.21
 11.92    0.00 | 43.17    0.42 | 74.42    0.97 |105.67    0.23
|136.92   0.21
 12.00    0.00 | 43.25    0.42 | 74.50    0.96 |105.75    0.23
|137.00   0.21
 12.08    0.00 | 43.33    0.43 | 74.58    0.95 |105.83    0.23
|137.08   0.21
 12.17    0.00 | 43.42    0.44 | 74.67    0.94 |105.92    0.23
|137.17   0.21
 12.25    0.00 | 43.50    0.45 | 74.75    0.92 |106.00    0.22
|137.25   0.21
 12.33    0.00 | 43.58    0.46 | 74.83    0.91 |106.08    0.22
|137.33   0.21
 12.42    0.00 | 43.67    0.47 | 74.92    0.89 |106.17    0.22
|137.42   0.21
 12.50    0.00 | 43.75    0.48 | 75.00    0.88 |106.25    0.22
|137.50   0.20
 12.58    0.00 | 43.83    0.49 | 75.08    0.87 |106.33    0.22
|137.58   0.20
 12.67    0.00 | 43.92    0.50 | 75.17    0.85 |106.42    0.22
|137.67   0.20
 12.75    0.00 | 44.00    0.50 | 75.25    0.84 |106.50    0.22
|137.75   0.20
 12.83    0.00 | 44.08    0.51 | 75.33    0.83 |106.58    0.22
|137.83   0.20
 12.92    0.00 | 44.17    0.51 | 75.42    0.81 |106.67    0.22
|137.92   0.20
 13.00    0.00 | 44.25    0.52 | 75.50    0.80 |106.75    0.21
|138.00   0.20
 13.08    0.00 | 44.33    0.52 | 75.58    0.79 |106.83    0.21
|138.08   0.20
 13.17    0.00 | 44.42    0.53 | 75.67    0.77 |106.92    0.21
|138.17   0.20
 13.25    0.00 | 44.50    0.53 | 75.75    0.77 |107.00    0.21
|138.25   0.19
 13.33    0.00 | 44.58    0.53 | 75.83    0.76 |107.08    0.21
|138.33   0.19
 13.42    0.00 | 44.67    0.54 | 75.92    0.74 |107.17    0.21
|138.42   0.19
 13.50    0.00 | 44.75    0.54 | 76.00    0.74 |107.25    0.21
|138.50   0.19
 13.58    0.00 | 44.83    0.54 | 76.08    0.72 |107.33    0.21
|138.58   0.19
 13.67    0.00 | 44.92    0.55 | 76.17    0.72 |107.42    0.21
|138.67   0.19
 13.75    0.00 | 45.00    0.55 | 76.25    0.71 |107.50    0.21
|138.75   0.19
 13.83    0.00 | 45.08    0.55 | 76.33    0.70 |107.58    0.21
|138.83   0.19
 13.92    0.00 | 45.17    0.55 | 76.42    0.69 |107.67    0.21
|138.92   0.19
 14.00    0.00 | 45.25    0.55 | 76.50    0.68 |107.75    0.20
|139.00   0.19
 14.08    0.00 | 45.33    0.55 | 76.58    0.68 |107.83    0.20
|139.08   0.19
 14.17    0.00 | 45.42    0.55 | 76.67    0.68 |107.92    0.20
|139.17   0.18
 14.25    0.00 | 45.50    0.55 | 76.75    0.66 |108.00    0.20
|139.25   0.18
 14.33    0.00 | 45.58    0.55 | 76.83    0.65 |108.08    0.20
|139.33   0.18
 14.42    0.00 | 45.67    0.55 | 76.92    0.65 |108.17    0.20
|139.42   0.18
 14.50    0.00 | 45.75    0.55 | 77.00    0.64 |108.25    0.20
|139.50   0.18
 14.58    0.00 | 45.83    0.55 | 77.08    0.63 |108.33    0.20
|139.58   0.18
 14.67    0.00 | 45.92    0.55 | 77.17    0.63 |108.42    0.20
|139.67   0.18
 14.75    0.99 | 46.00    0.54 | 77.25    0.63 |108.50    0.20
|139.75   0.18
 14.83    0.99 | 46.08    0.54 | 77.33    0.62 |108.58    0.20
|139.83   0.18
 14.92    1.00 | 46.17    0.54 | 77.42    0.61 |108.67    0.20
|139.92   0.18
 15.00    1.00 | 46.25    0.54 | 77.50    0.60 |108.75    0.19
|140.00   0.18
 15.08    1.01 | 46.33    0.53 | 77.58    0.60 |108.83    0.19
|140.08   0.18
 15.17    1.01 | 46.42    0.53 | 77.67    0.59 |108.92    0.19
|140.17   0.18
 15.25    1.02 | 46.50    0.53 | 77.75    0.59 |109.00    0.19
|140.25   0.18
 15.33    1.03 | 46.58    0.52 | 77.83    0.58 |109.08    0.19
|140.33   0.18
 15.42    1.04 | 46.67    0.52 | 77.92    0.58 |109.17    0.19
|140.42   0.17
 15.50    1.05 | 46.75    0.52 | 78.00    0.58 |109.25    0.19
|140.50   0.17
 15.58    1.06 | 46.83    0.52 | 78.08    0.58 |109.33    0.19
|140.58   0.17
 15.67    1.07 | 46.92    0.51 | 78.17    0.57 |109.42    0.19
|140.67   0.17
 15.75    1.08 | 47.00    0.51 | 78.25    0.56 |109.50    0.19
|140.75   0.17
 15.83    1.08 | 47.08    0.51 | 78.33    0.56 |109.58    0.19
|140.83   0.17
 15.92    1.08 | 47.17    0.51 | 78.42    0.55 |109.67    0.18
|140.92   0.17
 16.00    1.09 | 47.25    0.51 | 78.50    0.55 |109.75    0.18
|141.00   0.17
 16.08    1.09 | 47.33    0.51 | 78.58    0.55 |109.83    0.18
|141.08   0.17
 16.17    1.09 | 47.42    0.51 | 78.67    0.55 |109.92    0.18
|141.17   0.17
 16.25    1.09 | 47.50    0.50 | 78.75    0.54 |110.00    0.18
|141.25   0.17
 16.33    1.09 | 47.58    0.50 | 78.83    0.54 |110.08    0.18
|141.33   0.17
 16.42    1.09 | 47.67    0.50 | 78.92    0.54 |110.17    0.18
|141.42   0.17
 16.50    1.09 | 47.75    0.50 | 79.00    0.54 |110.25    0.18
|141.50   0.16
 16.58    1.10 | 47.83    0.50 | 79.08    0.53 |110.33    0.18
|141.58   0.16
 16.67    1.09 | 47.92    0.50 | 79.17    0.52 |110.42    0.18
|141.67   0.16
 16.75    1.09 | 48.00    0.50 | 79.25    0.52 |110.50    0.18
|141.75   0.16
 16.83    1.08 | 48.08    0.50 | 79.33    0.51 |110.58    0.18
|141.83   0.16
 16.92    1.09 | 48.17    0.49 | 79.42    0.50 |110.67    0.18
|141.92   0.16
 17.00    1.08 | 48.25    0.49 | 79.50    0.50 |110.75    0.18
|142.00   0.16
 17.08    1.07 | 48.33    0.49 | 79.58    0.49 |110.83    0.18
|142.08   0.16
 17.17    1.06 | 48.42    0.49 | 79.67    0.49 |110.92    0.18
|142.17   0.16
 17.25    1.06 | 48.50    0.49 | 79.75    0.48 |111.00    0.18
|142.25   0.16
 17.33    1.05 | 48.58    0.49 | 79.83    0.48 |111.08    0.18
|142.33   0.16
 17.42    1.04 | 48.67    0.48 | 79.92    0.48 |111.17    0.18
|142.42   0.16
 17.50    1.04 | 48.75    0.48 | 80.00    0.47 |111.25    0.18
|142.50   0.16
 17.58    1.03 | 48.83    0.48 | 80.08    0.47 |111.33    0.18
|142.58   0.16
 17.67    1.02 | 48.92    0.48 | 80.17    0.46 |111.42    0.18
|142.67   0.16
 17.75    1.01 | 49.00    0.47 | 80.25    0.46 |111.50    0.18
|142.75   0.16
 17.83    1.00 | 49.08    0.47 | 80.33    0.46 |111.58    0.18
|142.83   0.16
 17.92    0.99 | 49.17    0.47 | 80.42    0.45 |111.67    0.18
|142.92   0.16
 18.00    0.98 | 49.25    0.47 | 80.50    0.45 |111.75    0.18
|143.00   0.16
 18.08    0.97 | 49.33    0.47 | 80.58    0.45 |111.83    0.17
|143.08   0.15
 18.17    0.96 | 49.42    0.46 | 80.67    0.45 |111.92    0.17
|143.17   0.15
 18.25    0.95 | 49.50    0.46 | 80.75    0.44 |112.00    0.17
|143.25   0.15
 18.33    0.93 | 49.58    0.46 | 80.83    0.44 |112.08    0.17
|143.33   0.15
 18.42    0.92 | 49.67    0.46 | 80.92    0.44 |112.17    0.17
|143.42   0.15
 18.50    0.91 | 49.75    0.45 | 81.00    0.44 |112.25    0.17
|143.50   0.15
 18.58    0.89 | 49.83    0.45 | 81.08    0.44 |112.33    0.17
|143.58   0.15
 18.67    0.87 | 49.92    0.45 | 81.17    0.44 |112.42    0.17
|143.67   0.15
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 18.75   0.86 | 50.00   0.45 | 81.25   0.44 |112.50   0.17
|143.75   0.15
 18.83   0.84 | 50.08   0.44 | 81.33   0.44 |112.58   0.17
|143.83   0.15
 18.92   0.83 | 50.17   0.44 | 81.42   0.43 |112.67   0.17
|143.92   0.15
 19.00   0.81 | 50.25   0.44 | 81.50   0.44 |112.75   0.17
|144.00   0.15
 19.08   0.79 | 50.33   0.44 | 81.58   0.45 |112.83   0.17
|144.08   0.15
 19.17   0.78 | 50.42   0.44 | 81.67   0.46 |112.92   0.17
|144.17   0.15
 19.25   0.76 | 50.50   0.44 | 81.75   0.45 |113.00   0.17
|144.25   0.15
 19.33   0.74 | 50.58   0.44 | 81.83   0.46 |113.08   0.17
|144.33   0.15
 19.42   0.72 | 50.67   0.44 | 81.92   0.46 |113.17   0.16
|144.42   0.15
 19.50   0.71 | 50.75   0.43 | 82.00   0.47 |113.25   0.16
|144.50   0.15
 19.58   0.69 | 50.83   0.43 | 82.08   0.47 |113.33   0.16
|144.58   0.15
 19.67   0.68 | 50.92   0.43 | 82.17   0.47 |113.42   0.16
|144.67   0.15
 19.75   0.66 | 51.00   0.43 | 82.25   0.48 |113.50   0.16
|144.75   0.15
 19.83   0.65 | 51.08   0.43 | 82.33   0.49 |113.58   0.16
|144.83   0.14
 19.92   0.64 | 51.17   0.43 | 82.42   0.49 |113.67   0.16
|144.92   0.14
 20.00   0.62 | 51.25   0.43 | 82.50   0.49 |113.75   0.16
|145.00   0.14
 20.08   0.61 | 51.33   0.43 | 82.58   0.49 |113.83   0.16
|145.08   0.14
 20.17   0.60 | 51.42   0.43 | 82.67   0.50 |113.92   0.16
|145.17   0.14
 20.25   0.58 | 51.50   0.43 | 82.75   0.50 |114.00   0.16
|145.25   0.14
 20.33   0.58 | 51.58   0.43 | 82.83   0.50 |114.08   0.16
|145.33   0.14
 20.42   0.56 | 51.67   0.43 | 82.92   0.50 |114.17   0.16
|145.42   0.14
 20.50   0.55 | 51.75   0.43 | 83.00   0.50 |114.25   0.16
|145.50   0.14
 20.58   0.54 | 51.83   0.43 | 83.08   0.50 |114.33   0.16
|145.58   0.14
 20.67   0.53 | 51.92   0.43 | 83.17   0.51 |114.42   0.16
|145.67   0.14
 20.75   0.52 | 52.00   0.43 | 83.25   0.51 |114.50   0.16
|145.75   0.14
 20.83   0.51 | 52.08   0.43 | 83.33   0.51 |114.58   0.16
|145.83   0.14
 20.92   0.50 | 52.17   0.43 | 83.42   0.51 |114.67   0.16
|145.92   0.14
 21.00   0.49 | 52.25   0.43 | 83.50   0.52 |114.75   0.16
|146.00   0.14
 21.08   0.49 | 52.33   0.43 | 83.58   0.52 |114.83   0.16
|146.08   0.14
 21.17   0.48 | 52.42   0.43 | 83.67   0.53 |114.92   0.16
|146.17   0.14
 21.25   0.47 | 52.50   0.43 | 83.75   0.53 |115.00   0.16
|146.25   0.14
 21.33   0.47 | 52.58   0.43 | 83.83   0.54 |115.08   0.16
|146.33   0.14
 21.42   0.46 | 52.67   0.43 | 83.92   0.55 |115.17   0.16
|146.42   0.14
 21.50   0.45 | 52.75   0.43 | 84.00   0.56 |115.25   0.16
|146.50   0.14
 21.58   0.45 | 52.83   0.43 | 84.08   0.57 |115.33   0.16
|146.58   0.14
 21.67   0.44 | 52.92   0.44 | 84.17   0.58 |115.42   0.16
|146.67   0.14
 21.75   0.43 | 53.00   0.44 | 84.25   0.60 |115.50   0.16
|146.75   0.14
 21.83   0.43 | 53.08   0.44 | 84.33   0.62 |115.58   0.16
|146.83   0.14
 21.92   0.42 | 53.17   0.44 | 84.42   0.64 |115.67   0.16
|146.92   0.13
 22.00   0.42 | 53.25   0.44 | 84.50   0.66 |115.75   0.16
|147.00   0.13
 22.08   0.41 | 53.33   0.45 | 84.58   0.69 |115.83   0.16
|147.08   0.13
 22.17   0.41 | 53.42   0.45 | 84.67   0.72 |115.92   0.16
|147.17   0.13
 22.25   0.40 | 53.50   0.45 | 84.75   0.74 |116.00   0.16
|147.25   0.13
 22.33   0.40 | 53.58   0.45 | 84.83   0.77 |116.08   0.15
|147.33   0.13
 22.42   0.39 | 53.67   0.46 | 84.92   0.79 |116.17   0.15
|147.42   0.13
 22.50   0.39 | 53.75   0.46 | 85.00   0.81 |116.25   0.16
|147.50   0.13
 22.58   0.38 | 53.83   0.46 | 85.08   0.82 |116.33   0.16
|147.58   0.13
 22.67   0.38 | 53.92   0.46 | 85.17   0.84 |116.42   0.16
|147.67   0.13
 22.75   0.37 | 54.00   0.47 | 85.25   0.85 |116.50   0.16
|147.75   0.13
 22.83   0.37 | 54.08   0.47 | 85.33   0.85 |116.58   0.16
|147.83   0.13
 22.92   0.36 | 54.17   0.47 | 85.42   0.86 |116.67   0.16
|147.92   0.13
 23.00   0.36 | 54.25   0.48 | 85.50   0.87 |116.75   0.16
|148.00   0.13
 23.08   0.36 | 54.33   0.48 | 85.58   0.86 |116.83   0.16
|148.08   0.13
 23.17   0.35 | 54.42   0.49 | 85.67   0.87 |116.92   0.16
|148.17   0.13
 23.25   0.35 | 54.50   0.49 | 85.75   0.86 |117.00   0.16
|148.25   0.13
 23.33   0.34 | 54.58   0.50 | 85.83   0.85 |117.08   0.16
|148.33   0.13
 23.42   0.34 | 54.67   0.50 | 85.92   0.85 |117.17   0.16
|148.42   0.13
 23.50   0.34 | 54.75   0.51 | 86.00   0.84 |117.25   0.16
|148.50   0.13
 23.58   0.33 | 54.83   0.52 | 86.08   0.83 |117.33   0.16
|148.58   0.13
 23.67   0.33 | 54.92   0.53 | 86.17   0.82 |117.42   0.16
|148.67   0.13
 23.75   0.32 | 55.00   0.53 | 86.25   0.81 |117.50   0.16
|148.75   0.13
 23.83   0.32 | 55.08   0.54 | 86.33   0.81 |117.58   0.16
|148.83   0.13
 23.92   0.32 | 55.17   0.55 | 86.42   0.79 |117.67   0.16
|148.92   0.13
 24.00   0.31 | 55.25   0.55 | 86.50   0.78 |117.75   0.16
|149.00   0.13
 24.08   0.31 | 55.33   0.55 | 86.58   0.77 |117.83   0.16
|149.08   0.13
 24.17   0.30 | 55.42   0.56 | 86.67   0.76 |117.92   0.16
|149.17   0.13
 24.25   0.30 | 55.50   0.56 | 86.75   0.74 |118.00   0.16
|149.25   0.12
 24.33   0.30 | 55.58   0.57 | 86.83   0.74 |118.08   0.16
|149.33   0.12
 24.42   0.30 | 55.67   0.57 | 86.92   0.73 |118.17   0.16
|149.42   0.12
 24.50   0.29 | 55.75   0.58 | 87.00   0.71 |118.25   0.16
|149.50   0.12
 24.58   0.29 | 55.83   0.58 | 87.08   0.71 |118.33   0.16
|149.58   0.12
 24.67   0.29 | 55.92   0.58 | 87.17   0.70 |118.42   0.16
|149.67   0.12
 24.75   0.28 | 56.00   0.58 | 87.25   0.68 |118.50   0.16
|149.75   0.12
 24.83   0.28 | 56.08   0.58 | 87.33   0.68 |118.58   0.15
|149.83   0.12
 24.92   0.28 | 56.17   0.58 | 87.42   0.66 |118.67   0.15
|149.92   0.12
 25.00   0.27 | 56.25   0.58 | 87.50   0.66 |118.75   0.15
|150.00   0.12
 25.08   0.27 | 56.33   0.58 | 87.58   0.65 |118.83   0.15
|150.08   0.12
 25.17   0.27 | 56.42   0.58 | 87.67   0.64 |118.92   0.15
|150.17   0.12
 25.25   0.27 | 56.50   0.59 | 87.75   0.63 |119.00   0.15
|150.25   0.12
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 25.33   0.26 | 56.58   0.59 | 87.83   0.62 |119.08   0.15
|150.33   0.12
 25.42   0.26 | 56.67   0.59 | 87.92   0.62 |119.17   0.15
|150.42   0.12
 25.50   0.26 | 56.75   0.59 | 88.00   0.61 |119.25   0.15
|150.50   0.12
 25.58   0.25 | 56.83   0.59 | 88.08   0.60 |119.33   0.15
|150.58   0.12
 25.67   0.25 | 56.92   0.59 | 88.17   0.59 |119.42   0.15
|150.67   0.12
 25.75   0.25 | 57.00   0.59 | 88.25   0.58 |119.50   0.15
|150.75   0.12
 25.83   0.25 | 57.08   0.59 | 88.33   0.58 |119.58   0.15
|150.83   0.12
 25.92   0.25 | 57.17   0.59 | 88.42   0.57 |119.67   0.15
|150.92   0.12
 26.00   0.24 | 57.25   0.59 | 88.50   0.57 |119.75   0.15
|151.00   0.12
 26.08   0.24 | 57.33   0.59 | 88.58   0.56 |119.83   0.16
|151.08   0.12
 26.17   0.24 | 57.42   0.59 | 88.67   0.55 |119.92   0.16
|151.17   0.12
 26.25   0.24 | 57.50   0.59 | 88.75   0.55 |120.00   0.16
|151.25   0.12
 26.33   0.23 | 57.58   0.58 | 88.83   0.54 |120.08   0.16
|151.33   0.12
 26.42   0.23 | 57.67   0.58 | 88.92   0.53 |120.17   0.16
|151.42   0.12
 26.50   0.23 | 57.75   0.58 | 89.00   0.53 |120.25   0.16
|151.50   0.12
 26.58   0.23 | 57.83   0.57 | 89.08   0.52 |120.33   0.16
|151.58   0.12
 26.67   0.23 | 57.92   0.57 | 89.17   0.51 |120.42   0.16
|151.67   0.12
 26.75   0.22 | 58.00   0.57 | 89.25   0.51 |120.50   0.16
|151.75   0.12
 26.83   0.22 | 58.08   0.57 | 89.33   0.50 |120.58   0.16
|151.83   0.12
 26.92   0.22 | 58.17   0.56 | 89.42   0.50 |120.67   0.16
|151.92   0.12
 27.00   0.22 | 58.25   0.56 | 89.50   0.49 |120.75   0.16
|152.00   0.12
 27.08   0.22 | 58.33   0.56 | 89.58   0.48 |120.83   0.16
|152.08   0.12
 27.17   0.21 | 58.42   0.55 | 89.67   0.48 |120.92   0.16
|152.17   0.12
 27.25   0.21 | 58.50   0.55 | 89.75   0.47 |121.00   0.16
|152.25   0.12
 27.33   0.21 | 58.58   0.54 | 89.83   0.47 |121.08   0.16
|152.33   0.11
 27.42   0.21 | 58.67   0.54 | 89.92   0.47 |121.17   0.17
|152.42   0.11
 27.50   0.21 | 58.75   0.53 | 90.00   0.47 |121.25   0.17
|152.50   0.11
 27.58   0.21 | 58.83   0.53 | 90.08   0.46 |121.33   0.17
|152.58   0.11
 27.67   0.20 | 58.92   0.52 | 90.17   0.46 |121.42   0.17
|152.67   0.11
 27.75   0.20 | 59.00   0.52 | 90.25   0.45 |121.50   0.17
|152.75   0.11
 27.83   0.20 | 59.08   0.52 | 90.33   0.45 |121.58   0.17
|152.83   0.11
 27.92   0.20 | 59.17   0.51 | 90.42   0.44 |121.67   0.17
|152.92   0.11
 28.00   0.19 | 59.25   0.51 | 90.50   0.44 |121.75   0.17
|153.00   0.11
 28.08   0.19 | 59.33   0.50 | 90.58   0.44 |121.83   0.17
|153.08   0.11
 28.17   0.19 | 59.42   0.50 | 90.67   0.43 |121.92   0.17
|153.17   0.11
 28.25   0.19 | 59.50   0.49 | 90.75   0.43 |122.00   0.17
|153.25   0.11
 28.33   0.19 | 59.58   0.49 | 90.83   0.43 |122.08   0.17
|153.33   0.11
 28.42   0.19 | 59.67   0.49 | 90.92   0.43 |122.17   0.17
|153.42   0.11
 28.50   0.19 | 59.75   0.48 | 91.00   0.42 |122.25   0.18
|153.50   0.11
 28.58   0.18 | 59.83   0.48 | 91.08   0.42 |122.33   0.18
|153.58   0.11
 28.67   0.18 | 59.92   0.47 | 91.17   0.42 |122.42   0.18
|153.67   0.11
 28.75   0.18 | 60.00   0.47 | 91.25   0.42 |122.50   0.18
|153.75   0.11
 28.83   0.18 | 60.08   0.47 | 91.33   0.41 |122.58   0.18
|153.83   0.11
 28.92   0.18 | 60.17   0.46 | 91.42   0.41 |122.67   0.18
|153.92   0.11
 29.00   0.18 | 60.25   0.46 | 91.50   0.41 |122.75   0.18
|154.00   0.11
 29.08   0.18 | 60.33   0.45 | 91.58   0.41 |122.83   0.18
|154.08   0.11
 29.17   0.18 | 60.42   0.45 | 91.67   0.41 |122.92   0.18
|154.17   0.11
 29.25   0.17 | 60.50   0.44 | 91.75   0.41 |123.00   0.18
|154.25   0.11
 29.33   0.17 | 60.58   0.44 | 91.83   0.40 |123.08   0.18
|154.33   0.11
 29.42   0.17 | 60.67   0.44 | 91.92   0.40 |123.17   0.18
|154.42   0.11
 29.50   0.17 | 60.75   0.43 | 92.00   0.40 |123.25   0.18
|154.50   0.11
 29.58   0.17 | 60.83   0.43 | 92.08   0.40 |123.33   0.18
|154.58   0.11
 29.67   0.17 | 60.92   0.42 | 92.17   0.40 |123.42   0.18
|154.67   0.11
 29.75   0.17 | 61.00   0.42 | 92.25   0.39 |123.50   0.18
|154.75   0.11
 29.83   0.17 | 61.08   0.42 | 92.33   0.39 |123.58   0.18
|154.83   0.11
 29.92   0.16 | 61.17   0.42 | 92.42   0.39 |123.67   0.18
|154.92   0.11
 30.00   0.16 | 61.25   0.41 | 92.50   0.39 |123.75   0.18
|155.00   0.11
 30.08   0.16 | 61.33   0.41 | 92.58   0.38 |123.83   0.18
|155.08   0.11
 30.17   0.16 | 61.42   0.40 | 92.67   0.38 |123.92   0.18
|155.17   0.11
 30.25   0.16 | 61.50   0.40 | 92.75   0.38 |124.00   0.18
|155.25   0.11
 30.33   0.16 | 61.58   0.40 | 92.83   0.38 |124.08   0.18
|155.33   0.11
 30.42   0.16 | 61.67   0.40 | 92.92   0.38 |124.17   0.18
|155.42   0.11
 30.50   0.16 | 61.75   0.39 | 93.00   0.37 |124.25   0.18
|155.50   0.11
 30.58   0.16 | 61.83   0.39 | 93.08   0.37 |124.33   0.19
|155.58   0.11
 30.67   0.16 | 61.92   0.39 | 93.17   0.37 |124.42   0.19
|155.67   0.11
 30.75   0.16 | 62.00   0.38 | 93.25   0.37 |124.50   0.19
|155.75   0.11
 30.83   0.15 | 62.08   0.38 | 93.33   0.37 |124.58   0.19
|155.83   0.10
 30.92   0.15 | 62.17   0.38 | 93.42   0.37 |124.67   0.20
|155.92   0.11
 31.00   0.15 | 62.25   0.38 | 93.50   0.37 |124.75   0.20
|156.00   0.10
 31.08   0.15 | 62.33   0.39 | 93.58   0.37 |124.83   0.20 |
 31.17   0.15 | 62.42   0.39 | 93.67   0.37 |124.92   0.20 |
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--------------------
| CALIB              |
| STANDHYD  (6202) |   Area    (ha)=  12.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.00         6.00
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     282.84        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        82.35
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.67 (ii)   14.06 (ii)
```

```
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.18         0.77
1.816 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      66.10        31.51
43.62
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.98         0.47
0.65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0621) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1549.0) ------>
              Distance      Elevation        Manning
                  0.00          87.56         0.0900
                  3.37          87.60         0.0900
                 16.78          87.21         0.0900
                 31.08          87.29         0.0900
                 43.62          87.28         0.0900
                 62.88          87.41         0.0900
                 68.00          87.22         0.0900
                 96.20          87.43         0.0900
                112.60          86.39     0.0900 /0.0700  Main
Channel
                113.70          86.10         0.0700      Main
Channel
                114.40          86.51     0.0700 /0.0900  Main
Channel
                114.60          86.67         0.0900
                131.60          87.07         0.0900
                156.70          87.16         0.0900
                184.59          87.41         0.0900
                194.09          87.56         0.0900
                202.66          87.64         0.0900
                221.43          87.69         0.0900
                230.63          87.86         0.0900

     <--------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH     ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
      (m)       (m)      (cu.m.)      (cms)        (m/s)
(min)
     0.07     86.17     .898E+01       0.0          0.13
79.55
     0.14     86.24     .359E+02       0.0          0.21
50.11
     0.21     86.31     .808E+02       0.0          0.28
38.24
     0.29     86.39     .144E+03       0.1          0.33
31.57
     0.36     86.46     .256E+03       0.2          0.39
27.10
     0.44     86.54     .435E+03       0.3          0.42
25.03
     0.52     86.62     .680E+03       0.5          0.46
23.12
     0.60     86.70     .998E+03       0.8          0.48
21.78
     0.68     86.78     .150E+04       1.2          0.48
21.76
     0.76     86.85     .223E+04       1.7          0.48
21.78
     0.83     86.93     .319E+04       2.5          0.49
21.41
     0.91     87.01     .437E+04       3.5          0.51
20.74
     0.99     87.09     .580E+04       4.7          0.51
20.64
     1.07     87.17     .811E+04       6.2          0.48
21.90
     1.15     87.25     .113E+05       7.8          0.44
24.18
     1.23     87.32     .165E+05      10.6          0.41
26.00
     1.30     87.40     .239E+05      16.0          0.42
24.97
     1.38     87.48     .327E+05      24.3          0.47
22.45
     1.46     87.56     .419E+05      34.6          0.52
20.16

                                  <---- hydrograph ---->    <-
pipe / channel->
                             AREA     QPEAK    TPEAK   R.V.    MAX
DEPTH  MAX VEL
                             (ha)     (cms)    (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6202)   12.00      1.82     3.00  43.62
0.77      0.48
     OUTFLOW: ID= 1 (0621)   12.00      1.03     3.17  43.58
0.65      0.48


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| CALIB              |
| STANDHYD  (6212) |   Area    (ha)=  21.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  76.00   Dir. Conn.(%)=
67.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.49         5.21
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     380.35        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        97.22
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       5.57 (ii)   14.36 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.20         0.08

*TOTALS*
     PEAK FLOW       (cms)=       4.00         0.79
4.661 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60        35.35
52.94
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.52
0.78


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0142) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
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```
        ID1= 1 (0621):    12.00   1.027     3.17    43.58
      + ID2= 2 (6212):    21.70   4.661     3.00    52.94
        ==================================================
        ID = 3 (0142):    33.70   5.514     3.00    49.61

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0622) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 953.0) ------>
               Distance      Elevation       Manning
                  16.75        82.21         0.1100
                  30.34        82.03         0.1100
                  44.96        81.97         0.1100
                  58.95        81.94         0.1100
                  71.21        81.85         0.1100
                 100.74        81.58         0.1100
                 112.29        81.50         0.1100
                 121.63        81.56         0.1100
                 127.04        81.66     0.1100 /0.0700  Main
Channel
                 129.04        80.66         0.0700      Main
Channel
                 130.04        80.66         0.0700      Main
Channel
                 131.04        80.66         0.0700      Main
Channel
                 133.04        81.66     0.0700 /0.1100  Main
Channel
                 134.58        82.08         0.1100
                 135.14        82.01         0.1100
                 139.68        81.73         0.1100
                 151.74        81.75         0.1100
                 153.37        81.71         0.1100
                 167.06        81.83         0.1100
                 187.62        81.87         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.06   80.72   .649E+02       0.0          0.17
49.00
      0.12   80.79   .138E+03       0.1          0.25
32.10
      0.19   80.85   .218E+03       0.1          0.32
25.32
      0.25   80.91   .306E+03       0.2          0.38
21.50
      0.31   80.97   .401E+03       0.4          0.43
18.99
      0.37   81.04   .504E+03       0.5          0.47
17.19
      0.44   81.10   .615E+03       0.6          0.52
15.81
      0.50   81.16   .733E+03       0.8          0.55
14.71
      0.56   81.22   .860E+03       1.0          0.59
13.81
      0.62   81.29   .993E+03       1.3          0.62
13.06
      0.69   81.35   .113E+04       1.5          0.66
12.41
      0.75   81.41   .128E+04       1.8          0.69
11.84
      0.81   81.47   .144E+04       2.1          0.72
11.35
      0.87   81.54   .170E+04       2.5          0.71
11.50
      0.94   81.60   .245E+04       3.0          0.59
13.80
      1.00   81.66   .355E+04       3.7          0.51
16.06
      1.07   81.73   .511E+04       4.9          0.47
17.27
      1.14   81.80   .759E+04       6.7          0.43
18.98
      1.21   81.87   .109E+05       9.0          0.40
20.28

                              <---- hydrograph ---->   <-
pipe / channel->
                           AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                           (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0142)   33.70     5.51    3.00  49.61
1.09      0.46
    OUTFLOW: ID= 1 (0622)   33.70     3.46    3.17  49.60
0.98      0.53


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| CALIB            |
| STANDHYD  (6222) |   Area    (ha)=  16.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=
69.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       13.18          3.72
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      335.66         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      105.46         71.62
               over (min)         5.00         20.00
     Storage Coeff.  (min)=        5.17 (ii)    15.10 (ii)
     Unit Hyd. Tpeak (min)=        5.00         20.00
     Unit Hyd. peak  (cms)=        0.21          0.07

*TOTALS*
    PEAK FLOW       (cms)=        3.24          0.38
3.499 (iii)
    TIME TO PEAK    (hrs)=        3.00          3.17
3.00
    RUNOFF VOLUME    (mm)=       61.60         25.44
50.39
    TOTAL RAINFALL   (mm)=       67.60         67.60
67.60
    RUNOFF COEFFICIENT   =        0.91          0.38
0.75


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0144) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
        ID1= 1 (0622):    33.70   3.461     3.17    49.60
      + ID2= 2 (6222):    16.90   3.499     3.00    50.39
        ==================================================
        ID = 3 (0144):    50.60   6.581     3.00    49.86

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (6232) |   Area    (ha)=  20.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       10.30         10.30
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      370.59         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      105.46         50.94
               over (min)         5.00         20.00
     Storage Coeff.  (min)=        5.49 (ii)    16.87 (ii)
     Unit Hyd. Tpeak (min)=        5.00         20.00
     Unit Hyd. peak  (cms)=        0.20          0.06

*TOTALS*
    PEAK FLOW       (cms)=        1.99          0.83
2.550 (iii)
    TIME TO PEAK    (hrs)=        3.00          3.17
3.00
    RUNOFF VOLUME    (mm)=       61.60         23.29
36.70
    TOTAL RAINFALL   (mm)=       67.60         67.60
67.60
    RUNOFF COEFFICIENT   =        0.91          0.34
0.54


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0146) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
        ID1= 1 (0144):    50.60   6.581     3.00    49.86
      + ID2= 2 (6232):    20.60   2.550     3.00    36.70
        ==================================================
        ID = 3 (0146):    71.20   9.131     3.00    46.05

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (6302) |   Area    (ha)=   2.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=
58.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.79          0.81
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      131.66         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      105.46         95.10
               over (min)         5.00         15.00
     Storage Coeff.  (min)=        2.95 (ii)    11.82 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.28          0.09

*TOTALS*
    PEAK FLOW       (cms)=        0.44          0.13
0.547 (iii)
    TIME TO PEAK    (hrs)=        3.00          3.08
3.00
    RUNOFF VOLUME    (mm)=       61.60         35.06
50.45
    TOTAL RAINFALL   (mm)=       67.60         67.60
67.60
    RUNOFF COEFFICIENT   =        0.91          0.52
0.75

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0631) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 788.2) ------>
               Distance      Elevation       Manning
                   0.00        81.00         0.1100
                  15.70        81.00         0.1100
                  17.50        80.50     0.1100 /0.0700  Main
Channel
                  18.50        80.50         0.0700      Main
Channel
                  20.00        81.00     0.0700 /0.1100  Main
Channel
                  24.00        81.00         0.1100
                  38.00        81.50         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.03   80.53   .174E+02       0.0          0.10
100.96
      0.05   80.55   .375E+02       0.0          0.15
66.64
      0.08   80.58   .604E+02       0.0          0.19
52.98
      0.11   80.61   .861E+02       0.0          0.22
45.34
      0.13   80.63   .115E+03       0.0          0.25
40.34
      0.16   80.66   .146E+03       0.1          0.28
36.75
      0.18   80.68   .180E+03       0.1          0.30
34.02
      0.21   80.71   .217E+03       0.1          0.32
31.85
      0.24   80.74   .256E+03       0.1          0.34
30.07
      0.26   80.76   .298E+03       0.2          0.35
28.57
      0.29   80.79   .344E+03       0.2          0.37
27.28
      0.32   80.82   .391E+03       0.2          0.39
26.15
      0.34   80.84   .442E+03       0.3          0.40
25.16
      0.37   80.87   .495E+03       0.3          0.42
24.27
      0.39   80.89   .552E+03       0.4          0.43
23.48
      0.42   80.92   .611E+03       0.4          0.44
22.75
      0.45   80.95   .672E+03       0.5          0.46
22.09
      0.47   80.97   .737E+03       0.6          0.47
21.48
      0.50   81.00   .804E+03       0.6          0.48
20.91

                              <---- hydrograph ---->   <-
pipe / channel->
                           AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                           (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (6302)    2.60     0.55    3.00  50.45
0.46      0.47
    OUTFLOW: ID= 1 (0631)    2.60     0.29    3.08  50.23
0.34      0.40


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| CALIB            |
| STANDHYD  (6312) |   Area    (ha)=   8.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=
59.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        6.16          2.64
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      242.21         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      105.46         57.28
               over (min)         5.00         20.00
     Storage Coeff.  (min)=        4.25 (ii)    15.11 (ii)
     Unit Hyd. Tpeak (min)=        5.00         20.00
     Unit Hyd. peak  (cms)=        0.23          0.07

*TOTALS*
    PEAK FLOW       (cms)=        1.47          0.25
1.646 (iii)
    TIME TO PEAK    (hrs)=        3.00          3.17
3.00
    RUNOFF VOLUME    (mm)=       61.60         24.87
46.54
    TOTAL RAINFALL   (mm)=       67.60         67.60
67.60
    RUNOFF COEFFICIENT   =        0.91          0.37
0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0149) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK      R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
        ID1= 1 (0631):     2.60   0.293     3.08    50.23
      + ID2= 2 (6312):     8.80   1.646     3.00    46.54
        ==================================================
        ID = 3 (0149):    11.40   1.921     3.00    47.38

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0632) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 924.2) ------>
               Distance      Elevation       Manning
                   0.00        82.50         0.1100
                   6.00        82.00         0.1100
                  11.00        81.00         0.1100
                  12.00        80.00         0.1100
                  13.50        79.50     0.1100 /0.0700  Main
Channel
                  14.50        79.50         0.0700      Main
Channel
                  16.00        80.00     0.0700 /0.1100  Main
Channel
                  18.00        80.00         0.1100
                  29.70        80.00         0.1100
                  37.00        80.50         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.05   79.55   .330E+02       0.0          0.17
52.00
      0.11   79.61   .749E+02       0.0          0.26
35.21
      0.16   79.66   .126E+03       0.1          0.32
28.45
      0.21   79.71   .186E+03       0.1          0.37
24.60
      0.26   79.76   .255E+03       0.2          0.41
22.04
      0.32   79.82   .333E+03       0.3          0.45
20.16
      0.37   79.87   .420E+03       0.4          0.48
18.69
      0.42   79.92   .515E+03       0.5          0.51
17.51
      0.47   79.97   .620E+03       0.6          0.55
16.53
      0.53   80.03   .931E+03       0.8          0.48
18.86
      0.58   80.08   .146E+04       1.2          0.43
20.73
      0.63   80.13   .201E+04       1.6          0.44
20.51
      0.68   80.18   .258E+04       2.2          0.46
19.66
      0.74   80.24   .318E+04       2.8          0.48
18.66
      0.79   80.29   .380E+04       3.6          0.51
17.70
      0.84   80.34   .445E+04       4.4          0.54
16.82
      0.89   80.39   .511E+04       5.3          0.56
16.03
      0.95   80.45   .580E+04       6.3          0.59
15.32
      1.00   80.50   .652E+04       7.4          0.61
14.69

                              <---- hydrograph ---->   <-
pipe / channel->
                           AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                           (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0149)   11.40     1.92    3.00  47.38
0.66      0.45
    OUTFLOW: ID= 1 (0632)   11.40     1.08    3.08  47.36
0.57      0.44


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| CALIB            |
| STANDHYD  (6322) |   Area    (ha)=   5.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        2.65          2.65
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      187.97         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=      105.46         50.94
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```
             over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.65 (ii)   15.03 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.25         0.07

*TOTALS*
     PEAK FLOW       (cms)=       0.53         0.23
0.686 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        23.29
36.70
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.34
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0174) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0632):    11.40   1.080     3.08    47.36
        + ID2= 2 (6322):     5.30   0.686     3.00    36.70
          ===============================================
          ID = 3 (0174):    16.70   1.675     3.00    43.97

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (6402) |   Area    (ha)=  16.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
66.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.60         4.20
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     334.66        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        95.64
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       5.16 (ii)   14.01 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.21         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.08         0.63
3.611 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60        35.14
52.60
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.52
0.78


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  80.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0641) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 910.0) ------>
               Distance      Elevation       Manning
                   0.00          83.92        0.1100
                   1.93          83.93        0.1100
                   3.02          83.94        0.1100
                   5.01          83.96        0.1100
                   6.81          83.80        0.1100
                   7.33          83.77        0.1100
                   8.42          83.41    0.1100 /0.0700  Main
Channel
                  10.42          82.41        0.0700      Main
Channel
                  11.17          82.41        0.0700      Main
Channel
                  11.92          82.41        0.0700      Main
Channel
                  13.92          83.41    0.0700 /0.1100  Main
Channel
                  21.33          84.40        0.1100
                  23.85          84.09        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.10    82.51    .768E+02       0.0          0.24
32.02
       0.20    82.61    .172E+03       0.1          0.35
21.50
       0.30    82.71    .285E+03       0.3          0.44
17.20
       0.40    82.81    .416E+03       0.5          0.51
14.73
       0.50    82.91    .565E+03       0.7          0.58
13.08
       0.60    83.01    .732E+03       1.0          0.64
11.86
       0.70    83.11    .918E+03       1.4          0.69
10.92
       0.80    83.21    .112E+04       1.8          0.74
10.16
       0.90    83.31    .134E+04       2.3          0.79
9.53
       1.00    83.41    .158E+04       2.9          0.84
9.00
       1.11    83.52    .188E+04       3.8          0.92
8.20
       1.22    83.63    .224E+04       4.8          0.98
7.72
       1.33    83.74    .266E+04       6.0          1.02
7.39
       1.44    83.85    .315E+04       7.3          1.05
7.20
       1.55    83.96    .379E+04       8.7          1.04
7.24
       1.66    84.07    .471E+04      10.6          1.02
7.41
       1.77    84.18    .567E+04      12.7          1.01
7.46
       1.88    84.29    .673E+04      15.1          1.01
7.43
       1.99    84.40    .787E+04      17.8          1.02
7.36

                                 <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6402)   16.80     3.61    3.00  52.60
1.08      0.90
     OUTFLOW: ID= 1 (0641)   16.80     2.82    3.00  52.59
0.98      0.83


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| CALIB            |
| STANDHYD  (6412) |   Area    (ha)=  13.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.47         3.13
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     301.11        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        84.31
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.85 (ii)   14.15 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.55         0.41
2.886 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60        29.40
50.97
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.43
0.75

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  72.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0184) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0641):    16.80   2.824     3.00    52.59
        + ID2= 2 (6412):    13.60   2.886     3.00    50.97
          ===============================================
          ID = 3 (0184):    30.40   5.710     3.00    51.87

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0642) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1099.5) ------>
               Distance      Elevation       Manning
                   0.00          85.00        0.1100
                  14.50          80.00        0.1100
                  15.30          80.00        0.1100
                  16.80          79.50    0.1100 /0.0700  Main
Channel
                  17.80          79.50        0.0700      Main
Channel
                  19.30          80.00    0.0700 /0.1100  Main
Channel
                  20.30          80.00        0.1100
                  27.30          81.00        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.08    79.58    .520E+02       0.0          0.24
36.74
       0.16    79.66    .124E+03       0.1          0.35
25.35
       0.24    79.74    .216E+03       0.2          0.43
20.68
       0.32    79.82    .328E+03       0.3          0.49
17.96
       0.39    79.89    .460E+03       0.5          0.55
16.11
       0.47    79.97    .611E+03       0.7          0.60
14.73
       0.55    80.05    .836E+03       1.0          0.62
14.31
       0.63    80.13    .112E+04       1.4          0.66
13.40
       0.71    80.21    .143E+04       1.9          0.70
12.62
       0.79    80.29    .178E+04       2.5          0.74
11.97
       0.87    80.37    .216E+04       3.2          0.78
11.42
       0.95    80.45    .258E+04       3.9          0.81
10.93
       1.03    80.53    .302E+04       4.8          0.85
10.51
       1.11    80.61    .350E+04       5.8          0.88
10.14
       1.18    80.68    .402E+04       6.8          0.91
9.80
       1.26    80.76    .456E+04       8.0          0.94
9.49
       1.34    80.84    .514E+04       9.3          0.96
9.21
       1.42    80.92    .575E+04      10.7          0.99
8.96
       1.50    81.00    .640E+04      12.2          1.02
8.72

                                 <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0184)   30.40     5.71    3.00  51.87
1.10      0.87
     OUTFLOW: ID= 1 (0642)   30.40     4.35    3.08  51.86
0.98      0.83


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--------------------
| CALIB            |
| STANDHYD  (6422) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.75         8.75
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     341.57        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        71.73
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.23 (ii)   15.15 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.21         0.07

*TOTALS*
     PEAK FLOW       (cms)=       1.70         0.89
2.315 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        27.47
39.42
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.41
0.58

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  72.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0187) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0642):    30.40   4.346     3.08    51.86
        + ID2= 2 (6422):    17.50   2.315     3.00    39.42
          ===============================================
          ID = 3 (0187):    47.90   6.205     3.00    47.32

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (6502) |   Area    (ha)=   9.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.55         4.55
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     246.31        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        50.94
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.30 (ii)   15.68 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.23         0.07

*TOTALS*
     PEAK FLOW       (cms)=       0.90         0.38
1.161 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        23.29
36.70
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.34
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6602) |   Area    (ha)=  13.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.85         6.85
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     302.21        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        86.97
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.86 (ii)   14.04 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.34         0.93
2.117 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      61.60        33.30
43.20
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.49
0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  79.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7302) |   Area    (ha)=   3.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.70         1.70
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     150.55        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        50.94
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.20 (ii)   14.58 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.34         0.15
0.468 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        23.29
36.70
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.34
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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--------------------
| CALIB            |
| STANDHYD  (7402) |   Area    (ha)=   3.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.85         1.85
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     157.06        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        50.94
               over (min)       5.00         15.00
     Storage Coeff.  (min)=       3.28 (ii)   14.66 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.37         0.17
0.508 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        23.29
36.70
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.34
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (7101) |   Area    (ha)=  70.70   Curve Number
(CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.78

     Unit Hyd Qpeak  (cms)=   3.471

     PEAK FLOW       (cms)=   1.074 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  12.080
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.179

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7102) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
33.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.88         9.62
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     341.57        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        29.49
               over (min)       5.00         20.00
     Storage Coeff.  (min)=       5.23 (ii)   19.39 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.21         0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.60         0.42
1.870 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      61.60        14.69
30.17
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.22
0.45


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0218) |
|  1 +  2 =  3     |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7101):    70.70   1.074     3.83    12.08
        + ID2= 2 (7102):    17.50   1.870     3.00    30.17
          ===============================================
          ID = 3 (0218):    88.20   2.112     3.00    15.67

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0711) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1487.9) ------>
               Distance       Elevation       Manning
                   0.00          95.00         0.1100
                  89.00          94.00         0.1100
                 135.70          94.00     0.1100 /0.0700  Main
Channel
                 137.20          93.50         0.0700      Main
Channel
                 138.20          93.50         0.0700      Main
Channel
                 139.70          94.00     0.0700 /0.1100  Main
Channel
                 211.60          94.00         0.1100
                 249.00          95.00         0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV       VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)       (cms)        (m/s)
(min)
       0.07    93.57    .969E+02        0.0          0.20
95.33
       0.14    93.64    .228E+03        0.1          0.29
64.56
       0.21    93.71    .393E+03        0.1          0.36
51.73
       0.29    93.79    .593E+03        0.2          0.42
44.23
       0.36    93.86    .826E+03        0.4          0.48
39.15
       0.43    93.93    .109E+04        0.5          0.53
35.40
       0.50    94.00    .140E+04        0.7          0.57
32.52
       0.58    94.08    .133E+05        2.6          0.22
84.59
       0.67    94.17    .262E+05        6.5          0.28
67.17
       0.75    94.25    .400E+05       12.0          0.33
55.64
       0.83    94.33    .549E+05       19.0          0.39
48.10
       0.92    94.42    .707E+05       27.5          0.43
42.81
       1.00    94.50    .875E+05       37.5          0.48
38.86
       1.08    94.58    .105E+06       49.0          0.52
35.80
       1.17    94.67    .124E+06       62.0          0.56
33.34
       1.25    94.75    .144E+06       76.6          0.59
31.30
       1.33    94.83    .165E+06       92.7          0.63
29.59
       1.42    94.92    .186E+06      110.4          0.66
28.12
       1.50    95.00    .209E+06      129.7          0.69
26.84

                                      <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
      INFLOW : ID= 2 (0218)   88.20     2.11    3.00  15.67
0.56      0.26
      OUTFLOW: ID= 1 (0711)   88.20     1.22    4.33  15.66
0.52      0.40

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--------------------
| CALIB            |
| NASHYD    (7111) |   Area    (ha)=  48.10   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.43

     Unit Hyd Qpeak  (cms)=   1.285

     PEAK FLOW       (cms)=   0.825 (i)
     TIME TO PEAK    (hrs)=   4.583
     RUNOFF VOLUME    (mm)=  21.086
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.312

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7112) |   Area    (ha)=  12.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  39.00   Dir. Conn.(%)=
27.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.76         7.44
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     285.19        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        49.49
               over (min)       5.00         20.00
     Storage Coeff.  (min)=       4.69 (ii)   16.20 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.22         0.06

*TOTALS*
     PEAK FLOW       (cms)=       0.93         0.59
1.328 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      61.60        24.43
34.47
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.36
0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0222) |
|  1 +  2 =  3     |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7111):    48.10   0.825     4.58    21.09
        + ID2= 2 (7112):    12.20   1.328     3.00    34.47
          ===============================================
          ID = 3 (0222):    60.30   1.402     3.00    23.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0223) |
|  1 +  2 =  3     |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0222):    60.30   1.402     3.00    23.79
        + ID2= 2 (0711):    88.20   1.220     4.33    15.66
          ===============================================
          ID = 3 (0223):   148.50   2.181     4.42    18.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (7011) |   Area    (ha)=  90.40   Curve Number
(CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.77

     Unit Hyd Qpeak  (cms)=   4.467

     PEAK FLOW       (cms)=   1.730 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  15.044
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.223

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7012) |   Area    (ha)=  25.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
25.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.54        15.56
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     409.06        40.00
     Mannings n           =      0.013        0.250
     Max.Eff.Inten.(mm/hr)=     105.46        36.17
               over (min)       5.00         20.00
     Storage Coeff.  (min)=       5.82 (ii)   18.87 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.20         0.06

*TOTALS*
     PEAK FLOW       (cms)=       1.72         0.84
2.263 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      61.60        17.98
28.88
     TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
     RUNOFF COEFFICIENT   =       0.91         0.27
0.43

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  59.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0205) |
|  1 +  2 =  3     |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7011):    90.40   1.730     3.83    15.04
        + ID2= 2 (7012):    25.10   2.263     3.00    28.88
          ===============================================
          ID = 3 (0205):   115.50   2.665     3.00    18.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0702) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1184.6) ------>
               Distance       Elevation       Manning
                   0.00          93.00         0.1100
                  56.00          92.00         0.1100
                  65.40          92.00         0.1100
                  74.80          91.50     0.1100 /0.0700  Main
Channel
                  75.80          91.50         0.0700      Main
Channel
                  77.30          92.00     0.0700 /0.1100  Main
Channel
                 144.00          92.00         0.1100
                 186.00          93.00         0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV       VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)       (cms)        (m/s)
(min)
       0.08    91.58    .236E+03        0.0          0.13
200.27
       0.16    91.66    .689E+03        0.1          0.18
146.52
       0.24    91.74    .136E+04        0.2          0.22
121.67
       0.32    91.82    .225E+04        0.4          0.25
105.99
       0.39    91.89    .336E+04        0.6          0.28
94.79
       0.47    91.97    .468E+04        0.9          0.31
86.24
       0.55    92.05    .128E+05        1.5          0.19
142.36
       0.63    92.13    .251E+05        3.4          0.22
123.43
       0.71    92.21    .384E+05        6.1          0.26
104.46
       0.79    92.29    .526E+05        9.6          0.29
90.95
       0.87    92.37    .678E+05       13.9          0.33
81.16
       0.95    92.45    .840E+05       19.0          0.36
73.76
       1.03    92.53    .101E+06       24.8          0.39
67.97
       1.11    92.61    .119E+06       31.4          0.42
63.30
       1.18    92.68    .139E+06       38.8          0.45
59.44
       1.26    92.76    .159E+06       47.1          0.48
56.18
       1.34    92.84    .180E+06       56.1          0.50
53.38
       1.42    92.92    .202E+06       66.0          0.52
50.95
       1.50    93.00    .225E+06       76.8          0.55
48.81

                                      <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
      INFLOW : ID= 2 (0205)  115.50     2.66    3.00  18.05
0.60      0.20
      OUTFLOW: ID= 1 (0702)  115.50     1.34    5.25  18.04
0.53      0.21

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--------------------
| CALIB            |
| NASHYD    (7021) |   Area    (ha)=   7.30   Curve Number
(CN)= 64.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.72

     Unit Hyd Qpeak  (cms)=   0.162

     PEAK FLOW       (cms)=   0.090 (i)
     TIME TO PEAK    (hrs)=   5.000
     RUNOFF VOLUME    (mm)=  17.543
     TOTAL RAINFALL   (mm)=  67.600
     RUNOFF COEFFICIENT   =   0.260

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7022) |   Area    (ha)=  35.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  48.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.90        18.30
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     484.42        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     105.46        44.73
               over (min)       5.00         20.00
     Storage Coeff.  (min)=       6.45 (ii)   18.43 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.18         0.06
```

```
*TOTALS*
    PEAK FLOW       (cms)=       3.31         1.24
4.137 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.25
3.00
    RUNOFF VOLUME    (mm)=      66.10        21.34
37.01
    TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
    RUNOFF COEFFICIENT   =       0.98         0.32
0.55

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  64.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0209) |
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7021):     7.30   0.090    5.00   17.54
        + ID2= 2 (7022):    35.20   4.137    3.00   37.01
          ==================================================
          ID = 3 (0209):    42.50   4.143    3.00   33.66

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0210) |
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0209):    42.50   4.143    3.00   33.66
        + ID2= 2 (0702):   115.50   1.339    5.25   18.04
          ==================================================
          ID = 3 (0210):   158.00   4.459    3.00   22.24

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0224) |
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0210):   158.00   4.459    3.00   22.24
        + ID2= 2 (0223):   148.50   2.181    4.42   18.96
          ==================================================
          ID = 3 (0224):   306.50   6.402    3.00   20.65

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0703) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (2329.2) ------>
               Distance      Elevation       Manning
                   0.00         88.00         0.1100
                  37.50         87.00         0.1100
                  51.30         86.00         0.1100
                  82.80         86.00         0.1100
                 107.50         87.00         0.1100
                 117.30         86.00         0.1100
                 125.90         86.00     0.1100 /0.0700  Main
Channel
                 127.40         85.50         0.0700      Main
Channel
                 128.40         85.50         0.0700      Main
Channel
                 129.90         86.00     0.0700 /0.1100  Main
Channel
                 133.00         86.00         0.1100
                 149.00         87.00         0.1100
                 193.00         88.00         0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12    85.62    .787E+02       0.0          0.19
40.30
       0.25    85.75    .200E+03       0.1          0.28
27.58
       0.37    85.88    .365E+03       0.3          0.35
22.10
       0.50    86.00    .572E+03       0.5          0.41
18.84
       0.63    86.13    .372E+04       1.8          0.22
34.16
       0.77    86.27    .738E+04       4.4          0.27
28.02
       0.90    86.40    .116E+05       8.1          0.32
23.77
       1.03    86.53    .163E+05      13.0          0.37
20.89
       1.17    86.67    .215E+05      19.1          0.41
18.82
       1.30    86.80    .273E+05      26.4          0.44
17.24
       1.43    86.93    .336E+05      35.0          0.48
15.99
       1.57    87.07    .404E+05      44.9          0.51
15.00
       1.70    87.20    .479E+05      56.3          0.54
14.18
       1.83    87.33    .560E+05      69.3          0.57
13.47
       1.97    87.47    .648E+05      84.0          0.59
12.85
       2.10    87.60    .743E+05     100.6          0.62
12.31
       2.23    87.73    .844E+05     119.0          0.65
11.82
       2.37    87.87    .952E+05     139.3          0.67
11.39
       2.50    88.00    .107E+06     161.7          0.69
11.00

                                      <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0224)  306.50     6.40    3.00  20.65
0.84      0.30
    OUTFLOW: ID= 1 (0703)  306.50     3.84    4.50  20.65
0.74      0.26

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--------------------
| CALIB            |
| STANDHYD  (7032) |   Area    (ha)=  23.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       17.94          5.36
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      394.12         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=     105.46         52.75
               over (min)       5.00         20.00
    Storage Coeff.  (min)=       5.69 (ii)   16.92 (ii)
    Unit Hyd. Tpeak (min)=       5.00         20.00
    Unit Hyd. peak  (cms)=       0.20          0.06

*TOTALS*
    PEAK FLOW       (cms)=       4.34          0.45
4.648 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.17
3.00
    RUNOFF VOLUME    (mm)=      61.60         22.63
49.13
    TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
    RUNOFF COEFFICIENT   =       0.91          0.33
0.73

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  63.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0215) |
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0703):   306.50   3.840    4.50   20.65
        + ID2= 2 (7032):    23.30   4.648    3.00   49.13
          ==================================================
          ID = 3 (0215):   329.80   7.082    3.00   22.67

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0704) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (2755.4) ------>
               Distance      Elevation       Manning
                   0.00         85.00         0.1100
                  25.00         84.00         0.1100
                  32.00         84.00     0.1100 /0.0700  Main
Channel
                  33.50         83.50         0.0700      Main
Channel
                  34.50         83.50         0.0700      Main
Channel
                  36.00         84.00     0.0700 /0.1100  Main
Channel
                  65.00         84.00         0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.03    83.53    .121E+02       0.0          0.12
61.52
       0.05    83.55    .259E+02       0.0          0.19
40.35
       0.08    83.58    .414E+02       0.0          0.24
31.84
       0.10    83.60    .585E+02       0.0          0.28
27.04
       0.13    83.63    .774E+02       0.1          0.31
23.87
       0.15    83.65    .979E+02       0.1          0.35
21.59
       0.18    83.68    .120E+03       0.1          0.38
19.84
       0.20    83.70    .144E+03       0.1          0.41
18.45
       0.23    83.73    .170E+03       0.2          0.43
17.31
       0.25    83.75    .197E+03       0.2          0.46
16.34
       0.28    83.78    .226E+03       0.2          0.48
15.52
       0.30    83.80    .257E+03       0.3          0.51
14.80
       0.33    83.83    .289E+03       0.3          0.53
14.16
       0.35    83.85    .323E+03       0.4          0.55
13.60
       0.38    83.88    .359E+03       0.5          0.57
13.09
       0.40    83.90    .396E+03       0.5          0.59
12.64
       0.43    83.93    .435E+03       0.6          0.61
12.22
       0.45    83.95    .476E+03       0.7          0.63
11.84
       0.48    83.98    .518E+03       0.8          0.65
11.49

    **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                      <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0215)  329.80     7.08    3.00  22.67
0.47      0.65
    OUTFLOW: ID= 1 (0704)  329.80     5.20    3.17  22.66
0.48      0.65

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--------------------
| CALIB            |
| STANDHYD  (7042) |   Area    (ha)=  23.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       18.25          5.45
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      397.49         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=     105.46         49.80
               over (min)       5.00         20.00
    Storage Coeff.  (min)=       5.72 (ii)   17.21 (ii)
    Unit Hyd. Tpeak (min)=       5.00         20.00
    Unit Hyd. peak  (cms)=       0.20          0.06

*TOTALS*
    PEAK FLOW       (cms)=       4.42          0.43
4.703 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.17
3.00
    RUNOFF VOLUME    (mm)=      61.60         21.42
48.74
    TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
    RUNOFF COEFFICIENT   =       0.91          0.32
0.72

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  61.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0229) |
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0704):   329.80   5.198    3.17   22.66
        + ID2= 2 (7042):    23.70   4.703    3.00   48.74
          ==================================================
          ID = 3 (0229):   353.50   9.227    3.00   24.41

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (7202) |   Area    (ha)=  22.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       17.33          5.18
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      387.30         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=     105.46         57.45
               over (min)       5.00         20.00
    Storage Coeff.  (min)=       5.64 (ii)   16.48 (ii)
    Unit Hyd. Tpeak (min)=       5.00         20.00
    Unit Hyd. peak  (cms)=       0.20          0.06

*TOTALS*
    PEAK FLOW       (cms)=       4.20          0.48
4.529 (iii)
    TIME TO PEAK    (hrs)=       3.00          3.17
3.00
    RUNOFF VOLUME    (mm)=      61.60         24.54
49.74
    TOTAL RAINFALL   (mm)=      67.60         67.60
67.60
    RUNOFF COEFFICIENT   =       0.91          0.36
0.74

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0721) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 920.0) ------>
               Distance      Elevation       Manning
                   0.00         82.00         0.1100
                  41.00         82.00         0.1100
                  50.70         82.00         0.1100
                  57.80         81.00     0.1100 /0.0700  Main
Channel
                  59.30         79.84         0.0700      Main
Channel
                  60.30         79.84         0.0700      Main
Channel
                  61.80         81.00     0.0700 /0.1100  Main
Channel
                  63.30         81.00         0.1100
                  85.90         81.00         0.1100
                 100.00         82.00         0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.11    79.95    .515E+02       0.0          0.20
35.58
       0.21    80.05    .115E+03       0.1          0.30
24.20
       0.32    80.16    .192E+03       0.2          0.37
19.53
       0.42    80.26    .280E+03       0.3          0.43
16.82
       0.53    80.37    .381E+03       0.4          0.48
15.00
       0.63    80.47    .494E+03       0.6          0.53
13.65
       0.74    80.58    .620E+03       0.8          0.57
12.60
       0.84    80.68    .758E+03       1.1          0.61
11.75
       0.95    80.79    .908E+03       1.4          0.65
11.04
       1.05    80.89    .107E+04       1.7          0.69
10.44
       1.16    81.00    .125E+04       2.1          0.72
9.92
       1.28    81.12    .283E+04       3.2          0.49
14.61
       1.41    81.25    .455E+04       5.0          0.48
15.04
       1.53    81.37    .642E+04       7.4          0.50
14.36
       1.66    81.50    .843E+04      10.4          0.53
13.50
       1.78    81.62    .106E+05      13.9          0.57
12.67
       1.91    81.75    .129E+05      18.0          0.60
11.93
       2.03    81.87    .153E+05      22.6          0.63
11.29
       2.16    82.00    .179E+05      27.8          0.67
10.73

                                      <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (7202)   22.50     4.53    3.00  49.74
1.37      0.48
    OUTFLOW: ID= 1 (0721)   22.50     2.99    3.08  49.73
1.26      0.53

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--------------------
| CALIB            |
| STANDHYD  (7212) |   Area    (ha)=  18.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       13.94          4.16
    Dep. Storage     (mm)=        6.00          8.00
    Average Slope     (%)=        1.00          1.00
    Length            (m)=      347.37         40.00
    Mannings n          =        0.013         0.250

    Max.Eff.Inten.(mm/hr)=     105.46         57.45
               over (min)       5.00         20.00
    Storage Coeff.  (min)=       5.28 (ii)   16.13 (ii)
    Unit Hyd. Tpeak (min)=       5.00         20.00
    Unit Hyd. peak  (cms)=       0.21          0.06

*TOTALS*
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    PEAK FLOW       (cms)=       3.41         0.39
3.676 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=      61.60        24.54
49.74
    TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
    RUNOFF COEFFICIENT   =       0.91         0.36
0.74


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0237) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0721):    22.50   2.991     3.08    49.73
      + ID2= 2 (7212):    18.10   3.676     3.00    49.74
        ==================================================
        ID = 3 (0237):    40.60   6.474     3.00    49.74

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0238) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0229):   353.50   9.227     3.00    24.41
      + ID2= 2 (0237):    40.60   6.474     3.00    49.74
        ==================================================
        ID = 3 (0238):   394.10  15.701     3.00    27.02

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0705) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (3276.8) ------>
               Distance       Elevation       Manning
                   0.00          80.50         0.1100
                   5.70          80.00         0.1100
                  14.00          79.00         0.1100
                  22.00          79.00     0.1100 /0.0700  Main
Channel
                  23.50          78.50         0.0700      Main
Channel
                  24.50          78.50         0.0700      Main
Channel
                  26.00          79.00     0.0700 /0.1100  Main
Channel
                  28.00          79.00         0.1100
                  41.00          80.00         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.07    78.57    .248E+02       0.0          0.26
18.45
     0.14    78.64    .584E+02       0.1          0.38
12.49
     0.21    78.71    .101E+03       0.2          0.48
10.01
     0.29    78.79    .152E+03       0.3          0.56
8.56
     0.36    78.86    .212E+03       0.5          0.63
7.58
     0.43    78.93    .280E+03       0.7          0.70
6.85
     0.50    79.00    .358E+03       0.9          0.76
6.29
     0.58    79.08    .712E+03       1.6          0.64
7.50
     0.67    79.17    .111E+04       2.5          0.65
7.35
     0.75    79.25    .155E+04       3.7          0.69
6.94
     0.83    79.33    .203E+04       5.2          0.73
6.52
     0.92    79.42    .255E+04       6.9          0.78
6.14
     1.00    79.50    .312E+04       9.0          0.82
5.81
     1.08    79.58    .373E+04      11.3          0.86
5.52
     1.17    79.67    .438E+04      13.9          0.90
5.27
     1.25    79.75    .507E+04      16.7          0.94
5.05
     1.33    79.83    .581E+04      20.0          0.98
4.85
     1.42    79.92    .659E+04      23.5          1.02
4.68
     1.50    80.00    .741E+04      27.3          1.06
4.52

                                  <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0238)  394.10     15.70    3.00  27.02
1.22      0.93
    OUTFLOW: ID= 1 (0705)  394.10     13.99    3.08  27.02
1.17      0.91


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--------------------
| CALIB            |
| STANDHYD  (7052) |   Area    (ha)=   6.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       3.40         3.40
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     212.92        40.00
    Mannings n          =      0.013        0.250

    Max.Eff.Inten.(mm/hr)=     105.46        32.44
               over (min)       5.00        20.00
    Storage Coeff.  (min)=       3.94 (ii)   17.57 (ii)
    Unit Hyd. Tpeak (min)=       5.00        20.00
    Unit Hyd. peak  (cms)=       0.24         0.06

*TOTALS*
    PEAK FLOW       (cms)=       0.68         0.17
0.790 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.25
3.00
    RUNOFF VOLUME    (mm)=      61.60        15.15
31.41
    TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
    RUNOFF COEFFICIENT   =       0.91         0.22
0.46
```

```
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  51.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0243) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0705):   394.10  13.991     3.08    27.02
      + ID2= 2 (7052):     6.80   0.790     3.00    31.41
        ==================================================
        ID = 3 (0243):   400.90  14.398     3.08    27.10

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7502) |   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       2.75         2.75
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     191.49        40.00
    Mannings n          =      0.013        0.250

    Max.Eff.Inten.(mm/hr)=     105.46        50.94
               over (min)       5.00        20.00
    Storage Coeff.  (min)=       3.69 (ii)   15.07 (ii)
    Unit Hyd. Tpeak (min)=       5.00        20.00
    Unit Hyd. peak  (cms)=       0.25         0.07

*TOTALS*
    PEAK FLOW       (cms)=       0.55         0.23
0.711 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=      61.60        23.29
36.70
    TOTAL RAINFALL   (mm)=      67.60        67.60
67.60
    RUNOFF COEFFICIENT   =       0.91         0.34
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   5 **
  ****************************


--------------------
|   READ STORM     |     Filename: C:\Users\Jenny\AppD
|                  |               ata\Local\Temp\
|                  |               5cabfbfe-d340-4400-a9c0-
5faca896dcae\431b7b54
| Ptotal= 81.60 mm |     Comments: Mount Hope-6 hour SCS
Distribution Desig
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                 0.17    3.26 |  1.67    8.16 |  3.17   17.95 |
4.67    4.90
                 0.33    3.26 |  1.83    8.16 |  3.33   17.95 |
4.83    4.90
                 0.50    3.26 |  2.00    8.16 |  3.50   17.95 |
5.00    4.90
                 0.67    4.90 |  2.17    9.79 |  3.67    8.16 |
5.17    3.26
                 0.83    4.90 |  2.33    9.79 |  3.83    8.16 |
5.33    3.26
                 1.00    4.90 |  2.50    9.79 |  4.00    8.16 |
5.50    3.26
                 1.17    4.90 |  2.67   48.96 |  4.17    6.53 |
5.67    3.26
                 1.33    4.90 |  2.83   88.13 |  4.33    6.53 |
5.83    3.26
                 1.50    4.90 |  3.00  127.30 |  4.50    6.53 |
6.00    3.26

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| CALIB            |
| STANDHYD  (5102) |   Area    (ha)=   1.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       1.09         0.61
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     106.46        40.00
    Mannings n          =      0.013        0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                            ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                0.083    3.26 | 1.583    8.16 | 3.083   17.95 |
4.58    4.90
                0.167    3.26 | 1.667    8.16 | 3.167   17.95 |
4.67    4.90
                0.250    3.26 | 1.750    8.16 | 3.250   17.95 |
4.75    4.90
                0.333    3.26 | 1.833    8.16 | 3.333   17.95 |
4.83    4.90
                0.417    3.26 | 1.917    8.16 | 3.417   17.95 |
4.92    4.90
                0.500    3.26 | 2.000    8.16 | 3.500   17.95 |
5.00    4.90
                0.583    4.90 | 2.083    9.79 | 3.583    8.16 |
5.08    3.26
                0.667    4.90 | 2.167    9.79 | 3.667    8.16 |
5.17    3.26
                0.750    4.90 | 2.250    9.79 | 3.750    8.16 |
5.25    3.26
                0.833    4.90 | 2.333    9.79 | 3.833    8.16 |
5.33    3.26
                0.917    4.90 | 2.417    9.79 | 3.917    8.16 |
5.42    3.26
                1.000    4.90 | 2.500    9.79 | 4.000    8.16 |
5.50    3.26
                1.083    4.90 | 2.583   48.96 | 4.083    6.53 |
5.58    3.26
                1.167    4.90 | 2.667   48.96 | 4.167    6.53 |
5.67    3.26
                1.250    4.90 | 2.750   88.13 | 4.250    6.53 |
5.75    3.26
                1.333    4.90 | 2.833   88.13 | 4.333    6.53 |
5.83    3.26
```

```
                1.417    4.90 | 2.917  127.30 | 4.417    6.53 |
5.92    3.26
                1.500    4.90 | 3.000  127.30 | 4.500    6.53 |
6.00    3.26

    Max.Eff.Inten.(mm/hr)=     127.30        87.16
               over (min)       5.00        15.00
    Storage Coeff.  (min)=       2.41 (ii)   11.59 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.30         0.09

*TOTALS*
    PEAK FLOW       (cms)=       0.31         0.09
0.385 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      75.60        32.90
55.10
    TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
    RUNOFF COEFFICIENT   =       0.93         0.40
0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0511) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance       Elevation       Manning
                   0.00          81.24         0.1100
                  33.01          80.98         0.1100
                  49.97          81.27         0.1100
                  54.18          80.35         0.1100
                  60.88          81.23     0.1100 /0.0700  Main
Channel
                  69.13          79.02         0.0700      Main
Channel
                  92.42          79.04         0.0700      Main
Channel
                  98.70          80.89     0.0700 /0.1100  Main
Channel
                 128.88          81.13         0.1100
                 199.00          81.23         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.12    79.13    .361E+03       0.6          0.24
9.91
     0.23    79.25    .776E+03       2.1          0.40
6.09
     0.35    79.37    .121E+04       4.3          0.52
4.65
     0.47    79.48    .165E+04       7.1          0.63
3.85
     0.59    79.60    .211E+04      10.5          0.72
3.34
     0.70    79.72    .258E+04      14.4          0.81
2.98
     0.82    79.84    .307E+04      18.8          0.89
2.71
     0.94    79.95    .357E+04      23.8          0.97
2.50
     1.05    80.07    .408E+04      29.2          1.04
2.33
     1.17    80.19    .461E+04      35.1          1.10
2.19
     1.29    80.30    .515E+04      41.5          1.17
2.07
     1.41    80.42    .571E+04      48.4          1.23
1.97
     1.52    80.54    .631E+04      55.8          1.28
1.88
     1.64    80.66    .695E+04      63.8          1.33
1.81
     1.76    80.77    .762E+04      72.3          1.38
1.76
     1.87    80.89    .833E+04      81.4          1.42
1.71
     2.00    81.02    .931E+04      92.4          1.44
1.68
     2.13    81.14    .109E+05     104.8          1.39
1.74
     2.25    81.27    .140E+05     120.9          1.25
1.93

                                  <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (5102)    1.70      0.39    3.00  55.10
0.07      0.24
    OUTFLOW: ID= 1 (0511)    1.70      0.28    3.00  55.08
0.05      0.24


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--------------------
| CALIB            |
| STANDHYD  (5112) |   Area    (ha)=   3.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=
58.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       2.07         0.93
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     141.42        40.00
    Mannings n          =      0.013        0.250

    Max.Eff.Inten.(mm/hr)=     127.30       101.25
               over (min)       5.00        15.00
    Storage Coeff.  (min)=       2.86 (ii)   11.50 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.28         0.09

*TOTALS*
    PEAK FLOW       (cms)=       0.61         0.16
0.744 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      75.60        37.63
59.65
    TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
    RUNOFF COEFFICIENT   =       0.93         0.46
0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  71.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0117) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
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```
--------------------        (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0511):     1.70   0.279     3.00    55.08
       + ID2= 2 (5112):     3.00   0.744     3.00    59.65
         ===============================================
         ID = 3 (0117):     4.70   1.023     3.00    58.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0512) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 484.2) ------>
              Distance      Elevation       Manning
                  0.00          80.80        0.0900
                  9.73          80.46        0.0900
                 14.10          82.04        0.0900
                 17.18          82.28        0.0900
                 41.13          82.12     0.0900 /0.0700  Main
Channel
                 46.88          79.71        0.0700      Main
Channel
                 51.41          80.90     0.0700 /0.0900  Main
Channel
                 94.29          80.56        0.0900
                175.64          80.72        0.0900
                192.09          80.85        0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.13    79.84    .255E+02       0.0          0.14
54.71
       0.26    79.98    .102E+03       0.0          0.23
34.47
       0.40    80.11    .229E+03       0.1          0.30
26.30
       0.53    80.24    .408E+03       0.3          0.36
21.71
       0.66    80.37    .637E+03       0.6          0.42
18.71
       0.79    80.51    .934E+03       0.9          0.46
16.84
       0.93    80.64    .245E+04       1.6          0.31
24.96
       1.06    80.77    .873E+04       4.6          0.25
31.51
       1.19    80.90    .179E+05      11.4          0.30
26.08
       1.32    81.04    .278E+05      22.6          0.38
20.45
       1.46    81.17    .381E+05      37.5          0.46
16.91
       1.60    81.31    .484E+05      55.4          0.54
14.57
       1.74    81.45    .588E+05      76.0          0.61
12.90
       1.87    81.59    .693E+05      99.3          0.67
11.63
       2.01    81.72    .798E+05     125.0          0.73
10.64
       2.15    81.86    .903E+05     153.1          0.80
9.83
       2.29    82.00    .101E+06     183.5          0.85
9.16
       2.42    82.14    .112E+06     214.3          0.90
8.68
       2.56    82.27    .123E+06     244.4          0.93
8.40

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0117)    4.70     1.02    3.00  58.00
0.81     0.43
     OUTFLOW: ID= 1 (0512)    4.70     0.63    3.08  57.94
0.69     0.43


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--------------------
| CALIB            |
| STANDHYD  (5122) |   Area    (ha)=   3.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=
57.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.65          1.25
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     161.25         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     127.30         99.95
               over (min)         5.00         15.00
     Storage Coeff.  (min)=       3.09 (ii)    11.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.27          0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.78          0.21
0.952 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60         37.44
59.19
     TOTAL RAINFALL   (mm)=      81.60         81.60
81.60
     RUNOFF COEFFICIENT   =       0.93          0.46
0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  71.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0119) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0512):     4.70   0.634     3.08    57.94
       + ID2= 2 (5122):     3.90   0.952     3.00    59.19
         ===============================================
         ID = 3 (0119):     8.60   1.541     3.00    58.50

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5202) |   Area    (ha)=  29.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.85         14.85
     Dep. Storage     (mm)=       1.50          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     444.97         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     127.30         97.24
               over (min)         5.00         15.00
     Storage Coeff.  (min)=       5.68 (ii)    14.47 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.20          0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.44          2.22
5.286 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      80.10         37.59
52.47
     TOTAL RAINFALL   (mm)=      81.60         81.60
81.60
     RUNOFF COEFFICIENT   =       0.98          0.46
0.64


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  72.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0521) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 815.4) ------>
              Distance      Elevation       Manning
                415.18          83.86        0.0900
                461.15          83.40        0.0900
                501.83          83.53     0.0900 /0.0700  Main
Channel
                513.93          82.96        0.0700      Main
Channel
                526.85          83.23     0.0700 /0.0900  Main
Channel
                569.63          83.21        0.0900
                610.76          83.63        0.0900
                663.54          83.88        0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.05    83.00    .378E+02       0.0          0.11
83.81
       0.09    83.05    .151E+03       0.0          0.17
52.79
       0.14    83.09    .340E+03       0.1          0.22
40.29
       0.18    83.14    .605E+03       0.3          0.27
33.26
       0.23    83.18    .946E+03       0.5          0.32
28.66
       0.27    83.23    .151E+04       0.9          0.33
27.77
       0.32    83.27    .323E+04       1.8          0.31
29.51
       0.37    83.32    .510E+04       3.2          0.34
26.44
       0.42    83.37    .713E+04       5.0          0.38
23.61
       0.46    83.42    .934E+04       7.3          0.42
21.44
       0.51    83.47    .121E+05      10.0          0.45
20.23
       0.56    83.52    .156E+05      13.4          0.47
19.44
       0.61    83.57    .196E+05      17.7          0.49
18.52
       0.66    83.61    .240E+05      22.8          0.52
17.49
       0.71    83.66    .286E+05      28.4          0.54
16.75
       0.75    83.71    .336E+05      34.7          0.56
16.14
       0.80    83.76    .390E+05      41.8          0.58
15.55
       0.85    83.81    .448E+05      49.8          0.60
14.99
       0.90    83.86    .510E+05      58.8          0.63
14.46

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (5202)   29.70     5.29    3.00  52.47
0.42     0.39
     OUTFLOW: ID= 1 (0521)   29.70     2.74    3.17  52.45
0.35     0.33


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--------------------
| CALIB            |
| STANDHYD  (5212) |   Area    (ha)=  15.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
66.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.78          3.93
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     323.52         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     127.30        117.36
               over (min)         5.00         15.00
     Storage Coeff.  (min)=       4.69 (ii)    12.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.22          0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.51          0.76
4.156 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60         43.60
64.72
     TOTAL RAINFALL   (mm)=      81.60         81.60
81.60
     RUNOFF COEFFICIENT   =       0.93          0.53
0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  77.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0113) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0521):    29.70   2.737     3.17    52.45
       + ID2= 2 (5212):    15.70   4.156     3.00    64.72
         ===============================================
         ID = 3 (0113):    45.40   6.350     3.00    56.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (5011) |   Area    (ha)=  80.20   Curve Number
(CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.85

     Unit Hyd Qpeak  (cms)=   3.621

     PEAK FLOW      (cms)=   2.505 (i)
     TIME TO PEAK   (hrs)=   3.833
     RUNOFF VOLUME   (mm)=  25.750
     TOTAL RAINFALL  (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.316

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5012) |   Area    (ha)=  39.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.97         24.43
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     512.51         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     127.30         73.75
               over (min)         5.00         20.00
     Storage Coeff.  (min)=       6.18 (ii)    16.00 (ii)
     Unit Hyd. Tpeak (min)=       5.00         20.00
     Unit Hyd. peak  (cms)=       0.19          0.07

*TOTALS*
     PEAK FLOW       (cms)=       3.09          2.48
4.800 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      75.60         30.20
41.09
     TOTAL RAINFALL   (mm)=      81.60         81.60
81.60
     RUNOFF COEFFICIENT   =       0.93          0.37
0.50


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  65.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0100) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (5011):    80.20   2.505     3.83    25.75
       + ID2= 2 (5012):    39.40   4.800     3.00    41.09
         ===============================================
         ID = 3 (0100):   119.60   5.365     3.00    30.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0502) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1537.5) ------>
              Distance      Elevation       Manning
                  0.00          89.30        0.1100
                  4.20          89.28        0.1100
                  9.03          88.80        0.1100
                 21.55          88.78        0.1100
                 29.06          88.24        0.1100
                 39.87          87.83        0.1100
                 55.54          87.84     0.1100 /0.0700  Main
Channel
                 57.54          86.84        0.0700      Main
Channel
                 59.04          86.84        0.0700      Main
Channel
                 61.04          87.84     0.0700 /0.1100  Main
Channel
                 74.10          87.86        0.1100
                 87.72          88.07        0.1100
                101.34          88.18        0.1100
                113.53          88.23        0.1100
                128.57          88.32        0.1100
                142.19          88.61        0.1100
                155.81          88.53        0.1100
                183.05          88.85        0.1100
                187.19          88.84        0.1100
                211.21          88.88        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.10    86.94    .202E+03       0.0          0.25
78.80
       0.20    87.04    .452E+03       0.1          0.37
52.91
       0.30    87.14    .749E+03       0.3          0.47
42.34
       0.40    87.24    .109E+04       0.5          0.55
36.26
       0.50    87.34    .149E+04       0.8          0.62
32.18
       0.60    87.44    .193E+04       1.1          0.68
29.19
       0.70    87.54    .241E+04       1.5          0.74
26.87
       0.80    87.64    .295E+04       2.0          0.79
25.01
       0.90    87.74    .353E+04       2.5          0.84
23.46
       1.00    87.84    .421E+04       3.1          0.89
22.39
       1.10    87.94    .849E+04       4.5          0.63
31.56
       1.21    88.05    .150E+05       7.1          0.56
35.43
       1.33    88.17    .233E+05      10.6          0.54
36.49
       1.44    88.28    .346E+05      15.5          0.53
37.18
       1.56    88.40    .484E+05      22.8          0.56
35.35
       1.67    88.51    .634E+05      32.1          0.60
32.90
       1.79    88.63    .807E+05      41.2          0.61
32.65
       1.90    88.74    .101E+06      54.6          0.64
30.77
       2.02    88.86    .124E+06      64.7          0.62
31.85

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0100)  119.60     5.36    3.00  30.80
1.14     0.60
```

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     OUTFLOW: ID= 1 (0502)  119.60     3.82    3.83  30.80
1.05      0.73


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--------------------
| CALIB             |
| STANDHYD  (5022) |   Area    (ha)=  51.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  48.00   Dir. Conn.(%)=
34.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       24.53        26.57
     Dep. Storage     (mm)=        1.50         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      583.67        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      127.30        72.26
                over (min)         5.00        20.00
     Storage Coeff.  (min)=        6.69 (ii)   16.58 (ii)
     Unit Hyd. Tpeak (min)=        5.00        20.00
     Unit Hyd. peak  (cms)=        0.18         0.06

*TOTALS*
     PEAK FLOW       (cms)=        5.60         2.60
7.381 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=       80.10        28.64
46.14
     TOTAL RAINFALL   (mm)=       81.60        81.60
81.60
     RUNOFF COEFFICIENT   =        0.98         0.35
0.57


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0102) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0502):   119.60   3.820     3.83    30.80
       + ID2= 2 (5022):    51.10   7.381     3.00    46.14
         ==================================================
         ID = 3 (0102):   170.70   9.372     3.00    35.39

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0503) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1157.9) ------>
               Distance      Elevation       Manning
                  0.00         86.78         0.0900
                 25.34         87.17         0.0900
                 68.44         87.04         0.0900
                117.13         86.81         0.0900
                125.36         85.21     0.0900 /0.0700  Main
Channel
                127.36         84.21         0.0700      Main
Channel
                128.86         84.21         0.0700      Main
Channel
                130.86         85.21     0.0700 /0.0900  Main
Channel
                131.88         86.36         0.0900
                140.63         86.77         0.0900
                168.26         86.90         0.0900
                169.81         87.10         0.0900
                202.11         87.50         0.0900
                239.06         87.35         0.0900
                270.29         87.83         0.0900
                283.90         87.90         0.0900
                297.51         87.86         0.0900
                324.73         87.89         0.0900
                351.95         87.78         0.0900
                388.59         87.46         0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.17    84.38    .114E+03       0.1          0.34
18.34
       0.33    84.54    .269E+03       0.4          0.50
12.51
       0.50    84.71    .465E+03       0.8          0.62
10.07
       0.67    84.88    .703E+03       1.4          0.72
8.63
       0.83    85.04    .982E+03       2.1          0.81
7.65
       1.00    85.21    .130E+04       3.1          0.89
6.93
       1.21    85.42    .177E+04       5.0          1.06
5.87
       1.41    85.62    .234E+04       7.4          1.17
5.28
       1.62    85.83    .300E+04      10.2          1.27
4.89
       1.83    86.04    .376E+04      13.6          1.35
4.60
       2.03    86.24    .462E+04      17.6          1.42
4.37
       2.24    86.45    .560E+04      22.1          1.47
4.22
       2.45    86.66    .695E+04      27.6          1.48
4.20
       2.66    86.87    .925E+04      31.2          1.25
4.94
       2.86    87.07    .168E+05      43.1          0.96
6.48
       3.07    87.28    .297E+05      67.7          0.85
7.30
       3.28    87.49    .456E+05     103.1          0.84
7.38
       3.48    87.69    .663E+05     159.6          0.89
6.93
       3.69    87.90    .907E+05     223.4          0.92
6.77

                                       <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0102)  170.70     9.37    3.00  35.39
1.56      1.24
     OUTFLOW: ID= 1 (0503)  170.70     8.46    3.08  35.39
1.49      1.21


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--------------------
| CALIB             |
| STANDHYD  (5032) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  76.00   Dir. Conn.(%)=
67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       10.49         3.31
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      303.32        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      127.30       103.62
                over (min)         5.00        15.00
     Storage Coeff.  (min)=        4.51 (ii)   13.08 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=        3.15         0.55
3.609 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       75.60        37.97
63.18
     TOTAL RAINFALL   (mm)=       81.60        81.60
81.60
     RUNOFF COEFFICIENT   =        0.93         0.47
0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0104) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0503):   170.70   8.464     3.08    35.39
       + ID2= 2 (5032):    13.80   3.609     3.00    63.18
         ==================================================
         ID = 3 (0104):   184.50  11.601     3.00    37.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0504) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 815.4) ------>
               Distance      Elevation       Manning
                 19.10         82.03         0.0900
                 29.01         83.14         0.0900
                 40.83         82.56         0.0900
                 81.51         82.27         0.0900
                122.18         82.68         0.0900
                169.31         82.61         0.0900
                217.10         82.90         0.0900
                229.61         83.66     0.0900 /0.0700  Main
Channel
                232.80         81.85         0.0700      Main
Channel
                243.24         83.87         0.0700      Main
Channel
                257.77         84.06         0.0900
                312.01         83.52         0.0900
                415.18         83.86         0.0900
                461.15         83.40         0.0900
                501.83         83.53         0.0900
                513.93         82.96         0.0900
                526.85         83.23         0.0900
                569.63         83.21         0.0900
                610.76         83.63         0.0900
                663.54         83.88         0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.11    81.96    .117E+02       0.0          0.18
23.95
       0.23    82.08    .492E+02       0.1          0.28
15.67
       0.34    82.19    .135E+03       0.2          0.34
13.00
       0.45    82.30    .312E+03       0.4          0.32
13.44
       0.57    82.42    .116E+04       1.2          0.28
15.74
       0.68    82.53    .287E+04       3.5          0.32
13.85
       0.79    82.64    .549E+04       7.0          0.33
13.13
       0.91    82.76    .101E+05      14.9          0.39
11.28
       1.02    82.87    .155E+05      27.5          0.47
9.38
       1.13    82.98    .214E+05      45.2          0.55
7.89
       1.25    83.10    .277E+05      67.2          0.64
6.87
       1.36    83.21    .344E+05      93.6          0.71
6.12
       1.47    83.32    .426E+05     125.3          0.77
5.67
       1.59    83.44    .516E+05     162.2          0.82
5.30
       1.70    83.55    .620E+05     204.2          0.86
5.06
       1.81    83.66    .747E+05     254.0          0.89
4.90
       1.95    83.80    .924E+05     324.9          0.92
4.74
       2.08    83.93    .113E+06     411.3          0.95
4.59
       2.21    84.06    .135E+06     515.5          1.00
4.37

                                       <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0104)  184.50     11.60    3.00  37.47
0.86      0.36
     OUTFLOW: ID= 1 (0504)  184.50      8.72    3.17  37.47
0.82      0.34


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--------------------
| CALIB             |
| STANDHYD  (5042) |   Area    (ha)=   7.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        5.77         1.92
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      226.57        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      127.30        99.16
                over (min)         5.00        15.00
     Storage Coeff.  (min)=        3.79 (ii)   12.51 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.25         0.08

*TOTALS*
     PEAK FLOW       (cms)=        1.73         0.31
1.988 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       75.60        35.71
61.64
     TOTAL RAINFALL   (mm)=       81.60        81.60
81.60
     RUNOFF COEFFICIENT   =        0.93         0.44
0.76

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0106) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0504):   184.50   8.722     3.17    37.47
       + ID2= 2 (5042):     7.70   1.988     3.00    61.64
         ==================================================
         ID = 3 (0106):   192.20   9.380     3.17    38.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0114) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0106):   192.20   9.380     3.17    38.44
       + ID2= 2 (0113):    45.40   6.350     3.00    56.69
         ==================================================
         ID = 3 (0114):   237.60  15.235     3.00    41.93

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0505) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation       Manning
                  0.00         81.24         0.1100
                 33.01         80.98         0.1100
                 49.97         81.27         0.1100
                 54.18         80.35         0.1100
                 60.88         81.23         0.1100
                 69.13         79.02         0.1100
                 92.42         79.04         0.1100
                 98.70         80.89         0.1100
                128.88         81.13         0.1100
                199.00         81.23         0.1100
                266.11         81.68         0.1100
                306.94         81.73         0.1100
                331.74         81.55     0.1100 /0.0700  Main
Channel
                336.74         80.15         0.0700      Main
Channel
                346.34         81.64     0.0700 /0.0900  Main
Channel
                394.77         81.68         0.0900
                431.64         81.44         0.0900
                477.44         82.08         0.0900
                481.25         82.81         0.0900
                501.51         83.16         0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12    79.13    .418E+03       0.4          0.15
18.59
       0.23    79.25    .899E+03       1.3          0.25
11.41
       0.35    79.36    .140E+04       2.7          0.33
8.70
       0.46    79.48    .191E+04       4.4          0.39
7.22
       0.58    79.59    .244E+04       6.5          0.46
6.26
       0.69    79.71    .299E+04       8.9          0.51
5.58
       0.81    79.82    .355E+04      11.7          0.56
5.08
       0.92    79.94    .413E+04      14.7          0.61
4.68
       1.04    80.05    .472E+04      18.1          0.65
4.36
       1.15    80.17    .533E+04      21.7          0.70
4.09
       1.27    80.28    .598E+04      25.7          0.74
3.88
       1.38    80.40    .666E+04      29.7          0.76
3.74
       1.50    80.51    .740E+04      33.7          0.78
3.67
       1.61    80.63    .822E+04      38.1          0.79
3.59
       1.73    80.74    .909E+04      43.1          0.81
3.52
       1.84    80.86    .100E+05      48.6          0.83
3.45
       1.96    80.97    .111E+05      48.4          0.74
3.83
       2.07    81.09    .128E+05      43.8          0.59
4.86
       2.19    81.21    .155E+05      40.6          0.45
6.35

                                       <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0114)  237.60     15.23    3.00  41.93
0.94      0.62
     OUTFLOW: ID= 1 (0505)  237.60     14.47    3.08  41.93
0.91      0.61


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--------------------
| CALIB             |
| STANDHYD  (5052) |   Area    (ha)=  15.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=
65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.77         4.13
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      325.58        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      127.30        93.10
                over (min)         5.00        15.00
     Storage Coeff.  (min)=        4.71 (ii)   13.65 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=        3.50         0.60
4.002 (iii)
```

```
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        34.81
61.32
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.43
0.75

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0108) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0505):   237.60  14.467     3.08    41.93
        + ID2= 2 (5052):    15.90   4.002     3.00    61.32
          ===============================================
          ID = 3 (0108):   253.50  17.093     3.00    43.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0506) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 304.1) ------>
               Distance      Elevation       Manning
                   0.00         81.42        0.0900
                   7.45         81.36        0.0900
                  32.34         80.38        0.0900
                  45.97         80.05        0.0900
                  65.23         79.93        0.0900
                  84.49         80.35        0.0900
                 113.49         80.02        0.0900
                 136.48         80.07        0.0900
                 188.81         79.81        0.0900
                 197.86         79.25    0.0900 /0.0700  Main
Channel
                 200.70         78.22        0.0700      Main
Channel
                 203.29         79.35    0.0700 /0.0900  Main
Channel
                 204.01         79.67        0.0900
                 236.47         80.40        0.0900
                 277.80         80.48        0.0900
                 305.35         80.37        0.0900
                 346.67         80.41        0.0900
                 387.99         80.33        0.0900
                 415.54         80.53        0.0900
                 447.88         80.49        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.11    78.34    .979E+01       0.0          0.23
21.53
      0.23    78.45    .392E+02       0.0          0.37
13.56
      0.34    78.56    .881E+02       0.1          0.48
10.35
      0.46    78.68    .157E+03       0.3          0.58
8.54
      0.57    78.79    .245E+03       0.6          0.67
7.36
      0.68    78.91    .352E+03       0.9          0.76
6.52
      0.80    79.02    .480E+03       1.4          0.84
5.88
      0.91    79.13    .627E+03       1.9          0.92
5.38
      1.03    79.25    .793E+03       2.7          0.99
4.98
      1.15    79.37    .103E+04       3.8          1.09
4.55
      1.28    79.50    .135E+04       5.2          1.16
4.28
      1.40    79.62    .175E+04       7.1          1.20
4.12
      1.52    79.75    .228E+04       9.3          1.21
4.08
      1.65    79.87    .318E+04      11.7          1.10
4.52
      1.77    80.00    .524E+04      15.8          0.90
5.52
      1.90    80.12    .973E+04      24.3          0.74
6.69
      2.02    80.24    .158E+05      39.7          0.75
6.62
      2.15    80.37    .230E+05      59.2          0.77
6.46
      2.27    80.49    .349E+05      90.3          0.77
6.44

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0108)  253.50    17.09    3.00  43.14
1.79      0.87
     OUTFLOW: ID= 1 (0506)  253.50    15.26    3.17  43.14
1.76      0.92


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--------------------
| CALIB            |
| STANDHYD  (5062) |   Area    (ha)=  11.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.78         2.92
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     279.28        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30       106.57
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.30 (ii)   12.77 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.60         0.51
3.026 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        38.39
62.58
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.47
0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0110) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0506):   253.50  15.257     3.17    43.14
        + ID2= 2 (5062):    11.70   3.026     3.00    62.58
          ===============================================
          ID = 3 (0110):   265.20  16.346     3.17    44.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0120) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0110):   265.20  16.346     3.17    44.00
        + ID2= 2 (0119):     8.60   1.541     3.00    58.50
          ===============================================
          ID = 3 (0120):   273.80  17.317     3.00    44.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (5302) |   Area    (ha)=   5.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
56.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.83         1.97
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     196.64        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        82.95
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.48 (ii)   12.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.26         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.13         0.26
1.344 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        32.22
56.51
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.39
0.69

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6102) |   Area    (ha)=  21.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.55        10.55
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     375.06        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        92.51
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       5.13 (ii)   14.09 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.21         0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.48         1.51
3.731 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      80.10        35.76
51.28
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.98         0.44
0.63


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0611) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 940.0) ------>
               Distance      Elevation       Manning
                   0.00         83.36        0.0900
                  12.33         84.54        0.0900
                  21.95         84.33    0.0900 /0.0700  Main
Channel
                  25.80         83.10        0.0700      Main
Channel
                  39.87         83.58    0.0700 /0.0900  Main
Channel
                  95.01         83.67        0.0900
                 132.30         84.45        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.07    83.17    .442E+02       0.0          0.13
76.06
      0.14    83.24    .177E+03       0.1          0.20
47.91
      0.21    83.31    .398E+03       0.2          0.26
36.56
      0.28    83.38    .709E+03       0.4          0.32
30.22
      0.35    83.44    .113E+04       0.7          0.36
26.38
      0.41    83.51    .167E+04       1.2          0.41
23.66
      0.48    83.58    .232E+04       1.8          0.45
21.54
      0.56    83.66    .431E+04       3.1          0.42
23.06
      0.64    83.74    .779E+04       5.6          0.42
23.11
      0.72    83.82    .115E+05       9.1          0.46
20.97
      0.80    83.90    .154E+05      13.6          0.51
18.96
      0.88    83.98    .196E+05      18.9          0.55
17.31
      0.96    84.06    .240E+05      25.0          0.60
15.97
      1.04    84.14    .286E+05      32.1          0.65
14.88
      1.12    84.22    .334E+05      39.9          0.69
13.96
      1.20    84.30    .385E+05      48.6          0.73
13.19
      1.28    84.38    .438E+05      58.0          0.76
12.59
      1.36    84.46    .495E+05      68.4          0.80
12.06
      1.44    84.54    .555E+05      81.0          0.84
11.40

                                    <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6102)   21.10     3.73    3.00  51.28
0.58      0.42
     OUTFLOW: ID= 1 (0611)   21.10     2.14    3.17  51.26
0.50      0.44


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--------------------
| CALIB            |
| STANDHYD  (6112) |   Area    (ha)=  11.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  72.00   Dir. Conn.(%)=
62.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.21         3.19
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     275.68        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30       111.68
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.26 (ii)   12.58 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.42         0.59
2.916 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        41.50
62.64
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.51
0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0138) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0611):    21.10   2.141     3.17    51.26
        + ID2= 2 (6112):    11.40   2.916     3.00    62.64
          ===============================================
          ID = 3 (0138):    32.50   4.656     3.00    55.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6011) |   Area    (ha)=  44.10   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.83

     Unit Hyd Qpeak  (cms)=   2.027

     PEAK FLOW       (cms)=   1.276 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  23.626
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.290

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6012) |   Area    (ha)=  11.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
16.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.08         7.92
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     270.80        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        52.38
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       4.22 (ii)   15.47 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.24         0.07

*TOTALS*
     PEAK FLOW       (cms)=       0.60         0.69
1.070 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      75.60        26.83
34.64
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.33
0.42

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0124) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6011):    44.10   1.276     3.83    23.63
        + ID2= 2 (6012):    11.00   1.070     3.00    34.64
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          =================================================
          ID = 3 (0124):    55.10   1.597     3.50    25.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB              |
| NASHYD    (6021) |   Area    (ha)=  43.60   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   1.753

     PEAK FLOW       (cms)=   1.141 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  23.626
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.290

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6022) |   Area    (ha)=  12.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
23.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.51         8.39
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     293.26        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        53.84
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       4.42 (ii)   15.55 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.23         0.07

*TOTALS*
     PEAK FLOW       (cms)=       1.01          0.74
1.520 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=      75.60         27.16
38.30
     TOTAL RAINFALL   (mm)=      81.60         81.60
81.60
     RUNOFF COEFFICIENT   =       0.93          0.33
0.47

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0125) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6021):    43.60   1.141     4.00    23.63
        + ID2= 2 (6022):    12.90   1.520     3.00    38.30
          =================================================
          ID = 3 (0125):    56.50   1.733     3.00    26.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0126) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0124):    55.10   1.597     3.50    25.82
        + ID2= 2 (0125):    56.50   1.733     3.00    26.98
          =================================================
          ID = 3 (0126):   111.60   3.093     3.00    26.41

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0603) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (2135.9) ------>
               Distance      Elevation       Manning
                   0.00          92.58        0.1400
                   8.54          92.59        0.1400
                  22.11          92.47        0.1400
                  48.74          91.83        0.1400
                  67.59          91.58        0.1400
                  86.45          91.21        0.1400
                 103.50          90.80        0.1400
                 118.09          90.23        0.1400
                 127.84          90.09     0.1400 /0.0700  Main
Channel
                 129.84          89.59        0.0700      Main
Channel
                 130.34          90.09     0.0700 /0.1400  Main
Channel
                 140.57          90.14        0.1400
                 161.87          90.11        0.1400
                 177.03          90.04        0.1400
                 188.67          89.87        0.1400
                 199.59          90.31        0.1400
                 212.02          90.96        0.1400
                 225.58          91.35        0.1400
                 252.71          91.66        0.1400
                 274.11          91.86        0.1400

       <-------------------- TRAVEL TIME TABLE ------------------
---->
        DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
          (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
         0.12    89.71    .358E+02        0.0          0.19
81.29
         0.25    89.84    .143E+03        0.0          0.30
51.21
         0.37    89.96    .689E+03        0.2          0.23
67.44
         0.50    90.09    .278E+04        0.6          0.20
77.83
         0.67    90.26    .132E+05        3.4          0.23
65.31
         0.83    90.42    .262E+05        9.3          0.33
46.76
         1.00    90.59    .403E+05       17.9          0.41
37.64
         1.17    90.76    .556E+05       28.8          0.48
32.17
         1.33    90.92    .721E+05       42.0          0.53
28.63
         1.50    91.09    .903E+05       57.1          0.58
26.37
         1.67    91.26    .110E+06       74.7          0.62
24.65
         1.83    91.42    .133E+06       93.4          0.64
23.71
         2.00    91.59    .159E+06      113.6          0.66
23.26
         2.17    91.76    .188E+06      136.6          0.67
22.96
         2.33    91.92    .222E+06      168.5          0.70
21.97
         2.50    92.09    .258E+06      211.3          0.75
20.33
         2.67    92.26    .294E+06      258.5          0.81
18.98
         2.83    92.42    .332E+06      310.1          0.86
17.85
         3.00    92.59    .371E+06      358.0          0.88
17.29

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK    TPEAK    R.V.    MAX
DEPTH  MAX VEL
                              (ha)     (cms)    (hrs)    (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0126)  111.60      3.09     3.00  26.41
0.65     0.23
     OUTFLOW: ID= 1 (0603)  111.60      2.16     4.58  26.40
0.59     0.22

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--------------------
| CALIB              |
| STANDHYD  (6032) |   Area    (ha)=  34.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  47.00   Dir. Conn.(%)=
32.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.26        18.34
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     480.28        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        95.24
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       5.95 (ii)   14.81 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.19         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.64          2.65
5.841 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      80.10         37.28
50.98
     TOTAL RAINFALL   (mm)=      81.60         81.60
81.60
     RUNOFF COEFFICIENT   =       0.98          0.46
0.62

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0128) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0603):   111.60   2.157     4.58    26.40
        + ID2= 2 (6032):    34.60   5.841     3.00    50.98
          =================================================
          ID = 3 (0128):   146.20   6.396     3.00    32.22

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0604) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1414.9) ------>
               Distance      Elevation       Manning
                   0.00          86.75        0.0900
                   3.09          87.40        0.0900
                  18.33          87.41        0.0900
                  35.33          86.99        0.0900
                  73.84          86.75        0.0900
                 103.33          86.41        0.0900
                 120.33          86.11        0.0900
                 129.46          86.13        0.0900
                 143.37          85.32        0.0900
                 154.33          85.02        0.0900
                 161.57          85.09        0.0900
                 163.05          84.78     0.0900 /0.0700  Main
Channel
                 166.55          83.78        0.0700      Main
Channel
                 168.05          84.78     0.0700 /0.1100  Main
Channel
                 172.02          85.29        0.1100
                 191.39          86.19        0.1100
                 270.18          85.78        0.1100
                 296.33          86.36        0.1100
                 324.34          86.68        0.1100
                 368.56          87.05        0.1100

       <-------------------- TRAVEL TIME TABLE ------------------
---->
        DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
          (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
         0.17    83.95    .465E+02        0.0          0.03
432.88
         0.33    84.11    .186E+03        0.0          0.04
272.70
         0.50    84.28    .418E+03        0.0          0.05
208.11
         0.67    84.45    .743E+03        0.1          0.06
171.79
         0.83    84.61    .116E+04        0.1          0.08
148.04
         1.00    84.78    .167E+04        0.2          0.09
131.10
         1.20    84.98    .252E+04        0.4          0.10
110.62
         1.41    85.19    .469E+04        0.6          0.09
121.59
         1.61    85.39    .842E+04        1.1          0.09
126.63
         1.81    85.59    .133E+05        1.8          0.09
121.99
         2.01    85.79    .192E+05        2.7          0.10
116.68
         2.22    86.00    .298E+05        4.0          0.09
125.45
         2.42    86.20    .487E+05        5.6          0.08
143.80
         2.62    86.40    .736E+05        9.0          0.08
137.02
         2.82    86.60    .102E+06       13.1          0.09
130.82
         3.03    86.81    .136E+06       18.1          0.09
125.42
         3.23    87.01    .178E+06       24.4          0.09
121.07
         3.43    87.21    .224E+06       34.2          0.10
108.80
         3.63    87.41    .271E+06       44.8          0.11
100.89

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK    TPEAK    R.V.    MAX
DEPTH  MAX VEL
                              (ha)     (cms)    (hrs)    (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0128)  146.20      6.40     3.00  32.22
2.46     0.08
     OUTFLOW: ID= 1 (0604)  146.20      2.34     3.25  32.21
1.96     0.09

     **** WARNING:  COMPUTATIONS FAILED TO CONVERGE.

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--------------------
| CALIB              |
| STANDHYD  (6042) |   Area    (ha)=  24.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=
69.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      18.72         5.28
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     400.00        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30       129.18
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       5.33 (ii)   10.32 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.21         0.09

*TOTALS*
     PEAK FLOW       (cms)=       5.53          1.23
6.596 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60         46.55
66.59
     TOTAL RAINFALL   (mm)=      81.60         81.60
81.60
     RUNOFF COEFFICIENT   =       0.93          0.57
0.82

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0130) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0604):   146.20   2.343     3.25    32.21
        + ID2= 2 (6042):    24.00   6.596     3.00    66.59
          =================================================
          ID = 3 (0130):   170.20   8.549     3.00    37.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0605) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 801.4) ------>
               Distance      Elevation       Manning
                   0.00          82.95        0.1100
                   3.78          82.95        0.1100
                   9.24          82.49        0.1100
                  50.67          82.10        0.1100
                 105.12          82.17        0.1100
                 119.34          81.56        0.1100
                 150.67          81.66        0.1100
                 157.23          82.37        0.1100
                 190.03          82.57        0.1100
                 223.75          82.27        0.1100
                 252.32          82.50        0.1100
                 254.65          81.95     0.1100 /0.0700  Main
Channel
                 258.15          80.95        0.0700      Main
Channel
                 259.65          81.95     0.0700 /0.1100  Main
Channel
                 263.15          82.90        0.1100
                 278.14          82.80        0.1100
                 282.35          81.68        0.1100
                 285.02          82.19        0.1100
                 336.56          82.53        0.1100
                 404.40          82.68        0.1100

       <-------------------- TRAVEL TIME TABLE ------------------
---->
        DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
          (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
         0.08    81.03    .125E+02        0.0          0.11
104.30
         0.17    81.12    .499E+02        0.0          0.18
65.70
         0.25    81.20    .112E+03        0.0          0.24
50.14
         0.33    81.28    .199E+03        0.1          0.29
41.39
         0.42    81.37    .312E+03        0.1          0.34
35.67
         0.50    81.45    .449E+03        0.2          0.38
31.59
         0.58    81.53    .611E+03        0.4          0.42
28.50
         0.67    81.62    .117E+04        0.5          0.33
36.10
         0.75    81.70    .316E+04        1.1          0.24
49.12
         0.83    81.78    .560E+04        2.1          0.27
45.15
         0.92    81.87    .827E+04        3.4          0.30
40.03
         1.00    81.95    .112E+05        5.2          0.33
35.88
         1.10    82.05    .151E+05        8.0          0.38
31.68
         1.21    82.16    .207E+05        8.8          0.30
39.37
         1.31    82.26    .306E+05       14.0          0.33
36.36
         1.41    82.36    .433E+05       20.3          0.34
35.59
         1.52    82.47    .606E+05       28.4          0.34
35.57
         1.62    82.57    .828E+05       41.0          0.36
33.68
         1.73    82.68    .109E+06       60.1          0.39
30.35

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA     QPEAK    TPEAK    R.V.    MAX
DEPTH  MAX VEL
                              (ha)     (cms)    (hrs)    (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0130)  170.20      8.55     3.00  37.06
1.18     0.32
     OUTFLOW: ID= 1 (0605)  170.20      3.82     3.25  37.05
0.93     0.31

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| ADD HYD   (0139) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0138):    32.50   4.656     3.00    55.25
        + ID2= 2 (0605):   170.20   3.819     3.25    37.05
          ===============================================
          ID = 3 (0139):   202.70   7.578     3.00    39.97

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6052) |   Area    (ha)=  15.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=
65.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.77          4.13
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      325.58         40.00
     Mannings n           =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      127.30         88.54
                over (min)        5.00         15.00
     Storage Coeff.  (min)=        4.71 (ii)    13.83 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.22          0.08

*TOTALS*
     PEAK FLOW       (cms)=        3.50          0.57
3.971 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       75.60         33.11
60.73
     TOTAL RAINFALL   (mm)=       81.60         81.60
81.60
     RUNOFF COEFFICIENT   =        0.93          0.41
0.74

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0132) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0139):   202.70   7.578     3.00    39.97
        + ID2= 2 (6052):    15.90   3.971     3.00    60.73
          ===============================================
          ID = 3 (0132):   218.60  11.549     3.00    41.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0530) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
             <------ DATA FOR SECTION ( 350.0) ------>
              Distance      Elevation       Manning
                  0.00         81.70        0.1100
                  3.84         81.72        0.1100
                  5.87         80.72        0.1100
                  9.38         81.42        0.1100
                 49.64         81.07        0.1100
                 80.61         80.72        0.1100
                 85.61         81.14        0.1100
                 93.32         80.00        0.1100
                 95.04         80.45        0.1100
                102.72         80.66        0.1100
                110.13         78.93     0.1100 /0.0700  Main
Channel
                118.05         78.63        0.0700      Main
Channel
                124.40         78.89     0.0700 /0.1100  Main
Channel
                132.18         79.61        0.1100
                139.34         79.23        0.1100
                144.67         79.43        0.1100
                149.63         79.98        0.1100
                153.42         79.79        0.1100
                158.56         80.58        0.1100
                176.89         81.15        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.13   78.76   .190E+03       0.1          0.19
38.41
      0.26   78.89   .758E+03       0.5          0.31
24.20
      0.43   79.05   .189E+04       2.1          0.50
14.77
      0.59   79.22   .321E+04       4.7          0.65
11.35
      0.76   79.39   .498E+04       8.2          0.73
10.10
      0.93   79.55   .743E+04      13.1          0.78
9.48
      1.09   79.72   .103E+05      19.5          0.84
8.84
      1.26   79.89   .135E+05      27.1          0.89
8.29
      1.43   80.05   .171E+05      36.3          0.94
7.85
      1.59   80.22   .209E+05      47.2          1.00
7.39
      1.76   80.39   .251E+05      59.8          1.06
6.99
      1.93   80.56   .296E+05      73.5          1.10
6.70
      2.10   80.72   .348E+05      87.6          1.12
6.61
      2.26   80.89   .412E+05     102.8          1.11
6.68
      2.43   81.06   .495E+05     122.0          1.09
6.77
      2.60   81.22   .596E+05     146.2          1.09
6.80
      2.76   81.39   .714E+05     176.9          1.10
6.72
      2.93   81.56   .841E+05     215.0          1.13
6.52
      3.10   81.72   .970E+05     256.7          1.18
6.30

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
    INFLOW : ID= 2 (0132)  218.60    11.55    3.00  41.48
0.87     0.76
    OUTFLOW: ID= 1 (0530)  218.60     9.21    3.08  41.48
0.79     0.74

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| ADD HYD   (0134) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0530):   218.60   9.212     3.08    41.48
        + ID2= 2 (5302):     5.80   1.344     3.00    56.51
          ===============================================
          ID = 3 (0134):   224.40   9.865     3.08    41.87

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0135) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0120):   273.80  17.317     3.00    44.45
        + ID2= 2 (0134):   224.40   9.865     3.08    41.87
          ===============================================
          ID = 3 (0135):   498.20  27.164     3.08    43.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0507) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
             <------ DATA FOR SECTION (  40.0) ------>
              Distance      Elevation       Manning
                  0.00         79.36        0.0900
                  7.45         79.32        0.0900
                 13.77         79.27        0.0900
                 20.24         79.24        0.0900
                 27.28         79.26        0.0900
                 34.16         79.13        0.0900
                 40.79         79.05        0.0900
                 47.58         79.05        0.0900
                 54.30         79.07        0.0900
                 60.87         79.24        0.0900
                 71.39         79.48        0.0900
                 73.53         78.96        0.0900
                 76.96         78.07        0.0900
                 82.21         77.08     0.0900 /0.0700  Main
Channel
                 85.82         76.28        0.0700      Main
Channel
                 89.97         76.89        0.0700      Main
Channel
                 91.35         77.38     0.0700 /0.0900  Main
Channel
                 95.27         78.68        0.0900
                 98.44         79.63        0.0900
                102.89         79.89        0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.16   76.44   .113E+03       0.0          0.14
88.10
      0.32   76.60   .451E+03       0.1          0.23
55.50
      0.49   76.76   .101E+04       0.4          0.30
42.35
      0.65   76.92   .180E+04       0.9          0.37
34.57
      0.81   77.09   .276E+04       1.6          0.44
28.86
      0.97   77.25   .388E+04       2.7          0.52
24.37
      1.14   77.41   .516E+04       4.0          0.59
21.56
      1.30   77.57   .660E+04       5.7          0.66
19.26
      1.46   77.74   .822E+04       7.8          0.72
17.67
      1.62   77.90   .100E+05      10.1          0.77
16.48
      1.79   78.06   .120E+05      12.8          0.82
15.54
      1.95   78.22   .141E+05      15.9          0.87
14.74
      2.11   78.39   .163E+05      19.4          0.91
14.06
      2.27   78.55   .187E+05      23.2          0.95
13.47
      2.44   78.71   .212E+05      27.3          0.99
12.95
      2.60   78.87   .239E+05      31.9          1.02
12.50
      2.76   79.04   .267E+05      36.8          1.06
12.10
      2.92   79.20   .320E+05      39.4          0.94
13.56
      3.09   79.36   .409E+05      45.7          0.85
14.94

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
    INFLOW : ID= 2 (0135)  498.20    27.16    3.08  43.29
2.43     0.98
    OUTFLOW: ID= 1 (0507)  498.20    23.75    3.33  43.29
2.29     0.95


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| CALIB             |
| STANDHYD  (5072) |   Area    (ha)=  48.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
36.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       24.45         24.45
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      570.96         40.00
     Mannings n           =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      127.30         99.72
                over (min)        5.00         20.00
     Storage Coeff.  (min)=        6.60 (ii)    15.30 (ii)
     Unit Hyd. Tpeak (min)=        5.00         20.00
     Unit Hyd. peak  (cms)=        0.18          0.07

*TOTALS*
     PEAK FLOW       (cms)=        5.69          3.51
8.194 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=       75.60         39.14
52.26
     TOTAL RAINFALL   (mm)=       81.60         81.60
81.60
     RUNOFF COEFFICIENT   =        0.93          0.48
0.64


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  74.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0122) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0507):   498.20  23.749     3.33    43.29
        + ID2= 2 (5072):    48.90   8.194     3.00    52.26
          ===============================================
          ID = 3 (0122):   547.10  28.290     3.25    44.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (5402) |   Area    (ha)=   9.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        4.70          4.70
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      250.33         40.00
     Mannings n           =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      127.30         83.58
                over (min)        5.00         15.00
     Storage Coeff.  (min)=        4.02 (ii)    13.36 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.24          0.08

*TOTALS*
     PEAK FLOW       (cms)=        1.13          0.62
1.641 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       75.60         32.32
47.47
     TOTAL RAINFALL   (mm)=       81.60         81.60
81.60
     RUNOFF COEFFICIENT   =        0.93          0.40
0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| STORE HYD (1505) |   AREA       (ha)=  30.00
| ID= 1 DT= 5.0min |   QPEAK     (cms)=   0.78
-------------------    TPEAK     (hrs)=  15.58
                       VOLUME     (mm)= 402.14

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |'  TIME    FLOW |
TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |'   hrs     cms |
hrs     cms
  0.00    0.00 | 31.33    0.10 | 62.67    0.25 | 94.00    0.26
|125.33    0.16
  0.08    0.00 | 31.42    0.10 | 62.75    0.25 | 94.08    0.26
|125.42    0.16
  0.17    0.00 | 31.50    0.10 | 62.83    0.25 | 94.17    0.25
|125.50    0.16
  0.25    0.00 | 31.58    0.10 | 62.92    0.25 | 94.25    0.25
|125.58    0.16
  0.33    0.00 | 31.67    0.10 | 63.00    0.25 | 94.33    0.25
|125.67    0.17
  0.42    0.00 | 31.75    0.10 | 63.08    0.25 | 94.42    0.25
|125.75    0.16
  0.50    0.00 | 31.83    0.10 | 63.17    0.25 | 94.50    0.25
|125.83    0.16
  0.58    0.00 | 31.92    0.10 | 63.25    0.24 | 94.58    0.25
|125.92    0.17
  0.67    0.00 | 32.00    0.10 | 63.33    0.24 | 94.67    0.24
|126.00    0.15
  0.75    0.00 | 32.08    0.10 | 63.42    0.24 | 94.75    0.25
|126.08    0.16
  0.83    0.00 | 32.17    0.10 | 63.50    0.23 | 94.83    0.24
|126.17    0.16
  0.92    0.00 | 32.25    0.10 | 63.58    0.24 | 94.92    0.25
|126.25    0.16
  1.00    0.00 | 32.33    0.10 | 63.67    0.24 | 95.00    0.25
|126.33    0.16
  1.08    0.00 | 32.42    0.10 | 63.75    0.24 | 95.08    0.25
|126.42    0.16
  1.17    0.00 | 32.50    0.10 | 63.83    0.23 | 95.17    0.24
|126.50    0.17
  1.25    0.00 | 32.58    0.10 | 63.92    0.23 | 95.25    0.21
|126.58    0.16
  1.33    0.00 | 32.67    0.10 | 64.00    0.23 | 95.33    0.25
|126.67    0.16
  1.42    0.00 | 32.75    0.10 | 64.08    0.23 | 95.42    0.22
|126.75    0.17
  1.50    0.00 | 32.83    0.10 | 64.17    0.23 | 95.50    0.23
|126.83    0.17
  1.58    0.00 | 32.92    0.10 | 64.25    0.24 | 95.58    0.22
|126.92    0.17
  1.67    0.00 | 33.00    0.10 | 64.33    0.23 | 95.67    0.24
|127.00    0.17
  1.75    0.00 | 33.08    0.10 | 64.42    0.23 | 95.75    0.26
|127.08    0.17
  1.83    0.00 | 33.17    0.10 | 64.50    0.23 | 95.83    0.24
|127.17    0.18
  1.92    0.00 | 33.25    0.11 | 64.58    0.23 | 95.92    0.23
|127.25    0.17
  2.00    0.00 | 33.33    0.11 | 64.67    0.24 | 96.00    0.24
|127.33    0.18
  2.08    0.00 | 33.42    0.11 | 64.75    0.24 | 96.08    0.24
|127.42    0.18
  2.17    0.00 | 33.50    0.11 | 64.83    0.24 | 96.17    0.24
|127.50    0.16
  2.25    0.00 | 33.58    0.11 | 64.92    0.24 | 96.25    0.24
|127.58    0.18
  2.33    0.00 | 33.67    0.11 | 65.00    0.24 | 96.33    0.24
|127.67    0.17
  2.42    0.00 | 33.75    0.11 | 65.08    0.23 | 96.42    0.24
|127.75    0.18
  2.50    0.00 | 33.83    0.11 | 65.17    0.23 | 96.50    0.24
|127.83    0.17
  2.58    0.00 | 33.92    0.11 | 65.25    0.23 | 96.58    0.23
|127.92    0.17
  2.67    0.00 | 34.00    0.11 | 65.33    0.23 | 96.67    0.24
|128.00    0.17
  2.75    0.00 | 34.08    0.11 | 65.42    0.22 | 96.75    0.23
|128.08    0.17
  2.83    0.00 | 34.17    0.11 | 65.50    0.22 | 96.83    0.23
|128.17    0.17
  2.92    0.00 | 34.25    0.11 | 65.58    0.22 | 96.92    0.24
|128.25    0.18
  3.00    0.00 | 34.33    0.11 | 65.67    0.22 | 97.00    0.23
|128.33    0.18
  3.08    0.00 | 34.42    0.11 | 65.75    0.22 | 97.08    0.22
|128.42    0.19
  3.17    0.00 | 34.50    0.11 | 65.83    0.22 | 97.17    0.23
|128.50    0.18
  3.25    0.00 | 34.58    0.11 | 65.92    0.21 | 97.25    0.22
|128.58    0.17
  3.33    0.00 | 34.67    0.11 | 66.00    0.21 | 97.33    0.25
|128.67    0.18
  3.42    0.00 | 34.75    0.11 | 66.08    0.21 | 97.42    0.22
|128.75    0.18
  3.50    0.00 | 34.83    0.11 | 66.17    0.20 | 97.50    0.24
|128.83    0.18
  3.58    0.00 | 34.92    0.11 | 66.25    0.20 | 97.58    0.23
|128.92    0.18
  3.67    0.00 | 35.00    0.11 | 66.33    0.20 | 97.67    0.22
|129.00    0.18
  3.75    0.00 | 35.08    0.11 | 66.42    0.20 | 97.75    0.23
|129.08    0.19
  3.83    0.00 | 35.17    0.11 | 66.50    0.19 | 97.83    0.22
|129.17    0.17
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3.92    0.00 | 35.25   0.11 | 66.58   0.20 | 97.92   0.21
|129.25   0.17
4.00    0.00 | 35.33   0.11 | 66.67   0.20 | 98.00   0.22
|129.33   0.17
4.08    0.00 | 35.42   0.11 | 66.75   0.20 | 98.08   0.23
|129.42   0.18
4.17    0.00 | 35.50   0.11 | 66.83   0.19 | 98.17   0.21
|129.50   0.18
4.25    0.00 | 35.58   0.11 | 66.92   0.19 | 98.25   0.21
|129.58   0.18
4.33    0.00 | 35.67   0.11 | 67.00   0.20 | 98.33   0.23
|129.67   0.18
4.42    0.00 | 35.75   0.11 | 67.08   0.20 | 98.42   0.21
|129.75   0.18
4.50    0.00 | 35.83   0.11 | 67.17   0.20 | 98.50   0.21
|129.83   0.18
4.58    0.00 | 35.92   0.11 | 67.25   0.20 | 98.58   0.23
|129.92   0.18
4.67    0.00 | 36.00   0.11 | 67.33   0.20 | 98.67   0.22
|130.00   0.18
4.75    0.00 | 36.08   0.11 | 67.42   0.21 | 98.75   0.23
|130.08   0.17
4.83    0.00 | 36.17   0.11 | 67.50   0.22 | 98.83   0.24
|130.17   0.17
4.92    0.00 | 36.25   0.11 | 67.58   0.22 | 98.92   0.22
|130.25   0.17
5.00    0.00 | 36.33   0.11 | 67.67   0.23 | 99.00   0.20
|130.33   0.17
5.08    0.00 | 36.42   0.12 | 67.75   0.24 | 99.08   0.20
|130.42   0.18
5.17    0.00 | 36.50   0.12 | 67.83   0.26 | 99.17   0.22
|130.50   0.18
5.25    0.00 | 36.58   0.12 | 67.92   0.27 | 99.25   0.21
|130.58   0.18
5.33    0.00 | 36.67   0.12 | 68.00   0.28 | 99.33   0.22
|130.67   0.17
5.42    0.00 | 36.75   0.12 | 68.08   0.31 | 99.42   0.21
|130.75   0.17
5.50    0.00 | 36.83   0.12 | 68.17   0.32 | 99.50   0.20
|130.83   0.18
5.58    0.00 | 36.92   0.12 | 68.25   0.34 | 99.58   0.21
|130.92   0.17
5.67    0.00 | 37.00   0.12 | 68.33   0.35 | 99.67   0.20
|131.00   0.17
5.75    0.00 | 37.08   0.12 | 68.42   0.38 | 99.75   0.19
|131.08   0.17
5.83    0.00 | 37.17   0.12 | 68.50   0.39 | 99.83   0.20
|131.17   0.18
5.92    0.00 | 37.25   0.12 | 68.58   0.40 | 99.92   0.22
|131.25   0.18
6.00    0.00 | 37.33   0.12 | 68.67   0.42 |100.00   0.21
|131.33   0.17
6.08    0.00 | 37.42   0.12 | 68.75   0.44 |100.08   0.20
|131.42   0.17
6.17    0.00 | 37.50   0.12 | 68.83   0.46 |100.17   0.21
|131.50   0.17
6.25    0.00 | 37.58   0.12 | 68.92   0.49 |100.25   0.19
|131.58   0.17
6.33    0.00 | 37.67   0.13 | 69.00   0.51 |100.33   0.19
|131.67   0.17
6.42    0.00 | 37.75   0.12 | 69.08   0.54 |100.42   0.19
|131.75   0.17
6.50    0.00 | 37.83   0.12 | 69.17   0.56 |100.50   0.19
|131.83   0.17
6.58    0.00 | 37.92   0.12 | 69.25   0.60 |100.58   0.19
|131.92   0.17
6.67    0.00 | 38.00   0.12 | 69.33   0.64 |100.67   0.19
|132.00   0.16
6.75    0.00 | 38.08   0.12 | 69.42   0.67 |100.75   0.21
|132.08   0.17
6.83    0.00 | 38.17   0.12 | 69.50   0.67 |100.83   0.19
|132.17   0.17
6.92    0.00 | 38.25   0.12 | 69.58   0.68 |100.92   0.19
|132.25   0.17
7.00    0.00 | 38.33   0.12 | 69.67   0.65 |101.00   0.19
|132.33   0.17
7.08    0.00 | 38.42   0.12 | 69.75   0.66 |101.08   0.19
|132.42   0.18
7.17    0.00 | 38.50   0.12 | 69.83   0.66 |101.17   0.20
|132.50   0.17
7.25    0.00 | 38.58   0.12 | 69.92   0.67 |101.25   0.19
|132.58   0.16
7.33    0.00 | 38.67   0.13 | 70.00   0.66 |101.33   0.18
|132.67   0.17
7.42    0.00 | 38.75   0.13 | 70.08   0.67 |101.42   0.19
|132.75   0.17
7.50    0.00 | 38.83   0.13 | 70.17   0.67 |101.50   0.19
|132.83   0.17
7.58    0.00 | 38.92   0.13 | 70.25   0.70 |101.58   0.19
|132.92   0.16
7.67    0.00 | 39.00   0.13 | 70.33   0.74 |101.67   0.20
|133.00   0.17
7.75    0.00 | 39.08   0.14 | 70.42   0.73 |101.75   0.19
|133.08   0.16
7.83    0.00 | 39.17   0.14 | 70.50   0.74 |101.83   0.18
|133.17   0.16
7.92    0.00 | 39.25   0.14 | 70.58   0.74 |101.92   0.19
|133.25   0.16
8.00    0.00 | 39.33   0.14 | 70.67   0.74 |102.00   0.19
|133.33   0.15
8.08    0.00 | 39.42   0.14 | 70.75   0.75 |102.08   0.19
|133.42   0.16
8.17    0.00 | 39.50   0.15 | 70.83   0.75 |102.17   0.19
|133.50   0.16
8.25    0.00 | 39.58   0.16 | 70.92   0.74 |102.25   0.18
|133.58   0.17
8.33    0.00 | 39.67   0.16 | 71.00   0.74 |102.33   0.18
|133.67   0.16
8.42    0.00 | 39.75   0.16 | 71.08   0.75 |102.42   0.19
|133.75   0.15
8.50    0.00 | 39.83   0.16 | 71.17   0.77 |102.50   0.19
|133.83   0.16
8.58    0.00 | 39.92   0.17 | 71.25   0.76 |102.58   0.19
|133.92   0.16
8.67    0.00 | 40.00   0.17 | 71.33   0.76 |102.67   0.18
|134.00   0.16
8.75    0.00 | 40.08   0.17 | 71.42   0.77 |102.75   0.20
|134.08   0.16
8.83    0.00 | 40.17   0.17 | 71.50   0.76 |102.83   0.18
|134.17   0.15
8.92    0.00 | 40.25   0.18 | 71.58   0.77 |102.92   0.18
|134.25   0.16
9.00    0.00 | 40.33   0.18 | 71.67   0.76 |103.00   0.17
|134.33   0.16
9.08    0.00 | 40.42   0.18 | 71.75   0.76 |103.08   0.17
|134.42   0.16
9.17    0.00 | 40.50   0.18 | 71.83   0.78 |103.17   0.18
|134.50   0.16
9.25    0.00 | 40.58   0.19 | 71.92   0.77 |103.25   0.18
|134.58   0.15
9.33    0.00 | 40.67   0.19 | 72.00   0.76 |103.33   0.17
|134.67   0.16
9.42    0.00 | 40.75   0.19 | 72.08   0.74 |103.42   0.17
|134.75   0.15
9.50    0.00 | 40.83   0.19 | 72.17   0.75 |103.50   0.17
|134.83   0.15
9.58    0.00 | 40.92   0.19 | 72.25   0.74 |103.58   0.18
|134.92   0.16
9.67    0.00 | 41.00   0.19 | 72.33   0.72 |103.67   0.18
|135.00   0.15
9.75    0.00 | 41.08   0.19 | 72.42   0.70 |103.75   0.18
|135.08   0.15
9.83    0.00 | 41.17   0.20 | 72.50   0.70 |103.83   0.18
|135.17   0.15
9.92    0.00 | 41.25   0.20 | 72.58   0.69 |103.92   0.19
|135.25   0.15
10.00   0.00 | 41.33   0.21 | 72.67   0.70 |104.00   0.17
|135.33   0.15
10.08   0.00 | 41.42   0.22 | 72.75   0.68 |104.08   0.18
|135.42   0.15
10.17   0.00 | 41.50   0.23 | 72.83   0.67 |104.17   0.18
|135.50   0.15
10.25   0.00 | 41.58   0.23 | 72.92   0.66 |104.25   0.17
|135.58   0.15
10.33   0.00 | 41.67   0.23 | 73.00   0.64 |104.33   0.17
|135.67   0.14
10.42   0.00 | 41.75   0.24 | 73.08   0.63 |104.42   0.17
|135.75   0.15
10.50   0.00 | 41.83   0.25 | 73.17   0.63 |104.50   0.18
|135.83   0.16
10.58   0.00 | 41.92   0.25 | 73.25   0.61 |104.58   0.17
|135.92   0.15
10.67   0.00 | 42.00   0.26 | 73.33   0.62 |104.67   0.16
|136.00   0.15
10.75   0.00 | 42.08   0.25 | 73.42   0.61 |104.75   0.16
|136.08   0.15
10.83   0.00 | 42.17   0.26 | 73.50   0.62 |104.83   0.18
|136.17   0.15
10.92   0.00 | 42.25   0.26 | 73.58   0.60 |104.92   0.16
|136.25   0.15
11.00   0.00 | 42.33   0.26 | 73.67   0.62 |105.00   0.17
|136.33   0.15
11.08   0.00 | 42.42   0.26 | 73.75   0.58 |105.08   0.16
|136.42   0.15
11.17   0.00 | 42.50   0.26 | 73.83   0.59 |105.17   0.16
|136.50   0.15
11.25   0.00 | 42.58   0.26 | 73.92   0.57 |105.25   0.16
|136.58   0.15
11.33   0.00 | 42.67   0.26 | 74.00   0.57 |105.33   0.16
|136.67   0.14
11.42   0.00 | 42.75   0.25 | 74.08   0.57 |105.42   0.16
|136.75   0.15
11.50   0.00 | 42.83   0.26 | 74.17   0.56 |105.50   0.16
|136.83   0.14
11.58   0.00 | 42.92   0.25 | 74.25   0.58 |105.58   0.16
|136.92   0.14
11.67   0.00 | 43.00   0.25 | 74.33   0.58 |105.67   0.16
|137.00   0.14
11.75   0.00 | 43.08   0.25 | 74.42   0.58 |105.75   0.17
|137.08   0.15
11.83   0.00 | 43.17   0.25 | 74.50   0.59 |105.83   0.16
|137.17   0.14
11.92   0.00 | 43.25   0.25 | 74.58   0.60 |105.92   0.16
|137.25   0.15
12.00   0.00 | 43.33   0.25 | 74.67   0.57 |106.00   0.16
|137.33   0.15
12.08   0.00 | 43.42   0.25 | 74.75   0.56 |106.08   0.16
|137.42   0.14
12.17   0.00 | 43.50   0.25 | 74.83   0.54 |106.17   0.16
|137.50   0.14
12.25   0.00 | 43.58   0.25 | 74.92   0.56 |106.25   0.17
|137.58   0.14
12.33   0.00 | 43.67   0.25 | 75.00   0.53 |106.33   0.16
|137.67   0.15
12.42   0.00 | 43.75   0.25 | 75.08   0.51 |106.42   0.16
|137.75   0.14
12.50   0.00 | 43.83   0.26 | 75.17   0.51 |106.50   0.16
|137.83   0.14
12.58   0.00 | 43.92   0.26 | 75.25   0.51 |106.58   0.16
|137.92   0.14
12.67   0.00 | 44.00   0.26 | 75.33   0.51 |106.67   0.16
|138.00   0.14
12.75   0.00 | 44.08   0.26 | 75.42   0.50 |106.75   0.16
|138.08   0.14
12.83   0.00 | 44.17   0.26 | 75.50   0.50 |106.83   0.15
|138.17   0.14
12.92   0.00 | 44.25   0.27 | 75.58   0.49 |106.92   0.15
|138.25   0.14
13.00   0.00 | 44.33   0.26 | 75.67   0.49 |107.00   0.16
|138.33   0.14
13.08   0.00 | 44.42   0.26 | 75.75   0.49 |107.08   0.16
|138.42   0.14
13.17   0.00 | 44.50   0.26 | 75.83   0.48 |107.17   0.16
|138.50   0.14
13.25   0.00 | 44.58   0.26 | 75.92   0.47 |107.25   0.15
|138.58   0.14
13.33   0.00 | 44.67   0.26 | 76.00   0.47 |107.33   0.16
|138.67   0.14
13.42   0.00 | 44.75   0.26 | 76.08   0.48 |107.42   0.16
|138.75   0.14
13.50   0.00 | 44.83   0.26 | 76.17   0.46 |107.50   0.15
|138.83   0.14
13.58   0.00 | 44.92   0.26 | 76.25   0.45 |107.58   0.16
|138.92   0.14
13.67   0.00 | 45.00   0.26 | 76.33   0.45 |107.67   0.15
|139.00   0.14
13.75   0.00 | 45.08   0.26 | 76.42   0.43 |107.75   0.15
|139.08   0.14
13.83   0.00 | 45.17   0.25 | 76.50   0.44 |107.83   0.16
|139.17   0.13
13.92   0.00 | 45.25   0.25 | 76.58   0.46 |107.92   0.16
|139.25   0.14
14.00   0.00 | 45.33   0.25 | 76.67   0.43 |108.00   0.16
|139.33   0.14
14.08   0.00 | 45.42   0.25 | 76.75   0.44 |108.08   0.15
|139.42   0.14
14.17   0.00 | 45.50   0.25 | 76.83   0.43 |108.17   0.15
|139.50   0.14
14.25   0.00 | 45.58   0.25 | 76.92   0.45 |108.25   0.15
|139.58   0.13
14.33   0.00 | 45.67   0.25 | 77.00   0.42 |108.33   0.16
|139.67   0.14
14.42   0.00 | 45.75   0.25 | 77.08   0.43 |108.42   0.16
|139.75   0.14
14.50   0.00 | 45.83   0.26 | 77.17   0.43 |108.50   0.15
|139.83   0.13
14.58   0.00 | 45.92   0.25 | 77.25   0.42 |108.58   0.15
|139.92   0.14
14.67   0.00 | 46.00   0.26 | 77.33   0.41 |108.67   0.15
|140.00   0.14
14.75   0.00 | 46.08   0.26 | 77.42   0.43 |108.75   0.16
|140.08   0.13
14.83   0.00 | 46.17   0.25 | 77.50   0.41 |108.83   0.15
|140.17   0.13
14.92   0.69 | 46.25   0.26 | 77.58   0.43 |108.92   0.15
|140.25   0.13
15.00   0.69 | 46.33   0.26 | 77.67   0.39 |109.00   0.15
|140.33   0.13
15.08   0.71 | 46.42   0.26 | 77.75   0.39 |109.08   0.15
|140.42   0.14
15.17   0.74 | 46.50   0.26 | 77.83   0.37 |109.17   0.15
|140.50   0.13
15.25   0.74 | 46.58   0.26 | 77.92   0.39 |109.25   0.15
|140.58   0.13
15.33   0.74 | 46.67   0.26 | 78.00   0.39 |109.33   0.14
|140.67   0.13
15.42   0.77 | 46.75   0.26 | 78.08   0.39 |109.42   0.15
|140.75   0.13
15.50   0.76 | 46.83   0.25 | 78.17   0.37 |109.50   0.15
|140.83   0.13
15.58   0.78 | 46.92   0.25 | 78.25   0.36 |109.58   0.14
|140.92   0.13
15.67   0.78 | 47.00   0.25 | 78.33   0.37 |109.67   0.15
|141.00   0.13
15.75   0.77 | 47.08   0.25 | 78.42   0.38 |109.75   0.14
|141.08   0.13
15.83   0.77 | 47.17   0.26 | 78.50   0.36 |109.83   0.15
|141.17   0.13
15.92   0.77 | 47.25   0.26 | 78.58   0.36 |109.92   0.14
|141.25   0.13
16.00   0.76 | 47.33   0.26 | 78.67   0.36 |110.00   0.14
|141.33   0.13
16.08   0.74 | 47.42   0.26 | 78.75   0.37 |110.08   0.14
|141.42   0.13
16.17   0.74 | 47.50   0.26 | 78.83   0.34 |110.17   0.14
|141.50   0.13
16.25   0.74 | 47.58   0.25 | 78.92   0.35 |110.25   0.14
|141.58   0.13
16.33   0.72 | 47.67   0.26 | 79.00   0.36 |110.33   0.15
|141.67   0.13
16.42   0.69 | 47.75   0.26 | 79.08   0.35 |110.42   0.15
|141.75   0.13
16.50   0.69 | 47.83   0.26 | 79.17   0.35 |110.50   0.14
|141.83   0.13
16.58   0.67 | 47.92   0.26 | 79.25   0.36 |110.58   0.14
|141.92   0.13
16.67   0.66 | 48.00   0.25 | 79.33   0.36 |110.67   0.14
|142.00   0.13
16.75   0.64 | 48.08   0.25 | 79.42   0.33 |110.75   0.15
|142.08   0.12
16.83   0.63 | 48.17   0.26 | 79.50   0.33 |110.83   0.14
|142.17   0.13
16.92   0.63 | 48.25   0.25 | 79.58   0.33 |110.92   0.15
|142.25   0.13
17.00   0.60 | 48.33   0.25 | 79.67   0.32 |111.00   0.15
|142.33   0.13
17.08   0.58 | 48.42   0.25 | 79.75   0.33 |111.08   0.14
|142.42   0.12
17.17   0.58 | 48.50   0.25 | 79.83   0.33 |111.17   0.14
|142.50   0.13
17.25   0.57 | 48.58   0.25 | 79.92   0.32 |111.25   0.14
|142.58   0.13
17.33   0.56 | 48.67   0.24 | 80.00   0.33 |111.33   0.15
|142.67   0.13
17.42   0.55 | 48.75   0.24 | 80.08   0.34 |111.42   0.14
|142.75   0.13
17.50   0.54 | 48.83   0.24 | 80.17   0.32 |111.50   0.15
|142.83   0.12
17.58   0.51 | 48.92   0.24 | 80.25   0.31 |111.58   0.14
|142.92   0.13
17.67   0.50 | 49.00   0.24 | 80.33   0.33 |111.67   0.14
|143.00   0.12
17.75   0.48 | 49.08   0.25 | 80.42   0.31 |111.75   0.14
|143.08   0.12
17.83   0.47 | 49.17   0.24 | 80.50   0.32 |111.83   0.14
|143.17   0.12
17.92   0.47 | 49.25   0.24 | 80.58   0.31 |111.92   0.14
|143.25   0.12
18.00   0.45 | 49.33   0.24 | 80.67   0.31 |112.00   0.15
|143.33   0.12
18.08   0.44 | 49.42   0.23 | 80.75   0.33 |112.08   0.15
|143.42   0.12
18.17   0.41 | 49.50   0.23 | 80.83   0.31 |112.17   0.14
|143.50   0.12
18.25   0.42 | 49.58   0.24 | 80.92   0.32 |112.25   0.14
|143.58   0.12
18.33   0.40 | 49.67   0.23 | 81.00   0.32 |112.33   0.14
|143.67   0.12
18.42   0.39 | 49.75   0.24 | 81.08   0.31 |112.42   0.15
|143.75   0.12
18.50   0.38 | 49.83   0.24 | 81.17   0.31 |112.50   0.15
|143.83   0.12
18.58   0.38 | 49.92   0.23 | 81.25   0.31 |112.58   0.15
|143.92   0.12
18.67   0.37 | 50.00   0.23 | 81.33   0.31 |112.67   0.15
|144.00   0.12
18.75   0.37 | 50.08   0.23 | 81.42   0.31 |112.75   0.14
|144.08   0.12
18.83   0.36 | 50.17   0.24 | 81.50   0.32 |112.83   0.15
|144.17   0.12
18.92   0.35 | 50.25   0.23 | 81.58   0.32 |112.92   0.14
|144.25   0.12
19.00   0.34 | 50.33   0.23 | 81.67   0.34 |113.00   0.15
|144.33   0.12
19.08   0.34 | 50.42   0.23 | 81.75   0.34 |113.08   0.15
|144.42   0.12
19.17   0.34 | 50.50   0.23 | 81.83   0.35 |113.17   0.14
|144.50   0.12
19.25   0.34 | 50.58   0.23 | 81.92   0.37 |113.25   0.15
|144.58   0.12
19.33   0.33 | 50.67   0.23 | 82.00   0.36 |113.33   0.15
|144.67   0.12
19.42   0.33 | 50.75   0.23 | 82.08   0.37 |113.42   0.14
|144.75   0.12
19.50   0.32 | 50.83   0.23 | 82.17   0.38 |113.50   0.14
|144.83   0.12
19.58   0.32 | 50.92   0.23 | 82.25   0.36 |113.58   0.14
|144.92   0.12
19.67   0.32 | 51.00   0.23 | 82.33   0.35 |113.67   0.14
|145.00   0.12
19.75   0.31 | 51.08   0.23 | 82.42   0.37 |113.75   0.14
|145.08   0.12
19.83   0.30 | 51.17   0.23 | 82.50   0.37 |113.83   0.14
|145.17   0.12
19.92   0.30 | 51.25   0.23 | 82.58   0.36 |113.92   0.14
|145.25   0.12
20.00   0.29 | 51.33   0.23 | 82.67   0.38 |114.00   0.14
|145.33   0.12
20.08   0.29 | 51.42   0.23 | 82.75   0.38 |114.08   0.14
|145.42   0.12
20.17   0.28 | 51.50   0.23 | 82.83   0.41 |114.17   0.14
|145.50   0.12
20.25   0.28 | 51.58   0.23 | 82.92   0.40 |114.25   0.14
|145.58   0.12
20.33   0.28 | 51.67   0.23 | 83.00   0.40 |114.33   0.14
|145.67   0.12
20.42   0.27 | 51.75   0.23 | 83.08   0.40 |114.42   0.14
|145.75   0.12
20.50   0.27 | 51.83   0.23 | 83.17   0.44 |114.50   0.15
|145.83   0.12
20.58   0.26 | 51.92   0.23 | 83.25   0.44 |114.58   0.14
|145.92   0.12
20.67   0.27 | 52.00   0.23 | 83.33   0.42 |114.67   0.14
|146.00   0.12
20.75   0.26 | 52.08   0.24 | 83.42   0.42 |114.75   0.14
|146.08   0.11
20.83   0.26 | 52.17   0.24 | 83.50   0.42 |114.83   0.15
|146.17   0.11
20.92   0.25 | 52.25   0.24 | 83.58   0.41 |114.92   0.14
|146.25   0.11
21.00   0.25 | 52.33   0.25 | 83.67   0.41 |115.00   0.15
|146.33   0.12
21.08   0.25 | 52.42   0.25 | 83.75   0.42 |115.08   0.14
|146.42   0.11
21.17   0.24 | 52.50   0.25 | 83.83   0.41 |115.17   0.14
|146.50   0.12
21.25   0.25 | 52.58   0.25 | 83.92   0.41 |115.25   0.14
|146.58   0.12
21.33   0.24 | 52.67   0.25 | 84.00   0.43 |115.33   0.15
|146.67   0.11
21.42   0.24 | 52.75   0.25 | 84.08   0.40 |115.42   0.14
|146.75   0.12
21.50   0.24 | 52.83   0.25 | 84.17   0.42 |115.50   0.14
|146.83   0.11
21.58   0.23 | 52.92   0.25 | 84.25   0.41 |115.58   0.14
|146.92   0.12
21.67   0.23 | 53.00   0.27 | 84.33   0.42 |115.67   0.14
|147.00   0.11
21.75   0.23 | 53.08   0.27 | 84.42   0.42 |115.75   0.14
|147.08   0.12
21.83   0.23 | 53.17   0.28 | 84.50   0.43 |115.83   0.14
|147.17   0.11
21.92   0.23 | 53.25   0.28 | 84.58   0.44 |115.92   0.14
|147.25   0.12
22.00   0.23 | 53.33   0.28 | 84.67   0.42 |116.00   0.15
|147.33   0.12
22.08   0.22 | 53.42   0.28 | 84.75   0.44 |116.08   0.14
|147.42   0.11
22.17   0.22 | 53.50   0.28 | 84.83   0.45 |116.17   0.15
|147.50   0.11
22.25   0.22 | 53.58   0.29 | 84.92   0.45 |116.25   0.14
|147.58   0.11
22.33   0.22 | 53.67   0.29 | 85.00   0.46 |116.33   0.14
|147.67   0.11
22.42   0.21 | 53.75   0.29 | 85.08   0.47 |116.42   0.14
|147.75   0.11
22.50   0.21 | 53.83   0.30 | 85.17   0.46 |116.50   0.14
|147.83   0.11
22.58   0.21 | 53.92   0.30 | 85.25   0.46 |116.58   0.14
|147.92   0.11
22.67   0.21 | 54.00   0.30 | 85.33   0.44 |116.67   0.14
|148.00   0.11
22.75   0.21 | 54.08   0.30 | 85.42   0.45 |116.75   0.14
|148.08   0.11
22.83   0.20 | 54.17   0.31 | 85.50   0.45 |116.83   0.14
|148.17   0.11
22.92   0.20 | 54.25   0.30 | 85.58   0.45 |116.92   0.14
|148.25   0.11
23.00   0.20 | 54.33   0.31 | 85.67   0.45 |117.00   0.14
|148.33   0.11
23.08   0.20 | 54.42   0.30 | 85.75   0.46 |117.08   0.14
|148.42   0.11
23.17   0.20 | 54.50   0.31 | 85.83   0.45 |117.17   0.14
|148.50   0.11
23.25   0.20 | 54.58   0.32 | 85.92   0.47 |117.25   0.14
|148.58   0.11
23.33   0.19 | 54.67   0.32 | 86.00   0.44 |117.33   0.14
|148.67   0.11
23.42   0.19 | 54.75   0.32 | 86.08   0.45 |117.42   0.14
|148.75   0.11
23.50   0.19 | 54.83   0.32 | 86.17   0.43 |117.50   0.14
|148.83   0.11
23.58   0.19 | 54.92   0.32 | 86.25   0.43 |117.58   0.14
|148.92   0.11
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 23.67   0.19 | 55.00   0.32 | 86.33   0.43 |117.67   0.13 |149.00   0.11
 23.75   0.18 | 55.08   0.32 | 86.42   0.43 |117.75   0.13 |149.08   0.11
 23.83   0.18 | 55.17   0.32 | 86.50   0.45 |117.83   0.14 |149.17   0.11
 23.92   0.18 | 55.25   0.33 | 86.58   0.42 |117.92   0.13 |149.25   0.11
 24.00   0.18 | 55.33   0.33 | 86.67   0.42 |118.00   0.13 |149.33   0.11
 24.08   0.18 | 55.42   0.33 | 86.75   0.43 |118.08   0.13 |149.42   0.11
 24.17   0.18 | 55.50   0.33 | 86.83   0.41 |118.17   0.13 |149.50   0.11
 24.25   0.17 | 55.58   0.32 | 86.92   0.40 |118.25   0.13 |149.58   0.11
 24.33   0.18 | 55.67   0.32 | 87.00   0.40 |118.33   0.13 |149.67   0.11
 24.42   0.17 | 55.75   0.32 | 87.08   0.39 |118.42   0.13 |149.75   0.11
 24.50   0.17 | 55.83   0.32 | 87.17   0.39 |118.50   0.13 |149.83   0.11
 24.58   0.17 | 55.92   0.32 | 87.25   0.39 |118.58   0.13 |149.92   0.11
 24.67   0.17 | 56.00   0.32 | 87.33   0.37 |118.67   0.13 |150.00   0.11
 24.75   0.16 | 56.08   0.32 | 87.42   0.37 |118.75   0.13 |150.08   0.11
 24.83   0.16 | 56.17   0.32 | 87.50   0.38 |118.83   0.13 |150.17   0.11
 24.92   0.16 | 56.25   0.32 | 87.58   0.37 |118.92   0.13 |150.25   0.11
 25.00   0.16 | 56.33   0.32 | 87.67   0.36 |119.00   0.13 |150.33   0.11
 25.08   0.16 | 56.42   0.32 | 87.75   0.38 |119.08   0.13 |150.42   0.11
 25.17   0.16 | 56.50   0.32 | 87.83   0.38 |119.17   0.13 |150.50   0.11
 25.25   0.16 | 56.58   0.31 | 87.92   0.34 |119.25   0.13 |150.58   0.11
 25.33   0.15 | 56.67   0.31 | 88.00   0.35 |119.33   0.13 |150.67   0.11
 25.42   0.16 | 56.75   0.32 | 88.08   0.34 |119.42   0.13 |150.75   0.11
 25.50   0.15 | 56.83   0.31 | 88.17   0.35 |119.50   0.13 |150.83   0.11
 25.58   0.15 | 56.92   0.31 | 88.25   0.34 |119.58   0.13 |150.92   0.11
 25.67   0.15 | 57.00   0.31 | 88.33   0.36 |119.67   0.13 |151.00   0.11
 25.75   0.15 | 57.08   0.31 | 88.42   0.33 |119.75   0.13 |151.08   0.11
 25.83   0.15 | 57.17   0.31 | 88.50   0.33 |119.83   0.13 |151.17   0.11
 25.92   0.15 | 57.25   0.31 | 88.58   0.34 |119.92   0.13 |151.25   0.11
 26.00   0.15 | 57.33   0.30 | 88.67   0.33 |120.00   0.13 |151.33   0.11
 26.08   0.15 | 57.42   0.30 | 88.75   0.33 |120.08   0.13 |151.42   0.11
 26.17   0.15 | 57.50   0.30 | 88.83   0.32 |120.17   0.13 |151.50   0.11
 26.25   0.14 | 57.58   0.30 | 88.92   0.30 |120.25   0.14 |151.58   0.11
 26.33   0.14 | 57.67   0.31 | 89.00   0.31 |120.33   0.14 |151.67   0.11
 26.42   0.14 | 57.75   0.30 | 89.08   0.31 |120.42   0.13 |151.75   0.11
 26.50   0.14 | 57.83   0.30 | 89.17   0.30 |120.50   0.14 |151.83   0.11
 26.58   0.14 | 57.92   0.30 | 89.25   0.31 |120.58   0.14 |151.92   0.11
 26.67   0.14 | 58.00   0.29 | 89.33   0.32 |120.67   0.14 |152.00   0.11
 26.75   0.14 | 58.08   0.29 | 89.42   0.31 |120.75   0.14 |152.08   0.11
 26.83   0.14 | 58.17   0.29 | 89.50   0.30 |120.83   0.14 |152.17   0.11
 26.92   0.14 | 58.25   0.29 | 89.58   0.29 |120.92   0.14 |152.25   0.11
 27.00   0.14 | 58.33   0.29 | 89.67   0.29 |121.00   0.14 |152.33   0.10
 27.08   0.13 | 58.42   0.29 | 89.75   0.29 |121.08   0.14 |152.42   0.11
 27.17   0.13 | 58.50   0.29 | 89.83   0.28 |121.17   0.14 |152.50   0.11
 27.25   0.13 | 58.58   0.29 | 89.92   0.30 |121.25   0.14 |152.58   0.10
 27.33   0.13 | 58.67   0.28 | 90.00   0.31 |121.33   0.14 |152.67   0.10
 27.42   0.13 | 58.75   0.28 | 90.08   0.31 |121.42   0.14 |152.75   0.10
 27.50   0.13 | 58.83   0.28 | 90.17   0.30 |121.50   0.14 |152.83   0.10
 27.58   0.13 | 58.92   0.29 | 90.25   0.30 |121.58   0.14 |152.92   0.10
 27.67   0.13 | 59.00   0.29 | 90.33   0.31 |121.67   0.14 |153.00   0.11
 27.75   0.13 | 59.08   0.29 | 90.42   0.30 |121.75   0.14 |153.08   0.10
 27.83   0.13 | 59.17   0.28 | 90.50   0.31 |121.83   0.14 |153.17   0.10
 27.92   0.12 | 59.25   0.28 | 90.58   0.31 |121.92   0.14 |153.25   0.11
 28.00   0.13 | 59.33   0.28 | 90.67   0.31 |122.00   0.15 |153.33   0.10
 28.08   0.12 | 59.42   0.27 | 90.75   0.31 |122.08   0.14 |153.42   0.11
 28.17   0.12 | 59.50   0.27 | 90.83   0.30 |122.17   0.14 |153.50   0.10
 28.25   0.12 | 59.58   0.27 | 90.92   0.31 |122.25   0.14 |153.58   0.10
 28.33   0.12 | 59.67   0.26 | 91.00   0.30 |122.33   0.14 |153.67   0.10
 28.42   0.12 | 59.75   0.26 | 91.08   0.30 |122.42   0.15 |153.75   0.11
 28.50   0.12 | 59.83   0.26 | 91.17   0.32 |122.50   0.15 |153.83   0.10
 28.58   0.12 | 59.92   0.26 | 91.25   0.30 |122.58   0.15 |153.92   0.10
 28.67   0.12 | 60.00   0.25 | 91.33   0.28 |122.67   0.14 |154.00   0.10
 28.75   0.12 | 60.08   0.25 | 91.42   0.30 |122.75   0.15 |154.08   0.10
 28.83   0.12 | 60.17   0.25 | 91.50   0.28 |122.83   0.14 |154.17   0.10
 28.92   0.12 | 60.25   0.25 | 91.58   0.31 |122.92   0.14 |154.25   0.10
 29.00   0.12 | 60.33   0.25 | 91.67   0.28 |123.00   0.15 |154.33   0.10
 29.08   0.12 | 60.42   0.24 | 91.75   0.30 |123.08   0.15 |154.42   0.10
 29.17   0.11 | 60.50   0.24 | 91.83   0.31 |123.17   0.15 |154.50   0.10
 29.25   0.11 | 60.58   0.24 | 91.92   0.27 |123.25   0.15 |154.58   0.10
 29.33   0.11 | 60.67   0.23 | 92.00   0.28 |123.33   0.15 |154.67   0.10
 29.42   0.11 | 60.75   0.24 | 92.08   0.29 |123.42   0.15 |154.75   0.10
 29.50   0.11 | 60.83   0.23 | 92.17   0.27 |123.50   0.15 |154.83   0.10
 29.58   0.11 | 60.92   0.23 | 92.25   0.28 |123.58   0.15 |154.92   0.10
 29.67   0.11 | 61.00   0.23 | 92.33   0.28 |123.67   0.15 |155.00   0.10
 29.75   0.11 | 61.08   0.23 | 92.42   0.31 |123.75   0.15 |155.08   0.10
 29.83   0.11 | 61.17   0.23 | 92.50   0.28 |123.83   0.15 |155.17   0.10
 29.92   0.11 | 61.25   0.22 | 92.58   0.28 |123.92   0.15 |155.25   0.10
 30.00   0.11 | 61.33   0.23 | 92.67   0.28 |124.00   0.15 |155.33   0.10
 30.08   0.11 | 61.42   0.23 | 92.75   0.28 |124.08   0.15 |155.42   0.10
 30.17   0.11 | 61.50   0.24 | 92.83   0.27 |124.17   0.15 |155.50   0.10
 30.25   0.11 | 61.58   0.24 | 92.92   0.28 |124.25   0.15 |155.58   0.10
 30.33   0.11 | 61.67   0.23 | 93.00   0.28 |124.33   0.14 |155.67   0.10
 30.42   0.11 | 61.75   0.23 | 93.08   0.27 |124.42   0.15 |155.75   0.10
 30.50   0.11 | 61.83   0.23 | 93.17   0.29 |124.50   0.15 |155.83   0.10
 30.58   0.11 | 61.92   0.23 | 93.25   0.28 |124.58   0.16 |155.92   0.10
 30.67   0.11 | 62.00   0.23 | 93.33   0.26 |124.67   0.15 |156.00   0.10
 30.75   0.11 | 62.08   0.23 | 93.42   0.27 |124.75   0.15 |156.08   0.10
 30.83   0.11 | 62.17   0.23 | 93.50   0.27 |124.83   0.15 |156.17   0.10
 30.92   0.11 | 62.25   0.23 | 93.58   0.26 |124.92   0.17 |156.25   0.10
 31.00   0.11 | 62.33   0.24 | 93.67   0.26 |125.00   0.16 |
 31.08   0.10 | 62.42   0.25 | 93.75   0.28 |125.08   0.16 |
 31.17   0.10 | 62.50   0.25 | 93.83   0.25 |125.17   0.16 |
 31.25   0.10 | 62.58   0.26 | 93.92   0.28 |125.25   0.16 |
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| STORE HYD (1605) |   AREA      (ha)=  30.00
| ID= 1 DT= 5.0min |   QPEAK     (cms)=  1.37
--------------------   TPEAK     (hrs)=  71.92
                       VOLUME    (mm)= 625.27

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |'  TIME    FLOW |  TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |'   hrs     cms |  hrs     cms
  0.00   0.00 | 31.25   0.15 | 62.50   0.38 | 93.75   0.37 |125.00   0.20
  0.08   0.00 | 31.33   0.15 | 62.58   0.38 | 93.83   0.36 |125.08   0.20
  0.17   0.00 | 31.42   0.15 | 62.67   0.38 | 93.92   0.36 |125.17   0.20
  0.25   0.00 | 31.50   0.15 | 62.75   0.38 | 94.00   0.36 |125.25   0.20
  0.33   0.00 | 31.58   0.15 | 62.83   0.38 | 94.08   0.36 |125.33   0.20
  0.42   0.00 | 31.67   0.15 | 62.92   0.38 | 94.17   0.36 |125.42   0.20
  0.50   0.00 | 31.75   0.15 | 63.00   0.37 | 94.25   0.36 |125.50   0.20
  0.58   0.00 | 31.83   0.14 | 63.08   0.38 | 94.33   0.36 |125.58   0.20
  0.67   0.00 | 31.92   0.14 | 63.17   0.37 | 94.42   0.36 |125.67   0.21
  0.75   0.00 | 32.00   0.14 | 63.25   0.37 | 94.50   0.36 |125.75   0.21
  0.83   0.00 | 32.08   0.14 | 63.33   0.37 | 94.58   0.36 |125.83   0.21
  0.92   0.00 | 32.17   0.14 | 63.42   0.37 | 94.67   0.36 |125.92   0.21
  1.00   0.00 | 32.25   0.14 | 63.50   0.37 | 94.75   0.36 |126.00   0.21
  1.08   0.00 | 32.33   0.14 | 63.58   0.37 | 94.83   0.36 |126.08   0.21
  1.17   0.00 | 32.42   0.14 | 63.67   0.36 | 94.92   0.35 |126.17   0.21
  1.25   0.00 | 32.50   0.14 | 63.75   0.36 | 95.00   0.35 |126.25   0.21
  1.33   0.00 | 32.58   0.14 | 63.83   0.36 | 95.08   0.35 |126.33   0.21
  1.42   0.00 | 32.67   0.14 | 63.92   0.36 | 95.17   0.35 |126.42   0.22
  1.50   0.00 | 32.75   0.14 | 64.00   0.36 | 95.25   0.35 |126.50   0.22
  1.58   0.00 | 32.83   0.14 | 64.08   0.36 | 95.33   0.35 |126.58   0.22
  1.67   0.00 | 32.92   0.14 | 64.17   0.36 | 95.42   0.35 |126.67   0.22
  1.75   0.00 | 33.00   0.14 | 64.25   0.35 | 95.50   0.35 |126.75   0.22
  1.83   0.00 | 33.08   0.14 | 64.33   0.35 | 95.58   0.34 |126.83   0.22
  1.92   0.00 | 33.17   0.14 | 64.42   0.35 | 95.67   0.34 |126.92   0.23
  2.00   0.00 | 33.25   0.14 | 64.50   0.35 | 95.75   0.34 |127.00   0.23
  2.08   0.00 | 33.33   0.14 | 64.58   0.34 | 95.83   0.34 |127.08   0.23
  2.17   0.00 | 33.42   0.14 | 64.67   0.34 | 95.92   0.34 |127.17   0.23
  2.25   0.00 | 33.50   0.14 | 64.75   0.34 | 96.00   0.34 |127.25   0.23
  2.33   0.00 | 33.58   0.14 | 64.83   0.34 | 96.08   0.34 |127.33   0.24
  2.42   0.00 | 33.67   0.14 | 64.92   0.34 | 96.17   0.34 |127.42   0.24
  2.50   0.00 | 33.75   0.14 | 65.00   0.34 | 96.25   0.34 |127.50   0.24
  2.58   0.00 | 33.83   0.14 | 65.08   0.34 | 96.33   0.34 |127.58   0.24
  2.67   0.00 | 33.92   0.14 | 65.17   0.34 | 96.42   0.34 |127.67   0.24
  2.75   0.00 | 34.00   0.14 | 65.25   0.34 | 96.50   0.34 |127.75   0.24
  2.83   0.00 | 34.08   0.14 | 65.33   0.34 | 96.58   0.34 |127.83   0.25
  2.92   0.00 | 34.17   0.14 | 65.42   0.34 | 96.67   0.34 |127.92   0.25
  3.00   0.00 | 34.25   0.14 | 65.50   0.34 | 96.75   0.33 |128.00   0.25
  3.08   0.00 | 34.33   0.14 | 65.58   0.33 | 96.83   0.33 |128.08   0.25
  3.17   0.00 | 34.42   0.14 | 65.67   0.34 | 96.92   0.33 |128.17   0.25
  3.25   0.00 | 34.50   0.14 | 65.75   0.33 | 97.00   0.33 |128.25   0.25
  3.33   0.00 | 34.58   0.14 | 65.83   0.33 | 97.08   0.33 |128.33   0.25
  3.42   0.00 | 34.67   0.14 | 65.92   0.33 | 97.17   0.33 |128.42   0.25
  3.50   0.00 | 34.75   0.14 | 66.00   0.33 | 97.25   0.33 |128.50   0.25
  3.58   0.00 | 34.83   0.14 | 66.08   0.32 | 97.33   0.33 |128.58   0.26
  3.67   0.00 | 34.92   0.14 | 66.17   0.33 | 97.42   0.33 |128.67   0.26
  3.75   0.00 | 35.00   0.14 | 66.25   0.33 | 97.50   0.33 |128.75   0.26
  3.83   0.00 | 35.08   0.14 | 66.33   0.32 | 97.58   0.33 |128.83   0.26
  3.92   0.00 | 35.17   0.14 | 66.42   0.32 | 97.67   0.33 |128.92   0.26
  4.00   0.00 | 35.25   0.14 | 66.50   0.33 | 97.75   0.33 |129.00   0.26
  4.08   0.00 | 35.33   0.14 | 66.58   0.32 | 97.83   0.33 |129.08   0.26
  4.17   0.00 | 35.42   0.14 | 66.67   0.32 | 97.92   0.33 |129.17   0.26
  4.25   0.00 | 35.50   0.14 | 66.75   0.32 | 98.00   0.32 |129.25   0.27
  4.33   0.00 | 35.58   0.14 | 66.83   0.32 | 98.08   0.32 |129.33   0.27
  4.42   0.00 | 35.67   0.14 | 66.92   0.32 | 98.17   0.32 |129.42   0.27
  4.50   0.00 | 35.75   0.14 | 67.00   0.32 | 98.25   0.32 |129.50   0.27
  4.58   0.00 | 35.83   0.14 | 67.08   0.32 | 98.33   0.32 |129.58   0.28
  4.67   0.00 | 35.92   0.14 | 67.17   0.32 | 98.42   0.32 |129.67   0.28
  4.75   0.00 | 36.00   0.14 | 67.25   0.32 | 98.50   0.32 |129.75   0.28
  4.83   0.00 | 36.08   0.14 | 67.33   0.33 | 98.58   0.32 |129.83   0.29
  4.92   0.00 | 36.17   0.14 | 67.42   0.34 | 98.67   0.32 |129.92   0.29
  5.00   0.00 | 36.25   0.14 | 67.50   0.34 | 98.75   0.32 |130.00   0.29
  5.08   0.00 | 36.33   0.15 | 67.58   0.35 | 98.83   0.32 |130.08   0.29
  5.17   0.00 | 36.42   0.15 | 67.67   0.35 | 98.92   0.32 |130.17   0.29
  5.25   0.00 | 36.50   0.15 | 67.75   0.36 | 99.00   0.32 |130.25   0.29
  5.33   0.00 | 36.58   0.15 | 67.83   0.37 | 99.08   0.32 |130.33   0.29
  5.42   0.00 | 36.67   0.15 | 67.92   0.38 | 99.17   0.32 |130.42   0.29
  5.50   0.00 | 36.75   0.15 | 68.00   0.40 | 99.25   0.32 |130.50   0.29
  5.58   0.00 | 36.83   0.15 | 68.08   0.41 | 99.33   0.32 |130.58   0.29
  5.67   0.00 | 36.92   0.15 | 68.17   0.42 | 99.42   0.32 |130.67   0.29
  5.75   0.00 | 37.00   0.15 | 68.25   0.43 | 99.50   0.32 |130.75   0.29
  5.83   0.00 | 37.08   0.15 | 68.33   0.45 | 99.58   0.31 |130.83   0.29
  5.92   0.00 | 37.17   0.15 | 68.42   0.47 | 99.67   0.31 |130.92   0.29
  6.00   0.00 | 37.25   0.15 | 68.50   0.48 | 99.75   0.31 |131.00   0.29
  6.08   0.00 | 37.33   0.15 | 68.58   0.50 | 99.83   0.31 |131.08   0.29
  6.17   0.00 | 37.42   0.15 | 68.67   0.52 | 99.92   0.31 |131.17   0.29
  6.25   0.00 | 37.50   0.15 | 68.75   0.53 |100.00   0.31 |131.25   0.29
  6.33   0.00 | 37.58   0.15 | 68.83   0.56 |100.08   0.31 |131.33   0.29
  6.42   0.00 | 37.67   0.15 | 68.92   0.57 |100.17   0.31 |131.42   0.29
  6.50   0.00 | 37.75   0.16 | 69.00   0.58 |100.25   0.31 |131.50   0.29
  6.58   0.00 | 37.83   0.16 | 69.08   0.60 |100.33   0.31 |131.58   0.28
  6.67   0.00 | 37.92   0.16 | 69.17   0.61 |100.42   0.31 |131.67   0.28
  6.75   0.00 | 38.00   0.16 | 69.25   0.63 |100.50   0.30 |131.75   0.28
  6.83   0.00 | 38.08   0.16 | 69.33   0.63 |100.58   0.30 |131.83   0.28
  6.92   0.00 | 38.17   0.16 | 69.42   0.64 |100.67   0.30 |131.92   0.28
  7.00   0.00 | 38.25   0.16 | 69.50   0.66 |100.75   0.30 |132.00   0.28
  7.08   0.00 | 38.33   0.16 | 69.58   0.68 |100.83   0.30 |132.08   0.28
  7.17   0.00 | 38.42   0.16 | 69.67   0.70 |100.92   0.30 |132.17   0.28
  7.25   0.00 | 38.50   0.16 | 69.75   0.71 |101.00   0.30 |132.25   0.28
  7.33   0.00 | 38.58   0.16 | 69.83   0.74 |101.08   0.30 |132.33   0.28
  7.42   0.00 | 38.67   0.17 | 69.92   0.76 |101.17   0.30 |132.42   0.28
  7.50   0.00 | 38.75   0.17 | 70.00   0.78 |101.25   0.30 |132.50   0.27
  7.58   0.00 | 38.83   0.17 | 70.08   0.80 |101.33   0.29 |132.58   0.27
  7.67   0.00 | 38.92   0.17 | 70.17   0.82 |101.42   0.29 |132.67   0.27
  7.75   0.00 | 39.00   0.17 | 70.25   0.84 |101.50   0.29 |132.75   0.27
  7.83   0.00 | 39.08   0.17 | 70.33   0.87 |101.58   0.29 |132.83   0.27
  7.92   0.00 | 39.17   0.17 | 70.42   0.91 |101.67   0.29 |132.92   0.27
  8.00   0.00 | 39.25   0.18 | 70.50   0.94 |101.75   0.28 |133.00   0.27
  8.08   0.00 | 39.33   0.18 | 70.58   0.98 |101.83   0.28 |133.08   0.27
  8.17   0.00 | 39.42   0.18 | 70.67   1.01 |101.92   0.28 |133.17   0.27
  8.25   0.00 | 39.50   0.18 | 70.75   1.04 |102.00   0.28 |133.25   0.26
  8.33   0.00 | 39.58   0.19 | 70.83   1.09 |102.08   0.28 |133.33   0.26
  8.42   0.00 | 39.67   0.19 | 70.92   1.14 |102.17   0.28 |133.42   0.26
  8.50   0.00 | 39.75   0.19 | 71.00   1.20 |102.25   0.28 |133.50   0.26
  8.58   0.00 | 39.83   0.19 | 71.08   1.23 |102.33   0.28 |133.58   0.26
  8.67   0.00 | 39.92   0.20 | 71.17   1.25 |102.42   0.27 |133.67   0.26
  8.75   0.00 | 40.00   0.20 | 71.25   1.30 |102.50   0.27 |133.75   0.26
  8.83   0.00 | 40.08   0.20 | 71.33   1.32 |102.58   0.27 |133.83   0.25
  8.92   0.00 | 40.17   0.21 | 71.42   1.33 |102.67   0.27 |133.92   0.25
  9.00   0.00 | 40.25   0.21 | 71.50   1.34 |102.75   0.27 |134.00   0.25
  9.08   0.00 | 40.33   0.21 | 71.58   1.36 |102.83   0.27 |134.08   0.25
  9.17   0.00 | 40.42   0.22 | 71.67   1.36 |102.92   0.27 |134.17   0.25
  9.25   0.00 | 40.50   0.22 | 71.75   1.36 |103.00   0.27 |134.25   0.25
  9.33   0.00 | 40.58   0.22 | 71.83   1.37 |103.08   0.27 |134.33   0.25
  9.42   0.00 | 40.67   0.23 | 71.92   1.37 |103.17   0.27 |134.42   0.25
  9.50   0.00 | 40.75   0.23 | 72.00   1.36 |103.25   0.26 |134.50   0.25
  9.58   0.00 | 40.83   0.24 | 72.08   1.35 |103.33   0.26 |134.58   0.24
  9.67   0.00 | 40.92   0.24 | 72.17   1.35 |103.42   0.26 |134.67   0.24
  9.75   0.00 | 41.00   0.24 | 72.25   1.33 |103.50   0.26 |134.75   0.24
  9.83   0.00 | 41.08   0.25 | 72.33   1.32 |103.58   0.26 |134.83   0.24
  9.92   0.00 | 41.17   0.25 | 72.42   1.31 |103.67   0.26 |134.92   0.24
 10.00   0.00 | 41.25   0.26 | 72.50   1.29 |103.75   0.25 |135.00   0.24
 10.08   0.00 | 41.33   0.27 | 72.58   1.27 |103.83   0.25 |135.08   0.24
 10.17   0.00 | 41.42   0.27 | 72.67   1.26 |103.92   0.25 |135.17   0.24
 10.25   0.00 | 41.50   0.28 | 72.75   1.23 |104.00   0.25 |135.25   0.24
 10.33   0.00 | 41.58   0.29 | 72.83   1.23 |104.08   0.25 |135.33   0.23
 10.42   0.00 | 41.67   0.29 | 72.92   1.21 |104.17   0.25 |135.42   0.23
 10.50   0.00 | 41.75   0.30 | 73.00   1.20 |104.25   0.25 |135.50   0.23
 10.58   0.00 | 41.83   0.30 | 73.08   1.17 |104.33   0.25 |135.58   0.23
 10.67   0.00 | 41.92   0.31 | 73.17   1.17 |104.42   0.24 |135.67   0.23
 10.75   0.00 | 42.00   0.32 | 73.25   1.16 |104.50   0.24 |135.75   0.23
 10.83   0.00 | 42.08   0.32 | 73.33   1.15 |104.58   0.24 |135.83   0.23
 10.92   0.00 | 42.17   0.33 | 73.42   1.12 |104.67   0.24 |135.92   0.23
 11.00   0.00 | 42.25   0.33 | 73.50   1.12 |104.75   0.24 |136.00   0.22
 11.08   0.00 | 42.33   0.34 | 73.58   1.11 |104.83   0.24 |136.08   0.22
 11.17   0.00 | 42.42   0.34 | 73.67   1.09 |104.92   0.24 |136.17   0.22
 11.25   0.00 | 42.50   0.35 | 73.75   1.08 |105.00   0.24 |136.25   0.22
 11.33   0.00 | 42.58   0.36 | 73.83   1.06 |105.08   0.24 |136.33   0.22
 11.42   0.00 | 42.67   0.36 | 73.92   1.05 |105.17   0.23 |136.42   0.22
 11.50   0.00 | 42.75   0.37 | 74.00   1.03 |105.25   0.23 |136.50   0.22
 11.58   0.00 | 42.83   0.38 | 74.08   1.03 |105.33   0.23 |136.58   0.22
 11.67   0.00 | 42.92   0.39 | 74.17   1.02 |105.42   0.23 |136.67   0.21
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 11.75   0.00 | 43.00   0.40 | 74.25   1.00 |105.50   0.23
|136.75   0.21
 11.83   0.00 | 43.08   0.40 | 74.33   0.99 |105.58   0.23
|136.83   0.21
 11.92   0.00 | 43.17   0.42 | 74.42   0.97 |105.67   0.23
|136.92   0.21
 12.00   0.00 | 43.25   0.42 | 74.50   0.96 |105.75   0.23
|137.00   0.21
 12.08   0.00 | 43.33   0.43 | 74.58   0.95 |105.83   0.23
|137.08   0.21
 12.17   0.00 | 43.42   0.44 | 74.67   0.94 |105.92   0.23
|137.17   0.21
 12.25   0.00 | 43.50   0.45 | 74.75   0.92 |106.00   0.22
|137.25   0.21
 12.33   0.00 | 43.58   0.46 | 74.83   0.91 |106.08   0.22
|137.33   0.21
 12.42   0.00 | 43.67   0.47 | 74.92   0.89 |106.17   0.22
|137.42   0.21
 12.50   0.00 | 43.75   0.48 | 75.00   0.88 |106.25   0.22
|137.50   0.20
 12.58   0.00 | 43.83   0.49 | 75.08   0.87 |106.33   0.22
|137.58   0.20
 12.67   0.00 | 43.92   0.50 | 75.17   0.85 |106.42   0.22
|137.67   0.20
 12.75   0.00 | 44.00   0.50 | 75.25   0.84 |106.50   0.22
|137.75   0.20
 12.83   0.00 | 44.08   0.51 | 75.33   0.83 |106.58   0.22
|137.83   0.20
 12.92   0.00 | 44.17   0.51 | 75.42   0.81 |106.67   0.22
|137.92   0.20
 13.00   0.00 | 44.25   0.52 | 75.50   0.80 |106.75   0.21
|138.00   0.20
 13.08   0.00 | 44.33   0.52 | 75.58   0.79 |106.83   0.21
|138.08   0.20
 13.17   0.00 | 44.42   0.53 | 75.67   0.77 |106.92   0.21
|138.17   0.20
 13.25   0.00 | 44.50   0.53 | 75.75   0.77 |107.00   0.21
|138.25   0.19
 13.33   0.00 | 44.58   0.53 | 75.83   0.76 |107.08   0.21
|138.33   0.19
 13.42   0.00 | 44.67   0.54 | 75.92   0.74 |107.17   0.21
|138.42   0.19
 13.50   0.00 | 44.75   0.54 | 76.00   0.74 |107.25   0.21
|138.50   0.19
 13.58   0.00 | 44.83   0.54 | 76.08   0.72 |107.33   0.21
|138.58   0.19
 13.67   0.00 | 44.92   0.55 | 76.17   0.72 |107.42   0.21
|138.67   0.19
 13.75   0.00 | 45.00   0.55 | 76.25   0.71 |107.50   0.21
|138.75   0.19
 13.83   0.00 | 45.08   0.55 | 76.33   0.70 |107.58   0.21
|138.83   0.19
 13.92   0.00 | 45.17   0.55 | 76.42   0.69 |107.67   0.21
|138.92   0.19
 14.00   0.00 | 45.25   0.55 | 76.50   0.68 |107.75   0.20
|139.00   0.19
 14.08   0.00 | 45.33   0.55 | 76.58   0.68 |107.83   0.20
|139.08   0.19
 14.17   0.00 | 45.42   0.55 | 76.67   0.68 |107.92   0.20
|139.17   0.18
 14.25   0.00 | 45.50   0.55 | 76.75   0.66 |108.00   0.20
|139.25   0.18
 14.33   0.00 | 45.58   0.55 | 76.83   0.65 |108.08   0.20
|139.33   0.18
 14.42   0.00 | 45.67   0.55 | 76.92   0.65 |108.17   0.20
|139.42   0.18
 14.50   0.00 | 45.75   0.55 | 77.00   0.64 |108.25   0.20
|139.50   0.18
 14.58   0.00 | 45.83   0.55 | 77.08   0.63 |108.33   0.20
|139.58   0.18
 14.67   0.00 | 45.92   0.55 | 77.17   0.63 |108.42   0.20
|139.67   0.18
 14.75   0.99 | 46.00   0.54 | 77.25   0.63 |108.50   0.20
|139.75   0.18
 14.83   0.99 | 46.08   0.54 | 77.33   0.62 |108.58   0.20
|139.83   0.18
 14.92   1.00 | 46.17   0.54 | 77.42   0.61 |108.67   0.20
|139.92   0.18
 15.00   1.00 | 46.25   0.54 | 77.50   0.60 |108.75   0.19
|140.00   0.18
 15.08   1.01 | 46.33   0.53 | 77.58   0.60 |108.83   0.19
|140.08   0.18
 15.17   1.01 | 46.42   0.53 | 77.67   0.59 |108.92   0.19
|140.17   0.18
 15.25   1.02 | 46.50   0.53 | 77.75   0.59 |109.00   0.19
|140.25   0.18
 15.33   1.03 | 46.58   0.52 | 77.83   0.58 |109.08   0.19
|140.33   0.18
 15.42   1.04 | 46.67   0.52 | 77.92   0.58 |109.17   0.19
|140.42   0.17
 15.50   1.05 | 46.75   0.52 | 78.00   0.58 |109.25   0.19
|140.50   0.17
 15.58   1.06 | 46.83   0.52 | 78.08   0.58 |109.33   0.19
|140.58   0.17
 15.67   1.07 | 46.92   0.51 | 78.17   0.57 |109.42   0.19
|140.67   0.17
 15.75   1.08 | 47.00   0.51 | 78.25   0.56 |109.50   0.19
|140.75   0.17
 15.83   1.08 | 47.08   0.51 | 78.33   0.56 |109.58   0.19
|140.83   0.17
 15.92   1.08 | 47.17   0.51 | 78.42   0.55 |109.67   0.18
|140.92   0.17
 16.00   1.09 | 47.25   0.51 | 78.50   0.55 |109.75   0.18
|141.00   0.17
 16.08   1.09 | 47.33   0.51 | 78.58   0.55 |109.83   0.18
|141.08   0.17
 16.17   1.09 | 47.42   0.51 | 78.67   0.55 |109.92   0.18
|141.17   0.17
 16.25   1.09 | 47.50   0.50 | 78.75   0.54 |110.00   0.18
|141.25   0.17
 16.33   1.09 | 47.58   0.50 | 78.83   0.54 |110.08   0.18
|141.33   0.17
 16.42   1.09 | 47.67   0.50 | 78.92   0.54 |110.17   0.18
|141.42   0.17
 16.50   1.09 | 47.75   0.50 | 79.00   0.54 |110.25   0.18
|141.50   0.16
 16.58   1.10 | 47.83   0.50 | 79.08   0.53 |110.33   0.18
|141.58   0.16
 16.67   1.09 | 47.92   0.50 | 79.17   0.52 |110.42   0.18
|141.67   0.16
 16.75   1.09 | 48.00   0.50 | 79.25   0.52 |110.50   0.18
|141.75   0.16
 16.83   1.08 | 48.08   0.50 | 79.33   0.51 |110.58   0.18
|141.83   0.16
 16.92   1.09 | 48.17   0.49 | 79.42   0.50 |110.67   0.18
|141.92   0.16
 17.00   1.08 | 48.25   0.49 | 79.50   0.50 |110.75   0.18
|142.00   0.16
 17.08   1.07 | 48.33   0.49 | 79.58   0.49 |110.83   0.18
|142.08   0.16
 17.17   1.06 | 48.42   0.49 | 79.67   0.49 |110.92   0.18
|142.17   0.16
 17.25   1.06 | 48.50   0.49 | 79.75   0.48 |111.00   0.18
|142.25   0.16
 17.33   1.05 | 48.58   0.49 | 79.83   0.48 |111.08   0.18
|142.33   0.16
 17.42   1.04 | 48.67   0.48 | 79.92   0.48 |111.17   0.18
|142.42   0.16
 17.50   1.04 | 48.75   0.48 | 80.00   0.47 |111.25   0.18
|142.50   0.16
 17.58   1.03 | 48.83   0.48 | 80.08   0.47 |111.33   0.18
|142.58   0.16
 17.67   1.02 | 48.92   0.48 | 80.17   0.46 |111.42   0.18
|142.67   0.16
 17.75   1.01 | 49.00   0.47 | 80.25   0.46 |111.50   0.18
|142.75   0.16
 17.83   1.00 | 49.08   0.47 | 80.33   0.46 |111.58   0.18
|142.83   0.16
 17.92   0.99 | 49.17   0.47 | 80.42   0.45 |111.67   0.18
|142.92   0.16
 18.00   0.98 | 49.25   0.47 | 80.50   0.45 |111.75   0.18
|143.00   0.16
 18.08   0.97 | 49.33   0.47 | 80.58   0.45 |111.83   0.17
|143.08   0.15
 18.17   0.96 | 49.42   0.46 | 80.67   0.45 |111.92   0.17
|143.17   0.15
 18.25   0.95 | 49.50   0.46 | 80.75   0.44 |112.00   0.17
|143.25   0.15
 18.33   0.93 | 49.58   0.46 | 80.83   0.44 |112.08   0.17
|143.33   0.15
 18.42   0.92 | 49.67   0.46 | 80.92   0.44 |112.17   0.17
|143.42   0.15
 18.50   0.91 | 49.75   0.45 | 81.00   0.44 |112.25   0.17
|143.50   0.15
 18.58   0.89 | 49.83   0.45 | 81.08   0.44 |112.33   0.17
|143.58   0.15
 18.67   0.87 | 49.92   0.45 | 81.17   0.44 |112.42   0.17
|143.67   0.15
 18.75   0.86 | 50.00   0.45 | 81.25   0.44 |112.50   0.17
|143.75   0.15
 18.83   0.84 | 50.08   0.44 | 81.33   0.44 |112.58   0.17
|143.83   0.15
 18.92   0.83 | 50.17   0.44 | 81.42   0.43 |112.67   0.17
|143.92   0.15
 19.00   0.81 | 50.25   0.44 | 81.50   0.44 |112.75   0.17
|144.00   0.15
 19.08   0.79 | 50.33   0.44 | 81.58   0.45 |112.83   0.17
|144.08   0.15
 19.17   0.78 | 50.42   0.44 | 81.67   0.46 |112.92   0.17
|144.17   0.15
 19.25   0.76 | 50.50   0.44 | 81.75   0.45 |113.00   0.17
|144.25   0.15
 19.33   0.74 | 50.58   0.44 | 81.83   0.46 |113.08   0.17
|144.33   0.15
 19.42   0.72 | 50.67   0.44 | 81.92   0.46 |113.17   0.16
|144.42   0.15
 19.50   0.71 | 50.75   0.43 | 82.00   0.47 |113.25   0.16
|144.50   0.15
 19.58   0.69 | 50.83   0.43 | 82.08   0.47 |113.33   0.16
|144.58   0.15
 19.67   0.68 | 50.92   0.43 | 82.17   0.47 |113.42   0.16
|144.67   0.15
 19.75   0.66 | 51.00   0.43 | 82.25   0.48 |113.50   0.16
|144.75   0.15
 19.83   0.65 | 51.08   0.43 | 82.33   0.49 |113.58   0.16
|144.83   0.14
 19.92   0.64 | 51.17   0.43 | 82.42   0.49 |113.67   0.16
|144.92   0.14
 20.00   0.62 | 51.25   0.43 | 82.50   0.49 |113.75   0.16
|145.00   0.14
 20.08   0.61 | 51.33   0.43 | 82.58   0.49 |113.83   0.16
|145.08   0.14
 20.17   0.60 | 51.42   0.43 | 82.67   0.50 |113.92   0.16
|145.17   0.14
 20.25   0.58 | 51.50   0.43 | 82.75   0.50 |114.00   0.16
|145.25   0.14
 20.33   0.58 | 51.58   0.43 | 82.83   0.50 |114.08   0.16
|145.33   0.14
 20.42   0.56 | 51.67   0.43 | 82.92   0.50 |114.17   0.16
|145.42   0.14
 20.50   0.55 | 51.75   0.43 | 83.00   0.50 |114.25   0.16
|145.50   0.14
 20.58   0.54 | 51.83   0.43 | 83.08   0.50 |114.33   0.16
|145.58   0.14
 20.67   0.53 | 51.92   0.43 | 83.17   0.51 |114.42   0.16
|145.67   0.14
 20.75   0.52 | 52.00   0.43 | 83.25   0.51 |114.50   0.16
|145.75   0.14
 20.83   0.51 | 52.08   0.43 | 83.33   0.51 |114.58   0.16
|145.83   0.14
 20.92   0.50 | 52.17   0.43 | 83.42   0.51 |114.67   0.16
|145.92   0.14
 21.00   0.49 | 52.25   0.43 | 83.50   0.52 |114.75   0.16
|146.00   0.14
 21.08   0.49 | 52.33   0.43 | 83.58   0.52 |114.83   0.16
|146.08   0.14
 21.17   0.48 | 52.42   0.43 | 83.67   0.53 |114.92   0.16
|146.17   0.14
 21.25   0.47 | 52.50   0.43 | 83.75   0.53 |115.00   0.16
|146.25   0.14
 21.33   0.47 | 52.58   0.43 | 83.83   0.54 |115.08   0.16
|146.33   0.14
 21.42   0.46 | 52.67   0.43 | 83.92   0.55 |115.17   0.16
|146.42   0.14
 21.50   0.45 | 52.75   0.43 | 84.00   0.56 |115.25   0.16
|146.50   0.14
 21.58   0.45 | 52.83   0.43 | 84.08   0.57 |115.33   0.16
|146.58   0.14
 21.67   0.44 | 52.92   0.44 | 84.17   0.58 |115.42   0.16
|146.67   0.14
 21.75   0.43 | 53.00   0.44 | 84.25   0.60 |115.50   0.16
|146.75   0.14
 21.83   0.43 | 53.08   0.44 | 84.33   0.62 |115.58   0.16
|146.83   0.14
 21.92   0.42 | 53.17   0.44 | 84.42   0.64 |115.67   0.16
|146.92   0.13
 22.00   0.42 | 53.25   0.44 | 84.50   0.66 |115.75   0.16
|147.00   0.13
 22.08   0.41 | 53.33   0.45 | 84.58   0.69 |115.83   0.16
|147.08   0.13
 22.17   0.41 | 53.42   0.45 | 84.67   0.72 |115.92   0.16
|147.17   0.13
 22.25   0.40 | 53.50   0.45 | 84.75   0.74 |116.00   0.16
|147.25   0.13
 22.33   0.40 | 53.58   0.45 | 84.83   0.77 |116.08   0.15
|147.33   0.13
 22.42   0.39 | 53.67   0.46 | 84.92   0.79 |116.17   0.15
|147.42   0.13
 22.50   0.39 | 53.75   0.46 | 85.00   0.81 |116.25   0.16
|147.50   0.13
 22.58   0.38 | 53.83   0.46 | 85.08   0.82 |116.33   0.16
|147.58   0.13
 22.67   0.38 | 53.92   0.46 | 85.17   0.84 |116.42   0.16
|147.67   0.13
 22.75   0.37 | 54.00   0.47 | 85.25   0.85 |116.50   0.16
|147.75   0.13
 22.83   0.37 | 54.08   0.47 | 85.33   0.85 |116.58   0.16
|147.83   0.13
 22.92   0.36 | 54.17   0.47 | 85.42   0.86 |116.67   0.16
|147.92   0.13
 23.00   0.36 | 54.25   0.48 | 85.50   0.87 |116.75   0.16
|148.00   0.13
 23.08   0.36 | 54.33   0.48 | 85.58   0.86 |116.83   0.16
|148.08   0.13
 23.17   0.35 | 54.42   0.49 | 85.67   0.87 |116.92   0.16
|148.17   0.13
 23.25   0.35 | 54.50   0.49 | 85.75   0.86 |117.00   0.16
|148.25   0.13
 23.33   0.34 | 54.58   0.50 | 85.83   0.85 |117.08   0.16
|148.33   0.13
 23.42   0.34 | 54.67   0.50 | 85.92   0.85 |117.17   0.16
|148.42   0.13
 23.50   0.34 | 54.75   0.51 | 86.00   0.84 |117.25   0.16
|148.50   0.13
 23.58   0.33 | 54.83   0.52 | 86.08   0.83 |117.33   0.16
|148.58   0.13
 23.67   0.33 | 54.92   0.53 | 86.17   0.82 |117.42   0.16
|148.67   0.13
 23.75   0.32 | 55.00   0.53 | 86.25   0.81 |117.50   0.16
|148.75   0.13
 23.83   0.32 | 55.08   0.54 | 86.33   0.81 |117.58   0.16
|148.83   0.13
 23.92   0.32 | 55.17   0.55 | 86.42   0.79 |117.67   0.16
|148.92   0.13
 24.00   0.31 | 55.25   0.55 | 86.50   0.78 |117.75   0.16
|149.00   0.13
 24.08   0.31 | 55.33   0.55 | 86.58   0.77 |117.83   0.16
|149.08   0.13
 24.17   0.30 | 55.42   0.56 | 86.67   0.76 |117.92   0.16
|149.17   0.13
 24.25   0.30 | 55.50   0.56 | 86.75   0.74 |118.00   0.16
|149.25   0.12
 24.33   0.30 | 55.58   0.57 | 86.83   0.74 |118.08   0.16
|149.33   0.12
 24.42   0.30 | 55.67   0.57 | 86.92   0.73 |118.17   0.16
|149.42   0.12
 24.50   0.29 | 55.75   0.58 | 87.00   0.71 |118.25   0.16
|149.50   0.12
 24.58   0.29 | 55.83   0.58 | 87.08   0.71 |118.33   0.16
|149.58   0.12
 24.67   0.29 | 55.92   0.58 | 87.17   0.70 |118.42   0.16
|149.67   0.12
 24.75   0.28 | 56.00   0.58 | 87.25   0.68 |118.50   0.16
|149.75   0.12
 24.83   0.28 | 56.08   0.58 | 87.33   0.68 |118.58   0.15
|149.83   0.12
 24.92   0.28 | 56.17   0.58 | 87.42   0.66 |118.67   0.15
|149.92   0.12
 25.00   0.27 | 56.25   0.58 | 87.50   0.66 |118.75   0.15
|150.00   0.12
 25.08   0.27 | 56.33   0.58 | 87.58   0.65 |118.83   0.15
|150.08   0.12
 25.17   0.27 | 56.42   0.58 | 87.67   0.64 |118.92   0.15
|150.17   0.12
 25.25   0.27 | 56.50   0.59 | 87.75   0.63 |119.00   0.15
|150.25   0.12
 25.33   0.26 | 56.58   0.59 | 87.83   0.62 |119.08   0.15
|150.33   0.12
 25.42   0.26 | 56.67   0.59 | 87.92   0.62 |119.17   0.15
|150.42   0.12
 25.50   0.26 | 56.75   0.59 | 88.00   0.61 |119.25   0.15
|150.50   0.12
 25.58   0.25 | 56.83   0.59 | 88.08   0.60 |119.33   0.15
|150.58   0.12
 25.67   0.25 | 56.92   0.59 | 88.17   0.59 |119.42   0.15
|150.67   0.12
 25.75   0.25 | 57.00   0.59 | 88.25   0.58 |119.50   0.15
|150.75   0.12
 25.83   0.25 | 57.08   0.59 | 88.33   0.58 |119.58   0.15
|150.83   0.12
 25.92   0.25 | 57.17   0.59 | 88.42   0.57 |119.67   0.15
|150.92   0.12
 26.00   0.24 | 57.25   0.59 | 88.50   0.57 |119.75   0.15
|151.00   0.12
 26.08   0.24 | 57.33   0.59 | 88.58   0.56 |119.83   0.16
|151.08   0.12
 26.17   0.24 | 57.42   0.59 | 88.67   0.55 |119.92   0.16
|151.17   0.12
 26.25   0.24 | 57.50   0.59 | 88.75   0.55 |120.00   0.16
|151.25   0.12
 26.33   0.23 | 57.58   0.58 | 88.83   0.54 |120.08   0.16
|151.33   0.12
 26.42   0.23 | 57.67   0.58 | 88.92   0.53 |120.17   0.16
|151.42   0.12
 26.50   0.23 | 57.75   0.58 | 89.00   0.53 |120.25   0.16
|151.50   0.12
 26.58   0.23 | 57.83   0.57 | 89.08   0.52 |120.33   0.16
|151.58   0.12
 26.67   0.23 | 57.92   0.57 | 89.17   0.51 |120.42   0.16
|151.67   0.12
 26.75   0.22 | 58.00   0.57 | 89.25   0.51 |120.50   0.16
|151.75   0.12
 26.83   0.22 | 58.08   0.57 | 89.33   0.50 |120.58   0.16
|151.83   0.12
 26.92   0.22 | 58.17   0.56 | 89.42   0.50 |120.67   0.16
|151.92   0.12
 27.00   0.22 | 58.25   0.56 | 89.50   0.49 |120.75   0.16
|152.00   0.12
 27.08   0.22 | 58.33   0.56 | 89.58   0.48 |120.83   0.16
|152.08   0.12
 27.17   0.21 | 58.42   0.55 | 89.67   0.48 |120.92   0.16
|152.17   0.12
 27.25   0.21 | 58.50   0.55 | 89.75   0.47 |121.00   0.16
|152.25   0.12
 27.33   0.21 | 58.58   0.54 | 89.83   0.47 |121.08   0.16
|152.33   0.11
 27.42   0.21 | 58.67   0.54 | 89.92   0.47 |121.17   0.17
|152.42   0.11
 27.50   0.21 | 58.75   0.53 | 90.00   0.47 |121.25   0.17
|152.50   0.11
 27.58   0.21 | 58.83   0.53 | 90.08   0.46 |121.33   0.17
|152.58   0.11
 27.67   0.20 | 58.92   0.52 | 90.17   0.46 |121.42   0.17
|152.67   0.11
 27.75   0.20 | 59.00   0.52 | 90.25   0.45 |121.50   0.17
|152.75   0.11
 27.83   0.20 | 59.08   0.52 | 90.33   0.45 |121.58   0.17
|152.83   0.11
 27.92   0.20 | 59.17   0.51 | 90.42   0.44 |121.67   0.17
|152.92   0.11
 28.00   0.19 | 59.25   0.51 | 90.50   0.44 |121.75   0.17
|153.00   0.11
 28.08   0.19 | 59.33   0.50 | 90.58   0.44 |121.83   0.17
|153.08   0.11
 28.17   0.19 | 59.42   0.50 | 90.67   0.43 |121.92   0.17
|153.17   0.11
 28.25   0.19 | 59.50   0.49 | 90.75   0.43 |122.00   0.17
|153.25   0.11
 28.33   0.19 | 59.58   0.49 | 90.83   0.43 |122.08   0.17
|153.33   0.11
 28.42   0.19 | 59.67   0.49 | 90.92   0.43 |122.17   0.17
|153.42   0.11
 28.50   0.19 | 59.75   0.48 | 91.00   0.42 |122.25   0.18
|153.50   0.11
 28.58   0.18 | 59.83   0.48 | 91.08   0.42 |122.33   0.18
|153.58   0.11
 28.67   0.18 | 59.92   0.47 | 91.17   0.42 |122.42   0.18
|153.67   0.11
 28.75   0.18 | 60.00   0.47 | 91.25   0.42 |122.50   0.18
|153.75   0.11
 28.83   0.18 | 60.08   0.47 | 91.33   0.41 |122.58   0.18
|153.83   0.11
 28.92   0.18 | 60.17   0.46 | 91.42   0.41 |122.67   0.18
|153.92   0.11
 29.00   0.18 | 60.25   0.46 | 91.50   0.41 |122.75   0.18
|154.00   0.11
 29.08   0.18 | 60.33   0.45 | 91.58   0.41 |122.83   0.18
|154.08   0.11
 29.17   0.18 | 60.42   0.45 | 91.67   0.41 |122.92   0.18
|154.17   0.11
 29.25   0.17 | 60.50   0.44 | 91.75   0.41 |123.00   0.18
|154.25   0.11
 29.33   0.17 | 60.58   0.44 | 91.83   0.40 |123.08   0.18
|154.33   0.11
 29.42   0.17 | 60.67   0.44 | 91.92   0.40 |123.17   0.18
|154.42   0.11
 29.50   0.17 | 60.75   0.43 | 92.00   0.40 |123.25   0.18
|154.50   0.11
 29.58   0.17 | 60.83   0.43 | 92.08   0.40 |123.33   0.18
|154.58   0.11
 29.67   0.17 | 60.92   0.42 | 92.17   0.40 |123.42   0.18
|154.67   0.11
 29.75   0.17 | 61.00   0.42 | 92.25   0.39 |123.50   0.18
|154.75   0.11
 29.83   0.17 | 61.08   0.42 | 92.33   0.39 |123.58   0.18
|154.83   0.11
 29.92   0.16 | 61.17   0.42 | 92.42   0.39 |123.67   0.18
|154.92   0.11
 30.00   0.16 | 61.25   0.41 | 92.50   0.39 |123.75   0.18
|155.00   0.11
 30.08   0.16 | 61.33   0.41 | 92.58   0.38 |123.83   0.18
|155.08   0.11
 30.17   0.16 | 61.42   0.40 | 92.67   0.38 |123.92   0.18
|155.17   0.11
 30.25   0.16 | 61.50   0.40 | 92.75   0.38 |124.00   0.18
|155.25   0.11
 30.33   0.16 | 61.58   0.40 | 92.83   0.38 |124.08   0.18
|155.33   0.11
 30.42   0.16 | 61.67   0.40 | 92.92   0.38 |124.17   0.18
|155.42   0.11
 30.50   0.16 | 61.75   0.39 | 93.00   0.37 |124.25   0.18
|155.50   0.11
 30.58   0.16 | 61.83   0.39 | 93.08   0.37 |124.33   0.19
|155.58   0.11
 30.67   0.16 | 61.92   0.39 | 93.17   0.37 |124.42   0.19
|155.67   0.11
 30.75   0.16 | 62.00   0.38 | 93.25   0.37 |124.50   0.19
|155.75   0.11
 30.83   0.15 | 62.08   0.38 | 93.33   0.37 |124.58   0.19
|155.83   0.10
 30.92   0.15 | 62.17   0.38 | 93.42   0.37 |124.67   0.20
|155.92   0.11
 31.00   0.15 | 62.25   0.38 | 93.50   0.37 |124.75   0.20
|156.00   0.10
 31.08   0.15 | 62.33   0.39 | 93.58   0.37 |124.83   0.20 |
 31.17   0.15 | 62.42   0.39 | 93.67   0.37 |124.92   0.20 |
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| CALIB              |
| STANDHYD  (6202)   |   Area    (ha)=  12.00
|ID= 1 DT= 5.0 min   |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
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                          IMPERVIOUS   PERVIOUS (i)
     Surface Area    (ha)=      6.00        6.00
     Dep. Storage    (mm)=      1.50        8.00
     Average Slope    (%)=      1.00        1.00
     Length           (m)=    282.84       40.00
     Mannings n         =      0.013       0.250

     Max.Eff.Inten.(mm/hr)=   127.30      109.81
                over (min)      5.00       15.00
     Storage Coeff.  (min)=     4.33 (ii)  12.70 (ii)
     Unit Hyd. Tpeak (min)=     5.00       15.00
     Unit Hyd. peak  (cms)=     0.23        0.08

*TOTALS*
     PEAK FLOW      (cms)=      1.43        1.09
2.354 (iii)
     TIME TO PEAK    (hrs)=     3.00        3.08
3.00
     RUNOFF VOLUME    (mm)=    80.10       42.54
55.69
     TOTAL RAINFALL   (mm)=    81.60       81.60
81.60
     RUNOFF COEFFICIENT   =     0.98        0.52
0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0621) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1549.0) ------>
              Distance      Elevation       Manning
                  0.00          87.56        0.0900
                  3.37          87.60        0.0900
                 16.78          87.21        0.0900
                 31.08          87.29        0.0900
                 43.62          87.28        0.0900
                 62.88          87.41        0.0900
                 68.00          87.22        0.0900
                 96.20          87.43        0.0900
                112.60          86.39    0.0900 /0.0700  Main
Channel
                113.70          86.10        0.0700      Main
Channel
                114.40          86.51    0.0700 /0.0900  Main
Channel
                114.60          86.67        0.0900
                131.60          87.07        0.0900
                156.70          87.16        0.0900
                184.59          87.41        0.0900
                194.09          87.56        0.0900
                202.66          87.64        0.0900
                221.43          87.69        0.0900
                230.63          87.86        0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    86.17    .898E+01       0.0          0.13
79.55
       0.14    86.24    .359E+02       0.0          0.21
50.11
       0.21    86.31    .808E+02       0.0          0.28
38.24
       0.29    86.39    .144E+03       0.1          0.33
31.57
       0.36    86.46    .256E+03       0.2          0.39
27.10
       0.44    86.54    .435E+03       0.3          0.42
25.03
       0.52    86.62    .680E+03       0.5          0.46
23.12
       0.60    86.70    .998E+03       0.8          0.48
21.78
       0.68    86.78    .150E+04       1.2          0.48
21.76
       0.76    86.85    .223E+04       1.7          0.48
21.78
       0.83    86.93    .319E+04       2.5          0.49
21.41
       0.91    87.01    .437E+04       3.5          0.51
20.74
       0.99    87.09    .580E+04       4.7          0.51
20.64
       1.07    87.17    .811E+04       6.2          0.48
21.90
       1.15    87.25    .113E+05       7.8          0.44
24.18
       1.23    87.32    .165E+05      10.6          0.41
26.00
       1.30    87.40    .239E+05      16.0          0.42
24.97
       1.38    87.48    .327E+05      24.3          0.47
22.45
       1.46    87.56    .419E+05      34.6          0.52
20.16

                                     <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6202)   12.00     2.35    3.00  55.69
0.82     0.49
     OUTFLOW: ID= 1 (0621)   12.00     1.33    3.17  55.65
0.70     0.48


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--------------------
| CALIB            |
| STANDHYD  (6212) |   Area    (ha)=  21.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  76.00   Dir. Conn.(%)=
67.00
--------------------
                          IMPERVIOUS   PERVIOUS (i)
     Surface Area    (ha)=     16.49        5.21
     Dep. Storage    (mm)=      6.00        8.00
     Average Slope    (%)=      1.00        1.00
     Length           (m)=    380.35       40.00
     Mannings n         =      0.013       0.250

     Max.Eff.Inten.(mm/hr)=   127.30      127.58
                over (min)      5.00       15.00
     Storage Coeff.  (min)=     5.17 (ii)  13.05 (ii)
     Unit Hyd. Tpeak (min)=     5.00       15.00
     Unit Hyd. peak  (cms)=     0.21        0.08

*TOTALS*
     PEAK FLOW      (cms)=      4.87        1.10
5.814 (iii)
     TIME TO PEAK    (hrs)=     3.00        3.08
3.00
     RUNOFF VOLUME    (mm)=    75.60       47.09
66.19
     TOTAL RAINFALL   (mm)=    81.60       81.60
81.60
     RUNOFF COEFFICIENT   =     0.93        0.58
0.81


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
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           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0142) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0621):     12.00    1.328     3.17    55.65
      + ID2= 2 (6212):     21.70    5.814     3.00    66.19
        ==================================================
        ID = 3 (0142):     33.70    6.921     3.00    62.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0622) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 953.0) ------>
              Distance      Elevation       Manning
                 16.75          82.21        0.1100
                 30.34          82.03        0.1100
                 44.96          81.97        0.1100
                 58.95          81.94        0.1100
                 71.21          81.85        0.1100
                100.74          81.58        0.1100
                112.29          81.50        0.1100
                121.63          81.56        0.1100
                127.04          81.66    0.1100 /0.0700  Main
Channel
                129.04          80.66        0.0700      Main
Channel
                130.04          80.66        0.0700      Main
Channel
                131.04          80.66        0.0700      Main
Channel
                133.04          81.66    0.0700 /0.1100  Main
Channel
                134.58          82.08        0.1100
                135.14          82.01        0.1100
                139.68          81.73        0.1100
                151.74          81.75        0.1100
                153.37          81.71        0.1100
                167.06          81.83        0.1100
                187.62          81.87        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.06    80.72    .649E+02       0.0          0.17
49.00
       0.12    80.79    .138E+03       0.1          0.25
32.10
       0.19    80.85    .218E+03       0.1          0.32
25.32
       0.25    80.91    .306E+03       0.2          0.38
21.50
       0.31    80.97    .401E+03       0.4          0.43
18.99
       0.37    81.04    .504E+03       0.5          0.47
17.19
       0.44    81.10    .615E+03       0.6          0.52
15.81
       0.50    81.16    .733E+03       0.8          0.55
14.71
       0.56    81.22    .860E+03       1.0          0.59
13.81
       0.62    81.29    .993E+03       1.3          0.62
13.06
       0.69    81.35    .113E+04       1.5          0.66
12.41
       0.75    81.41    .128E+04       1.8          0.69
11.84
       0.81    81.47    .144E+04       2.1          0.72
11.35
       0.87    81.54    .170E+04       2.5          0.71
11.50
       0.94    81.60    .245E+04       3.0          0.59
13.80
       1.00    81.66    .355E+04       3.7          0.51
16.06
       1.07    81.73    .511E+04       4.9          0.47
17.27
       1.14    81.80    .759E+04       6.7          0.43
18.98
       1.21    81.87    .109E+05       9.0          0.40
20.28

                                     <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0142)   33.70     6.92    3.00  62.44
1.15     0.43
     OUTFLOW: ID= 1 (0622)   33.70     4.19    3.17  62.43
1.03     0.49


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--------------------
| CALIB            |
| STANDHYD  (6222) |   Area    (ha)=  16.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=
69.00
--------------------
                          IMPERVIOUS   PERVIOUS (i)
     Surface Area    (ha)=     13.18        3.72
     Dep. Storage    (mm)=      6.00        8.00
     Average Slope    (%)=      1.00        1.00
     Length           (m)=    335.66       40.00
     Mannings n         =      0.013       0.250

     Max.Eff.Inten.(mm/hr)=   127.30       97.78
                over (min)      5.00       10.00
     Storage Coeff.  (min)=     4.80 (ii)   9.79 (ii)
     Unit Hyd. Tpeak (min)=     5.00       10.00
     Unit Hyd. peak  (cms)=     0.22        0.11

*TOTALS*
     PEAK FLOW      (cms)=      3.94        0.69
4.625 (iii)
     TIME TO PEAK    (hrs)=     3.00        3.08
3.00
     RUNOFF VOLUME    (mm)=    75.60       35.00
63.01
     TOTAL RAINFALL   (mm)=    81.60       81.60
81.60
     RUNOFF COEFFICIENT   =     0.93        0.43
0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0144) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0622):     33.70    4.188     3.17    62.43
      + ID2= 2 (6222):     16.90    4.625     3.00    63.01
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        ==================================================
        ID = 3 (0144):     50.60    8.252     3.00    62.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6232) |   Area    (ha)=  20.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                          IMPERVIOUS   PERVIOUS (i)
     Surface Area    (ha)=     10.30       10.30
     Dep. Storage    (mm)=      6.00        8.00
     Average Slope    (%)=      1.00        1.00
     Length           (m)=    370.59       40.00
     Mannings n         =      0.013       0.250

     Max.Eff.Inten.(mm/hr)=   127.30       83.58
                over (min)      5.00       15.00
     Storage Coeff.  (min)=     5.09 (ii)  14.43 (ii)
     Unit Hyd. Tpeak (min)=     5.00       15.00
     Unit Hyd. peak  (cms)=     0.21        0.08

*TOTALS*
     PEAK FLOW      (cms)=      2.42        1.30
3.497 (iii)
     TIME TO PEAK    (hrs)=     3.00        3.08
3.00
     RUNOFF VOLUME    (mm)=    75.60       32.32
47.47
     TOTAL RAINFALL   (mm)=    81.60       81.60
81.60
     RUNOFF COEFFICIENT   =     0.93        0.40
0.58


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0146) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (0144):     50.60    8.252     3.00    62.62
      + ID2= 2 (6232):     20.60    3.497     3.00    47.47
        ==================================================
        ID = 3 (0146):     71.20   11.749     3.00    58.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6302) |   Area    (ha)=   2.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=
58.00
--------------------
                          IMPERVIOUS   PERVIOUS (i)
     Surface Area    (ha)=      1.79        0.81
     Dep. Storage    (mm)=      6.00        8.00
     Average Slope    (%)=      1.00        1.00
     Length           (m)=    131.66       40.00
     Mannings n         =      0.013       0.250

     Max.Eff.Inten.(mm/hr)=   127.30      124.96
                over (min)      5.00       15.00
     Storage Coeff.  (min)=     2.74 (ii)  10.68 (ii)
     Unit Hyd. Tpeak (min)=     5.00       15.00
     Unit Hyd. peak  (cms)=     0.29        0.09

*TOTALS*
     PEAK FLOW      (cms)=      0.53        0.18
0.684 (iii)
     TIME TO PEAK    (hrs)=     3.00        3.08
3.00
     RUNOFF VOLUME    (mm)=    75.60       46.75
63.48
     TOTAL RAINFALL   (mm)=    81.60       81.60
81.60
     RUNOFF COEFFICIENT   =     0.93        0.57
0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0631) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 788.2) ------>
              Distance      Elevation       Manning
                  0.00          81.00        0.1100
                 15.70          81.00        0.1100
                 17.50          80.50    0.1100 /0.0700  Main
Channel
                 18.50          80.50        0.0700      Main
Channel
                 20.00          81.00    0.0700 /0.1100  Main
Channel
                 24.00          81.00        0.1100
                 38.00          81.50        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.03    80.53    .174E+02       0.0          0.10
100.96
       0.05    80.55    .375E+02       0.0          0.15
66.64
       0.08    80.58    .604E+02       0.0          0.19
52.98
       0.11    80.61    .861E+02       0.0          0.22
45.34
       0.13    80.63    .115E+03       0.0          0.25
40.34
       0.16    80.66    .146E+03       0.1          0.28
36.75
       0.18    80.68    .180E+03       0.1          0.30
34.02
       0.21    80.71    .217E+03       0.1          0.32
31.85
       0.24    80.74    .256E+03       0.1          0.34
30.07
       0.26    80.76    .298E+03       0.2          0.35
28.57
       0.29    80.79    .344E+03       0.2          0.37
27.28
       0.32    80.82    .391E+03       0.2          0.39
26.15
       0.34    80.84    .442E+03       0.3          0.40
25.16
       0.37    80.87    .495E+03       0.3          0.42
24.27
       0.39    80.89    .552E+03       0.4          0.43
23.48
       0.42    80.92    .611E+03       0.4          0.44
22.75
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```
     0.45    80.95    .672E+03       0.5          0.46
22.09
     0.47    80.97    .737E+03       0.6          0.47
21.48
     0.50    81.00    .804E+03       0.6          0.48
20.91

    **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                    <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (6302)    2.60     0.68    3.00  63.48
0.49     0.48
    OUTFLOW: ID= 1 (0631)    2.60     0.37    3.08  63.26
0.39     0.43


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-------------------
| CALIB            |
| STANDHYD  (6312) |   Area    (ha)=   8.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=
59.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.16          2.64
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     242.21         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     127.30         93.06
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       3.94 (ii)   12.89 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.24          0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.79          0.39
2.115 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60         34.30
58.67
     TOTAL RAINFALL   (mm)=      81.60         81.60
81.60
     RUNOFF COEFFICIENT   =       0.93          0.42
0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0149) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0631):     2.60   0.374     3.08    63.26
        + ID2= 2 (6312):     8.80   2.115     3.00    58.67
          ===============================================
          ID = 3 (0149):    11.40   2.451     3.00    59.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0632) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 924.2) ------>
               Distance      Elevation       Manning
                   0.00          82.50        0.1100
                   6.00          82.00        0.1100
                  11.00          81.00        0.1100
                  12.00          80.00        0.1100
                  13.50          79.50    0.1100 /0.0700  Main
Channel
                  14.50          79.50        0.0700      Main
Channel
                  16.00          80.00    0.0700 /0.1100  Main
Channel
                  18.00          80.00        0.1100
                  29.70          80.00        0.1100
                  37.00          80.50        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
     0.05    79.55    .330E+02       0.0          0.17
52.00
     0.11    79.61    .749E+02       0.0          0.26
35.21
     0.16    79.66    .126E+03       0.1          0.32
28.45
     0.21    79.71    .186E+03       0.1          0.37
24.60
     0.26    79.76    .255E+03       0.2          0.41
22.04
     0.32    79.82    .333E+03       0.3          0.45
20.16
     0.37    79.87    .420E+03       0.4          0.48
18.69
     0.42    79.92    .515E+03       0.5          0.51
17.51
     0.47    79.97    .620E+03       0.6          0.55
16.53
     0.53    80.03    .931E+03       0.8          0.48
18.86
     0.58    80.08    .146E+04       1.2          0.43
20.73
     0.63    80.13    .201E+04       1.6          0.44
20.51
     0.68    80.18    .258E+04       2.2          0.46
19.66
     0.74    80.24    .318E+04       2.8          0.48
18.66
     0.79    80.29    .380E+04       3.6          0.51
17.70
     0.84    80.34    .445E+04       4.4          0.54
16.82
     0.89    80.39    .511E+04       5.3          0.56
16.03
     0.95    80.45    .580E+04       6.3          0.59
15.32
     1.00    80.50    .652E+04       7.4          0.61
14.69

                                    <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0149)   11.40     2.45    3.00  59.71
0.71     0.47
    OUTFLOW: ID= 1 (0632)   11.40     1.38    3.08  59.69
0.60     0.44


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| CALIB            |
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```
| STANDHYD  (6322) |   Area    (ha)=   5.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.65          2.65
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     187.97         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     127.30         83.58
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       3.39 (ii)   12.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.26          0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.64          0.36
0.939 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60         32.32
47.47
     TOTAL RAINFALL   (mm)=      81.60         81.60
81.60
     RUNOFF COEFFICIENT   =       0.93          0.40
0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0174) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0632):    11.40   1.377     3.08    59.69
        + ID2= 2 (6322):     5.30   0.939     3.00    47.47
          ===============================================
          ID = 3 (0174):    16.70   2.194     3.00    55.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (6402) |   Area    (ha)=  16.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
66.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.60          4.20
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     334.66         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     127.30        125.63
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       4.79 (ii)   12.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.22          0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.75          0.88
4.504 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60         46.84
65.82
     TOTAL RAINFALL   (mm)=      81.60         81.60
81.60
     RUNOFF COEFFICIENT   =       0.93          0.57
0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ROUTE CHN (0641) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 910.0) ------>
               Distance      Elevation       Manning
                   0.00          83.92        0.1100
                   1.93          83.93        0.1100
                   3.02          83.94        0.1100
                   5.01          83.96        0.1100
                   6.81          83.80        0.1100
                   7.33          83.77        0.1100
                   8.42          83.41    0.1100 /0.0700  Main
Channel
                  10.42          82.41        0.0700      Main
Channel
                  11.17          82.41        0.0700      Main
Channel
                  11.92          82.41        0.0700      Main
Channel
                  13.92          83.41    0.0700 /0.1100  Main
Channel
                  21.33          84.40        0.1100
                  23.85          84.09        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
     0.10    82.51    .768E+02       0.0          0.24
32.02
     0.20    82.61    .172E+03       0.1          0.35
21.50
     0.30    82.71    .285E+03       0.3          0.44
17.20
     0.40    82.81    .416E+03       0.5          0.51
14.73
     0.50    82.91    .565E+03       0.7          0.58
13.08
     0.60    83.01    .732E+03       1.0          0.64
11.86
     0.70    83.11    .918E+03       1.4          0.69
10.92
     0.80    83.21    .112E+04       1.8          0.74
10.16
     0.90    83.31    .134E+04       2.3          0.79
9.53
     1.00    83.41    .158E+04       2.9          0.84
9.00
     1.11    83.52    .188E+04       3.8          0.92
8.20
     1.22    83.63    .224E+04       4.8          0.98
7.72
     1.33    83.74    .266E+04       6.0          1.02
7.39
     1.44    83.85    .315E+04       7.3          1.05
7.20
     1.55    83.96    .379E+04       8.7          1.04
7.24
     1.66    84.07    .471E+04      10.6          1.02
7.41
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     1.77    84.18    .567E+04      12.7          1.01
7.46
     1.88    84.29    .673E+04      15.1          1.01
7.43
     1.99    84.40    .787E+04      17.8          1.02
7.36

                                    <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (6402)   16.80     4.50    3.00  65.82
1.18     0.96
    OUTFLOW: ID= 1 (0641)   16.80     3.61    3.00  65.81
1.08     0.90


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-------------------
| CALIB            |
| STANDHYD  (6412) |   Area    (ha)=  13.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
67.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.47          3.13
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     301.11         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     127.30        113.30
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       4.49 (ii)   12.76 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.23          0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.10          0.58
3.591 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60         39.90
63.82
     TOTAL RAINFALL   (mm)=      81.60         81.60
81.60
     RUNOFF COEFFICIENT   =       0.93          0.49
0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0184) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0641):    16.80   3.613     3.00    65.81
        + ID2= 2 (6412):    13.60   3.591     3.00    63.82
          ===============================================
          ID = 3 (0184):    30.40   7.204     3.00    64.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0642) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1099.5) ------>
               Distance      Elevation       Manning
                   0.00          85.00        0.1100
                  14.50          80.00        0.1100
                  15.30          80.00        0.1100
                  16.80          79.50    0.1100 /0.0700  Main
Channel
                  17.80          79.50        0.0700      Main
Channel
                  19.30          80.00    0.0700 /0.1100  Main
Channel
                  20.30          80.00        0.1100
                  27.30          81.00        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
     0.08    79.58    .520E+02       0.0          0.24
36.74
     0.16    79.66    .124E+03       0.1          0.35
25.35
     0.24    79.74    .216E+03       0.2          0.43
20.68
     0.32    79.82    .328E+03       0.3          0.49
17.96
     0.39    79.89    .460E+03       0.5          0.55
16.11
     0.47    79.97    .611E+03       0.7          0.60
14.73
     0.55    80.05    .836E+03       1.0          0.62
14.31
     0.63    80.13    .112E+04       1.4          0.66
13.40
     0.71    80.21    .143E+04       1.9          0.70
12.62
     0.79    80.29    .178E+04       2.5          0.74
11.97
     0.87    80.37    .216E+04       3.2          0.78
11.42
     0.95    80.45    .258E+04       3.9          0.81
10.93
     1.03    80.53    .302E+04       4.8          0.85
10.51
     1.11    80.61    .350E+04       5.8          0.88
10.14
     1.18    80.68    .402E+04       6.8          0.91
9.80
     1.26    80.76    .456E+04       8.0          0.94
9.49
     1.34    80.84    .514E+04       9.3          0.96
9.21
     1.42    80.92    .575E+04      10.7          0.99
8.96
     1.50    81.00    .640E+04      12.2          1.02
8.72

                                    <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0184)   30.40     7.20    3.00  64.92
1.21     0.92
    OUTFLOW: ID= 1 (0642)   30.40     5.54    3.08  64.91
1.09     0.87


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-------------------
| CALIB            |
| STANDHYD  (6422) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
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--------------------
                          IMPERVIOUS   PERVIOUS (i)
     Surface Area    (ha)=      8.75        8.75
     Dep. Storage    (mm)=      6.00        8.00
     Average Slope    (%)=      1.00        1.00
     Length           (m)=    341.57       40.00
     Mannings n          =     0.013       0.250

     Max.Eff.Inten.(mm/hr)=    127.30       97.24
                over (min)      5.00       15.00
     Storage Coeff.  (min)=      4.85 (ii)  13.63 (ii)
     Unit Hyd. Tpeak (min)=      5.00       15.00
     Unit Hyd. peak  (cms)=      0.22        0.08

*TOTALS*
     PEAK FLOW      (cms)=      2.07        1.34
3.189 (iii)
     TIME TO PEAK    (hrs)=      3.00        3.08
3.00
     RUNOFF VOLUME    (mm)=     75.60       37.59
50.89
     TOTAL RAINFALL   (mm)=     81.60       81.60
81.60
     RUNOFF COEFFICIENT   =      0.93        0.46
0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  72.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0187) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0642):    30.40   5.541     3.08    64.91
        + ID2= 2 (6422):    17.50   3.189     3.00    50.89
          ================================================
          ID = 3 (0187):    47.90   8.193     3.00    59.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6502) |   Area    (ha)=   9.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                          IMPERVIOUS   PERVIOUS (i)
     Surface Area    (ha)=      4.55        4.55
     Dep. Storage    (mm)=      6.00        8.00
     Average Slope    (%)=      1.00        1.00
     Length           (m)=    246.31       40.00
     Mannings n          =     0.013       0.250

     Max.Eff.Inten.(mm/hr)=    127.30       83.58
                over (min)      5.00       15.00
     Storage Coeff.  (min)=      3.98 (ii)  13.32 (ii)
     Unit Hyd. Tpeak (min)=      5.00       15.00
     Unit Hyd. peak  (cms)=      0.24        0.08

*TOTALS*
     PEAK FLOW      (cms)=      1.10        0.60
1.590 (iii)
     TIME TO PEAK    (hrs)=      3.00        3.08
3.00
     RUNOFF VOLUME    (mm)=     75.60       32.32
47.47
     TOTAL RAINFALL   (mm)=     81.60       81.60
81.60
     RUNOFF COEFFICIENT   =      0.93        0.40
0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6602) |   Area    (ha)=  13.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                          IMPERVIOUS   PERVIOUS (i)
     Surface Area    (ha)=      6.85        6.85
     Dep. Storage    (mm)=      6.00        8.00
     Average Slope    (%)=      1.00        1.00
     Length           (m)=    302.21       40.00
     Mannings n          =     0.013       0.250

     Max.Eff.Inten.(mm/hr)=    127.30      115.13
                over (min)      5.00       15.00
     Storage Coeff.  (min)=      4.50 (ii)  12.72 (ii)
     Unit Hyd. Tpeak (min)=      5.00       15.00
     Unit Hyd. peak  (cms)=      0.23        0.08

*TOTALS*
     PEAK FLOW      (cms)=      1.63        1.31
2.744 (iii)
     TIME TO PEAK    (hrs)=      3.00        3.08
3.00
     RUNOFF VOLUME    (mm)=     75.60       44.68
55.50
     TOTAL RAINFALL   (mm)=     81.60       81.60
81.60
     RUNOFF COEFFICIENT   =      0.93        0.55
0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  79.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7302) |   Area    (ha)=   3.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                          IMPERVIOUS   PERVIOUS (i)
     Surface Area    (ha)=      1.70        1.70
     Dep. Storage    (mm)=      6.00        8.00
     Average Slope    (%)=      1.00        1.00
     Length           (m)=    150.55       40.00
     Mannings n          =     0.013       0.250

     Max.Eff.Inten.(mm/hr)=    127.30       83.58
                over (min)      5.00       15.00
     Storage Coeff.  (min)=      2.96 (ii)  12.30 (ii)
     Unit Hyd. Tpeak (min)=      5.00       15.00
     Unit Hyd. peak  (cms)=      0.28        0.09

*TOTALS*
     PEAK FLOW      (cms)=      0.42        0.23
0.608 (iii)
     TIME TO PEAK    (hrs)=      3.00        3.08
3.00
     RUNOFF VOLUME    (mm)=     75.60       32.32
47.47
     TOTAL RAINFALL   (mm)=     81.60       81.60
81.60
     RUNOFF COEFFICIENT   =      0.93        0.40
0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7402) |   Area    (ha)=   3.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                          IMPERVIOUS   PERVIOUS (i)
     Surface Area    (ha)=      1.85        1.85
     Dep. Storage    (mm)=      6.00        8.00
     Average Slope    (%)=      1.00        1.00
     Length           (m)=    157.06       40.00
     Mannings n          =     0.013       0.250

     Max.Eff.Inten.(mm/hr)=    127.30       83.58
                over (min)      5.00       15.00
     Storage Coeff.  (min)=      3.04 (ii)  12.38 (ii)
     Unit Hyd. Tpeak (min)=      5.00       15.00
     Unit Hyd. peak  (cms)=      0.27        0.08

*TOTALS*
     PEAK FLOW      (cms)=      0.45        0.25
0.661 (iii)
     TIME TO PEAK    (hrs)=      3.00        3.08
3.00
     RUNOFF VOLUME    (mm)=     75.60       32.32
47.47
     TOTAL RAINFALL   (mm)=     81.60       81.60
81.60
     RUNOFF COEFFICIENT   =      0.93        0.40
0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| NASHYD    (7101) |   Area    (ha)=  70.70   Curve Number
(CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.78

     Unit Hyd Qpeak  (cms)=   3.471

     PEAK FLOW      (cms)=   1.576 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  17.584
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.215

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7102) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
33.00
--------------------
                          IMPERVIOUS   PERVIOUS (i)
     Surface Area    (ha)=      7.88        9.62
     Dep. Storage    (mm)=      6.00        8.00
     Average Slope    (%)=      1.00        1.00
     Length           (m)=    341.57       40.00
     Mannings n          =     0.013       0.250

     Max.Eff.Inten.(mm/hr)=    127.30       42.35
                over (min)      5.00       20.00
     Storage Coeff.  (min)=      4.85 (ii)  17.10 (ii)
     Unit Hyd. Tpeak (min)=      5.00       20.00
     Unit Hyd. peak  (cms)=      0.22        0.06

*TOTALS*
     PEAK FLOW      (cms)=      1.95        0.64
2.377 (iii)
     TIME TO PEAK    (hrs)=      3.00        3.17
3.00
     RUNOFF VOLUME    (mm)=     75.60       21.05
39.05
     TOTAL RAINFALL   (mm)=     81.60       81.60
81.60
     RUNOFF COEFFICIENT   =      0.93        0.26
0.48

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  52.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0218) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7101):    70.70   1.576     3.83    17.58
        + ID2= 2 (7102):    17.50   2.377     3.00    39.05
          ================================================
          ID = 3 (0218):    88.20   2.758     3.00    21.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0711) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1487.9) ------>
                Distance      Elevation       Manning
                   0.00         95.00         0.1100
                  89.00         94.00         0.1100
                 135.70         94.00    0.1100 /0.0700  Main
Channel
                 137.20         93.50         0.0700     Main
Channel
                 138.20         93.50         0.0700     Main
Channel
                 139.70         94.00    0.0700 /0.1100  Main
Channel
                 211.60         94.00         0.1100
                 249.00         95.00         0.1100

         <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
     0.07    93.57    .969E+02       0.0          0.20
95.33
     0.14    93.64    .228E+03       0.1          0.29
64.56
     0.21    93.71    .393E+03       0.1          0.36
51.73
     0.29    93.79    .593E+03       0.2          0.42
44.23
     0.36    93.86    .826E+03       0.4          0.48
39.15
     0.43    93.93    .109E+04       0.5          0.53
35.40
     0.50    94.00    .140E+04       0.7          0.57
32.52
     0.58    94.08    .133E+05       2.6          0.22
84.59
     0.67    94.17    .262E+05       6.5          0.28
67.17
     0.75    94.25    .400E+05      12.0          0.33
55.64
     0.83    94.33    .549E+05      19.0          0.39
48.10
     0.92    94.42    .707E+05      27.5          0.43
42.81
     1.00    94.50    .875E+05      37.5          0.48
38.86
     1.08    94.58    .105E+06      49.0          0.52
35.80
     1.17    94.67    .124E+06      62.0          0.56
33.34
     1.25    94.75    .144E+06      76.6          0.59
31.30
     1.33    94.83    .165E+06      92.7          0.63
29.59
     1.42    94.92    .186E+06     110.4          0.66
28.12
     1.50    95.00    .209E+06     129.7          0.69
26.84

                                 <---- hydrograph ---->   <-
pipe / channel->
                          AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                          (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
      INFLOW : ID= 2 (0218)   88.20     2.76    3.00  21.84
0.59     0.22
      OUTFLOW: ID= 1 (0711)   88.20     1.62    4.58  21.84
0.54     0.32

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--------------------
| CALIB            |
| NASHYD    (7111) |   Area    (ha)=  48.10   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.43

     Unit Hyd Qpeak  (cms)=   1.285

     PEAK FLOW      (cms)=   1.170 (i)
     TIME TO PEAK    (hrs)=   4.583
     RUNOFF VOLUME    (mm)=  29.689
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.364

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (7112) |   Area    (ha)=  12.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  39.00   Dir. Conn.(%)=
27.00
--------------------
                          IMPERVIOUS   PERVIOUS (i)
     Surface Area    (ha)=      4.76        7.44
     Dep. Storage    (mm)=      6.00        8.00
     Average Slope    (%)=      1.00        1.00
     Length           (m)=    285.19       40.00
     Mannings n          =     0.013       0.250

     Max.Eff.Inten.(mm/hr)=    127.30       80.89
                over (min)      5.00       15.00
     Storage Coeff.  (min)=      4.35 (ii)  13.81 (ii)
     Unit Hyd. Tpeak (min)=      5.00       15.00
     Unit Hyd. peak  (cms)=      0.23        0.08

*TOTALS*
     PEAK FLOW      (cms)=      1.12        0.93
1.895 (iii)
     TIME TO PEAK    (hrs)=      3.00        3.08
3.00
     RUNOFF VOLUME    (mm)=     75.60       33.83
45.11
     TOTAL RAINFALL   (mm)=     81.60       81.60
81.60
     RUNOFF COEFFICIENT   =      0.93        0.41
0.55

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  70.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0222) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7111):    48.10   1.170     4.58    29.69
        + ID2= 2 (7112):    12.20   1.895     3.00    45.11
          ================================================
          ID = 3 (0222):    60.30   2.014     3.00    32.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0223) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0222):    60.30   2.014     3.00    32.81
        + ID2= 2 (0711):    88.20   1.622     4.58    21.84
          ================================================
          ID = 3 (0223):   148.50   2.964     4.50    26.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (7011) |   Area    (ha)=  90.40   Curve Number
(CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.77

     Unit Hyd Qpeak  (cms)=   4.467

     PEAK FLOW      (cms)=   2.518 (i)
     TIME TO PEAK    (hrs)=   3.750
     RUNOFF VOLUME    (mm)=  21.658
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.265

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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-------------------
| CALIB             |
| STANDHYD  (7012) |   Area    (ha)=  25.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
25.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.54        15.56
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     409.06        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        51.32
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.40 (ii)   16.75 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.21         0.06

*TOTALS*
     PEAK FLOW       (cms)=       2.09         1.27
2.951 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      75.60        25.45
37.99
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.31
0.47


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  59.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0205) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7011):     90.40   2.518     3.75    21.66
        + ID2= 2 (7012):     25.10   2.951     3.00    37.99
          ===============================================
          ID = 3 (0205):    115.50   3.580     3.00    25.21

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0702) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1184.6) ------>
               Distance      Elevation       Manning
                   0.00          93.00        0.1100
                  56.00          92.00        0.1100
                  65.40          92.00        0.1100
                  74.80          91.50    0.1100 /0.0700  Main
Channel
                  75.80          91.50        0.0700      Main
Channel
                  77.30          92.00    0.0700 /0.1100  Main
Channel
                 144.00          92.00        0.1100
                 186.00          93.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.08    91.58    .236E+03       0.0          0.13
200.27
       0.16    91.66    .689E+03       0.1          0.18
146.52
       0.24    91.74    .136E+04       0.2          0.22
121.67
       0.32    91.82    .225E+04       0.4          0.25
105.99
       0.39    91.89    .336E+04       0.6          0.28
94.79
       0.47    91.97    .468E+04       0.9          0.31
86.24
       0.55    92.05    .128E+05       1.5          0.19
142.36
       0.63    92.13    .251E+05       3.4          0.22
123.43
       0.71    92.21    .384E+05       6.1          0.26
104.46
       0.79    92.29    .526E+05       9.6          0.29
90.95
       0.87    92.37    .678E+05      13.9          0.33
81.16
       0.95    92.45    .840E+05      19.0          0.36
73.76
       1.03    92.53    .101E+06      24.8          0.39
67.97
       1.11    92.61    .119E+06      31.4          0.42
63.30
       1.18    92.68    .139E+06      38.8          0.45
59.44
       1.26    92.76    .159E+06      47.1          0.48
56.18
       1.34    92.84    .180E+06      56.1          0.50
53.38
       1.42    92.92    .202E+06      66.0          0.52
50.95
       1.50    93.00    .225E+06      76.8          0.55
48.81

                                       <---- hydrograph ---->   <-
pipe / channel->
                                  AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                  (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0205)  115.50     3.58    3.00  25.21
0.64     0.22
     OUTFLOW: ID= 1 (0702)  115.50     1.73    5.67  25.20
0.56     0.19


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| CALIB             |
| NASHYD    (7021) |   Area    (ha)=   7.30   Curve Number
(CN)= 64.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.72

     Unit Hyd Qpeak  (cms)=   0.162

     PEAK FLOW       (cms)=   0.129 (i)
     TIME TO PEAK    (hrs)=   5.000
     RUNOFF VOLUME    (mm)=  25.023
     TOTAL RAINFALL   (mm)=  81.600
     RUNOFF COEFFICIENT   =   0.307

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7022) |   Area    (ha)=  35.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  48.00   Dir. Conn.(%)=
35.00
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-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.90        18.30
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     484.42        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        74.25
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       5.98 (ii)   15.77 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.19         0.07

*TOTALS*
     PEAK FLOW       (cms)=       4.05         1.88
5.348 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      80.10        29.84
47.43
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.98         0.37
0.58


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  64.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0209) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7021):      7.30   0.129     5.00    25.02
        + ID2= 2 (7022):     35.20   5.348     3.00    47.43
          ===============================================
          ID = 3 (0209):     42.50   5.357     3.00    43.58

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0210) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0209):     42.50   5.357     3.00    43.58
        + ID2= 2 (0702):    115.50   1.730     5.67    25.20
          ===============================================
          ID = 3 (0210):    158.00   5.808     3.00    30.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0224) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0210):    158.00   5.808     3.00    30.14
        + ID2= 2 (0223):    148.50   2.964     4.50    26.29
          ===============================================
          ID = 3 (0224):    306.50   8.455     3.00    28.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0703) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (2329.2) ------>
               Distance      Elevation       Manning
                   0.00          88.00        0.1100
                  37.50          87.00        0.1100
                  51.30          86.00        0.1100
                  82.80          86.00        0.1100
                 107.50          87.00        0.1100
                 117.30          86.00        0.1100
                 125.90          86.00    0.1100 /0.0700  Main
Channel
                 127.40          85.50        0.0700      Main
Channel
                 128.40          85.50        0.0700      Main
Channel
                 129.90          86.00    0.0700 /0.1100  Main
Channel
                 133.00          86.00        0.1100
                 149.00          87.00        0.1100
                 193.00          88.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12    85.62    .787E+02       0.0          0.19
40.30
       0.25    85.75    .200E+03       0.1          0.28
27.58
       0.37    85.88    .365E+03       0.3          0.35
22.10
       0.50    86.00    .572E+03       0.5          0.41
18.84
       0.63    86.13    .372E+04       1.8          0.22
34.16
       0.77    86.27    .738E+04       4.4          0.27
28.02
       0.90    86.40    .116E+05       8.1          0.32
23.77
       1.03    86.53    .163E+05      13.0          0.37
20.89
       1.17    86.67    .215E+05      19.1          0.41
18.82
       1.30    86.80    .273E+05      26.4          0.44
17.24
       1.43    86.93    .336E+05      35.0          0.48
15.99
       1.57    87.07    .404E+05      44.9          0.51
15.00
       1.70    87.20    .479E+05      56.3          0.54
14.18
       1.83    87.33    .560E+05      69.3          0.57
13.47
       1.97    87.47    .648E+05      84.0          0.59
12.85
       2.10    87.60    .743E+05     100.6          0.62
12.31
       2.23    87.73    .844E+05     119.0          0.65
11.82
       2.37    87.87    .952E+05     139.3          0.67
11.39
       2.50    88.00    .107E+06     161.7          0.69
11.00

                                       <---- hydrograph ---->   <-
pipe / channel->
                                  AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                  (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0224)  306.50     8.45    3.00  28.28
0.91     0.32
     OUTFLOW: ID= 1 (0703)  306.50     5.07    4.58  28.28
0.79     0.28
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-------------------
| CALIB             |
| STANDHYD  (7032) |   Area    (ha)=  23.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      17.94         5.36
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     394.12        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        86.69
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       5.28 (ii)   14.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.21         0.08

*TOTALS*
     PEAK FLOW       (cms)=       5.30         0.70
5.876 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      75.60        31.43
61.46
     TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
     RUNOFF COEFFICIENT   =       0.93         0.39
0.75


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  63.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0215) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0703):    306.50   5.072     4.58    28.28
        + ID2= 2 (7032):     23.30   5.876     3.00    61.46
          ===============================================
          ID = 3 (0215):    329.80   9.285     3.00    30.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0704) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (2755.4) ------>
               Distance      Elevation       Manning
                   0.00          85.00        0.1100
                  25.00          84.00        0.1100
                  32.00          84.00    0.1100 /0.0700  Main
Channel
                  33.50          83.50        0.0700      Main
Channel
                  34.50          83.50        0.0700      Main
Channel
                  36.00          84.00    0.0700 /0.1100  Main
Channel
                  65.00          84.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.03    83.53    .121E+02       0.0          0.12
61.52
       0.05    83.55    .259E+02       0.0          0.19
40.35
       0.08    83.58    .414E+02       0.0          0.24
31.84
       0.10    83.60    .585E+02       0.0          0.28
27.04
       0.13    83.63    .774E+02       0.1          0.31
23.87
       0.15    83.65    .979E+02       0.1          0.35
21.59
       0.18    83.68    .120E+03       0.1          0.38
19.84
       0.20    83.70    .144E+03       0.1          0.41
18.45
       0.23    83.73    .170E+03       0.2          0.43
17.31
       0.25    83.75    .197E+03       0.2          0.46
16.34
       0.28    83.78    .226E+03       0.2          0.48
15.52
       0.30    83.80    .257E+03       0.3          0.51
14.80
       0.33    83.83    .289E+03       0.3          0.53
14.16
       0.35    83.85    .323E+03       0.4          0.55
13.60
       0.38    83.88    .359E+03       0.5          0.57
13.09
       0.40    83.90    .396E+03       0.5          0.59
12.64
       0.43    83.93    .435E+03       0.6          0.61
12.22
       0.45    83.95    .476E+03       0.7          0.63
11.84
       0.48    83.98    .518E+03       0.8          0.65
11.49

     **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                       <---- hydrograph ---->   <-
pipe / channel->
                                  AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                  (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0215)  329.80     9.28    3.00  30.62
0.47     0.65
     OUTFLOW: ID= 1 (0704)  329.80     6.83    3.17  30.62
0.48     0.65


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-------------------
| CALIB             |
| STANDHYD  (7042) |   Area    (ha)=  23.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      18.25         5.45
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     397.49        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     127.30        82.36
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       5.31 (ii)   14.70 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.21         0.08

*TOTALS*
     PEAK FLOW       (cms)=       5.39         0.67
5.937 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
```

```
    RUNOFF VOLUME    (mm)=      75.60        29.88
60.97
    TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
    RUNOFF COEFFICIENT   =       0.93         0.37
0.75


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  61.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0229) |
|  1 +  2 =  3   |         AREA    QPEAK    TPEAK     R.V.
--------------------       (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0704):   329.80   6.832     3.17    30.62
       + ID2= 2 (7042):    23.70   5.937     3.00    60.97
         ===============================================
         ID = 3 (0229):   353.50  11.722     3.00    32.65

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7202) |   Area    (ha)=  22.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      17.33         5.18
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     387.30        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=     127.30        93.46
              over (min)        5.00        15.00
    Storage Coeff.  (min)=       5.23 (ii)   14.15 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.21         0.08

*TOTALS*
    PEAK FLOW       (cms)=       5.12         0.74
5.739 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      75.60        33.86
62.24
    TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
    RUNOFF COEFFICIENT   =       0.93         0.41
0.76


      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0721) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 920.0) ------>
              Distance      Elevation       Manning
                 0.00         82.00        0.1100
                41.00         82.00        0.1100
                50.70         82.00        0.1100
                57.80         81.00    0.1100 /0.0700  Main
Channel
                59.30         79.84        0.0700      Main
Channel
                60.30         79.84        0.0700      Main
Channel
                61.80         81.00    0.0700 /0.1100  Main
Channel
                63.30         81.00        0.1100
                85.90         81.00        0.1100
               100.00         82.00        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.11    79.95    .515E+02       0.0          0.20
35.58
      0.21    80.05    .115E+03       0.1          0.30
24.20
      0.32    80.16    .192E+03       0.2          0.37
19.53
      0.42    80.26    .280E+03       0.3          0.43
16.82
      0.53    80.37    .381E+03       0.4          0.48
15.00
      0.63    80.47    .494E+03       0.6          0.53
13.65
      0.74    80.58    .620E+03       0.8          0.57
12.60
      0.84    80.68    .758E+03       1.1          0.61
11.75
      0.95    80.79    .908E+03       1.4          0.65
11.04
      1.05    80.89    .107E+04       1.7          0.69
10.44
      1.16    81.00    .125E+04       2.1          0.72
9.92
      1.28    81.12    .283E+04       3.2          0.49
14.61
      1.41    81.25    .455E+04       5.0          0.48
15.04
      1.53    81.37    .642E+04       7.4          0.50
14.36
      1.66    81.50    .843E+04      10.4          0.53
13.50
      1.78    81.62    .106E+05      13.9          0.57
12.67
      1.91    81.75    .129E+05      18.0          0.60
11.93
      2.03    81.87    .153E+05      22.6          0.63
11.29
      2.16    82.00    .179E+05      27.8          0.67
10.73

                                <---- hydrograph ---->   <-
pipe / channel->
                             AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (7202)   22.50     5.74    3.00  62.24
1.45      0.48
    OUTFLOW: ID= 1 (0721)   22.50     3.58    3.08  62.24
1.31      0.49


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--------------------
| CALIB            |
| STANDHYD  (7212) |   Area    (ha)=  18.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      13.94         4.16
```

```
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     347.37        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=     127.30        93.46
              over (min)        5.00        15.00
    Storage Coeff.  (min)=       4.90 (ii)   13.82 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
    PEAK FLOW       (cms)=       4.15         0.60
4.654 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      75.60        33.86
62.24
    TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
    RUNOFF COEFFICIENT   =       0.93         0.41
0.76

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0237) |
|  1 +  2 =  3   |         AREA    QPEAK    TPEAK     R.V.
--------------------       (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0721):    22.50   3.585     3.08    62.24
       + ID2= 2 (7212):    18.10   4.654     3.00    62.24
         ===============================================
         ID = 3 (0237):    40.60   8.056     3.00    62.24

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0238) |
|  1 +  2 =  3   |         AREA    QPEAK    TPEAK     R.V.
--------------------       (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0229):   353.50  11.722     3.00    32.65
       + ID2= 2 (0237):    40.60   8.056     3.00    62.24
         ===============================================
         ID = 3 (0238):   394.10  19.778     3.00    35.70

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0705) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (3276.8) ------>
              Distance      Elevation       Manning
                 0.00         80.50        0.1100
                 5.70         80.00        0.1100
                14.00         79.00        0.1100
                22.00         79.00    0.1100 /0.0700  Main
Channel
                23.50         78.50        0.0700      Main
Channel
                24.50         78.50        0.0700      Main
Channel
                26.00         79.00    0.0700 /0.1100  Main
Channel
                28.00         79.00        0.1100
                41.00         80.00        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.07    78.57    .248E+02       0.0          0.26
18.45
      0.14    78.64    .584E+02       0.1          0.38
12.49
      0.21    78.71    .101E+03       0.2          0.48
10.01
      0.29    78.79    .152E+03       0.3          0.56
8.56
      0.36    78.86    .212E+03       0.5          0.63
7.58
      0.43    78.93    .280E+03       0.7          0.70
6.85
      0.50    79.00    .358E+03       0.9          0.76
6.29
      0.58    79.08    .712E+03       1.6          0.64
7.50
      0.67    79.17    .111E+04       2.5          0.65
7.35
      0.75    79.25    .155E+04       3.7          0.69
6.94
      0.83    79.33    .203E+04       5.2          0.73
6.52
      0.92    79.42    .255E+04       6.9          0.78
6.14
      1.00    79.50    .312E+04       9.0          0.82
5.81
      1.08    79.58    .373E+04      11.3          0.86
5.52
      1.17    79.67    .438E+04      13.9          0.90
5.27
      1.25    79.75    .507E+04      16.7          0.94
5.05
      1.33    79.83    .581E+04      20.0          0.98
4.85
      1.42    79.92    .659E+04      23.5          1.02
4.68
      1.50    80.00    .741E+04      27.3          1.06
4.52

                                <---- hydrograph ---->   <-
pipe / channel->
                             AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0238)  394.10    19.78    3.00  35.70
1.33      0.98
    OUTFLOW: ID= 1 (0705)  394.10    17.68    3.08  35.70
1.27      0.95


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| CALIB            |
| STANDHYD  (7052) |   Area    (ha)=   6.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       3.40         3.40
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     212.92        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=     127.30        46.42
              over (min)        5.00        20.00
    Storage Coeff.  (min)=       3.65 (ii)   15.46 (ii)
    Unit Hyd. Tpeak (min)=       5.00        20.00
    Unit Hyd. peak  (cms)=       0.25         0.07
```

```
*TOTALS*
    PEAK FLOW       (cms)=       0.82         0.26
0.999 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.17
3.00
    RUNOFF VOLUME    (mm)=      75.60        21.63
40.52
    TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
    RUNOFF COEFFICIENT   =       0.93         0.27
0.50

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  51.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0243) |
|  1 +  2 =  3   |         AREA    QPEAK    TPEAK     R.V.
--------------------       (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0705):   394.10  17.681     3.08    35.70
       + ID2= 2 (7052):     6.80   0.999     3.00    40.52
         ===============================================
         ID = 3 (0243):   400.90  18.206     3.08    35.78

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (7502) |   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       2.75         2.75
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     191.49        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=     127.30        83.58
              over (min)        5.00        15.00
    Storage Coeff.  (min)=       3.43 (ii)   12.76 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.26         0.08

*TOTALS*
    PEAK FLOW       (cms)=       0.67         0.37
0.974 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      75.60        32.32
47.47
    TOTAL RAINFALL   (mm)=      81.60        81.60
81.60
    RUNOFF COEFFICIENT   =       0.93         0.40
0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   6 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\Jenny\AppD
|                  |              ata\Local\Temp\
|                  |              5cabfbfe-d340-4400-a9c0-
5faca896dcae\030f8ca1
| Ptotal= 91.90 mm |    Comments: Mount Hope-6 hour SCS
Distribution Desig
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                0.17    3.68 |  1.67    9.19 |  3.17   20.22 |
4.67    5.51
                0.33    3.68 |  1.83    9.19 |  3.33   20.22 |
4.83    5.51
                0.50    3.68 |  2.00    9.19 |  3.50   20.22 |
5.00    5.51
                0.67    5.51 |  2.17   11.03 |  3.67    9.19 |
5.17    3.68
                0.83    5.51 |  2.33   11.03 |  3.83    9.19 |
5.33    3.68
                1.00    5.51 |  2.50   11.03 |  4.00    9.19 |
5.50    3.68
                1.17    5.51 |  2.67   55.14 |  4.17    7.35 |
5.67    3.68
                1.33    5.51 |  2.83   99.25 |  4.33    7.35 |
5.83    3.68
                1.50    5.51 |  3.00  143.36 |  4.50    7.35 |
6.00    3.68

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--------------------
| CALIB            |
| STANDHYD  (5102) |   Area    (ha)=   1.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       1.09         0.61
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     106.46        40.00
    Mannings n          =       0.013        0.250

       NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                           ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
               0.083    3.68 | 1.583    9.19 | 3.083   20.22 |
4.58    5.51
               0.167    3.68 | 1.667    9.19 | 3.167   20.22 |
4.67    5.51
               0.250    3.68 | 1.750    9.19 | 3.250   20.22 |
4.75    5.51
               0.333    3.68 | 1.833    9.19 | 3.333   20.22 |
4.83    5.51
               0.417    3.68 | 1.917    9.19 | 3.417   20.22 |
4.92    5.51
               0.500    3.68 | 2.000    9.19 | 3.500   20.22 |
5.00    5.51
               0.583    5.51 | 2.083   11.03 | 3.583    9.19 |
5.08    3.68
               0.667    5.51 | 2.167   11.03 | 3.667    9.19 |
5.17    3.68
               0.750    5.51 | 2.250   11.03 | 3.750    9.19 |
5.25    3.68
               0.833    5.51 | 2.333   11.03 | 3.833    9.19 |
5.33    3.68
```

```
              0.917    5.51 | 2.417   11.03 | 3.917    9.19 |
5.42    3.68
              1.000    5.51 | 2.500   11.03 | 4.000    9.19 |
5.50    3.68
              1.083    5.51 | 2.583   55.14 | 4.083    7.35 |
5.58    3.68
              1.167    5.51 | 2.667   55.14 | 4.167    7.35 |
5.67    3.68
              1.250    5.51 | 2.750   99.25 | 4.250    7.35 |
5.75    3.68
              1.333    5.51 | 2.833   99.25 | 4.333    7.35 |
5.83    3.68
              1.417    5.51 | 2.917  143.36 | 4.417    7.35 |
5.92    3.68
              1.500    5.51 | 3.000  143.36 | 4.500    7.35 |
6.00    3.68

     Max.Eff.Inten.(mm/hr)=     143.36       105.71
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.30 (ii)   10.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.30         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.35         0.11
0.445 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        40.09
63.91
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.44
0.70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0511) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation       Manning
                  0.00          81.24         0.1100
                 33.01          80.98         0.1100
                 49.97          81.27         0.1100
                 54.18          80.35         0.1100
                 60.88          81.23     0.1100 /0.0700  Main
Channel
                 69.13          79.02         0.0700      Main
Channel
                 92.42          79.04         0.0700      Main
Channel
                 98.70          80.89     0.0700 /0.1100  Main
Channel
                128.88          81.13         0.1100
                199.00          81.23         0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12    79.13    .361E+03       0.6          0.24
9.91
       0.23    79.25    .776E+03       2.1          0.40
6.09
       0.35    79.37    .121E+04       4.3          0.52
4.65
       0.47    79.48    .165E+04       7.1          0.63
3.85
       0.59    79.60    .211E+04      10.5          0.72
3.34
       0.70    79.72    .258E+04      14.4          0.81
2.98
       0.82    79.84    .307E+04      18.8          0.89
2.71
       0.94    79.95    .357E+04      23.8          0.97
2.50
       1.05    80.07    .408E+04      29.2          1.04
2.33
       1.17    80.19    .461E+04      35.1          1.10
2.19
       1.29    80.30    .515E+04      41.5          1.17
2.07
       1.41    80.42    .571E+04      48.4          1.23
1.97
       1.52    80.54    .631E+04      55.8          1.28
1.88
       1.64    80.66    .695E+04      63.8          1.33
1.81
       1.76    80.77    .762E+04      72.3          1.38
1.76
       1.87    80.89    .833E+04      81.4          1.42
1.71
       2.00    81.02    .931E+04      92.4          1.44
1.68
       2.13    81.14    .109E+05     104.8          1.39
1.74
       2.25    81.27    .140E+05     120.9          1.25
1.93

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (5102)    1.70     0.45    3.00  63.91
0.09      0.24
    OUTFLOW: ID= 1 (0511)    1.70     0.32    3.00  63.90
0.06      0.24


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--------------------
| CALIB            |
| STANDHYD  (5112) |   Area    (ha)=   3.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=
58.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.07         0.93
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     141.42        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       121.62
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.72 (ii)   10.76 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.69         0.20
0.856 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        45.49
68.93
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.49
0.75

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
```

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0117) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0511):     1.70   0.322     3.00    63.90
        + ID2= 2 (5112):     3.00   0.856     3.00    68.93
          ================================================
          ID = 3 (0117):     4.70   1.179     3.00    67.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0512) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 484.2) ------>
               Distance      Elevation       Manning
                  0.00          80.80         0.0900
                  9.73          80.46         0.0900
                 14.10          82.04         0.0900
                 17.18          82.28         0.0900
                 41.13          82.12     0.0900 /0.0700  Main
Channel
                 46.88          79.71         0.0700      Main
Channel
                 51.41          80.90     0.0700 /0.0900  Main
Channel
                 94.29          80.56         0.0900
                175.64          80.72         0.0900
                192.09          80.85         0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.13    79.84    .255E+02       0.0          0.14
54.71
       0.26    79.98    .102E+03       0.0          0.23
34.47
       0.40    80.11    .229E+03       0.1          0.30
26.30
       0.53    80.24    .408E+03       0.3          0.36
21.71
       0.66    80.37    .637E+03       0.6          0.42
18.71
       0.79    80.51    .934E+03       0.9          0.46
16.84
       0.93    80.64    .245E+04       1.6          0.31
24.96
       1.06    80.77    .873E+04       4.6          0.25
31.51
       1.19    80.90    .179E+05      11.4          0.30
26.08
       1.32    81.04    .278E+05      22.6          0.38
20.45
       1.46    81.17    .381E+05      37.5          0.46
16.91
       1.60    81.31    .484E+05      55.4          0.54
14.57
       1.74    81.45    .588E+05      76.0          0.61
12.90
       1.87    81.59    .693E+05      99.3          0.67
11.63
       2.01    81.72    .798E+05     125.0          0.73
10.64
       2.15    81.86    .903E+05     153.1          0.80
9.83
       2.29    82.00    .101E+06     183.5          0.85
9.16
       2.42    82.14    .112E+06     214.3          0.90
8.68
       2.56    82.27    .123E+06     244.4          0.93
8.40

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0117)    4.70     1.18    3.00  67.11
0.84      0.40
    OUTFLOW: ID= 1 (0512)    4.70     0.73    3.08  67.04
0.72      0.44


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--------------------
| CALIB            |
| STANDHYD  (5122) |   Area    (ha)=   3.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=
57.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.65         1.25
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     161.25        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       120.11
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.95 (ii)   11.02 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.88         0.26
1.097 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        45.28
68.43
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.49
0.74

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0119) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0512):     4.70   0.726     3.08    67.04
        + ID2= 2 (5122):     3.90   1.097     3.00    68.43
          ================================================
          ID = 3 (0119):     8.60   1.756     3.00    67.67

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
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| STANDHYD  (5202) |   Area    (ha)=  29.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.85        14.85
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     444.97        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       116.83
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       5.42 (ii)   13.58 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.20         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.90         2.77
6.230 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      90.40        45.46
61.19
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.98         0.49
0.67


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0521) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 815.4) ------>
               Distance      Elevation       Manning
                415.18          83.86         0.0900
                461.15          83.40         0.0900
                501.83          83.53     0.0900 /0.0700  Main
Channel
                513.93          82.96         0.0700      Main
Channel
                526.85          83.23     0.0700 /0.0900  Main
Channel
                569.63          83.21         0.0900
                610.76          83.63         0.0900
                663.54          83.88         0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.05    83.00    .378E+02       0.0          0.11
83.81
       0.09    83.05    .151E+03       0.0          0.17
52.79
       0.14    83.09    .340E+03       0.1          0.22
40.29
       0.18    83.14    .605E+03       0.3          0.27
33.26
       0.23    83.18    .946E+03       0.5          0.32
28.66
       0.27    83.23    .151E+04       0.9          0.33
27.77
       0.32    83.27    .323E+04       1.8          0.31
29.51
       0.37    83.32    .510E+04       3.2          0.34
26.44
       0.42    83.37    .713E+04       5.0          0.38
23.61
       0.46    83.42    .934E+04       7.3          0.42
21.44
       0.51    83.47    .121E+05      10.0          0.45
20.23
       0.56    83.52    .156E+05      13.4          0.47
19.44
       0.61    83.57    .196E+05      17.7          0.49
18.52
       0.66    83.61    .240E+05      22.8          0.52
17.49
       0.71    83.66    .286E+05      28.4          0.54
16.75
       0.75    83.71    .336E+05      34.7          0.56
16.14
       0.80    83.76    .390E+05      41.8          0.58
15.55
       0.85    83.81    .448E+05      49.8          0.60
14.99
       0.90    83.86    .510E+05      58.8          0.63
14.46

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (5202)   29.70     6.23    3.00  61.19
0.44      0.40
    OUTFLOW: ID= 1 (0521)   29.70     3.32    3.17  61.17
0.37      0.34


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--------------------
| CALIB            |
| STANDHYD  (5212) |   Area    (ha)=  15.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
66.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.78         3.93
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     323.52        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       139.26
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.47 (ii)   12.09 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.09

*TOTALS*
     PEAK FLOW       (cms)=       3.97         0.93
4.774 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        52.18
74.43
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.57
0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0113) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0521):    29.70   3.316     3.17    61.17
       + ID2= 2 (5212):    15.70   4.774     3.00    74.43
         ===============================================
         ID = 3 (0113):    45.40   7.406     3.00    65.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD    (5011) |   Area    (ha)=  80.20   Curve Number
(CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.85

     Unit Hyd Qpeak  (cms)=   3.621

     PEAK FLOW       (cms)=   3.123 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  31.899
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.347

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5012) |   Area    (ha)=  39.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.97        24.43
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     512.51        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        90.00
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       5.90 (ii)   14.96 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.19         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.51         3.29
6.214 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        37.01
48.74
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.40
0.53


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  65.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0100) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (5011):    80.20   3.123     3.83    31.90
       + ID2= 2 (5012):    39.40   6.214     3.00    48.74
         ===============================================
         ID = 3 (0100):   119.60   6.950     3.00    37.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0502) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1537.5) ------>
              Distance      Elevation       Manning
                  0.00         89.30         0.1100
                  4.20         89.28         0.1100
                  9.03         88.80         0.1100
                 21.55         88.78         0.1100
                 29.06         88.24         0.1100
                 39.87         87.83         0.1100
                 55.54         87.84     0.1100 /0.0700  Main
Channel
                 57.54         86.84         0.0700      Main
Channel
                 59.04         86.84         0.0700      Main
Channel
                 61.04         87.84     0.0700 /0.1100  Main
Channel
                 74.10         87.86         0.1100
                 87.72         88.07         0.1100
                101.34         88.18         0.1100
                113.53         88.23         0.1100
                128.57         88.32         0.1100
                142.19         88.61         0.1100
                155.81         88.53         0.1100
                183.05         88.85         0.1100
                187.19         88.84         0.1100
                211.21         88.88         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.10    86.94    .202E+03       0.0          0.25
78.80
       0.20    87.04    .452E+03       0.1          0.37
52.91
       0.30    87.14    .749E+03       0.3          0.47
42.34
       0.40    87.24    .109E+04       0.5          0.55
36.26
       0.50    87.34    .149E+04       0.8          0.62
32.18
       0.60    87.44    .193E+04       1.1          0.68
29.19
       0.70    87.54    .241E+04       1.5          0.74
26.87
       0.80    87.64    .295E+04       2.0          0.79
25.01
       0.90    87.74    .353E+04       2.5          0.84
23.46
       1.00    87.84    .421E+04       3.1          0.89
22.39
       1.10    87.94    .849E+04       4.5          0.63
31.56
       1.21    88.05    .150E+05       7.1          0.56
35.43
       1.33    88.17    .233E+05      10.6          0.54
36.49
       1.44    88.28    .346E+05      15.5          0.53
37.18
       1.56    88.40    .484E+05      22.8          0.56
35.35
       1.67    88.51    .634E+05      32.1          0.60
32.90
       1.79    88.63    .807E+05      41.2          0.61
32.65
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       1.90    88.74    .101E+06      54.6          0.64
30.77
       2.02    88.86    .124E+06      64.7          0.62
31.85

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
      INFLOW : ID= 2 (0100)  119.60     6.95     3.00  37.45
1.21      0.56
      OUTFLOW: ID= 1 (0502)  119.60     4.38     4.00  37.44
1.09      0.65


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-------------------
| CALIB            |
| STANDHYD  (5022) |   Area    (ha)=  51.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  48.00   Dir. Conn.(%)=
34.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      24.53        26.57
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     583.67        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        88.42
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       6.37 (ii)   15.50 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.18         0.07

*TOTALS*
     PEAK FLOW       (cms)=       6.36         3.31
8.668 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      90.40        35.18
53.96
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.98         0.38
0.59


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0102) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0502):   119.60   4.377     4.00    37.44
       + ID2= 2 (5022):    51.10   8.668     3.00    53.96
         ===============================================
         ID = 3 (0102):   170.70  11.143     3.00    42.39

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0503) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1157.9) ------>
              Distance      Elevation       Manning
                  0.00         86.78         0.0900
                 25.34         87.17         0.0900
                 68.44         87.04         0.0900
                117.13         86.81         0.0900
                125.36         85.21     0.0900 /0.0700  Main
Channel
                127.36         84.21         0.0700      Main
Channel
                128.86         84.21         0.0700      Main
Channel
                130.86         85.21     0.0700 /0.0900  Main
Channel
                131.88         86.36         0.0900
                140.63         86.77         0.0900
                168.26         86.90         0.0900
                169.81         87.10         0.0900
                202.11         87.50         0.0900
                239.06         87.35         0.0900
                270.29         87.83         0.0900
                283.90         87.90         0.0900
                297.51         87.86         0.0900
                324.73         87.89         0.0900
                351.95         87.78         0.0900
                388.59         87.46         0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.17    84.38    .114E+03       0.1          0.34
18.34
       0.33    84.54    .269E+03       0.4          0.50
12.51
       0.50    84.71    .465E+03       0.8          0.62
10.07
       0.67    84.88    .703E+03       1.4          0.72
8.63
       0.83    85.04    .982E+03       2.1          0.81
7.65
       1.00    85.21    .130E+04       3.1          0.89
6.93
       1.21    85.42    .177E+04       5.0          1.06
5.87
       1.41    85.62    .234E+04       7.4          1.17
5.28
       1.62    85.83    .300E+04      10.2          1.27
4.89
       1.83    86.04    .376E+04      13.6          1.35
4.60
       2.03    86.24    .462E+04      17.6          1.42
4.37
       2.24    86.45    .560E+04      22.1          1.47
4.22
       2.45    86.66    .695E+04      27.6          1.48
4.20
       2.66    86.87    .925E+04      31.2          1.25
4.94
       2.86    87.07    .168E+05      43.1          0.96
6.48
       3.07    87.28    .297E+05      67.7          0.85
7.30
       3.28    87.49    .456E+05     103.1          0.84
7.38
       3.48    87.69    .663E+05     159.6          0.89
6.93
       3.69    87.90    .907E+05     223.4          0.92
6.77

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
      INFLOW : ID= 2 (0102)  170.70    11.14     3.00  42.39
1.68      1.29
```

```
      OUTFLOW: ID= 1 (0503)  170.70    10.12    3.08  42.39
1.61      1.26


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| CALIB            |
| STANDHYD  (5032) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  76.00   Dir. Conn.(%)=
67.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.49         3.31
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     303.32        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       124.37
                over (min)       5.00        10.00
     Storage Coeff.  (min)=       4.30 (ii)    9.29 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.23         0.12

*TOTALS*
     PEAK FLOW       (cms)=       3.56         0.80
4.361 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=      85.90        45.87
72.69
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.50
0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0104) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0503):   170.70  10.123     3.08    42.39
       + ID2= 2 (5032):    13.80   4.361     3.00    72.69
         ===============================================
         ID = 3 (0104):   184.50  13.853     3.00    44.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0504) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 815.4) ------>
              Distance      Elevation       Manning
                 19.10         82.03         0.0900
                 29.01         83.14         0.0900
                 40.83         82.56         0.0900
                 81.51         82.27         0.0900
                122.18         82.68         0.0900
                169.31         82.61         0.0900
                217.10         82.90         0.0900
                229.61         83.66     0.0900 /0.0700  Main
Channel
                232.80         81.85         0.0700      Main
Channel
                243.24         83.87         0.0700      Main
Channel
                257.77         84.06         0.0900
                312.01         83.52         0.0900
                415.18         83.86         0.0900
                461.15         83.40         0.0900
                501.83         83.53         0.0900
                513.93         82.96         0.0900
                526.85         83.23         0.0900
                569.63         83.21         0.0900
                610.76         83.63         0.0900
                663.54         83.88         0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.11    81.96    .117E+02       0.0          0.18
23.95
       0.23    82.08    .492E+02       0.1          0.28
15.67
       0.34    82.19    .135E+03       0.2          0.34
13.00
       0.45    82.30    .312E+03       0.4          0.32
13.44
       0.57    82.42    .116E+04       1.2          0.28
15.74
       0.68    82.53    .287E+04       3.5          0.32
13.85
       0.79    82.64    .549E+04       7.0          0.33
13.13
       0.91    82.76    .101E+05      14.9          0.39
11.28
       1.02    82.87    .155E+05      27.5          0.47
9.38
       1.13    82.98    .214E+05      45.2          0.55
7.89
       1.25    83.10    .277E+05      67.2          0.64
6.87
       1.36    83.21    .344E+05      93.6          0.71
6.12
       1.47    83.32    .426E+05     125.3          0.77
5.67
       1.59    83.44    .516E+05     162.2          0.82
5.30
       1.70    83.55    .620E+05     204.2          0.86
5.06
       1.81    83.66    .747E+05     254.0          0.89
4.90
       1.95    83.80    .924E+05     324.9          0.92
4.74
       2.08    83.93    .113E+06     411.3          0.95
4.59
       2.21    84.06    .135E+06     515.5          1.00
4.37

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
      INFLOW : ID= 2 (0104)  184.50    13.85     3.00  44.65
0.89      0.38
      OUTFLOW: ID= 1 (0504)  184.50    10.53     3.17  44.65
0.84      0.35


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-------------------
| CALIB            |
| STANDHYD  (5042) |   Area    (ha)=   7.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
65.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.77         1.92
```

```
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     226.57        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       119.56
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.61 (ii)   11.70 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.95         0.39
2.281 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        43.30
70.99
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.47
0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0106) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0504):   184.50  10.534     3.17    44.65
        + ID2= 2 (5042):     7.70   2.281     3.00    70.99
          ==================================================
          ID = 3 (0106):   192.20  11.293     3.17    45.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0114) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0106):   192.20  11.293     3.17    45.71
        + ID2= 2 (0113):    45.40   7.406     3.00    65.76
          ==================================================
          ID = 3 (0114):   237.60  18.103     3.00    49.54

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0505) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation       Manning
                   0.00         81.24         0.1100
                  33.01         80.98         0.1100
                  49.97         81.27         0.1100
                  54.18         80.35         0.1100
                  60.88         81.23         0.1100
                  69.13         79.02         0.1100
                  92.42         79.04         0.1100
                  98.70         80.89         0.1100
                 128.88         81.13         0.1100
                 199.00         81.23         0.1100
                 266.11         81.68         0.1100
                 306.94         81.73         0.1100
                 331.74         81.55      0.1100 /0.0700  Main
Channel
                 336.74         80.15         0.0700      Main
Channel
                 346.34         81.64      0.0700 /0.0900  Main
Channel
                 394.77         81.68         0.0900
                 431.64         81.44         0.0900
                 477.44         82.08         0.0900
                 481.25         82.81         0.0900
                 501.51         83.16         0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.12    79.13    .418E+03       0.4          0.15
18.59
      0.23    79.25    .899E+03       1.3          0.25
11.41
      0.35    79.36    .140E+04       2.7          0.33
8.70
      0.46    79.48    .191E+04       4.4          0.39
7.22
      0.58    79.59    .244E+04       6.5          0.46
6.26
      0.69    79.71    .299E+04       8.9          0.51
5.58
      0.81    79.82    .355E+04      11.7          0.56
5.08
      0.92    79.94    .413E+04      14.7          0.61
4.68
      1.04    80.05    .472E+04      18.1          0.65
4.36
      1.15    80.17    .533E+04      21.7          0.70
4.09
      1.27    80.28    .598E+04      25.7          0.74
3.88
      1.38    80.40    .666E+04      29.7          0.76
3.74
      1.50    80.51    .740E+04      33.7          0.78
3.67
      1.61    80.63    .822E+04      38.1          0.79
3.59
      1.73    80.74    .909E+04      43.1          0.81
3.52
      1.84    80.86    .100E+05      48.6          0.83
3.45
      1.96    80.97    .111E+05      48.4          0.74
3.83
      2.07    81.09    .128E+05      43.8          0.59
4.86
      2.19    81.21    .155E+05      40.6          0.45
6.35

                                      <---- hydrograph ---->   <-
pipe / channel->
                                  AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                                  (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0114)  237.60    18.10    3.00  49.54
1.04     0.65
     OUTFLOW: ID= 1 (0505)  237.60    17.34    3.08  49.54
1.01     0.64

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-------------------
| CALIB            |
| STANDHYD  (5052) |    Area    (ha)=  15.90
|ID= 1 DT= 5.0 min |    Total Imp(%)=  74.00   Dir. Conn.(%)=
65.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.77         4.13
```

```
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     325.58        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       112.47
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.49 (ii)   12.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.96         0.76
4.597 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        42.28
70.63
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.46
0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0108) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0505):   237.60  17.337     3.08    49.54
        + ID2= 2 (5052):    15.90   4.597     3.00    70.63
          ==================================================
          ID = 3 (0108):   253.50  20.289     3.00    50.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0506) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 304.1) ------>
               Distance      Elevation       Manning
                   0.00         81.42         0.0900
                   7.45         81.36         0.0900
                  32.34         80.38         0.0900
                  45.97         80.05         0.0900
                  65.23         79.93         0.0900
                  84.49         80.35         0.0900
                 113.49         80.02         0.0900
                 136.48         80.07         0.0900
                 188.81         79.81         0.0900
                 197.86         79.25      0.0900 /0.0700  Main
Channel
                 200.70         78.22         0.0700      Main
Channel
                 203.29         79.35      0.0700 /0.0900  Main
Channel
                 204.01         79.67         0.0900
                 236.47         80.40         0.0900
                 277.80         80.48         0.0900
                 305.35         80.37         0.0900
                 346.67         80.41         0.0900
                 387.99         80.33         0.0900
                 415.54         80.53         0.0900
                 447.88         80.49         0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.11    78.34    .979E+01       0.0          0.23
21.53
      0.23    78.45    .392E+02       0.0          0.37
13.56
      0.34    78.56    .881E+02       0.1          0.48
10.35
      0.46    78.68    .157E+03       0.3          0.58
8.54
      0.57    78.79    .245E+03       0.6          0.67
7.36
      0.68    78.91    .352E+03       0.9          0.76
6.52
      0.80    79.02    .480E+03       1.4          0.84
5.88
      0.91    79.13    .627E+03       1.9          0.92
5.38
      1.03    79.25    .793E+03       2.7          0.99
4.98
      1.15    79.37    .103E+04       3.8          1.09
4.55
      1.28    79.50    .135E+04       5.2          1.16
4.28
      1.40    79.62    .175E+04       7.1          1.20
4.12
      1.52    79.75    .228E+04       9.3          1.21
4.08
      1.65    79.87    .318E+04      11.7          1.10
4.52
      1.77    80.00    .524E+04      15.8          0.90
5.52
      1.90    80.12    .973E+04      24.3          0.74
6.69
      2.02    80.24    .158E+05      39.7          0.75
6.62
      2.15    80.37    .230E+05      59.2          0.77
6.46
      2.27    80.49    .349E+05      90.3          0.77
6.44

                                      <---- hydrograph ---->   <-
pipe / channel->
                                  AREA     QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                                  (ha)     (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0108)  253.50    20.29    3.00  50.86
1.84     0.81
     OUTFLOW: ID= 1 (0506)  253.50    17.99    3.17  50.86
1.81     0.85

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-------------------
| CALIB            |
| STANDHYD  (5062) |    Area    (ha)=  11.70
|ID= 1 DT= 5.0 min |    Total Imp(%)=  75.00   Dir. Conn.(%)=
65.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.78         2.92
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     279.28        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       127.79
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.10 (ii)   11.97 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.09

*TOTALS*
     PEAK FLOW       (cms)=       2.94         0.63
3.475 (iii)
```

```
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        46.34
72.05
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.50
0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0110) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0506):   253.50  17.993     3.17    50.86
        + ID2= 2 (5062):    11.70   3.475     3.00    72.05
          ==================================================
          ID = 3 (0110):   265.20  19.243     3.17    51.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0120) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0110):   265.20  19.243     3.17    51.80
        + ID2= 2 (0119):     8.60   1.756     3.00    67.67
          ==================================================
          ID = 3 (0120):   273.80  20.337     3.17    52.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5302) |    Area    (ha)=   5.80
|ID= 1 DT= 5.0 min |    Total Imp(%)=  66.00   Dir. Conn.(%)=
56.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.83         1.97
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     196.64        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       100.77
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.32 (ii)   11.98 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.26         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.27         0.33
1.549 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        39.33
65.41
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.43
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (6102) |    Area    (ha)=  21.10
|ID= 1 DT= 5.0 min |    Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.55        10.55
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     375.06        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       111.58
               over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.89 (ii)   13.21 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.81         1.89
4.394 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      90.40        43.38
59.84
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.98         0.47
0.65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0611) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 940.0) ------>
               Distance      Elevation       Manning
                   0.00         83.36         0.0900
                  12.33         84.54         0.0900
                  21.95         84.33      0.0900 /0.0700  Main
Channel
                  25.80         83.10         0.0700      Main
Channel
                  39.87         83.58      0.0700 /0.0900  Main
Channel
                  95.01         83.67         0.0900
                 132.30         84.45         0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.07    83.17    .442E+02       0.0          0.13
76.06
      0.14    83.24    .177E+03       0.1          0.20
47.91
      0.21    83.31    .398E+03       0.2          0.26
36.56
```

```
     0.28    83.38    .709E+03       0.4          0.32
30.22
     0.35    83.44    .113E+04       0.7          0.36
26.38
     0.41    83.51    .167E+04       1.2          0.41
23.66
     0.48    83.58    .232E+04       1.8          0.45
21.54
     0.56    83.66    .431E+04       3.1          0.42
23.06
     0.64    83.74    .779E+04       5.6          0.42
23.11
     0.72    83.82    .115E+05       9.1          0.46
20.97
     0.80    83.90    .154E+05      13.6          0.51
18.96
     0.88    83.98    .196E+05      18.9          0.55
17.31
     0.96    84.06    .240E+05      25.0          0.60
15.97
     1.04    84.14    .286E+05      32.1          0.65
14.88
     1.12    84.22    .334E+05      39.9          0.69
13.96
     1.20    84.30    .385E+05      48.6          0.73
13.19
     1.28    84.38    .438E+05      58.0          0.76
12.59
     1.36    84.46    .495E+05      68.4          0.80
12.06
     1.44    84.54    .555E+05      81.0          0.84
11.40
                                  <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6102)   21.10     4.39    3.00  59.84
0.60     0.42
     OUTFLOW: ID= 1 (0611)   21.10     2.48    3.17  59.82
0.52     0.43


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| CALIB              |
| STANDHYD  (6112) |    Area    (ha)=  11.40
|ID= 1 DT= 5.0 min |    Total Imp(%)=  72.00   Dir. Conn.(%)=
62.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.21         3.19
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     275.68        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       133.09
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.06 (ii)   11.81 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.09

*TOTALS*
     PEAK FLOW       (cms)=       2.73         0.73
3.355 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        49.85
72.20
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.54
0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0138) |
|   1 + 2 =  3     |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0611):    21.10   2.475     3.17    59.82
        + ID2= 2 (6112):    11.40   3.355     3.00    72.20
          ===============================================
          ID = 3 (0138):    32.50   5.398     3.00    64.16

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB              |
| NASHYD    (6011) |    Area    (ha)=  44.10   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |    Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.83

     Unit Hyd Qpeak  (cms)=   2.027

     PEAK FLOW       (cms)=   1.596 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  29.382
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.320

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6012) |    Area    (ha)=  11.00
|ID= 1 DT= 5.0 min |    Total Imp(%)=  28.00   Dir. Conn.(%)=
16.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.08         7.92
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     270.80        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        76.68
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.02 (ii)   13.68 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.68         0.94
1.451 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        33.10
41.55
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.36
0.45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0124) |
|   1 + 2 =  3     |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6011):    44.10   1.596     3.83    29.38
        + ID2= 2 (6012):    11.00   1.451     3.00    41.55
          ===============================================
          ID = 3 (0124):    55.10   1.931     3.50    31.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB              |
| NASHYD    (6021) |    Area    (ha)=  43.60   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |    Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   1.753

     PEAK FLOW       (cms)=   1.426 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  29.382
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.320

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6022) |    Area    (ha)=  12.90
|ID= 1 DT= 5.0 min |    Total Imp(%)=  35.00   Dir. Conn.(%)=
23.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.51         8.39
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     293.26        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        78.70
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.22 (ii)   13.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.14         1.02
1.979 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        33.48
45.53
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.36
0.50

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0125) |
|   1 + 2 =  3     |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6021):    43.60   1.426     4.00    29.38
        + ID2= 2 (6022):    12.90   1.979     3.00    45.53
          ===============================================
          ID = 3 (0125):    56.50   2.259     3.00    33.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0126) |
|   1 + 2 =  3     |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0124):    55.10   1.931     3.50    31.81
        + ID2= 2 (0125):    56.50   2.259     3.00    33.07
          ===============================================
          ID = 3 (0126):   111.60   4.090     3.00    32.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0603) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
                 <------ DATA FOR SECTION (2135.9) ------>
                 Distance      Elevation       Manning
                     0.00          92.58        0.1400
                     8.54          92.59        0.1400
                    22.11          92.47        0.1400
                    48.74          91.83        0.1400
                    67.59          91.58        0.1400
                    86.45          91.21        0.1400
                   103.50          90.80        0.1400
                   118.09          90.23        0.1400
                   127.84          90.09     0.1400 /0.0700  Main
Channel
                   129.84          89.59        0.0700      Main
Channel
                   130.34          90.09     0.0700 /0.1400  Main
Channel
                   140.57          90.14        0.1400
                   161.87          90.11        0.1400
                   177.03          90.04        0.1400
                   188.67          89.87        0.1400
                   199.59          90.31        0.1400
                   212.02          90.96        0.1400
                   225.58          91.35        0.1400
                   252.71          91.66        0.1400
                   274.11          91.86        0.1400

        <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
     0.12    89.71    .358E+02       0.0          0.19
81.29
     0.25    89.84    .143E+03       0.0          0.30
51.21
     0.37    89.96    .689E+03       0.2          0.23
67.44
     0.50    90.09    .278E+04       0.6          0.20
77.83
     0.67    90.26    .132E+05       3.4          0.23
65.31
     0.83    90.42    .262E+05       9.3          0.33
46.76
     1.00    90.59    .403E+05      17.9          0.41
37.64
     1.17    90.76    .556E+05      28.8          0.48
32.17
     1.33    90.92    .721E+05      42.0          0.53
28.63
     1.50    91.09    .903E+05      57.1          0.58
26.37
     1.67    91.26    .110E+06      74.7          0.62
24.65
     1.83    91.42    .133E+06      93.4          0.64
23.71
     2.00    91.59    .159E+06     113.6          0.66
23.26
     2.17    91.76    .188E+06     136.6          0.67
22.96
     2.33    91.92    .222E+06     168.5          0.70
21.97
     2.50    92.09    .258E+06     211.3          0.75
20.33
     2.67    92.26    .294E+06     258.5          0.81
18.98
     2.83    92.42    .332E+06     310.1          0.86
17.85
     3.00    92.59    .371E+06     358.0          0.88
17.29

                                  <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0126)  111.60     4.09    3.00  32.45
0.69     0.24
     OUTFLOW: ID= 1 (0603)  111.60     2.68    4.50  32.44
0.62     0.22


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--------------------
| CALIB              |
| STANDHYD  (6032) |    Area    (ha)=  34.60
|ID= 1 DT= 5.0 min |    Total Imp(%)=  47.00   Dir. Conn.(%)=
32.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.26        18.34
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     480.28        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       114.52
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       5.67 (ii)   13.90 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.20         0.08

*TOTALS*
     PEAK FLOW       (cms)=       4.13         3.31
6.910 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      90.40        45.12
59.61
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.98         0.49
0.65


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0128) |
|   1 + 2 =  3     |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0603):   111.60   2.684     4.50    32.44
        + ID2= 2 (6032):    34.60   6.910     3.00    59.61
          ===============================================
          ID = 3 (0128):   146.20   7.642     3.00    38.87

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0604) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
                 <------ DATA FOR SECTION (1414.9) ------>
                 Distance      Elevation       Manning
                     0.00          86.75        0.0900
                     3.09          87.40        0.0900
                    18.33          87.41        0.0900
                    35.33          86.99        0.0900
                    73.84          86.75        0.0900
                   103.33          86.41        0.0900
                   120.33          86.11        0.0900
                   129.46          86.13        0.0900
                   143.37          85.32        0.0900
                   154.33          85.02        0.0900
                   161.57          85.09        0.0900
                   163.05          84.78     0.0900 /0.0700  Main
Channel
                   166.55          83.78        0.0700      Main
Channel
                   168.05          84.78     0.0700 /0.1100  Main
Channel
                   172.02          85.29        0.1100
                   191.39          86.19        0.1100
                   270.18          85.78        0.1100
                   296.33          86.36        0.1100
                   324.34          86.68        0.1100
                   368.56          87.05        0.1100

        <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
     0.17    83.95    .465E+02       0.0          0.03
432.88
     0.33    84.11    .186E+03       0.0          0.04
272.70
     0.50    84.28    .418E+03       0.0          0.05
208.11
     0.67    84.45    .743E+03       0.1          0.06
171.79
     0.83    84.61    .116E+04       0.1          0.08
148.04
     1.00    84.78    .167E+04       0.2          0.09
131.10
     1.20    84.98    .252E+04       0.4          0.10
110.62
     1.41    85.19    .469E+04       0.6          0.09
121.59
     1.61    85.39    .842E+04       1.1          0.09
126.63
     1.81    85.59    .133E+05       1.8          0.09
121.99
     2.01    85.79    .192E+05       2.7          0.10
116.68
     2.22    86.00    .298E+05       4.0          0.09
125.45
     2.42    86.20    .487E+05       5.6          0.08
143.80
```

```
      2.62    86.40    .736E+05       9.0          0.08
137.02
      2.82    86.60    .102E+06      13.1          0.09
130.82
      3.03    86.81    .136E+06      18.1          0.09
125.42
      3.23    87.01    .178E+06      24.4          0.09
121.07
      3.43    87.21    .224E+06      34.2          0.10
108.80
      3.63    87.41    .271E+06      44.8          0.11
100.89

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0128)  146.20     7.64    3.00  38.87
2.54      0.08
     OUTFLOW: ID= 1 (0604)  146.20     2.78    3.25  38.86
2.05      0.09

     **** WARNING:  COMPUTATIONS FAILED TO CONVERGE.

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-------------------
| CALIB             |
| STANDHYD  (6042) |   Area    (ha)=  24.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=
69.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      18.72         5.28
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     400.00        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       152.35
                over (min)       5.00        10.00
     Storage Coeff.  (min)=       5.08 (ii)    9.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.21         0.11

*TOTALS*
     PEAK FLOW       (cms)=       6.27         1.57
7.836 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=      85.90        55.42
76.45
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.60
0.83


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0130) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0604):   146.20   2.781     3.25    38.86
        + ID2= 2 (6042):    24.00   7.836     3.00    76.45
          ================================================
          ID = 3 (0130):   170.20  10.168     3.00    44.16

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0605) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 801.4) ------>
                Distance      Elevation       Manning
                    0.00         82.95        0.1100
                    3.78         82.95        0.1100
                    9.24         82.49        0.1100
                   50.67         82.10        0.1100
                  105.12         82.17        0.1100
                  119.34         81.56        0.1100
                  150.67         81.66        0.1100
                  157.23         82.37        0.1100
                  190.03         82.57        0.1100
                  223.75         82.27        0.1100
                  252.32         82.50        0.1100
                  254.65         81.95     0.1100 /0.0700  Main
Channel
                  258.15         80.95        0.0700      Main
Channel
                  259.65         81.95     0.0700 /0.1100  Main
Channel
                  263.15         82.90        0.1100
                  278.14         82.80        0.1100
                  282.35         81.68        0.1100
                  285.02         82.19        0.1100
                  336.56         82.53        0.1100
                  404.40         82.68        0.1100

        <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
        (m)     (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.08    81.03    .125E+02       0.0          0.11
104.30
       0.17    81.12    .499E+02       0.0          0.18
65.70
       0.25    81.20    .112E+03       0.0          0.24
50.14
       0.33    81.28    .199E+03       0.1          0.29
41.39
       0.42    81.37    .312E+03       0.1          0.34
35.67
       0.50    81.45    .449E+03       0.2          0.38
31.59
       0.58    81.53    .611E+03       0.4          0.42
28.50
       0.67    81.62    .117E+04       0.5          0.33
36.10
       0.75    81.70    .316E+04       1.1          0.24
49.12
       0.83    81.78    .560E+04       2.1          0.27
45.15
       0.92    81.87    .827E+04       3.4          0.30
40.03
       1.00    81.95    .112E+05       5.2          0.33
35.88
       1.10    82.05    .151E+05       8.0          0.38
31.68
       1.21    82.16    .207E+05       8.8          0.30
39.37
       1.31    82.26    .306E+05      14.0          0.33
36.36
       1.41    82.36    .433E+05      20.3          0.34
35.59
       1.52    82.47    .606E+05      28.4          0.34
35.57
       1.62    82.57    .828E+05      41.0          0.36
33.68
       1.73    82.68    .109E+06      60.1          0.39
30.35
```

```
                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0130)  170.20    10.17    3.00  44.16
1.24      0.31
     OUTFLOW: ID= 1 (0605)  170.20     4.64    3.17  44.16
0.97      0.32

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-------------------
| ADD HYD   (0139) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0138):    32.50   5.398     3.00    64.16
        + ID2= 2 (0605):   170.20   4.639     3.17    44.16
          ================================================
          ID = 3 (0139):   202.70   8.840     3.00    47.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6052) |   Area    (ha)=  15.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=
65.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.77         4.13
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     325.58        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       107.34
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.49 (ii)   12.94 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.96         0.72
4.560 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        40.34
69.95
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.44
0.76

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0132) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0139):   202.70   8.840     3.00    47.36
        + ID2= 2 (6052):    15.90   4.560     3.00    69.95
          ================================================
          ID = 3 (0132):   218.60  13.400     3.00    49.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0530) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 350.0) ------>
                Distance      Elevation       Manning
                    0.00         81.70        0.1100
                    3.84         81.72        0.1100
                    5.87         80.72        0.1100
                    9.38         81.42        0.1100
                   49.64         81.07        0.1100
                   80.61         80.72        0.1100
                   85.61         81.14        0.1100
                   93.32         80.00        0.1100
                   95.04         80.45        0.1100
                  102.72         80.66        0.1100
                  110.13         78.93     0.1100 /0.0700  Main
Channel
                  118.05         78.63        0.0700      Main
Channel
                  124.40         78.89     0.0700 /0.1100  Main
Channel
                  132.18         79.61        0.1100
                  139.34         79.23        0.1100
                  144.67         79.43        0.1100
                  149.63         79.98        0.1100
                  153.42         79.79        0.1100
                  158.56         80.58        0.1100
                  176.89         81.15        0.1100

        <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
        (m)     (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.13    78.76    .190E+03       0.1          0.19
38.41
       0.26    78.89    .758E+03       0.5          0.31
24.20
       0.43    79.05    .189E+04       2.1          0.50
14.77
       0.59    79.22    .321E+04       4.7          0.65
11.35
       0.76    79.39    .498E+04       8.2          0.73
10.10
       0.93    79.55    .743E+04      13.1          0.78
9.48
       1.09    79.72    .103E+05      19.5          0.84
8.84
       1.26    79.89    .135E+05      27.1          0.89
8.29
       1.43    80.05    .171E+05      36.3          0.94
7.85
       1.59    80.22    .209E+05      47.2          1.00
7.39
       1.76    80.39    .251E+05      59.8          1.06
6.99
       1.93    80.56    .296E+05      73.5          1.10
6.70
       2.10    80.72    .348E+05      87.6          1.12
6.61
       2.26    80.89    .412E+05     102.8          1.11
6.68
       2.43    81.06    .495E+05     122.0          1.09
6.77
       2.60    81.22    .596E+05     146.2          1.09
6.80
       2.76    81.39    .714E+05     176.9          1.10
6.72
       2.93    81.56    .841E+05     215.0          1.13
6.52
       3.10    81.72    .970E+05     256.7          1.18
6.30
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                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0132)  218.60    13.40    3.00  49.01
0.94      0.78
     OUTFLOW: ID= 1 (0530)  218.60    10.72    3.08  49.01
0.85      0.76

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-------------------
| ADD HYD   (0134) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0530):   218.60  10.724     3.08    49.01
        + ID2= 2 (5302):     5.80   1.549     3.00    65.41
          ================================================
          ID = 3 (0134):   224.40  11.478     3.08    49.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0135) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0120):   273.80  20.337     3.17    52.29
        + ID2= 2 (0134):   224.40  11.478     3.08    49.43
          ================================================
          ID = 3 (0135):   498.20  31.570     3.08    51.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0507) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (  40.0) ------>
                Distance      Elevation       Manning
                    0.00         79.36        0.0900
                    7.45         79.32        0.0900
                   13.77         79.27        0.0900
                   20.24         79.24        0.0900
                   27.28         79.26        0.0900
                   34.16         79.13        0.0900
                   40.79         79.05        0.0900
                   47.58         79.05        0.0900
                   54.30         79.07        0.0900
                   60.87         79.24        0.0900
                   71.39         79.48        0.0900
                   73.53         78.96        0.0900
                   76.96         78.07        0.0900
                   82.21         77.08     0.0900 /0.0700  Main
Channel
                   85.82         76.28        0.0700      Main
Channel
                   89.97         76.89        0.0700      Main
Channel
                   91.35         77.38     0.0700 /0.0900  Main
Channel
                   95.27         78.68        0.0900
                   98.44         79.63        0.0900
                  102.89         79.89        0.0900

        <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
        (m)     (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.16    76.44    .113E+03       0.0          0.14
88.10
       0.32    76.60    .451E+03       0.1          0.23
55.50
       0.49    76.76    .101E+04       0.4          0.30
42.35
       0.65    76.92    .180E+04       0.9          0.37
34.57
       0.81    77.09    .276E+04       1.6          0.44
28.86
       0.97    77.25    .388E+04       2.7          0.52
24.37
       1.14    77.41    .516E+04       4.0          0.59
21.56
       1.30    77.57    .660E+04       5.7          0.66
19.26
       1.46    77.74    .822E+04       7.8          0.72
17.67
       1.62    77.90    .100E+05      10.1          0.77
16.48
       1.79    78.06    .120E+05      12.8          0.82
15.54
       1.95    78.22    .141E+05      15.9          0.87
14.74
       2.11    78.39    .163E+05      19.4          0.91
14.06
       2.27    78.55    .187E+05      23.2          0.95
13.47
       2.44    78.71    .212E+05      27.3          0.99
12.95
       2.60    78.87    .239E+05      31.9          1.02
12.50
       2.76    79.04    .267E+05      36.8          1.06
12.10
       2.92    79.20    .320E+05      39.4          0.94
13.56
       3.09    79.36    .409E+05      45.7          0.85
14.94

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0135)  498.20    31.57    3.08  51.00
2.59      1.02
     OUTFLOW: ID= 1 (0507)  498.20    28.00    3.33  51.00
2.45      0.99


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| CALIB             |
| STANDHYD  (5072) |   Area    (ha)=  48.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
36.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      24.45        24.45
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     570.96        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       119.44
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       6.29 (ii)   14.38 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.19         0.08

*TOTALS*
     PEAK FLOW       (cms)=       6.46         4.56
10.299 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        47.22
61.14
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    TOTAL RAINFALL   (mm)=      91.90       91.90
91.90
    RUNOFF COEFFICIENT   =       0.93        0.51
0.67

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  74.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD  (0122) |
|   1 + 2 = 3     |        AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (0507):   498.20  28.002    3.33    51.00
     + ID2= 2 (5072):    48.90  10.299    3.00    61.14
       ==================================================
       ID = 3 (0122):   547.10  33.163    3.17    51.91

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (5402) |   Area    (ha)=   9.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      4.70        4.70
    Dep. Storage     (mm)=      6.00        8.00
    Average Slope     (%)=      1.00        1.00
    Length            (m)=    250.33       40.00
    Mannings n          =     0.013       0.250

    Max.Eff.Inten.(mm/hr)=    143.36      101.50
              over (min)        5.00       15.00
    Storage Coeff.  (min)=      3.84 (ii)  12.47 (ii)
    Unit Hyd. Tpeak (min)=      5.00       15.00
    Unit Hyd. peak  (cms)=      0.25        0.08

*TOTALS*
    PEAK FLOW       (cms)=      1.28        0.78
1.929 (iii)
    TIME TO PEAK    (hrs)=      3.00        3.08
3.00
    RUNOFF VOLUME    (mm)=     85.90       39.44
55.70
    TOTAL RAINFALL   (mm)=     91.90       91.90
91.90
    RUNOFF COEFFICIENT   =      0.93        0.43
0.61

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN* =  66.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| STORE HYD (1505) |   AREA      (ha)=  30.00
| ID= 1 DT= 5.0min |   QPEAK     (cms)=   0.78
-------------------    TPEAK     (hrs)=  15.58
                       VOLUME     (mm)= 402.14

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |'  TIME    FLOW |
TIME   FLOW
   hrs    cms |   hrs     cms |   hrs     cms |'   hrs     cms |
hrs    cms
  0.00   0.00 | 31.33   0.10 | 62.67   0.25 | 94.00   0.26 |125.33   0.16
  0.08   0.00 | 31.42   0.10 | 62.75   0.25 | 94.08   0.26 |125.42   0.16
  0.17   0.00 | 31.50   0.10 | 62.83   0.25 | 94.17   0.25 |125.50   0.16
  0.25   0.00 | 31.58   0.10 | 62.92   0.25 | 94.25   0.25 |125.58   0.16
  0.33   0.00 | 31.67   0.10 | 63.00   0.25 | 94.33   0.25 |125.67   0.17
  0.42   0.00 | 31.75   0.10 | 63.08   0.25 | 94.42   0.25 |125.75   0.16
  0.50   0.00 | 31.83   0.10 | 63.17   0.25 | 94.50   0.25 |125.83   0.16
  0.58   0.00 | 31.92   0.10 | 63.25   0.24 | 94.58   0.25 |125.92   0.17
  0.67   0.00 | 32.00   0.10 | 63.33   0.24 | 94.67   0.24 |126.00   0.15
  0.75   0.00 | 32.08   0.10 | 63.42   0.24 | 94.75   0.25 |126.08   0.16
  0.83   0.00 | 32.17   0.10 | 63.50   0.23 | 94.83   0.24 |126.17   0.16
  0.92   0.00 | 32.25   0.10 | 63.58   0.24 | 94.92   0.25 |126.25   0.16
  1.00   0.00 | 32.33   0.10 | 63.67   0.24 | 95.00   0.25 |126.33   0.16
  1.08   0.00 | 32.42   0.10 | 63.75   0.24 | 95.08   0.25 |126.42   0.16
  1.17   0.00 | 32.50   0.10 | 63.83   0.23 | 95.17   0.24 |126.50   0.17
  1.25   0.00 | 32.58   0.10 | 63.92   0.23 | 95.25   0.21 |126.58   0.16
  1.33   0.00 | 32.67   0.10 | 64.00   0.23 | 95.33   0.25 |126.67   0.16
  1.42   0.00 | 32.75   0.10 | 64.08   0.23 | 95.42   0.22 |126.75   0.17
  1.50   0.00 | 32.83   0.10 | 64.17   0.23 | 95.50   0.23 |126.83   0.17
  1.58   0.00 | 32.92   0.10 | 64.25   0.24 | 95.58   0.22 |126.92   0.17
  1.67   0.00 | 33.00   0.10 | 64.33   0.23 | 95.67   0.24 |127.00   0.17
  1.75   0.00 | 33.08   0.10 | 64.42   0.23 | 95.75   0.26 |127.08   0.17
  1.83   0.00 | 33.17   0.10 | 64.50   0.23 | 95.83   0.24 |127.17   0.18
  1.92   0.00 | 33.25   0.11 | 64.58   0.23 | 95.92   0.23 |127.25   0.17
  2.00   0.00 | 33.33   0.11 | 64.67   0.24 | 96.00   0.24 |127.33   0.18
  2.08   0.00 | 33.42   0.11 | 64.75   0.24 | 96.08   0.24 |127.42   0.18
  2.17   0.00 | 33.50   0.11 | 64.83   0.24 | 96.17   0.24 |127.50   0.16
  2.25   0.00 | 33.58   0.11 | 64.92   0.24 | 96.25   0.24 |127.58   0.18
  2.33   0.00 | 33.67   0.11 | 65.00   0.24 | 96.33   0.24 |127.67   0.17
  2.42   0.00 | 33.75   0.11 | 65.08   0.23 | 96.42   0.24 |127.75   0.18
  2.50   0.00 | 33.83   0.11 | 65.17   0.23 | 96.50   0.24 |127.83   0.17
  2.58   0.00 | 33.92   0.11 | 65.25   0.23 | 96.58   0.23 |127.92   0.17
  2.67   0.00 | 34.00   0.11 | 65.33   0.23 | 96.67   0.24 |128.00   0.17
  2.75   0.00 | 34.08   0.11 | 65.42   0.22 | 96.75   0.23 |128.08   0.17
  2.83   0.00 | 34.17   0.11 | 65.50   0.22 | 96.83   0.23 |128.17   0.17
  2.92   0.00 | 34.25   0.11 | 65.58   0.22 | 96.92   0.24 |128.25   0.18
  3.00   0.00 | 34.33   0.11 | 65.67   0.22 | 97.00   0.23 |128.33   0.18
  3.08   0.00 | 34.42   0.11 | 65.75   0.22 | 97.08   0.22 |128.42   0.19
  3.17   0.00 | 34.50   0.11 | 65.83   0.22 | 97.17   0.23 |128.50   0.18
  3.25   0.00 | 34.58   0.11 | 65.92   0.21 | 97.25   0.22 |128.58   0.17
  3.33   0.00 | 34.67   0.11 | 66.00   0.21 | 97.33   0.25 |128.67   0.18
  3.42   0.00 | 34.75   0.11 | 66.08   0.21 | 97.42   0.22 |128.75   0.18
  3.50   0.00 | 34.83   0.11 | 66.17   0.20 | 97.50   0.24 |128.83   0.18
  3.58   0.00 | 34.92   0.11 | 66.25   0.20 | 97.58   0.23 |128.92   0.18
  3.67   0.00 | 35.00   0.11 | 66.33   0.20 | 97.67   0.22 |129.00   0.18
  3.75   0.00 | 35.08   0.11 | 66.42   0.20 | 97.75   0.23 |129.08   0.19
  3.83   0.00 | 35.17   0.11 | 66.50   0.19 | 97.83   0.22 |129.17   0.17
  3.92   0.00 | 35.25   0.11 | 66.58   0.20 | 97.92   0.21 |129.25   0.17
  4.00   0.00 | 35.33   0.11 | 66.67   0.20 | 98.00   0.22 |129.33   0.17
  4.08   0.00 | 35.42   0.11 | 66.75   0.20 | 98.08   0.23 |129.42   0.18
  4.17   0.00 | 35.50   0.11 | 66.83   0.19 | 98.17   0.21 |129.50   0.18
  4.25   0.00 | 35.58   0.11 | 66.92   0.19 | 98.25   0.21 |129.58   0.18
  4.33   0.00 | 35.67   0.11 | 67.00   0.20 | 98.33   0.23 |129.67   0.18
  4.42   0.00 | 35.75   0.11 | 67.08   0.20 | 98.42   0.21 |129.75   0.18
  4.50   0.00 | 35.83   0.11 | 67.17   0.20 | 98.50   0.21 |129.83   0.18
  4.58   0.00 | 35.92   0.11 | 67.25   0.20 | 98.58   0.23 |129.92   0.18
  4.67   0.00 | 36.00   0.11 | 67.33   0.20 | 98.67   0.22 |130.00   0.18
  4.75   0.00 | 36.08   0.11 | 67.42   0.21 | 98.75   0.23 |130.08   0.17
  4.83   0.00 | 36.17   0.11 | 67.50   0.22 | 98.83   0.24 |130.17   0.17
  4.92   0.00 | 36.25   0.11 | 67.58   0.22 | 98.92   0.22 |130.25   0.17
  5.00   0.00 | 36.33   0.11 | 67.67   0.23 | 99.00   0.20 |130.33   0.17
  5.08   0.00 | 36.42   0.12 | 67.75   0.24 | 99.08   0.20 |130.42   0.18
  5.17   0.00 | 36.50   0.12 | 67.83   0.26 | 99.17   0.22 |130.50   0.18
  5.25   0.00 | 36.58   0.12 | 67.92   0.27 | 99.25   0.21 |130.58   0.18
  5.33   0.00 | 36.67   0.12 | 68.00   0.28 | 99.33   0.22 |130.67   0.17
  5.42   0.00 | 36.75   0.12 | 68.08   0.31 | 99.42   0.21 |130.75   0.17
  5.50   0.00 | 36.83   0.12 | 68.17   0.32 | 99.50   0.20 |130.83   0.18
  5.58   0.00 | 36.92   0.12 | 68.25   0.34 | 99.58   0.21 |130.92   0.17
  5.67   0.00 | 37.00   0.12 | 68.33   0.35 | 99.67   0.20 |131.00   0.17
  5.75   0.00 | 37.08   0.12 | 68.42   0.38 | 99.75   0.19 |131.08   0.17
  5.83   0.00 | 37.17   0.12 | 68.50   0.39 | 99.83   0.20 |131.17   0.18
  5.92   0.00 | 37.25   0.12 | 68.58   0.40 | 99.92   0.22 |131.25   0.18
  6.00   0.00 | 37.33   0.12 | 68.67   0.42 |100.00   0.21 |131.33   0.17
  6.08   0.00 | 37.42   0.12 | 68.75   0.44 |100.08   0.20 |131.42   0.17
  6.17   0.00 | 37.50   0.12 | 68.83   0.46 |100.17   0.21 |131.50   0.17
  6.25   0.00 | 37.58   0.12 | 68.92   0.49 |100.25   0.19 |131.58   0.17
  6.33   0.00 | 37.67   0.13 | 69.00   0.51 |100.33   0.19 |131.67   0.17
  6.42   0.00 | 37.75   0.12 | 69.08   0.54 |100.42   0.19 |131.75   0.17
  6.50   0.00 | 37.83   0.12 | 69.17   0.56 |100.50   0.19 |131.83   0.17
  6.58   0.00 | 37.92   0.12 | 69.25   0.60 |100.58   0.19 |131.92   0.17
  6.67   0.00 | 38.00   0.12 | 69.33   0.64 |100.67   0.19 |132.00   0.16
  6.75   0.00 | 38.08   0.12 | 69.42   0.67 |100.75   0.21 |132.08   0.17
  6.83   0.00 | 38.17   0.12 | 69.50   0.67 |100.83   0.19 |132.17   0.17
  6.92   0.00 | 38.25   0.12 | 69.58   0.68 |100.92   0.19 |132.25   0.17
  7.00   0.00 | 38.33   0.12 | 69.67   0.65 |101.00   0.19 |132.33   0.17
  7.08   0.00 | 38.42   0.12 | 69.75   0.66 |101.08   0.19 |132.42   0.18
  7.17   0.00 | 38.50   0.12 | 69.83   0.66 |101.17   0.20 |132.50   0.17
  7.25   0.00 | 38.58   0.12 | 69.92   0.67 |101.25   0.19 |132.58   0.16
  7.33   0.00 | 38.67   0.13 | 70.00   0.66 |101.33   0.18 |132.67   0.17
  7.42   0.00 | 38.75   0.13 | 70.08   0.67 |101.42   0.19 |132.75   0.17
  7.50   0.00 | 38.83   0.13 | 70.17   0.67 |101.50   0.19 |132.83   0.17
  7.58   0.00 | 38.92   0.13 | 70.25   0.70 |101.58   0.19 |132.92   0.16
  7.67   0.00 | 39.00   0.13 | 70.33   0.74 |101.67   0.20 |133.00   0.17
  7.75   0.00 | 39.08   0.14 | 70.42   0.73 |101.75   0.19 |133.08   0.16
  7.83   0.00 | 39.17   0.14 | 70.50   0.74 |101.83   0.18 |133.17   0.16
  7.92   0.00 | 39.25   0.14 | 70.58   0.74 |101.92   0.19 |133.25   0.16
  8.00   0.00 | 39.33   0.14 | 70.67   0.74 |102.00   0.19 |133.33   0.15
  8.08   0.00 | 39.42   0.14 | 70.75   0.75 |102.08   0.19 |133.42   0.16
  8.17   0.00 | 39.50   0.15 | 70.83   0.75 |102.17   0.19 |133.50   0.16
  8.25   0.00 | 39.58   0.16 | 70.92   0.74 |102.25   0.18 |133.58   0.17
  8.33   0.00 | 39.67   0.16 | 71.00   0.74 |102.33   0.18 |133.67   0.16
  8.42   0.00 | 39.75   0.16 | 71.08   0.75 |102.42   0.19 |133.75   0.15
  8.50   0.00 | 39.83   0.16 | 71.17   0.77 |102.50   0.19 |133.83   0.16
  8.58   0.00 | 39.92   0.17 | 71.25   0.76 |102.58   0.19 |133.92   0.16
  8.67   0.00 | 40.00   0.17 | 71.33   0.76 |102.67   0.18 |134.00   0.16
  8.75   0.00 | 40.08   0.17 | 71.42   0.77 |102.75   0.20 |134.08   0.16
  8.83   0.00 | 40.17   0.17 | 71.50   0.76 |102.83   0.18 |134.17   0.15
  8.92   0.00 | 40.25   0.18 | 71.58   0.77 |102.92   0.18 |134.25   0.16
  9.00   0.00 | 40.33   0.18 | 71.67   0.76 |103.00   0.17 |134.33   0.16
  9.08   0.00 | 40.42   0.18 | 71.75   0.76 |103.08   0.17 |134.42   0.16
  9.17   0.00 | 40.50   0.18 | 71.83   0.78 |103.17   0.18 |134.50   0.16
  9.25   0.00 | 40.58   0.19 | 71.92   0.77 |103.25   0.18 |134.58   0.15
  9.33   0.00 | 40.67   0.19 | 72.00   0.76 |103.33   0.17 |134.67   0.16
  9.42   0.00 | 40.75   0.19 | 72.08   0.74 |103.42   0.17 |134.75   0.15
  9.50   0.00 | 40.83   0.19 | 72.17   0.75 |103.50   0.17 |134.83   0.15
  9.58   0.00 | 40.92   0.19 | 72.25   0.74 |103.58   0.18 |134.92   0.16
  9.67   0.00 | 41.00   0.19 | 72.33   0.72 |103.67   0.18 |135.00   0.15
  9.75   0.00 | 41.08   0.19 | 72.42   0.70 |103.75   0.18 |135.08   0.15
  9.83   0.00 | 41.17   0.20 | 72.50   0.70 |103.83   0.18 |135.17   0.15
  9.92   0.00 | 41.25   0.20 | 72.58   0.69 |103.92   0.19 |135.25   0.15
 10.00   0.00 | 41.33   0.21 | 72.67   0.70 |104.00   0.17 |135.33   0.15
 10.08   0.00 | 41.42   0.22 | 72.75   0.68 |104.08   0.18 |135.42   0.15
 10.17   0.00 | 41.50   0.23 | 72.83   0.67 |104.17   0.18 |135.50   0.15
 10.25   0.00 | 41.58   0.23 | 72.92   0.66 |104.25   0.17 |135.58   0.15
 10.33   0.00 | 41.67   0.23 | 73.00   0.64 |104.33   0.17 |135.67   0.14
 10.42   0.00 | 41.75   0.24 | 73.08   0.63 |104.42   0.17 |135.75   0.15
 10.50   0.00 | 41.83   0.25 | 73.17   0.63 |104.50   0.18 |135.83   0.16
 10.58   0.00 | 41.92   0.25 | 73.25   0.61 |104.58   0.17 |135.92   0.15
 10.67   0.00 | 42.00   0.26 | 73.33   0.62 |104.67   0.16 |136.00   0.15
 10.75   0.00 | 42.08   0.25 | 73.42   0.61 |104.75   0.16 |136.08   0.15
 10.83   0.00 | 42.17   0.26 | 73.50   0.62 |104.83   0.18 |136.17   0.15
 10.92   0.00 | 42.25   0.26 | 73.58   0.60 |104.92   0.16 |136.25   0.15
 11.00   0.00 | 42.33   0.26 | 73.67   0.62 |105.00   0.17 |136.33   0.15
 11.08   0.00 | 42.42   0.26 | 73.75   0.58 |105.08   0.16 |136.42   0.15
 11.17   0.00 | 42.50   0.26 | 73.83   0.59 |105.17   0.16 |136.50   0.15
 11.25   0.00 | 42.58   0.26 | 73.92   0.57 |105.25   0.16 |136.58   0.15
 11.33   0.00 | 42.67   0.26 | 74.00   0.57 |105.33   0.16 |136.67   0.14
 11.42   0.00 | 42.75   0.25 | 74.08   0.57 |105.42   0.16 |136.75   0.15
 11.50   0.00 | 42.83   0.26 | 74.17   0.56 |105.50   0.16 |136.83   0.14
 11.58   0.00 | 42.92   0.25 | 74.25   0.58 |105.58   0.16 |136.92   0.14
 11.67   0.00 | 43.00   0.25 | 74.33   0.58 |105.67   0.16 |137.00   0.14
 11.75   0.00 | 43.08   0.25 | 74.42   0.58 |105.75   0.17 |137.08   0.15
 11.83   0.00 | 43.17   0.25 | 74.50   0.59 |105.83   0.16 |137.17   0.14
 11.92   0.00 | 43.25   0.25 | 74.58   0.60 |105.92   0.16 |137.25   0.15
 12.00   0.00 | 43.33   0.25 | 74.67   0.57 |106.00   0.16 |137.33   0.15
 12.08   0.00 | 43.42   0.25 | 74.75   0.56 |106.08   0.16 |137.42   0.14
 12.17   0.00 | 43.50   0.25 | 74.83   0.54 |106.17   0.16 |137.50   0.14
 12.25   0.00 | 43.58   0.25 | 74.92   0.56 |106.25   0.17 |137.58   0.14
 12.33   0.00 | 43.67   0.25 | 75.00   0.53 |106.33   0.16 |137.67   0.15
 12.42   0.00 | 43.75   0.25 | 75.08   0.51 |106.42   0.16 |137.75   0.14
 12.50   0.00 | 43.83   0.26 | 75.17   0.51 |106.50   0.16 |137.83   0.14
 12.58   0.00 | 43.92   0.26 | 75.25   0.51 |106.58   0.16 |137.92   0.14
 12.67   0.00 | 44.00   0.26 | 75.33   0.51 |106.67   0.16 |138.00   0.14
 12.75   0.00 | 44.08   0.26 | 75.42   0.50 |106.75   0.16 |138.08   0.14
 12.83   0.00 | 44.17   0.26 | 75.50   0.50 |106.83   0.15 |138.17   0.14
 12.92   0.00 | 44.25   0.27 | 75.58   0.49 |106.92   0.15 |138.25   0.14
 13.00   0.00 | 44.33   0.26 | 75.67   0.49 |107.00   0.16 |138.33   0.14
 13.08   0.00 | 44.42   0.26 | 75.75   0.49 |107.08   0.16 |138.42   0.14
 13.17   0.00 | 44.50   0.26 | 75.83   0.48 |107.17   0.16 |138.50   0.14
 13.25   0.00 | 44.58   0.26 | 75.92   0.47 |107.25   0.15 |138.58   0.14
 13.33   0.00 | 44.67   0.26 | 76.00   0.47 |107.33   0.16 |138.67   0.14
 13.42   0.00 | 44.75   0.26 | 76.08   0.48 |107.42   0.16 |138.75   0.14
 13.50   0.00 | 44.83   0.26 | 76.17   0.46 |107.50   0.15 |138.83   0.14
 13.58   0.00 | 44.92   0.26 | 76.25   0.45 |107.58   0.16 |138.92   0.14
 13.67   0.00 | 45.00   0.26 | 76.33   0.45 |107.67   0.15 |139.00   0.14
 13.75   0.00 | 45.08   0.26 | 76.42   0.43 |107.75   0.15 |139.08   0.14
 13.83   0.00 | 45.17   0.25 | 76.50   0.44 |107.83   0.16 |139.17   0.13
 13.92   0.00 | 45.25   0.25 | 76.58   0.46 |107.92   0.16 |139.25   0.14
 14.00   0.00 | 45.33   0.25 | 76.67   0.43 |108.00   0.16 |139.33   0.14
 14.08   0.00 | 45.42   0.25 | 76.75   0.44 |108.08   0.15 |139.42   0.14
 14.17   0.00 | 45.50   0.25 | 76.83   0.43 |108.17   0.15 |139.50   0.14
 14.25   0.00 | 45.58   0.25 | 76.92   0.45 |108.25   0.15 |139.58   0.13
 14.33   0.00 | 45.67   0.25 | 77.00   0.42 |108.33   0.16 |139.67   0.14
 14.42   0.00 | 45.75   0.25 | 77.08   0.43 |108.42   0.16 |139.75   0.14
 14.50   0.00 | 45.83   0.26 | 77.17   0.43 |108.50   0.15 |139.83   0.13
 14.58   0.00 | 45.92   0.25 | 77.25   0.42 |108.58   0.15 |139.92   0.14
 14.67   0.00 | 46.00   0.26 | 77.33   0.41 |108.67   0.15 |140.00   0.14
 14.75   0.00 | 46.08   0.26 | 77.42   0.43 |108.75   0.16 |140.08   0.13
 14.83   0.00 | 46.17   0.25 | 77.50   0.41 |108.83   0.15 |140.17   0.13
 14.92   0.69 | 46.25   0.26 | 77.58   0.43 |108.92   0.15 |140.25   0.13
 15.00   0.69 | 46.33   0.26 | 77.67   0.39 |109.00   0.15 |140.33   0.13
 15.08   0.71 | 46.42   0.26 | 77.75   0.39 |109.08   0.15 |140.42   0.14
 15.17   0.74 | 46.50   0.26 | 77.83   0.37 |109.17   0.15 |140.50   0.13
 15.25   0.74 | 46.58   0.26 | 77.92   0.39 |109.25   0.15 |140.58   0.13
 15.33   0.74 | 46.67   0.26 | 78.00   0.39 |109.33   0.14 |140.67   0.13
 15.42   0.77 | 46.75   0.26 | 78.08   0.39 |109.42   0.15 |140.75   0.13
 15.50   0.76 | 46.83   0.25 | 78.17   0.37 |109.50   0.15 |140.83   0.13
 15.58   0.78 | 46.92   0.25 | 78.25   0.36 |109.58   0.14 |140.92   0.13
 15.67   0.78 | 47.00   0.25 | 78.33   0.37 |109.67   0.15 |141.00   0.13
 15.75   0.77 | 47.08   0.25 | 78.42   0.38 |109.75   0.14 |141.08   0.13
 15.83   0.77 | 47.17   0.26 | 78.50   0.36 |109.83   0.15 |141.17   0.13
 15.92   0.77 | 47.25   0.26 | 78.58   0.36 |109.92   0.14 |141.25   0.13
 16.00   0.76 | 47.33   0.26 | 78.67   0.36 |110.00   0.14 |141.33   0.13
 16.08   0.74 | 47.42   0.26 | 78.75   0.37 |110.08   0.14 |141.42   0.13
 16.17   0.74 | 47.50   0.26 | 78.83   0.34 |110.17   0.14 |141.50   0.13
 16.25   0.74 | 47.58   0.25 | 78.92   0.35 |110.25   0.14 |141.58   0.13
 16.33   0.72 | 47.67   0.26 | 79.00   0.36 |110.33   0.15 |141.67   0.13
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 16.42   0.69 | 47.75   0.26 | 79.08   0.35 |110.42   0.15
|141.75   0.13
 16.50   0.69 | 47.83   0.26 | 79.17   0.35 |110.50   0.14
|141.83   0.13
 16.58   0.67 | 47.92   0.26 | 79.25   0.36 |110.58   0.14
|141.92   0.13
 16.67   0.66 | 48.00   0.25 | 79.33   0.36 |110.67   0.14
|142.00   0.13
 16.75   0.64 | 48.08   0.25 | 79.42   0.33 |110.75   0.15
|142.08   0.12
 16.83   0.63 | 48.17   0.26 | 79.50   0.33 |110.83   0.14
|142.17   0.13
 16.92   0.63 | 48.25   0.25 | 79.58   0.33 |110.92   0.15
|142.25   0.13
 17.00   0.60 | 48.33   0.25 | 79.67   0.32 |111.00   0.15
|142.33   0.13
 17.08   0.58 | 48.42   0.25 | 79.75   0.33 |111.08   0.14
|142.42   0.12
 17.17   0.58 | 48.50   0.25 | 79.83   0.33 |111.17   0.14
|142.50   0.13
 17.25   0.57 | 48.58   0.25 | 79.92   0.32 |111.25   0.14
|142.58   0.13
 17.33   0.56 | 48.67   0.24 | 80.00   0.33 |111.33   0.15
|142.67   0.13
 17.42   0.55 | 48.75   0.24 | 80.08   0.34 |111.42   0.14
|142.75   0.13
 17.50   0.54 | 48.83   0.24 | 80.17   0.32 |111.50   0.15
|142.83   0.12
 17.58   0.51 | 48.92   0.24 | 80.25   0.31 |111.58   0.14
|142.92   0.13
 17.67   0.50 | 49.00   0.24 | 80.33   0.33 |111.67   0.14
|143.00   0.12
 17.75   0.48 | 49.08   0.25 | 80.42   0.31 |111.75   0.14
|143.08   0.12
 17.83   0.47 | 49.17   0.24 | 80.50   0.32 |111.83   0.14
|143.17   0.12
 17.92   0.47 | 49.25   0.24 | 80.58   0.31 |111.92   0.14
|143.25   0.12
 18.00   0.45 | 49.33   0.24 | 80.67   0.31 |112.00   0.15
|143.33   0.12
 18.08   0.44 | 49.42   0.23 | 80.75   0.33 |112.08   0.14
|143.42   0.12
 18.17   0.41 | 49.50   0.23 | 80.83   0.31 |112.17   0.14
|143.50   0.12
 18.25   0.42 | 49.58   0.24 | 80.92   0.32 |112.25   0.14
|143.58   0.12
 18.33   0.40 | 49.67   0.23 | 81.00   0.32 |112.33   0.14
|143.67   0.12
 18.42   0.39 | 49.75   0.24 | 81.08   0.31 |112.42   0.15
|143.75   0.12
 18.50   0.38 | 49.83   0.24 | 81.17   0.31 |112.50   0.15
|143.83   0.12
 18.58   0.38 | 49.92   0.23 | 81.25   0.31 |112.58   0.15
|143.92   0.12
 18.67   0.37 | 50.00   0.23 | 81.33   0.31 |112.67   0.15
|144.00   0.12
 18.75   0.37 | 50.08   0.23 | 81.42   0.31 |112.75   0.14
|144.08   0.12
 18.83   0.36 | 50.17   0.24 | 81.50   0.32 |112.83   0.15
|144.17   0.12
 18.92   0.35 | 50.25   0.23 | 81.58   0.32 |112.92   0.14
|144.25   0.12
 19.00   0.34 | 50.33   0.23 | 81.67   0.34 |113.00   0.15
|144.33   0.12
 19.08   0.34 | 50.42   0.23 | 81.75   0.34 |113.08   0.15
|144.42   0.12
 19.17   0.34 | 50.50   0.23 | 81.83   0.35 |113.17   0.14
|144.50   0.12
 19.25   0.34 | 50.58   0.23 | 81.92   0.37 |113.25   0.15
|144.58   0.12
 19.33   0.33 | 50.67   0.23 | 82.00   0.36 |113.33   0.15
|144.67   0.12
 19.42   0.33 | 50.75   0.23 | 82.08   0.37 |113.42   0.14
|144.75   0.12
 19.50   0.32 | 50.83   0.23 | 82.17   0.38 |113.50   0.14
|144.83   0.12
 19.58   0.32 | 50.92   0.23 | 82.25   0.36 |113.58   0.14
|144.92   0.12
 19.67   0.32 | 51.00   0.23 | 82.33   0.35 |113.67   0.14
|145.00   0.12
 19.75   0.31 | 51.08   0.23 | 82.42   0.37 |113.75   0.14
|145.08   0.12
 19.83   0.30 | 51.17   0.23 | 82.50   0.37 |113.83   0.14
|145.17   0.12
 19.92   0.30 | 51.25   0.23 | 82.58   0.36 |113.92   0.14
|145.25   0.12
 20.00   0.29 | 51.33   0.23 | 82.67   0.38 |114.00   0.14
|145.33   0.12
 20.08   0.29 | 51.42   0.23 | 82.75   0.38 |114.08   0.14
|145.42   0.12
 20.17   0.28 | 51.50   0.23 | 82.83   0.41 |114.17   0.14
|145.50   0.12
 20.25   0.28 | 51.58   0.23 | 82.92   0.40 |114.25   0.14
|145.58   0.12
 20.33   0.28 | 51.67   0.23 | 83.00   0.40 |114.33   0.14
|145.67   0.12
 20.42   0.27 | 51.75   0.23 | 83.08   0.40 |114.42   0.14
|145.75   0.12
 20.50   0.27 | 51.83   0.23 | 83.17   0.44 |114.50   0.15
|145.83   0.12
 20.58   0.26 | 51.92   0.23 | 83.25   0.44 |114.58   0.14
|145.92   0.12
 20.67   0.27 | 52.00   0.23 | 83.33   0.42 |114.67   0.14
|146.00   0.12
 20.75   0.26 | 52.08   0.24 | 83.42   0.42 |114.75   0.14
|146.08   0.11
 20.83   0.26 | 52.17   0.24 | 83.50   0.42 |114.83   0.15
|146.17   0.11
 20.92   0.25 | 52.25   0.24 | 83.58   0.41 |114.92   0.14
|146.25   0.11
 21.00   0.25 | 52.33   0.25 | 83.67   0.41 |115.00   0.15
|146.33   0.12
 21.08   0.25 | 52.42   0.25 | 83.75   0.42 |115.08   0.14
|146.42   0.11
 21.17   0.24 | 52.50   0.25 | 83.83   0.41 |115.17   0.14
|146.50   0.12
 21.25   0.25 | 52.58   0.25 | 83.92   0.41 |115.25   0.14
|146.58   0.12
 21.33   0.24 | 52.67   0.25 | 84.00   0.43 |115.33   0.15
|146.67   0.11
 21.42   0.24 | 52.75   0.25 | 84.08   0.40 |115.42   0.14
|146.75   0.12
 21.50   0.24 | 52.83   0.25 | 84.17   0.42 |115.50   0.15
|146.83   0.11
 21.58   0.23 | 52.92   0.25 | 84.25   0.41 |115.58   0.14
|146.92   0.12
 21.67   0.23 | 53.00   0.27 | 84.33   0.42 |115.67   0.14
|147.00   0.11
 21.75   0.23 | 53.08   0.27 | 84.42   0.42 |115.75   0.14
|147.08   0.12
 21.83   0.23 | 53.17   0.28 | 84.50   0.43 |115.83   0.14
|147.17   0.11
 21.92   0.23 | 53.25   0.28 | 84.58   0.44 |115.92   0.14
|147.25   0.12
 22.00   0.23 | 53.33   0.28 | 84.67   0.42 |116.00   0.15
|147.33   0.12
 22.08   0.22 | 53.42   0.28 | 84.75   0.44 |116.08   0.14
|147.42   0.11
 22.17   0.22 | 53.50   0.28 | 84.83   0.45 |116.17   0.15
|147.50   0.11
 22.25   0.22 | 53.58   0.29 | 84.92   0.45 |116.25   0.14
|147.58   0.11
 22.33   0.22 | 53.67   0.29 | 85.00   0.46 |116.33   0.14
|147.67   0.11
 22.42   0.21 | 53.75   0.29 | 85.08   0.47 |116.42   0.14
|147.75   0.11
 22.50   0.21 | 53.83   0.30 | 85.17   0.46 |116.50   0.14
|147.83   0.11
 22.58   0.21 | 53.92   0.30 | 85.25   0.46 |116.58   0.14
|147.92   0.11
 22.67   0.21 | 54.00   0.30 | 85.33   0.44 |116.67   0.14
|148.00   0.11
 22.75   0.21 | 54.08   0.30 | 85.42   0.45 |116.75   0.14
|148.08   0.11
 22.83   0.20 | 54.17   0.31 | 85.50   0.45 |116.83   0.14
|148.17   0.11
 22.92   0.20 | 54.25   0.30 | 85.58   0.45 |116.92   0.14
|148.25   0.11
 23.00   0.20 | 54.33   0.31 | 85.67   0.45 |117.00   0.14
|148.33   0.11
 23.08   0.20 | 54.42   0.30 | 85.75   0.46 |117.08   0.14
|148.42   0.11
 23.17   0.20 | 54.50   0.31 | 85.83   0.45 |117.17   0.14
|148.50   0.11
 23.25   0.20 | 54.58   0.32 | 85.92   0.47 |117.25   0.14
|148.58   0.11
 23.33   0.19 | 54.67   0.32 | 86.00   0.44 |117.33   0.14
|148.67   0.11
 23.42   0.19 | 54.75   0.32 | 86.08   0.45 |117.42   0.14
|148.75   0.11
 23.50   0.19 | 54.83   0.32 | 86.17   0.43 |117.50   0.14
|148.83   0.11
 23.58   0.19 | 54.92   0.32 | 86.25   0.43 |117.58   0.14
|148.92   0.11
 23.67   0.19 | 55.00   0.32 | 86.33   0.43 |117.67   0.13
|149.00   0.11
 23.75   0.18 | 55.08   0.32 | 86.42   0.43 |117.75   0.13
|149.08   0.11
 23.83   0.18 | 55.17   0.32 | 86.50   0.45 |117.83   0.14
|149.17   0.11
 23.92   0.18 | 55.25   0.33 | 86.58   0.42 |117.92   0.13
|149.25   0.11
 24.00   0.18 | 55.33   0.33 | 86.67   0.42 |118.00   0.13
|149.33   0.11
 24.08   0.18 | 55.42   0.33 | 86.75   0.43 |118.08   0.13
|149.42   0.11
 24.17   0.18 | 55.50   0.33 | 86.83   0.41 |118.17   0.13
|149.50   0.11
 24.25   0.17 | 55.58   0.32 | 86.92   0.40 |118.25   0.13
|149.58   0.11
 24.33   0.18 | 55.67   0.32 | 87.00   0.40 |118.33   0.13
|149.67   0.11
 24.42   0.17 | 55.75   0.32 | 87.08   0.39 |118.42   0.13
|149.75   0.11
 24.50   0.17 | 55.83   0.32 | 87.17   0.39 |118.50   0.13
|149.83   0.11
 24.58   0.17 | 55.92   0.32 | 87.25   0.39 |118.58   0.13
|149.92   0.11
 24.67   0.17 | 56.00   0.32 | 87.33   0.37 |118.67   0.13
|150.00   0.11
 24.75   0.16 | 56.08   0.32 | 87.42   0.37 |118.75   0.13
|150.08   0.11
 24.83   0.16 | 56.17   0.32 | 87.50   0.38 |118.83   0.13
|150.17   0.11
 24.92   0.16 | 56.25   0.32 | 87.58   0.37 |118.92   0.13
|150.25   0.11
 25.00   0.16 | 56.33   0.32 | 87.67   0.36 |119.00   0.13
|150.33   0.11
 25.08   0.16 | 56.42   0.32 | 87.75   0.38 |119.08   0.13
|150.42   0.11
 25.17   0.16 | 56.50   0.32 | 87.83   0.38 |119.17   0.13
|150.50   0.11
 25.25   0.16 | 56.58   0.31 | 87.92   0.34 |119.25   0.13
|150.58   0.11
 25.33   0.15 | 56.67   0.31 | 88.00   0.35 |119.33   0.13
|150.67   0.11
 25.42   0.16 | 56.75   0.32 | 88.08   0.34 |119.42   0.13
|150.75   0.11
 25.50   0.15 | 56.83   0.31 | 88.17   0.35 |119.50   0.13
|150.83   0.11
 25.58   0.15 | 56.92   0.31 | 88.25   0.34 |119.58   0.13
|150.92   0.11
 25.67   0.15 | 57.00   0.31 | 88.33   0.36 |119.67   0.13
|151.00   0.11
 25.75   0.15 | 57.08   0.31 | 88.42   0.33 |119.75   0.13
|151.08   0.11
 25.83   0.15 | 57.17   0.31 | 88.50   0.33 |119.83   0.13
|151.17   0.11
 25.92   0.15 | 57.25   0.31 | 88.58   0.34 |119.92   0.13
|151.25   0.11
 26.00   0.15 | 57.33   0.30 | 88.67   0.33 |120.00   0.13
|151.33   0.11
 26.08   0.15 | 57.42   0.30 | 88.75   0.33 |120.08   0.13
|151.42   0.11
 26.17   0.15 | 57.50   0.30 | 88.83   0.32 |120.17   0.13
|151.50   0.11
 26.25   0.14 | 57.58   0.30 | 88.92   0.30 |120.25   0.14
|151.58   0.11
 26.33   0.14 | 57.67   0.31 | 89.00   0.31 |120.33   0.14
|151.67   0.11
 26.42   0.14 | 57.75   0.30 | 89.08   0.31 |120.42   0.13
|151.75   0.11
 26.50   0.14 | 57.83   0.30 | 89.17   0.30 |120.50   0.14
|151.83   0.11
 26.58   0.14 | 57.92   0.30 | 89.25   0.31 |120.58   0.14
|151.92   0.11
 26.67   0.14 | 58.00   0.29 | 89.33   0.32 |120.67   0.14
|152.00   0.11
 26.75   0.14 | 58.08   0.29 | 89.42   0.31 |120.75   0.14
|152.08   0.11
 26.83   0.14 | 58.17   0.29 | 89.50   0.30 |120.83   0.14
|152.17   0.11
 26.92   0.14 | 58.25   0.29 | 89.58   0.29 |120.92   0.14
|152.25   0.11
 27.00   0.14 | 58.33   0.29 | 89.67   0.29 |121.00   0.14
|152.33   0.10
 27.08   0.13 | 58.42   0.29 | 89.75   0.29 |121.08   0.14
|152.42   0.11
 27.17   0.13 | 58.50   0.29 | 89.83   0.28 |121.17   0.14
|152.50   0.11
 27.25   0.13 | 58.58   0.29 | 89.92   0.30 |121.25   0.14
|152.58   0.10
 27.33   0.13 | 58.67   0.28 | 90.00   0.31 |121.33   0.14
|152.67   0.10
 27.42   0.13 | 58.75   0.28 | 90.08   0.31 |121.42   0.14
|152.75   0.10
 27.50   0.13 | 58.83   0.28 | 90.17   0.30 |121.50   0.14
|152.83   0.10
 27.58   0.13 | 58.92   0.29 | 90.25   0.30 |121.58   0.14
|152.92   0.10
 27.67   0.13 | 59.00   0.29 | 90.33   0.31 |121.67   0.14
|153.00   0.11
 27.75   0.13 | 59.08   0.29 | 90.42   0.30 |121.75   0.14
|153.08   0.10
 27.83   0.13 | 59.17   0.28 | 90.50   0.31 |121.83   0.14
|153.17   0.10
 27.92   0.12 | 59.25   0.28 | 90.58   0.31 |121.92   0.14
|153.25   0.11
 28.00   0.13 | 59.33   0.28 | 90.67   0.31 |122.00   0.15
|153.33   0.10
 28.08   0.12 | 59.42   0.27 | 90.75   0.31 |122.08   0.14
|153.42   0.11
 28.17   0.12 | 59.50   0.27 | 90.83   0.30 |122.17   0.14
|153.50   0.10
 28.25   0.12 | 59.58   0.27 | 90.92   0.31 |122.25   0.14
|153.58   0.10
 28.33   0.12 | 59.67   0.26 | 91.00   0.30 |122.33   0.14
|153.67   0.10
 28.42   0.12 | 59.75   0.26 | 91.08   0.30 |122.42   0.15
|153.75   0.11
 28.50   0.12 | 59.83   0.26 | 91.17   0.32 |122.50   0.15
|153.83   0.10
 28.58   0.12 | 59.92   0.26 | 91.25   0.30 |122.58   0.15
|153.92   0.10
 28.67   0.12 | 60.00   0.25 | 91.33   0.28 |122.67   0.14
|154.00   0.10
 28.75   0.12 | 60.08   0.25 | 91.42   0.30 |122.75   0.15
|154.08   0.10
 28.83   0.12 | 60.17   0.25 | 91.50   0.28 |122.83   0.14
|154.17   0.10
 28.92   0.12 | 60.25   0.25 | 91.58   0.31 |122.92   0.14
|154.25   0.10
 29.00   0.12 | 60.33   0.25 | 91.67   0.28 |123.00   0.15
|154.33   0.10
 29.08   0.12 | 60.42   0.24 | 91.75   0.30 |123.08   0.15
|154.42   0.10
 29.17   0.11 | 60.50   0.24 | 91.83   0.31 |123.17   0.15
|154.50   0.10
 29.25   0.11 | 60.58   0.24 | 91.92   0.27 |123.25   0.15
|154.58   0.10
 29.33   0.11 | 60.67   0.23 | 92.00   0.28 |123.33   0.15
|154.67   0.10
 29.42   0.11 | 60.75   0.24 | 92.08   0.29 |123.42   0.15
|154.75   0.10
 29.50   0.11 | 60.83   0.23 | 92.17   0.27 |123.50   0.15
|154.83   0.10
 29.58   0.11 | 60.92   0.23 | 92.25   0.28 |123.58   0.15
|154.92   0.10
 29.67   0.11 | 61.00   0.23 | 92.33   0.28 |123.67   0.15
|155.00   0.10
 29.75   0.11 | 61.08   0.23 | 92.42   0.31 |123.75   0.15
|155.08   0.10
 29.83   0.11 | 61.17   0.23 | 92.50   0.28 |123.83   0.15
|155.17   0.10
 29.92   0.11 | 61.25   0.22 | 92.58   0.28 |123.92   0.15
|155.25   0.10
 30.00   0.11 | 61.33   0.23 | 92.67   0.28 |124.00   0.15
|155.33   0.10
 30.08   0.11 | 61.42   0.23 | 92.75   0.28 |124.08   0.15
|155.42   0.10
 30.17   0.11 | 61.50   0.24 | 92.83   0.27 |124.17   0.15
|155.50   0.10
 30.25   0.11 | 61.58   0.24 | 92.92   0.28 |124.25   0.15
|155.58   0.10
 30.33   0.11 | 61.67   0.23 | 93.00   0.28 |124.33   0.14
|155.67   0.10
 30.42   0.11 | 61.75   0.23 | 93.08   0.27 |124.42   0.15
|155.75   0.10
 30.50   0.11 | 61.83   0.23 | 93.17   0.29 |124.50   0.15
|155.83   0.10
 30.58   0.11 | 61.92   0.23 | 93.25   0.28 |124.58   0.16
|155.92   0.10
 30.67   0.11 | 62.00   0.23 | 93.33   0.26 |124.67   0.15
|156.00   0.10
 30.75   0.11 | 62.08   0.23 | 93.42   0.27 |124.75   0.15
|156.08   0.10
 30.83   0.11 | 62.17   0.23 | 93.50   0.27 |124.83   0.15
|156.17   0.10
 30.92   0.11 | 62.25   0.23 | 93.58   0.26 |124.92   0.17
|156.25   0.10
 31.00   0.11 | 62.33   0.24 | 93.67   0.26 |125.00   0.16 |
 31.08   0.10 | 62.42   0.25 | 93.75   0.28 |125.08   0.16 |
 31.17   0.10 | 62.50   0.25 | 93.83   0.25 |125.17   0.16 |
 31.25   0.10 | 62.58   0.26 | 93.92   0.28 |125.25   0.16 |
----------------------------------------------------------------------
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--------------------
| STORE HYD (1605) |   AREA      (ha)=  30.00
| ID= 1 DT= 5.0min |   QPEAK    (cms)=   1.37
--------------------   TPEAK    (hrs)=  71.92
                       VOLUME    (mm)= 625.27

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |'  TIME    FLOW |
TIME   FLOW
   hrs    cms |   hrs    cms |   hrs    cms |'   hrs    cms |
hrs    cms
  0.00   0.00 | 31.25   0.15 | 62.50   0.38 | 93.75   0.37
|125.00   0.20
  0.08   0.00 | 31.33   0.15 | 62.58   0.38 | 93.83   0.36
|125.08   0.20
  0.17   0.00 | 31.42   0.15 | 62.67   0.38 | 93.92   0.36
|125.17   0.20
  0.25   0.00 | 31.50   0.15 | 62.75   0.38 | 94.00   0.36
|125.25   0.20
  0.33   0.00 | 31.58   0.15 | 62.83   0.38 | 94.08   0.36
|125.33   0.20
  0.42   0.00 | 31.67   0.15 | 62.92   0.38 | 94.17   0.36
|125.42   0.20
  0.50   0.00 | 31.75   0.15 | 63.00   0.37 | 94.25   0.36
|125.50   0.20
  0.58   0.00 | 31.83   0.14 | 63.08   0.38 | 94.33   0.36
|125.58   0.20
  0.67   0.00 | 31.92   0.14 | 63.17   0.37 | 94.42   0.36
|125.67   0.21
  0.75   0.00 | 32.00   0.14 | 63.25   0.37 | 94.50   0.36
|125.75   0.21
  0.83   0.00 | 32.08   0.14 | 63.33   0.37 | 94.58   0.36
|125.83   0.21
  0.92   0.00 | 32.17   0.14 | 63.42   0.37 | 94.67   0.36
|125.92   0.21
  1.00   0.00 | 32.25   0.14 | 63.50   0.37 | 94.75   0.36
|126.00   0.21
  1.08   0.00 | 32.33   0.14 | 63.58   0.37 | 94.83   0.36
|126.08   0.21
  1.17   0.00 | 32.42   0.14 | 63.67   0.36 | 94.92   0.35
|126.17   0.21
  1.25   0.00 | 32.50   0.14 | 63.75   0.36 | 95.00   0.35
|126.25   0.21
  1.33   0.00 | 32.58   0.14 | 63.83   0.36 | 95.08   0.35
|126.33   0.21
  1.42   0.00 | 32.67   0.14 | 63.92   0.36 | 95.17   0.35
|126.42   0.22
  1.50   0.00 | 32.75   0.14 | 64.00   0.36 | 95.25   0.35
|126.50   0.22
  1.58   0.00 | 32.83   0.14 | 64.08   0.36 | 95.33   0.35
|126.58   0.22
  1.67   0.00 | 32.92   0.14 | 64.17   0.36 | 95.42   0.35
|126.67   0.22
  1.75   0.00 | 33.00   0.14 | 64.25   0.35 | 95.50   0.35
|126.75   0.22
  1.83   0.00 | 33.08   0.14 | 64.33   0.35 | 95.58   0.34
|126.83   0.22
  1.92   0.00 | 33.17   0.14 | 64.42   0.35 | 95.67   0.34
|126.92   0.23
  2.00   0.00 | 33.25   0.14 | 64.50   0.35 | 95.75   0.34
|127.00   0.23
  2.08   0.00 | 33.33   0.14 | 64.58   0.34 | 95.83   0.34
|127.08   0.23
  2.17   0.00 | 33.42   0.14 | 64.67   0.34 | 95.92   0.34
|127.17   0.23
  2.25   0.00 | 33.50   0.14 | 64.75   0.34 | 96.00   0.34
|127.25   0.23
  2.33   0.00 | 33.58   0.14 | 64.83   0.34 | 96.08   0.34
|127.33   0.24
  2.42   0.00 | 33.67   0.14 | 64.92   0.34 | 96.17   0.34
|127.42   0.24
  2.50   0.00 | 33.75   0.14 | 65.00   0.34 | 96.25   0.34
|127.50   0.24
  2.58   0.00 | 33.83   0.14 | 65.08   0.34 | 96.33   0.34
|127.58   0.24
  2.67   0.00 | 33.92   0.14 | 65.17   0.34 | 96.42   0.34
|127.67   0.24
  2.75   0.00 | 34.00   0.14 | 65.25   0.34 | 96.50   0.34
|127.75   0.24
  2.83   0.00 | 34.08   0.14 | 65.33   0.34 | 96.58   0.34
|127.83   0.25
  2.92   0.00 | 34.17   0.14 | 65.42   0.34 | 96.67   0.34
|127.92   0.25
  3.00   0.00 | 34.25   0.14 | 65.50   0.34 | 96.75   0.33
|128.00   0.25
  3.08   0.00 | 34.33   0.14 | 65.58   0.33 | 96.83   0.33
|128.08   0.25
  3.17   0.00 | 34.42   0.14 | 65.67   0.34 | 96.92   0.33
|128.17   0.25
  3.25   0.00 | 34.50   0.14 | 65.75   0.33 | 97.00   0.33
|128.25   0.25
  3.33   0.00 | 34.58   0.14 | 65.83   0.33 | 97.08   0.33
|128.33   0.25
  3.42   0.00 | 34.67   0.14 | 65.92   0.33 | 97.17   0.33
|128.42   0.25
  3.50   0.00 | 34.75   0.14 | 66.00   0.33 | 97.25   0.33
|128.50   0.25
  3.58   0.00 | 34.83   0.14 | 66.08   0.32 | 97.33   0.33
|128.58   0.26
  3.67   0.00 | 34.92   0.14 | 66.17   0.33 | 97.42   0.33
|128.67   0.26
  3.75   0.00 | 35.00   0.14 | 66.25   0.33 | 97.50   0.33
|128.75   0.26
  3.83   0.00 | 35.08   0.14 | 66.33   0.32 | 97.58   0.33
|128.83   0.26
  3.92   0.00 | 35.17   0.14 | 66.42   0.32 | 97.67   0.33
|128.92   0.26
  4.00   0.00 | 35.25   0.14 | 66.50   0.33 | 97.75   0.33
|129.00   0.26
  4.08   0.00 | 35.33   0.14 | 66.58   0.32 | 97.83   0.33
|129.08   0.26
  4.17   0.00 | 35.42   0.14 | 66.67   0.32 | 97.92   0.33
|129.17   0.26
  4.25   0.00 | 35.50   0.14 | 66.75   0.32 | 98.00   0.32
|129.25   0.27
  4.33   0.00 | 35.58   0.14 | 66.83   0.32 | 98.08   0.32
|129.33   0.27
  4.42   0.00 | 35.67   0.14 | 66.92   0.32 | 98.17   0.32
|129.42   0.27
```

4.50	0.00	35.75	0.14	67.00	0.32	98.25	0.32	129.50	0.27
4.58	0.00	35.83	0.14	67.08	0.32	98.33	0.32	129.58	0.28
4.67	0.00	35.92	0.14	67.17	0.32	98.42	0.32	129.67	0.28
4.75	0.00	36.00	0.14	67.25	0.32	98.50	0.32	129.75	0.28
4.83	0.00	36.08	0.14	67.33	0.33	98.58	0.32	129.83	0.29
4.92	0.00	36.17	0.14	67.42	0.34	98.67	0.32	129.92	0.29
5.00	0.00	36.25	0.14	67.50	0.34	98.75	0.32	130.00	0.29
5.08	0.00	36.33	0.15	67.58	0.35	98.83	0.32	130.08	0.29
5.17	0.00	36.42	0.15	67.67	0.35	98.92	0.32	130.17	0.29
5.25	0.00	36.50	0.15	67.75	0.36	99.00	0.32	130.25	0.29
5.33	0.00	36.58	0.15	67.83	0.37	99.08	0.32	130.33	0.29
5.42	0.00	36.67	0.15	67.92	0.38	99.17	0.32	130.42	0.29
5.50	0.00	36.75	0.15	68.00	0.40	99.25	0.32	130.50	0.29
5.58	0.00	36.83	0.15	68.08	0.41	99.33	0.32	130.58	0.29
5.67	0.00	36.92	0.15	68.17	0.42	99.42	0.32	130.67	0.29
5.75	0.00	37.00	0.15	68.25	0.43	99.50	0.32	130.75	0.29
5.83	0.00	37.08	0.15	68.33	0.45	99.58	0.31	130.83	0.29
5.92	0.00	37.17	0.15	68.42	0.47	99.67	0.31	130.92	0.29
6.00	0.00	37.25	0.15	68.50	0.48	99.75	0.31	131.00	0.29
6.08	0.00	37.33	0.15	68.58	0.50	99.83	0.31	131.08	0.29
6.17	0.00	37.42	0.15	68.67	0.52	99.92	0.31	131.17	0.29
6.25	0.00	37.50	0.15	68.75	0.53	100.00	0.31	131.25	0.29
6.33	0.00	37.58	0.15	68.83	0.56	100.08	0.31	131.33	0.29
6.42	0.00	37.67	0.15	68.92	0.57	100.17	0.31	131.42	0.29
6.50	0.00	37.75	0.16	69.00	0.58	100.25	0.31	131.50	0.29
6.58	0.00	37.83	0.16	69.08	0.60	100.33	0.31	131.58	0.28
6.67	0.00	37.92	0.16	69.17	0.61	100.42	0.31	131.67	0.28
6.75	0.00	38.00	0.16	69.25	0.63	100.50	0.30	131.75	0.28
6.83	0.00	38.08	0.16	69.33	0.63	100.58	0.30	131.83	0.28
6.92	0.00	38.17	0.16	69.42	0.64	100.67	0.30	131.92	0.28
7.00	0.00	38.25	0.16	69.50	0.66	100.75	0.30	132.00	0.28
7.08	0.00	38.33	0.16	69.58	0.68	100.83	0.30	132.08	0.28
7.17	0.00	38.42	0.16	69.67	0.70	100.92	0.30	132.17	0.28
7.25	0.00	38.50	0.16	69.75	0.71	101.00	0.30	132.25	0.28
7.33	0.00	38.58	0.16	69.83	0.74	101.08	0.30	132.33	0.28
7.42	0.00	38.67	0.17	69.92	0.76	101.17	0.30	132.42	0.28
7.50	0.00	38.75	0.17	70.00	0.78	101.25	0.30	132.50	0.27
7.58	0.00	38.83	0.17	70.08	0.80	101.33	0.29	132.58	0.27
7.67	0.00	38.92	0.17	70.17	0.82	101.42	0.29	132.67	0.27
7.75	0.00	39.00	0.17	70.25	0.84	101.50	0.29	132.75	0.27
7.83	0.00	39.08	0.17	70.33	0.87	101.58	0.29	132.83	0.27
7.92	0.00	39.17	0.17	70.42	0.91	101.67	0.29	132.92	0.27
8.00	0.00	39.25	0.18	70.50	0.94	101.75	0.28	133.00	0.27
8.08	0.00	39.33	0.18	70.58	0.98	101.83	0.28	133.08	0.27
8.17	0.00	39.42	0.18	70.67	1.01	101.92	0.28	133.17	0.27
8.25	0.00	39.50	0.18	70.75	1.04	102.00	0.28	133.25	0.26
8.33	0.00	39.58	0.19	70.83	1.09	102.08	0.28	133.33	0.26
8.42	0.00	39.67	0.19	70.92	1.14	102.17	0.28	133.42	0.26
8.50	0.00	39.75	0.19	71.00	1.20	102.25	0.28	133.50	0.26
8.58	0.00	39.83	0.19	71.08	1.23	102.33	0.28	133.58	0.26
8.67	0.00	39.92	0.20	71.17	1.25	102.42	0.27	133.67	0.26
8.75	0.00	40.00	0.20	71.25	1.30	102.50	0.27	133.75	0.26
8.83	0.00	40.08	0.20	71.33	1.32	102.58	0.27	133.83	0.25
8.92	0.00	40.17	0.21	71.42	1.33	102.67	0.27	133.92	0.25
9.00	0.00	40.25	0.21	71.50	1.34	102.75	0.27	134.00	0.25
9.08	0.00	40.33	0.21	71.58	1.36	102.83	0.27	134.08	0.25
9.17	0.00	40.42	0.22	71.67	1.36	102.92	0.27	134.17	0.25
9.25	0.00	40.50	0.22	71.75	1.36	103.00	0.27	134.25	0.25
9.33	0.00	40.58	0.22	71.83	1.37	103.08	0.27	134.33	0.25
9.42	0.00	40.67	0.23	71.92	1.37	103.17	0.27	134.42	0.25
9.50	0.00	40.75	0.23	72.00	1.36	103.25	0.26	134.50	0.25
9.58	0.00	40.83	0.24	72.08	1.35	103.33	0.26	134.58	0.24
9.67	0.00	40.92	0.24	72.17	1.35	103.42	0.26	134.67	0.24
9.75	0.00	41.00	0.24	72.25	1.33	103.50	0.26	134.75	0.24
9.83	0.00	41.08	0.25	72.33	1.32	103.58	0.26	134.83	0.24
9.92	0.00	41.17	0.25	72.42	1.31	103.67	0.26	134.92	0.24
10.00	0.00	41.25	0.26	72.50	1.29	103.75	0.25	135.00	0.24
10.08	0.00	41.33	0.27	72.58	1.27	103.83	0.25	135.08	0.24
10.17	0.00	41.42	0.27	72.67	1.26	103.92	0.25	135.17	0.24
10.25	0.00	41.50	0.28	72.75	1.23	104.00	0.25	135.25	0.24
10.33	0.00	41.58	0.29	72.83	1.23	104.08	0.25	135.33	0.23
10.42	0.00	41.67	0.29	72.92	1.21	104.17	0.25	135.42	0.23
10.50	0.00	41.75	0.30	73.00	1.20	104.25	0.25	135.50	0.23
10.58	0.00	41.83	0.30	73.08	1.17	104.33	0.25	135.58	0.23
10.67	0.00	41.92	0.31	73.17	1.17	104.42	0.24	135.67	0.23
10.75	0.00	42.00	0.32	73.25	1.16	104.50	0.24	135.75	0.23
10.83	0.00	42.08	0.32	73.33	1.15	104.58	0.24	135.83	0.23
10.92	0.00	42.17	0.33	73.42	1.12	104.67	0.24	135.92	0.23
11.00	0.00	42.25	0.33	73.50	1.12	104.75	0.24	136.00	0.22
11.08	0.00	42.33	0.34	73.58	1.11	104.83	0.24	136.08	0.22
11.17	0.00	42.42	0.34	73.67	1.09	104.92	0.24	136.17	0.22
11.25	0.00	42.50	0.35	73.75	1.08	105.00	0.24	136.25	0.22
11.33	0.00	42.58	0.36	73.83	1.06	105.08	0.24	136.33	0.22
11.42	0.00	42.67	0.36	73.92	1.05	105.17	0.23	136.42	0.22
11.50	0.00	42.75	0.37	74.00	1.03	105.25	0.23	136.50	0.22
11.58	0.00	42.83	0.38	74.08	1.03	105.33	0.23	136.58	0.22
11.67	0.00	42.92	0.39	74.17	1.02	105.42	0.23	136.67	0.21
11.75	0.00	43.00	0.40	74.25	1.00	105.50	0.23	136.75	0.21
11.83	0.00	43.08	0.40	74.33	0.99	105.58	0.23	136.83	0.21
11.92	0.00	43.17	0.42	74.42	0.97	105.67	0.23	136.92	0.21
12.00	0.00	43.25	0.42	74.50	0.96	105.75	0.23	137.00	0.21
12.08	0.00	43.33	0.43	74.58	0.95	105.83	0.23	137.08	0.21
12.17	0.00	43.42	0.44	74.67	0.94	105.92	0.23	137.17	0.21
12.25	0.00	43.50	0.45	74.75	0.92	106.00	0.22	137.25	0.21
12.33	0.00	43.58	0.46	74.83	0.91	106.08	0.22	137.33	0.21
12.42	0.00	43.67	0.47	74.92	0.89	106.17	0.22	137.42	0.21
12.50	0.00	43.75	0.48	75.00	0.88	106.25	0.22	137.50	0.20
12.58	0.00	43.83	0.49	75.08	0.87	106.33	0.22	137.58	0.20
12.67	0.00	43.92	0.50	75.17	0.85	106.42	0.22	137.67	0.20
12.75	0.00	44.00	0.50	75.25	0.84	106.50	0.22	137.75	0.20
12.83	0.00	44.08	0.51	75.33	0.83	106.58	0.22	137.83	0.20
12.92	0.00	44.17	0.51	75.42	0.81	106.67	0.22	137.92	0.20
13.00	0.00	44.25	0.52	75.50	0.80	106.75	0.21	138.00	0.20
13.08	0.00	44.33	0.52	75.58	0.79	106.83	0.21	138.08	0.20
13.17	0.00	44.42	0.53	75.67	0.77	106.92	0.21	138.17	0.20
13.25	0.00	44.50	0.53	75.75	0.77	107.00	0.21	138.25	0.19
13.33	0.00	44.58	0.53	75.83	0.76	107.08	0.21	138.33	0.19
13.42	0.00	44.67	0.54	75.92	0.74	107.17	0.21	138.42	0.19
13.50	0.00	44.75	0.54	76.00	0.74	107.25	0.21	138.50	0.19
13.58	0.00	44.83	0.54	76.08	0.72	107.33	0.21	138.58	0.19
13.67	0.00	44.92	0.55	76.17	0.72	107.42	0.21	138.67	0.19
13.75	0.00	45.00	0.55	76.25	0.71	107.50	0.21	138.75	0.19
13.83	0.00	45.08	0.55	76.33	0.70	107.58	0.21	138.83	0.19
13.92	0.00	45.17	0.55	76.42	0.69	107.67	0.21	138.92	0.19
14.00	0.00	45.25	0.55	76.50	0.68	107.75	0.20	139.00	0.19
14.08	0.00	45.33	0.55	76.58	0.68	107.83	0.20	139.08	0.19
14.17	0.00	45.42	0.55	76.67	0.68	107.92	0.20	139.17	0.18
14.25	0.00	45.50	0.55	76.75	0.66	108.00	0.20	139.25	0.18
14.33	0.00	45.58	0.55	76.83	0.65	108.08	0.20	139.33	0.18
14.42	0.00	45.67	0.55	76.92	0.65	108.17	0.20	139.42	0.18
14.50	0.00	45.75	0.55	77.00	0.64	108.25	0.20	139.50	0.18
14.58	0.00	45.83	0.55	77.08	0.63	108.33	0.20	139.58	0.18
14.67	0.00	45.92	0.55	77.17	0.63	108.42	0.20	139.67	0.18
14.75	0.99	46.00	0.54	77.25	0.63	108.50	0.20	139.75	0.18
14.83	0.99	46.08	0.54	77.33	0.62	108.58	0.20	139.83	0.18
14.92	1.00	46.17	0.54	77.42	0.61	108.67	0.20	139.92	0.18
15.00	1.00	46.25	0.54	77.50	0.60	108.75	0.19	140.00	0.18
15.08	1.01	46.33	0.53	77.58	0.60	108.83	0.19	140.08	0.18
15.17	1.01	46.42	0.53	77.67	0.59	108.92	0.19	140.17	0.18
15.25	1.02	46.50	0.53	77.75	0.59	109.00	0.19	140.25	0.18
15.33	1.03	46.58	0.52	77.83	0.58	109.08	0.19	140.33	0.18
15.42	1.04	46.67	0.52	77.92	0.58	109.17	0.19	140.42	0.17
15.50	1.05	46.75	0.52	78.00	0.58	109.25	0.19	140.50	0.17
15.58	1.06	46.83	0.52	78.08	0.58	109.33	0.19	140.58	0.17
15.67	1.07	46.92	0.51	78.17	0.57	109.42	0.19	140.67	0.17
15.75	1.08	47.00	0.51	78.25	0.56	109.50	0.19	140.75	0.17
15.83	1.08	47.08	0.51	78.33	0.56	109.58	0.19	140.83	0.17
15.92	1.08	47.17	0.51	78.42	0.55	109.67	0.18	140.92	0.17
16.00	1.09	47.25	0.51	78.50	0.55	109.75	0.18	141.00	0.17
16.08	1.09	47.33	0.51	78.58	0.55	109.83	0.18	141.08	0.17
16.17	1.09	47.42	0.51	78.67	0.55	109.92	0.18	141.17	0.17
16.25	1.09	47.50	0.50	78.75	0.54	110.00	0.18	141.25	0.17
16.33	1.09	47.58	0.50	78.83	0.54	110.08	0.18	141.33	0.17
16.42	1.09	47.67	0.50	78.92	0.54	110.17	0.18	141.42	0.17
16.50	1.09	47.75	0.50	79.00	0.54	110.25	0.18	141.50	0.16
16.58	1.10	47.83	0.50	79.08	0.53	110.33	0.18	141.58	0.16
16.67	1.09	47.92	0.50	79.17	0.52	110.42	0.18	141.67	0.16
16.75	1.09	48.00	0.50	79.25	0.52	110.50	0.18	141.75	0.16
16.83	1.08	48.08	0.50	79.33	0.51	110.58	0.18	141.83	0.16
16.92	1.09	48.17	0.49	79.42	0.50	110.67	0.18	141.92	0.16
17.00	1.08	48.25	0.49	79.50	0.50	110.75	0.18	142.00	0.16
17.08	1.07	48.33	0.49	79.58	0.49	110.83	0.18	142.08	0.16
17.17	1.06	48.42	0.49	79.67	0.49	110.92	0.18	142.17	0.16
17.25	1.06	48.50	0.49	79.75	0.48	111.00	0.18	142.25	0.16
17.33	1.05	48.58	0.49	79.83	0.48	111.08	0.18	142.33	0.16
17.42	1.04	48.67	0.48	79.92	0.48	111.17	0.18	142.42	0.16
17.50	1.04	48.75	0.48	80.00	0.47	111.25	0.18	142.50	0.16
17.58	1.03	48.83	0.48	80.08	0.47	111.33	0.18	142.58	0.16
17.67	1.02	48.92	0.48	80.17	0.46	111.42	0.18	142.67	0.16
17.75	1.01	49.00	0.47	80.25	0.46	111.50	0.18	142.75	0.16
17.83	1.00	49.08	0.47	80.33	0.46	111.58	0.18	142.83	0.16
17.92	0.99	49.17	0.47	80.42	0.45	111.67	0.18	142.92	0.16
18.00	0.98	49.25	0.47	80.50	0.45	111.75	0.18	143.00	0.16
18.08	0.97	49.33	0.47	80.58	0.45	111.83	0.17	143.08	0.15
18.17	0.96	49.42	0.46	80.67	0.45	111.92	0.17	143.17	0.15
18.25	0.95	49.50	0.46	80.75	0.44	112.00	0.17	143.25	0.15
18.33	0.93	49.58	0.46	80.83	0.44	112.08	0.17	143.33	0.15
18.42	0.92	49.67	0.46	80.92	0.44	112.17	0.17	143.42	0.15
18.50	0.91	49.75	0.45	81.00	0.44	112.25	0.17	143.50	0.15
18.58	0.89	49.83	0.45	81.08	0.44	112.33	0.17	143.58	0.15
18.67	0.87	49.92	0.45	81.17	0.44	112.42	0.17	143.67	0.15
18.75	0.86	50.00	0.45	81.25	0.44	112.50	0.17	143.75	0.15
18.83	0.84	50.08	0.44	81.33	0.44	112.58	0.17	143.83	0.15
18.92	0.83	50.17	0.44	81.42	0.43	112.67	0.17	143.92	0.15
19.00	0.81	50.25	0.44	81.50	0.44	112.75	0.17	144.00	0.15
19.08	0.79	50.33	0.44	81.58	0.45	112.83	0.17	144.08	0.15
19.17	0.78	50.42	0.44	81.67	0.46	112.92	0.17	144.17	0.15
19.25	0.76	50.50	0.44	81.75	0.45	113.00	0.17	144.25	0.15
19.33	0.74	50.58	0.44	81.83	0.46	113.08	0.17	144.33	0.15
19.42	0.72	50.67	0.44	81.92	0.46	113.17	0.16	144.42	0.15
19.50	0.71	50.75	0.43	82.00	0.47	113.25	0.16	144.50	0.15
19.58	0.69	50.83	0.43	82.08	0.47	113.33	0.16	144.58	0.15
19.67	0.68	50.92	0.43	82.17	0.47	113.42	0.16	144.67	0.15
19.75	0.66	51.00	0.43	82.25	0.48	113.50	0.16	144.75	0.15
19.83	0.65	51.08	0.43	82.33	0.49	113.58	0.16	144.83	0.14
19.92	0.64	51.17	0.43	82.42	0.49	113.67	0.16	144.92	0.14
20.00	0.62	51.25	0.43	82.50	0.49	113.75	0.16	145.00	0.14
20.08	0.61	51.33	0.43	82.58	0.49	113.83	0.16	145.08	0.14
20.17	0.60	51.42	0.43	82.67	0.50	113.92	0.16	145.17	0.14
20.25	0.58	51.50	0.43	82.75	0.50	114.00	0.16	145.25	0.14
20.33	0.58	51.58	0.43	82.83	0.50	114.08	0.16	145.33	0.14
20.42	0.56	51.67	0.43	82.92	0.50	114.17	0.16	145.42	0.14
20.50	0.55	51.75	0.43	83.00	0.50	114.25	0.16	145.50	0.14
20.58	0.54	51.83	0.43	83.08	0.50	114.33	0.16	145.58	0.14
20.67	0.53	51.92	0.43	83.17	0.51	114.42	0.16	145.67	0.14
20.75	0.52	52.00	0.43	83.25	0.51	114.50	0.16	145.75	0.14
20.83	0.51	52.08	0.43	83.33	0.51	114.58	0.16	145.83	0.14
20.92	0.50	52.17	0.43	83.42	0.51	114.67	0.16	145.92	0.14
21.00	0.49	52.25	0.43	83.50	0.52	114.75	0.16	146.00	0.14
21.08	0.49	52.33	0.43	83.58	0.52	114.83	0.16	146.08	0.14
21.17	0.48	52.42	0.43	83.67	0.53	114.92	0.16	146.17	0.14
21.25	0.47	52.50	0.43	83.75	0.53	115.00	0.16	146.25	0.14
21.33	0.47	52.58	0.43	83.83	0.54	115.08	0.16	146.33	0.14
21.42	0.46	52.67	0.43	83.92	0.55	115.17	0.16	146.42	0.14
21.50	0.45	52.75	0.43	84.00	0.56	115.25	0.16	146.50	0.14
21.58	0.45	52.83	0.43	84.08	0.57	115.33	0.16	146.58	0.14
21.67	0.44	52.92	0.44	84.17	0.58	115.42	0.16	146.67	0.14
21.75	0.43	53.00	0.44	84.25	0.60	115.50	0.16	146.75	0.14
21.83	0.43	53.08	0.44	84.33	0.62	115.58	0.16	146.83	0.14
21.92	0.42	53.17	0.44	84.42	0.64	115.67	0.16	146.92	0.13
22.00	0.42	53.25	0.44	84.50	0.66	115.75	0.16	147.00	0.13
22.08	0.41	53.33	0.45	84.58	0.69	115.83	0.16	147.08	0.13
22.17	0.41	53.42	0.45	84.67	0.72	115.92	0.16	147.17	0.13
22.25	0.40	53.50	0.45	84.75	0.74	116.00	0.16	147.25	0.13
22.33	0.40	53.58	0.45	84.83	0.77	116.08	0.15	147.33	0.13
22.42	0.39	53.67	0.46	84.92	0.79	116.17	0.15	147.42	0.13
22.50	0.39	53.75	0.46	85.00	0.81	116.25	0.16	147.50	0.13
22.58	0.38	53.83	0.46	85.08	0.82	116.33	0.16	147.58	0.13
22.67	0.38	53.92	0.46	85.17	0.84	116.42	0.16	147.67	0.13
22.75	0.37	54.00	0.47	85.25	0.85	116.50	0.16	147.75	0.13
22.83	0.37	54.08	0.47	85.33	0.85	116.58	0.16	147.83	0.13
22.92	0.36	54.17	0.47	85.42	0.86	116.67	0.16	147.92	0.13
23.00	0.36	54.25	0.48	85.50	0.87	116.75	0.16	148.00	0.13
23.08	0.36	54.33	0.48	85.58	0.86	116.83	0.16	148.08	0.13
23.17	0.35	54.42	0.49	85.67	0.87	116.92	0.16	148.17	0.13
23.25	0.35	54.50	0.49	85.75	0.86	117.00	0.16	148.25	0.13
23.33	0.34	54.58	0.50	85.83	0.85	117.08	0.16	148.33	0.13
23.42	0.34	54.67	0.50	85.92	0.85	117.17	0.16	148.42	0.13
23.50	0.34	54.75	0.51	86.00	0.84	117.25	0.16	148.50	0.13
23.58	0.33	54.83	0.52	86.08	0.83	117.33	0.16	148.58	0.13
23.67	0.33	54.92	0.53	86.17	0.82	117.42	0.16	148.67	0.13
23.75	0.32	55.00	0.53	86.25	0.81	117.50	0.16	148.75	0.13
23.83	0.32	55.08	0.54	86.33	0.81	117.58	0.16	148.83	0.13
23.92	0.32	55.17	0.55	86.42	0.79	117.67	0.16	148.92	0.13
24.00	0.31	55.25	0.55	86.50	0.78	117.75	0.16	149.00	0.13
24.08	0.31	55.33	0.55	86.58	0.77	117.83	0.16	149.08	0.13
24.17	0.30	55.42	0.56	86.67	0.76	117.92	0.16	149.17	0.13

```
 24.25    0.30 | 55.50    0.56 | 86.75    0.74 |118.00    0.16
|149.25    0.12
 24.33    0.30 | 55.58    0.57 | 86.83    0.74 |118.08    0.16
|149.33    0.12
 24.42    0.30 | 55.67    0.57 | 86.92    0.73 |118.17    0.16
|149.42    0.12
 24.50    0.29 | 55.75    0.58 | 87.00    0.71 |118.25    0.16
|149.50    0.12
 24.58    0.29 | 55.83    0.58 | 87.08    0.71 |118.33    0.16
|149.58    0.12
 24.67    0.29 | 55.92    0.58 | 87.17    0.70 |118.42    0.16
|149.67    0.12
 24.75    0.28 | 56.00    0.58 | 87.25    0.68 |118.50    0.16
|149.75    0.12
 24.83    0.28 | 56.08    0.58 | 87.33    0.68 |118.58    0.15
|149.83    0.12
 24.92    0.28 | 56.17    0.58 | 87.42    0.66 |118.67    0.15
|149.92    0.12
 25.00    0.27 | 56.25    0.58 | 87.50    0.66 |118.75    0.15
|150.00    0.12
 25.08    0.27 | 56.33    0.58 | 87.58    0.65 |118.83    0.15
|150.08    0.12
 25.17    0.27 | 56.42    0.58 | 87.67    0.64 |118.92    0.15
|150.17    0.12
 25.25    0.27 | 56.50    0.59 | 87.75    0.63 |119.00    0.15
|150.25    0.12
 25.33    0.26 | 56.58    0.59 | 87.83    0.62 |119.08    0.15
|150.33    0.12
 25.42    0.26 | 56.67    0.59 | 87.92    0.62 |119.17    0.15
|150.42    0.12
 25.50    0.26 | 56.75    0.59 | 88.00    0.61 |119.25    0.15
|150.50    0.12
 25.58    0.26 | 56.83    0.59 | 88.08    0.60 |119.33    0.15
|150.58    0.12
 25.67    0.25 | 56.92    0.59 | 88.17    0.59 |119.42    0.15
|150.67    0.12
 25.75    0.25 | 57.00    0.59 | 88.25    0.58 |119.50    0.15
|150.75    0.12
 25.83    0.25 | 57.08    0.59 | 88.33    0.58 |119.58    0.15
|150.83    0.12
 25.92    0.25 | 57.17    0.59 | 88.42    0.57 |119.67    0.15
|150.92    0.12
 26.00    0.24 | 57.25    0.59 | 88.50    0.57 |119.75    0.15
|151.00    0.12
 26.08    0.24 | 57.33    0.59 | 88.58    0.56 |119.83    0.16
|151.08    0.12
 26.17    0.24 | 57.42    0.59 | 88.67    0.55 |119.92    0.16
|151.17    0.12
 26.25    0.24 | 57.50    0.59 | 88.75    0.55 |120.00    0.16
|151.25    0.12
 26.33    0.23 | 57.58    0.58 | 88.83    0.54 |120.08    0.16
|151.33    0.12
 26.42    0.23 | 57.67    0.58 | 88.92    0.53 |120.17    0.16
|151.42    0.12
 26.50    0.23 | 57.75    0.58 | 89.00    0.53 |120.25    0.16
|151.50    0.12
 26.58    0.23 | 57.83    0.57 | 89.08    0.52 |120.33    0.16
|151.58    0.12
 26.67    0.23 | 57.92    0.57 | 89.17    0.51 |120.42    0.16
|151.67    0.12
 26.75    0.22 | 58.00    0.57 | 89.25    0.51 |120.50    0.16
|151.75    0.12
 26.83    0.22 | 58.08    0.57 | 89.33    0.50 |120.58    0.16
|151.83    0.12
 26.92    0.22 | 58.17    0.56 | 89.42    0.50 |120.67    0.16
|151.92    0.12
 27.00    0.22 | 58.25    0.56 | 89.50    0.49 |120.75    0.16
|152.00    0.12
 27.08    0.22 | 58.33    0.56 | 89.58    0.48 |120.83    0.16
|152.08    0.12
 27.17    0.21 | 58.42    0.55 | 89.67    0.48 |120.92    0.16
|152.17    0.12
 27.25    0.21 | 58.50    0.55 | 89.75    0.47 |121.00    0.16
|152.25    0.12
 27.33    0.21 | 58.58    0.54 | 89.83    0.47 |121.08    0.16
|152.33    0.11
 27.42    0.21 | 58.67    0.54 | 89.92    0.47 |121.17    0.17
|152.42    0.11
 27.50    0.21 | 58.75    0.53 | 90.00    0.47 |121.25    0.17
|152.50    0.11
 27.58    0.21 | 58.83    0.53 | 90.08    0.46 |121.33    0.17
|152.58    0.11
 27.67    0.20 | 58.92    0.52 | 90.17    0.46 |121.42    0.17
|152.67    0.11
 27.75    0.20 | 59.00    0.52 | 90.25    0.45 |121.50    0.17
|152.75    0.11
 27.83    0.20 | 59.08    0.52 | 90.33    0.45 |121.58    0.17
|152.83    0.11
 27.92    0.20 | 59.17    0.51 | 90.42    0.44 |121.67    0.17
|152.92    0.11
 28.00    0.19 | 59.25    0.51 | 90.50    0.44 |121.75    0.17
|153.00    0.11
 28.08    0.19 | 59.33    0.50 | 90.58    0.44 |121.83    0.17
|153.08    0.11
 28.17    0.19 | 59.42    0.50 | 90.67    0.43 |121.92    0.17
|153.17    0.11
 28.25    0.19 | 59.50    0.49 | 90.75    0.43 |122.00    0.17
|153.25    0.11
 28.33    0.19 | 59.58    0.49 | 90.83    0.43 |122.08    0.17
|153.33    0.11
 28.42    0.19 | 59.67    0.49 | 90.92    0.43 |122.17    0.17
|153.42    0.11
 28.50    0.19 | 59.75    0.48 | 91.00    0.42 |122.25    0.18
|153.50    0.11
 28.58    0.18 | 59.83    0.48 | 91.08    0.42 |122.33    0.18
|153.58    0.11
 28.67    0.18 | 59.92    0.47 | 91.17    0.42 |122.42    0.18
|153.67    0.11
 28.75    0.18 | 60.00    0.47 | 91.25    0.42 |122.50    0.18
|153.75    0.11
 28.83    0.18 | 60.08    0.47 | 91.33    0.41 |122.58    0.18
|153.83    0.11
 28.92    0.18 | 60.17    0.46 | 91.42    0.41 |122.67    0.18
|153.92    0.11
 29.00    0.18 | 60.25    0.46 | 91.50    0.41 |122.75    0.18
|154.00    0.11
 29.08    0.18 | 60.33    0.45 | 91.58    0.41 |122.83    0.18
|154.08    0.11
 29.17    0.18 | 60.42    0.45 | 91.67    0.41 |122.92    0.18
|154.17    0.11
 29.25    0.17 | 60.50    0.44 | 91.75    0.41 |123.00    0.18
|154.25    0.11
 29.33    0.17 | 60.58    0.44 | 91.83    0.40 |123.08    0.18
|154.33    0.11
 29.42    0.17 | 60.67    0.44 | 91.92    0.40 |123.17    0.18
|154.42    0.11
 29.50    0.17 | 60.75    0.43 | 92.00    0.40 |123.25    0.18
|154.50    0.11
 29.58    0.17 | 60.83    0.43 | 92.08    0.40 |123.33    0.18
|154.58    0.11
 29.67    0.17 | 60.92    0.42 | 92.17    0.40 |123.42    0.18
|154.67    0.11
 29.75    0.17 | 61.00    0.42 | 92.25    0.39 |123.50    0.18
|154.75    0.11
 29.83    0.17 | 61.08    0.42 | 92.33    0.39 |123.58    0.18
|154.83    0.11
 29.92    0.16 | 61.17    0.42 | 92.42    0.39 |123.67    0.18
|154.92    0.11
 30.00    0.16 | 61.25    0.41 | 92.50    0.39 |123.75    0.18
|155.00    0.11
 30.08    0.16 | 61.33    0.41 | 92.58    0.38 |123.83    0.18
|155.08    0.11
 30.17    0.16 | 61.42    0.40 | 92.67    0.38 |123.92    0.18
|155.17    0.11
 30.25    0.16 | 61.50    0.40 | 92.75    0.38 |124.00    0.18
|155.25    0.11
 30.33    0.16 | 61.58    0.40 | 92.83    0.38 |124.08    0.18
|155.33    0.11
 30.42    0.16 | 61.67    0.40 | 92.92    0.38 |124.17    0.18
|155.42    0.11
 30.50    0.16 | 61.75    0.39 | 93.00    0.37 |124.25    0.18
|155.50    0.11
 30.58    0.16 | 61.83    0.39 | 93.08    0.37 |124.33    0.19
|155.58    0.11
 30.67    0.16 | 61.92    0.39 | 93.17    0.37 |124.42    0.19
|155.67    0.11
 30.75    0.16 | 62.00    0.38 | 93.25    0.37 |124.50    0.19
|155.75    0.11
 30.83    0.15 | 62.08    0.38 | 93.33    0.37 |124.58    0.19
|155.83    0.10
 30.92    0.15 | 62.17    0.38 | 93.42    0.37 |124.67    0.20
|155.92    0.11
 31.00    0.15 | 62.25    0.38 | 93.50    0.37 |124.75    0.20
|156.00    0.10
 31.08    0.15 | 62.33    0.39 | 93.58    0.37 |124.83    0.20 |
 31.17    0.15 | 62.42    0.39 | 93.67    0.37 |124.92    0.20 |
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--------------------
| CALIB              |
| STANDHYD  (6202) |   Area    (ha)=  12.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.00          6.00
     Dep. Storage     (mm)=       1.50          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     282.84         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     143.36        130.59
                over (min)       5.00         15.00
     Storage Coeff.  (min)=       4.13 (ii)   11.94 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.24          0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.62          1.34
2.767 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      90.40         51.02
64.80
     TOTAL RAINFALL   (mm)=      91.90         91.90
91.90
     RUNOFF COEFFICIENT   =       0.98          0.56
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0621) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1549.0) ------>
               Distance      Elevation       Manning
                   0.00          87.56        0.0900
                   3.37          87.60        0.0900
                  16.78          87.21        0.0900
                  31.08          87.29        0.0900
                  43.62          87.28        0.0900
                  62.88          87.41        0.0900
                  68.00          87.22        0.0900
                  96.20          87.43        0.0900
                 112.60          86.39    0.0900 /0.0700  Main
Channel
                 113.70          86.10        0.0700      Main
Channel
                 114.40          86.51    0.0700 /0.0900  Main
Channel
                 114.60          86.67        0.0900
                 131.60          87.07        0.0900
                 156.70          87.16        0.0900
                 184.59          87.41        0.0900
                 194.09          87.56        0.0900
                 202.66          87.64        0.0900
                 221.43          87.69        0.0900
                 230.63          87.86        0.0900

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    86.17    .898E+01       0.0          0.13
79.55
       0.14    86.24    .359E+02       0.0          0.21
50.11
       0.21    86.31    .808E+02       0.0          0.28
38.24
       0.29    86.39    .144E+03       0.1          0.33
31.57
       0.36    86.46    .256E+03       0.2          0.39
27.10
       0.44    86.54    .435E+03       0.3          0.42
25.03
       0.52    86.62    .680E+03       0.5          0.46
23.12
       0.60    86.70    .998E+03       0.8          0.48
21.78
       0.68    86.78    .150E+04       1.2          0.48
21.76
       0.76    86.85    .223E+04       1.7          0.48
21.78
       0.83    86.93    .319E+04       2.5          0.49
21.41
       0.91    87.01    .437E+04       3.5          0.51
20.74
       0.99    87.09    .580E+04       4.7          0.51
20.64
       1.07    87.17    .811E+04       6.2          0.48
21.90
       1.15    87.25    .113E+05       7.8          0.44
24.18
       1.23    87.32    .165E+05      10.6          0.41
26.00
       1.30    87.40    .239E+05      16.0          0.42
24.97
       1.38    87.48    .327E+05      24.3          0.47
22.45
       1.46    87.56    .419E+05      34.6          0.52
20.16

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6202)   12.00     2.77    3.00  64.80
0.86     0.50
     OUTFLOW: ID= 1 (0621)   12.00     1.56    3.17  64.77
0.74     0.48


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| CALIB              |
| STANDHYD  (6212) |   Area    (ha)=  21.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  76.00   Dir. Conn.(%)=
67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.49          5.21
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     380.35         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     143.36        150.29
                over (min)       5.00         10.00
     Storage Coeff.  (min)=       4.93 (ii)    9.92 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.22          0.11

*TOTALS*
     PEAK FLOW       (cms)=       5.52          1.53
7.046 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.00
3.00
     RUNOFF VOLUME    (mm)=      85.90         56.03
76.04
     TOTAL RAINFALL   (mm)=      91.90         91.90
91.90
     RUNOFF COEFFICIENT   =       0.93          0.61
0.83

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0142) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0621):    12.00   1.560     3.17    64.77
        + ID2= 2 (6212):    21.70   7.046     3.00    76.04
          ===============================================
          ID = 3 (0142):    33.70   8.348     3.00    72.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0622) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 953.0) ------>
               Distance      Elevation       Manning
                  16.75          82.21        0.1100
                  30.34          82.03        0.1100
                  44.96          81.97        0.1100
                  58.95          81.94        0.1100
                  71.21          81.85        0.1100
                 100.74          81.58        0.1100
                 112.29          81.50        0.1100
                 121.63          81.56        0.1100
                 127.04          81.66    0.1100 /0.0700  Main
Channel
                 129.04          80.66        0.0700      Main
Channel
                 130.04          80.66        0.0700      Main
Channel
                 131.04          80.66        0.0700      Main
Channel
                 133.04          81.66    0.0700 /0.1100  Main
Channel
                 134.58          82.08        0.1100
                 135.14          82.01        0.1100
                 139.68          81.73        0.1100
                 151.74          81.75        0.1100
                 153.37          81.71        0.1100
                 167.06          81.83        0.1100
                 187.62          81.87        0.1100

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.06    80.72    .649E+02       0.0          0.17
49.00
       0.12    80.79    .138E+03       0.1          0.25
32.10
       0.19    80.85    .218E+03       0.1          0.32
25.32
       0.25    80.91    .306E+03       0.2          0.38
21.50
       0.31    80.97    .401E+03       0.4          0.43
18.99
       0.37    81.04    .504E+03       0.5          0.47
17.19
       0.44    81.10    .615E+03       0.6          0.52
15.81
       0.50    81.16    .733E+03       0.8          0.55
14.71
       0.56    81.22    .860E+03       1.0          0.59
13.81
       0.62    81.29    .993E+03       1.3          0.62
13.06
       0.69    81.35    .113E+04       1.5          0.66
12.41
       0.75    81.41    .128E+04       1.8          0.69
11.84
       0.81    81.47    .144E+04       2.1          0.72
11.35
       0.87    81.54    .170E+04       2.5          0.71
11.50
       0.94    81.60    .245E+04       3.0          0.59
13.80
       1.00    81.66    .355E+04       3.7          0.51
16.06
       1.07    81.73    .511E+04       4.9          0.47
17.27
       1.14    81.80    .759E+04       6.7          0.43
18.98
       1.21    81.87    .109E+05       9.0          0.40
20.28

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0142)   33.70     8.35    3.00  72.03
1.19     0.41
     OUTFLOW: ID= 1 (0622)   33.70     4.91    3.17  72.02
1.07     0.47


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| CALIB              |
| STANDHYD  (6222) |   Area    (ha)=  16.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=
69.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      13.18          3.72
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     335.66         40.00
     Mannings n          =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     143.36        118.06
                over (min)       5.00         10.00
     Storage Coeff.  (min)=       4.57 (ii)    9.34 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.23          0.12

*TOTALS*
     PEAK FLOW       (cms)=       4.46          0.85
5.309 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.00
3.00
     RUNOFF VOLUME    (mm)=      85.90         42.48
72.44
     TOTAL RAINFALL   (mm)=      91.90         91.90
91.90
     RUNOFF COEFFICIENT   =       0.93          0.46
0.79
```

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***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0144) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0622):    33.70   4.910     3.17    72.02
        + ID2= 2 (6222):    16.90   5.309     3.00    72.44
          ==================================================
          ID = 3 (0144):    50.60   9.535     3.00    72.16

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (6232) |   Area    (ha)=  20.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       10.30        10.30
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      370.59        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      143.36       101.50
                over (min)        5.00        15.00
     Storage Coeff.  (min)=        4.85 (ii)   13.49 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=        2.74         1.65
4.116 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       85.90        39.44
55.70
     TOTAL RAINFALL   (mm)=       91.90        91.90
91.90
     RUNOFF COEFFICIENT   =        0.93         0.43
0.61

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0146) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0144):    50.60   9.535     3.00    72.16
        + ID2= 2 (6232):    20.60   4.116     3.00    55.70
          ==================================================
          ID = 3 (0146):    71.20  13.651     3.00    67.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6302) |   Area    (ha)=   2.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=
58.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.79         0.81
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      131.66        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      143.36       147.31
                over (min)        5.00        15.00
     Storage Coeff.  (min)=        2.61 (ii)   10.05 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.29         0.10

*TOTALS*
     PEAK FLOW       (cms)=        0.60         0.22
0.787 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       85.90        55.66
73.20
     TOTAL RAINFALL   (mm)=       91.90        91.90
91.90
     RUNOFF COEFFICIENT   =        0.93         0.61
0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0631) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                <------ DATA FOR SECTION ( 788.2) ------>
                 Distance      Elevation       Manning
                     0.00          81.00        0.1100
                    15.70          81.00        0.1100
                    17.50          80.50    0.1100 /0.0700  Main
Channel
                    18.50          80.50        0.0700      Main
Channel
                    20.00          81.00    0.0700 /0.1100  Main
Channel
                    24.00          81.00        0.1100
                    38.00          81.50        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.03    80.53    .174E+02       0.0          0.10
100.96
       0.05    80.55    .375E+02       0.0          0.15
66.64
       0.08    80.58    .604E+02       0.0          0.19
52.98
       0.11    80.61    .861E+02       0.0          0.22
45.34
       0.13    80.63    .115E+03       0.0          0.25
40.34
       0.16    80.66    .146E+03       0.1          0.28
36.75
       0.18    80.68    .180E+03       0.1          0.30
34.02
       0.21    80.71    .217E+03       0.1          0.32
31.85
       0.24    80.74    .256E+03       0.1          0.34
30.07
       0.26    80.76    .298E+03       0.2          0.35
28.57
       0.29    80.79    .344E+03       0.2          0.37
27.28
       0.32    80.82    .391E+03       0.2          0.39
26.15
       0.34    80.84    .442E+03       0.3          0.40
25.16
       0.37    80.87    .495E+03       0.3          0.42
24.27
       0.39    80.89    .552E+03       0.4          0.43
23.48
       0.42    80.92    .611E+03       0.4          0.44
22.75
       0.45    80.95    .672E+03       0.5          0.46
22.09
       0.47    80.97    .737E+03       0.6          0.47
21.48
       0.50    81.00    .804E+03       0.6          0.48
20.91

     **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                        <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6302)    2.60     0.79    3.00  73.20
0.44     0.46
     OUTFLOW: ID= 1 (0631)    2.60     0.43    3.08  72.97
0.41     0.44


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--------------------
| CALIB            |
| STANDHYD  (6312) |   Area    (ha)=   8.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=
59.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        6.16         2.64
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      242.21        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      143.36       112.54
                over (min)        5.00        15.00
     Storage Coeff.  (min)=        3.76 (ii)   12.05 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.25         0.09

*TOTALS*
     PEAK FLOW       (cms)=        2.02         0.49
2.436 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       85.90        41.69
67.77
     TOTAL RAINFALL   (mm)=       91.90        91.90
91.90
     RUNOFF COEFFICIENT   =        0.93         0.45
0.74

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0149) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0631):     2.60   0.430     3.08    72.97
        + ID2= 2 (6312):     8.80   2.436     3.00    67.77
          ==================================================
          ID = 3 (0149):    11.40   2.809     3.00    68.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0632) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                <------ DATA FOR SECTION ( 924.2) ------>
                 Distance      Elevation       Manning
                     0.00          82.50        0.1100
                     6.00          82.00        0.1100
                    11.00          81.00        0.1100
                    12.00          80.00        0.1100
                    13.50          79.50    0.1100 /0.0700  Main
Channel
                    14.50          79.50        0.0700      Main
Channel
                    16.00          80.00    0.0700 /0.1100  Main
Channel
                    18.00          80.00        0.1100
                    29.70          80.00        0.1100
                    37.00          80.50        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.05    79.55    .330E+02       0.0          0.17
52.00
       0.11    79.61    .749E+02       0.0          0.26
35.21
       0.16    79.66    .126E+03       0.1          0.32
28.45
       0.21    79.71    .186E+03       0.1          0.37
24.60
       0.26    79.76    .255E+03       0.2          0.41
22.04
       0.32    79.82    .333E+03       0.3          0.45
20.16
       0.37    79.87    .420E+03       0.4          0.48
18.69
       0.42    79.92    .515E+03       0.5          0.51
17.51
       0.47    79.97    .620E+03       0.6          0.55
16.53
       0.53    80.03    .931E+03       0.8          0.48
18.86
       0.58    80.08    .146E+04       1.2          0.43
20.73
       0.63    80.13    .201E+04       1.6          0.44
20.51
       0.68    80.18    .258E+04       2.2          0.46
19.66
       0.74    80.24    .318E+04       2.8          0.48
18.66
       0.79    80.29    .380E+04       3.6          0.51
17.70
       0.84    80.34    .445E+04       4.4          0.54
16.82
       0.89    80.39    .511E+04       5.3          0.56
16.03
       0.95    80.45    .580E+04       6.3          0.59
15.32
       1.00    80.50    .652E+04       7.4          0.61
14.69

                                        <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0149)   11.40     2.81    3.00  68.96
0.73     0.48
     OUTFLOW: ID= 1 (0632)   11.40     1.60    3.08  68.94
0.63     0.44


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--------------------
| CALIB            |
| STANDHYD  (6322) |   Area    (ha)=   5.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        2.65         2.65
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      187.97        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      143.36       101.50
                over (min)        5.00        15.00
     Storage Coeff.  (min)=        3.23 (ii)   11.87 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.27         0.09

*TOTALS*
     PEAK FLOW       (cms)=        0.73         0.45
1.103 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       85.90        39.44
55.70
     TOTAL RAINFALL   (mm)=       91.90        91.90
91.90
     RUNOFF COEFFICIENT   =        0.93         0.43
0.61

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0174) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0632):    11.40   1.597     3.08    68.94
        + ID2= 2 (6322):     5.30   1.103     3.00    55.70
          ==================================================
          ID = 3 (0174):    16.70   2.555     3.00    64.74

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (6402) |   Area    (ha)=  16.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
66.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       12.60         4.20
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      334.66        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      143.36       148.07
                over (min)        5.00        15.00
     Storage Coeff.  (min)=        4.57 (ii)   11.99 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.23         0.09

*TOTALS*
     PEAK FLOW       (cms)=        4.24         1.07
5.173 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       85.90        55.75
75.65
     TOTAL RAINFALL   (mm)=       91.90        91.90
91.90
     RUNOFF COEFFICIENT   =        0.93         0.61
0.82

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0641) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                <------ DATA FOR SECTION ( 910.0) ------>
                 Distance      Elevation       Manning
                     0.00          83.92        0.1100
                     1.93          83.93        0.1100
                     3.02          83.94        0.1100
                     5.01          83.96        0.1100
                     6.81          83.80        0.1100
                     7.33          83.77        0.1100
                     8.42          83.41    0.1100 /0.0700  Main
Channel
                    10.42          82.41        0.0700      Main
Channel
                    11.17          82.41        0.0700      Main
Channel
                    11.92          82.41        0.0700      Main
Channel
                    13.92          83.41    0.0700 /0.1100  Main
Channel
                    21.33          84.40        0.1100
                    23.85          84.09        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.10    82.51    .768E+02       0.0          0.24
32.02
       0.20    82.61    .172E+03       0.1          0.35
21.50
       0.30    82.71    .285E+03       0.3          0.44
17.20
       0.40    82.81    .416E+03       0.5          0.51
14.73
       0.50    82.91    .565E+03       0.7          0.58
13.08
       0.60    83.01    .732E+03       1.0          0.64
11.86
       0.70    83.11    .918E+03       1.4          0.69
10.92
```

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      0.80    83.21    .112E+04       1.8          0.74
10.16
      0.90    83.31    .134E+04       2.3          0.79
9.53
      1.00    83.41    .158E+04       2.9          0.84
9.00
      1.11    83.52    .188E+04       3.8          0.92
8.20
      1.22    83.63    .224E+04       4.8          0.98
7.72
      1.33    83.74    .266E+04       6.0          1.02
7.39
      1.44    83.85    .315E+04       7.3          1.05
7.20
      1.55    83.96    .379E+04       8.7          1.04
7.24
      1.66    84.07    .471E+04      10.6          1.02
7.41
      1.77    84.18    .567E+04      12.7          1.01
7.46
      1.88    84.29    .673E+04      15.1          1.01
7.43
      1.99    84.40    .787E+04      17.8          1.02
7.36

                                        <---- hydrograph ---->   <-
pipe / channel->
                                   AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                   (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (6402)   16.80     5.17     3.00  75.65
1.25      0.99
    OUTFLOW: ID= 1 (0641)   16.80     4.20     3.00  75.64
1.15      0.94

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| CALIB              |
| STANDHYD  (6412) |   Area    (ha)=  13.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
67.00
--------------------
                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.47         3.13
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     301.11        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36      ********
                over (min)       5.00        10.00
     Storage Coeff.  (min)=       4.29 (ii)    9.19 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.23         0.12

*TOTALS*
     PEAK FLOW       (cms)=       3.51         0.83
4.342 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=      85.90        48.02
73.40
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.52
0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  72.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0184) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0641):    16.80   4.203     3.00    75.64
        + ID2= 2 (6412):    13.60   4.342     3.00    73.40
          ==================================================
          ID = 3 (0184):    30.40   8.544     3.00    74.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0642) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1099.5) ------>
              Distance      Elevation       Manning
                  0.00        85.00        0.1100
                 14.50        80.00        0.1100
                 15.30        80.00        0.1100
                 16.80        79.50    0.1100 /0.0700  Main
Channel
                 17.80        79.50        0.0700      Main
Channel
                 19.30        80.00    0.0700 /0.1100  Main
Channel
                 20.30        80.00        0.1100
                 27.30        81.00        0.1100

        <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
      0.08    79.58    .520E+02       0.0          0.24
36.74
      0.16    79.66    .124E+03       0.1          0.35
25.35
      0.24    79.74    .216E+03       0.2          0.43
20.68
      0.32    79.82    .328E+03       0.3          0.49
17.96
      0.39    79.89    .460E+03       0.5          0.55
16.11
      0.47    79.97    .611E+03       0.7          0.60
14.73
      0.55    80.05    .836E+03       1.0          0.62
14.31
      0.63    80.13    .112E+04       1.4          0.66
13.40
      0.71    80.21    .143E+04       1.9          0.70
12.62
      0.79    80.29    .178E+04       2.5          0.74
11.97
      0.87    80.37    .216E+04       3.2          0.78
11.42
      0.95    80.45    .258E+04       3.9          0.81
10.93
      1.03    80.53    .302E+04       4.8          0.85
10.51
      1.11    80.61    .350E+04       5.8          0.88
10.14
      1.18    80.68    .402E+04       6.8          0.91
9.80
      1.26    80.76    .456E+04       8.0          0.94
9.49
      1.34    80.84    .514E+04       9.3          0.96
9.21
      1.42    80.92    .575E+04      10.7          0.99
8.96
      1.50    81.00    .640E+04      12.2          1.02
8.72

                                        <---- hydrograph ---->   <-
pipe / channel->
                                   AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                   (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0184)   30.40     8.54     3.00  74.64
1.30      0.95
    OUTFLOW: ID= 1 (0642)   30.40     6.60     3.08  74.63
1.17      0.90

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--------------------
| CALIB              |
| STANDHYD  (6422) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.75         8.75
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     341.57        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       116.83
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.62 (ii)   12.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       2.34         1.67
3.754 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        45.46
59.61
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.49
0.65

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  72.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0187) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0642):    30.40   6.602     3.08    74.63
        + ID2= 2 (6422):    17.50   3.754     3.00    59.61
          ==================================================
          ID = 3 (0187):    47.90   9.766     3.00    69.15

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6502) |   Area    (ha)=   9.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.55         4.55
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     246.31        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       101.50
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.80 (ii)   12.44 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.24         0.75
1.869 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        39.44
55.70
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.43
0.61

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6602) |   Area    (ha)=  13.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.85         6.85
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     302.21        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       136.31
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       4.29 (ii)   11.97 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.85         1.60
3.224 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        53.40
64.77
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.58
0.70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  79.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (7302) |   Area    (ha)=   3.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.70         1.70
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     150.55        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       101.50
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       2.83 (ii)   11.46 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.47         0.29
0.714 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        39.44
55.70
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.43
0.61

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| STANDHYD  (7402) |   Area    (ha)=   3.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.85         1.85
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     157.06        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       101.50
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       2.90 (ii)   11.54 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.51         0.32
0.776 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        39.44
55.70
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.43
0.61

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| NASHYD    (7101) |   Area    (ha)=  70.70   Curve Number
(CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------    U.H. Tp(hrs)=   0.78

     Unit Hyd Qpeak  (cms)=   3.471

     PEAK FLOW       (cms)=   1.993 (i)
     TIME TO PEAK    (hrs)=   3.750
     RUNOFF VOLUME    (mm)=  22.111
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.241

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (7102) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
33.00
--------------------
                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.88         9.62
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     341.57        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        52.80
                over (min)       5.00        20.00
     Storage Coeff.  (min)=       4.62 (ii)   15.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.22         0.07

*TOTALS*
     PEAK FLOW       (cms)=       2.21         0.83
2.772 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      85.90        26.21
45.91
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.29
0.50

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  52.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0218) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7101):    70.70   1.993     3.75    22.11
        + ID2= 2 (7102):    17.50   2.772     3.00    45.91
          ==================================================
          ID = 3 (0218):    88.20   3.272     3.00    26.83

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0711) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1487.9) ------>
              Distance      Elevation       Manning
                  0.00        95.00        0.1100
                 89.00        94.00        0.1100
```

```
             135.70         94.00    0.1100 /0.0700  Main
Channel
             137.20         93.50        0.0700      Main
Channel
             138.20         93.50        0.0700      Main
Channel
             139.70         94.00    0.0700 /0.1100  Main
Channel
             211.60         94.00        0.1100
             249.00         95.00        0.1100

     <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.07    93.57    .969E+02       0.0          0.20
95.33
      0.14    93.64    .228E+03       0.1          0.29
64.56
      0.21    93.71    .393E+03       0.1          0.36
51.73
      0.29    93.79    .593E+03       0.2          0.42
44.23
      0.36    93.86    .826E+03       0.4          0.48
39.15
      0.43    93.93    .109E+04       0.5          0.53
35.40
      0.50    94.00    .140E+04       0.7          0.57
32.52
      0.58    94.08    .133E+05       2.6          0.22
84.59
      0.67    94.17    .262E+05       6.5          0.28
67.17
      0.75    94.25    .400E+05      12.0          0.33
55.64
      0.83    94.33    .549E+05      19.0          0.39
48.10
      0.92    94.42    .707E+05      27.5          0.43
42.81
      1.00    94.50    .875E+05      37.5          0.48
38.86
      1.08    94.58    .105E+06      49.0          0.52
35.80
      1.17    94.67    .124E+06      62.0          0.56
33.34
      1.25    94.75    .144E+06      76.6          0.59
31.30
      1.33    94.83    .165E+06      92.7          0.63
29.59
      1.42    94.92    .186E+06     110.4          0.66
28.12
      1.50    95.00    .209E+06     129.7          0.69
26.84

                                     <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0218)   88.20     3.27     3.00  26.83
0.60     0.23
    OUTFLOW: ID= 1 (0711)   88.20     1.93     4.75  26.83
0.55     0.28


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-------------------
| CALIB             |
| NASHYD    (7111) |   Area    (ha)=  48.10   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.43

     Unit Hyd Qpeak  (cms)=   1.285

     PEAK FLOW       (cms)=   1.445 (i)
     TIME TO PEAK    (hrs)=   4.583
     RUNOFF VOLUME    (mm)=  36.518
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.397

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7112) |   Area    (ha)=  12.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  39.00   Dir. Conn.(%)=
27.00
-------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        4.76          7.44
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      285.19         40.00
     Mannings n           =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      143.36         97.99
               over (min)         5.00         15.00
     Storage Coeff.  (min)=        4.15 (ii)   12.91 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.24          0.08

*TOTALS*
     PEAK FLOW       (cms)=        1.27          1.18
2.254 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       85.90         41.22
53.28
     TOTAL RAINFALL   (mm)=       91.90         91.90
91.90
     RUNOFF COEFFICIENT   =        0.93          0.45
0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0222) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (7111):    48.10   1.445     4.58    36.52
       + ID2= 2 (7112):    12.20   2.254     3.00    53.28
         ===============================================
         ID = 3 (0222):    60.30   2.412     3.00    39.91

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0223) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0222):    60.30   2.412     3.00    39.91
       + ID2= 2 (0711):    88.20   1.927     4.75    26.83
         ===============================================
         ID = 3 (0223):   148.50   3.556     4.50    32.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| CALIB             |
| NASHYD    (7011) |   Area    (ha)=  90.40   Curve Number
(CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.77

     Unit Hyd Qpeak  (cms)=   4.467

     PEAK FLOW       (cms)=   3.162 (i)
     TIME TO PEAK    (hrs)=   3.750
     RUNOFF VOLUME    (mm)=  27.031
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.294

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7012) |   Area    (ha)=  25.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
25.00
-------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        9.54         15.56
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      409.06         40.00
     Mannings n           =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      143.36         75.39
               over (min)         5.00         15.00
     Storage Coeff.  (min)=        5.15 (ii)   14.88 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.21          0.08

*TOTALS*
     PEAK FLOW       (cms)=        2.37          1.74
3.788 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.17
3.00
     RUNOFF VOLUME    (mm)=       85.90         31.46
45.07
     TOTAL RAINFALL   (mm)=       91.90         91.90
91.90
     RUNOFF COEFFICIENT   =        0.93          0.34
0.49


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  59.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0205) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (7011):    90.40   3.162     3.75    27.03
       + ID2= 2 (7012):    25.10   3.788     3.00    45.07
         ===============================================
         ID = 3 (0205):   115.50   4.611     3.00    30.95

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0702) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
                <------ DATA FOR SECTION (1184.6) ------>
                 Distance      Elevation       Manning
                   0.00         93.00          0.1100
                  56.00         92.00          0.1100
                  65.40         92.00          0.1100
                  74.80         91.50    0.1100 /0.0700  Main
Channel
                  75.80         91.50        0.0700      Main
Channel
                  77.30         92.00    0.0700 /0.1100  Main
Channel
                 144.00         92.00        0.1100
                 186.00         93.00        0.1100

     <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.08    91.58    .236E+03       0.0          0.13
200.27
      0.16    91.66    .689E+03       0.1          0.18
146.52
      0.24    91.74    .136E+04       0.2          0.22
121.67
      0.32    91.82    .225E+04       0.4          0.25
105.99
      0.39    91.89    .336E+04       0.6          0.28
94.79
      0.47    91.97    .468E+04       0.9          0.31
86.24
      0.55    92.05    .128E+05       1.5          0.19
142.36
      0.63    92.13    .251E+05       3.4          0.22
123.43
      0.71    92.21    .384E+05       6.1          0.26
104.46
      0.79    92.29    .526E+05       9.6          0.29
90.95
      0.87    92.37    .678E+05      13.9          0.33
81.16
      0.95    92.45    .840E+05      19.0          0.36
73.76
      1.03    92.53    .101E+06      24.8          0.39
67.97
      1.11    92.61    .119E+06      31.4          0.42
63.30
      1.18    92.68    .139E+06      38.8          0.45
59.44
      1.26    92.76    .159E+06      47.1          0.48
56.18
      1.34    92.84    .180E+06      56.1          0.50
53.38
      1.42    92.92    .202E+06      66.0          0.52
50.95
      1.50    93.00    .225E+06      76.8          0.55
48.81

                                     <---- hydrograph ---->   <-
pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0205)  115.50     4.61     3.00  30.95
0.67     0.23
    OUTFLOW: ID= 1 (0702)  115.50     2.01     5.83  30.94
0.57     0.19


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| CALIB             |
| NASHYD    (7021) |   Area    (ha)=   7.30   Curve Number
(CN)= 64.0
```

```
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.72

     Unit Hyd Qpeak  (cms)=   0.162

     PEAK FLOW       (cms)=   0.161 (i)
     TIME TO PEAK    (hrs)=   5.000
     RUNOFF VOLUME    (mm)=  31.040
     TOTAL RAINFALL   (mm)=  91.900
     RUNOFF COEFFICIENT   =   0.338

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7022) |   Area    (ha)=  35.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  48.00   Dir. Conn.(%)=
35.00
-------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       16.90         18.30
     Dep. Storage     (mm)=        1.50          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      484.42         40.00
     Mannings n           =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      143.36         90.65
               over (min)         5.00         15.00
     Storage Coeff.  (min)=        5.70 (ii)   14.74 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.20          0.08

*TOTALS*
     PEAK FLOW       (cms)=        4.59          2.50
6.649 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       90.40         36.59
55.42
     TOTAL RAINFALL   (mm)=       91.90         91.90
91.90
     RUNOFF COEFFICIENT   =        0.98          0.40
0.60


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  64.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0209) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (7021):     7.30   0.161     5.00    31.04
       + ID2= 2 (7022):    35.20   6.649     3.00    55.42
         ===============================================
         ID = 3 (0209):    42.50   6.662     3.00    51.23

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0210) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0209):    42.50   6.662     3.00    51.23
       + ID2= 2 (0702):   115.50   2.012     5.83    30.94
         ===============================================
         ID = 3 (0210):   158.00   7.267     3.00    36.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0224) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0210):   158.00   7.267     3.00    36.40
       + ID2= 2 (0223):   148.50   3.556     4.50    32.14
         ===============================================
         ID = 3 (0224):   306.50  10.412     3.00    34.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0703) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
                <------ DATA FOR SECTION (2329.2) ------>
                 Distance      Elevation       Manning
                   0.00         88.00          0.1100
                  37.50         87.00          0.1100
                  51.30         86.00          0.1100
                  82.80         86.00          0.1100
                 107.50         87.00          0.1100
                 117.30         86.00          0.1100
                 125.90         86.00    0.1100 /0.0700  Main
Channel
                 127.40         85.50        0.0700      Main
Channel
                 128.40         85.50        0.0700      Main
Channel
                 129.90         86.00    0.0700 /0.1100  Main
Channel
                 133.00         86.00        0.1100
                 149.00         87.00        0.1100
                 193.00         88.00        0.1100

     <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.12    85.62    .787E+02       0.0          0.19
40.30
      0.25    85.75    .200E+03       0.1          0.28
27.58
      0.37    85.88    .365E+03       0.3          0.35
22.10
      0.50    86.00    .572E+03       0.5          0.41
18.84
      0.63    86.13    .372E+04       1.8          0.22
34.16
      0.77    86.27    .738E+04       4.4          0.27
28.02
      0.90    86.40    .116E+05       8.1          0.32
23.77
      1.03    86.53    .163E+05      13.0          0.37
20.89
      1.17    86.67    .215E+05      19.1          0.41
18.82
      1.30    86.80    .273E+05      26.4          0.44
17.24
      1.43    86.93    .336E+05      35.0          0.48
15.99
      1.57    87.07    .404E+05      44.9          0.51
15.00
      1.70    87.20    .479E+05      56.3          0.54
14.18
      1.83    87.33    .560E+05      69.3          0.57
13.47
      1.97    87.47    .648E+05      84.0          0.59
12.85
```

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      2.10    87.60    .743E+05     100.6          0.62
12.31
      2.23    87.73    .844E+05     119.0          0.65
11.82
      2.37    87.87    .952E+05     139.3          0.67
11.39
      2.50    88.00    .107E+06     161.7          0.69
11.00
                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0224)  306.50    10.41    3.00  34.34
0.96      0.34
     OUTFLOW: ID= 1 (0703)  306.50     6.13    4.67  34.33
0.83      0.29


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--------------------
| CALIB            |
| STANDHYD  (7032) |   Area    (ha)=  23.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      17.94         5.36
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     394.12        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       105.42
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       5.04 (ii)    9.91 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.21         0.11

*TOTALS*
     PEAK FLOW       (cms)=       6.00         1.06
7.054 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        38.38
70.69
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.42
0.77


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  63.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0215) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0703):   306.50   6.129     4.67    34.33
        + ID2= 2 (7032):    23.30   7.054     3.00    70.69
          ===============================================
          ID = 3 (0215):   329.80  11.438     3.00    36.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0704) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (2755.4) ------>
               Distance      Elevation       Manning
                   0.00          85.00        0.1100
                  25.00          84.00        0.1100
                  32.00          84.00    0.1100 /0.0700  Main
Channel
                  33.50          83.50        0.0700      Main
Channel
                  34.50          83.50        0.0700      Main
Channel
                  36.00          84.00    0.0700 /0.1100  Main
Channel
                  65.00          84.00        0.1100

        <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.03    83.53    .121E+02       0.0          0.12
61.52
      0.05    83.55    .259E+02       0.0          0.19
40.35
      0.08    83.58    .414E+02       0.0          0.24
31.84
      0.10    83.60    .585E+02       0.0          0.28
27.04
      0.13    83.63    .774E+02       0.1          0.31
23.87
      0.15    83.65    .979E+02       0.1          0.35
21.59
      0.18    83.68    .120E+03       0.1          0.38
19.84
      0.20    83.70    .144E+03       0.1          0.41
18.45
      0.23    83.73    .170E+03       0.2          0.43
17.31
      0.25    83.75    .197E+03       0.2          0.46
16.34
      0.28    83.78    .226E+03       0.2          0.48
15.52
      0.30    83.80    .257E+03       0.3          0.51
14.80
      0.33    83.83    .289E+03       0.3          0.53
14.16
      0.35    83.85    .323E+03       0.4          0.55
13.60
      0.38    83.88    .359E+03       0.5          0.57
13.09
      0.40    83.90    .396E+03       0.5          0.59
12.64
      0.43    83.93    .435E+03       0.6          0.61
12.22
      0.45    83.95    .476E+03       0.7          0.63
11.84
      0.48    83.98    .518E+03       0.8          0.65
11.49

     **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0215)  329.80    11.44    3.00  36.90
0.47      0.65
     OUTFLOW: ID= 1 (0704)  329.80     8.32    3.17  36.90
0.48      0.65


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--------------------
| CALIB            |
| STANDHYD  (7042) |   Area    (ha)=  23.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      18.25         5.45
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     397.49        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       100.46
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       5.06 (ii)    9.94 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.21         0.11

*TOTALS*
     PEAK FLOW       (cms)=       6.10         1.03
7.116 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        36.58
70.12
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.40
0.76


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  61.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0229) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0704):   329.80   8.322     3.17    36.90
        + ID2= 2 (7042):    23.70   7.116     3.00    70.12
          ===============================================
          ID = 3 (0229):   353.50  14.050     3.00    39.13

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (7202) |   Area    (ha)=  22.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      17.33         5.18
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     387.30        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       113.11
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       4.98 (ii)    9.86 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.22         0.11

*TOTALS*
     PEAK FLOW       (cms)=       5.80         1.11
6.903 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        41.19
71.59
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.45
0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0721) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 920.0) ------>
               Distance      Elevation       Manning
                   0.00          82.00        0.1100
                  41.00          82.00        0.1100
                  50.70          82.00        0.1100
                  57.80          81.00    0.1100 /0.0700  Main
Channel
                  59.30          79.84        0.0700      Main
Channel
                  60.30          79.84        0.0700      Main
Channel
                  61.80          81.00    0.0700 /0.1100  Main
Channel
                  63.30          81.00        0.1100
                  85.90          81.00        0.1100
                 100.00          82.00        0.1100

        <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.11    79.95    .515E+02       0.0          0.20
35.58
      0.21    80.05    .115E+03       0.1          0.30
24.20
      0.32    80.16    .192E+03       0.2          0.37
19.53
      0.42    80.26    .280E+03       0.3          0.43
16.82
      0.53    80.37    .381E+03       0.4          0.48
15.00
      0.63    80.47    .494E+03       0.6          0.53
13.65
      0.74    80.58    .620E+03       0.8          0.57
12.60
      0.84    80.68    .758E+03       1.1          0.61
11.75
      0.95    80.79    .908E+03       1.4          0.65
11.04
      1.05    80.89    .107E+04       1.7          0.69
10.44
      1.16    81.00    .125E+04       2.1          0.72
9.92
      1.28    81.12    .283E+04       3.2          0.49
14.61
      1.41    81.25    .455E+04       5.0          0.48
15.04
      1.53    81.37    .642E+04       7.4          0.50
14.36
      1.66    81.50    .843E+04      10.4          0.53
13.50
      1.78    81.62    .106E+05      13.9          0.57
12.67
      1.91    81.75    .129E+05      18.0          0.60
11.93
      2.03    81.87    .153E+05      22.6          0.63
11.29
      2.16    82.00    .179E+05      27.8          0.67
10.73
```

```
                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (7202)   22.50     6.90    3.00  71.59
1.51      0.49
     OUTFLOW: ID= 1 (0721)   22.50     4.32    3.08  71.58
1.36      0.48


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--------------------
| CALIB            |
| STANDHYD  (7212) |   Area    (ha)=  18.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      13.94         4.16
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     347.37        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       113.11
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       4.67 (ii)    9.55 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.22         0.12

*TOTALS*
     PEAK FLOW       (cms)=       4.70         0.90
5.598 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        41.19
71.59
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.45
0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0237) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0721):    22.50   4.316     3.08    71.58
        + ID2= 2 (7212):    18.10   5.598     3.00    71.59
          ===============================================
          ID = 3 (0237):    40.60   9.646     3.00    71.59

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0238) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0229):   353.50  14.050     3.00    39.13
        + ID2= 2 (0237):    40.60   9.646     3.00    71.59
          ===============================================
          ID = 3 (0238):   394.10  23.696     3.00    42.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0705) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (3276.8) ------>
               Distance      Elevation       Manning
                   0.00          80.50        0.1100
                   5.70          80.00        0.1100
                  14.00          79.00        0.1100
                  22.00          79.00    0.1100 /0.0700  Main
Channel
                  23.50          78.50        0.0700      Main
Channel
                  24.50          78.50        0.0700      Main
Channel
                  26.00          79.00    0.0700 /0.1100  Main
Channel
                  28.00          79.00        0.1100
                  41.00          80.00        0.1100

        <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.07    78.57    .248E+02       0.0          0.26
18.45
      0.14    78.64    .584E+02       0.1          0.38
12.49
      0.21    78.71    .101E+03       0.2          0.48
10.01
      0.29    78.79    .152E+03       0.3          0.56
8.56
      0.36    78.86    .212E+03       0.5          0.63
7.58
      0.43    78.93    .280E+03       0.7          0.70
6.85
      0.50    79.00    .358E+03       0.9          0.76
6.29
      0.58    79.08    .712E+03       1.6          0.64
7.50
      0.67    79.17    .111E+04       2.5          0.65
7.35
      0.75    79.25    .155E+04       3.7          0.69
6.94
      0.83    79.33    .203E+04       5.2          0.73
6.52
      0.92    79.42    .255E+04       6.9          0.78
6.14
      1.00    79.50    .312E+04       9.0          0.82
5.81
      1.08    79.58    .373E+04      11.3          0.86
5.52
      1.17    79.67    .438E+04      13.9          0.90
5.27
      1.25    79.75    .507E+04      16.7          0.94
5.05
      1.33    79.83    .581E+04      20.0          0.98
4.85
      1.42    79.92    .659E+04      23.5          1.02
4.68
      1.50    80.00    .741E+04      27.3          1.06
4.52

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0238)  394.10    23.70    3.00  42.47
1.42      1.02
     OUTFLOW: ID= 1 (0705)  394.10    21.23    3.08  42.47
1.36      1.00
```

```
-----------------------------------------------------------------
--------------
--------------------
| CALIB              |
| STANDHYD  (7052) |   Area    (ha)=   6.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.40         3.40
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     212.92        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36        57.76
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.48 (ii)   14.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.26         0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.93         0.35
1.216 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      85.90        26.89
47.54
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.29
0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  51.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-----------------------------------------------------------------
--------------

--------------------
| ADD HYD   (0243) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0705):   394.10  21.232     3.08    42.47
        + ID2= 2 (7052):     6.80   1.216     3.00    47.54
          ==================================================
          ID = 3 (0243):   400.90  21.905     3.08    42.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----------------------------------------------------------------
--------------
--------------------
| CALIB              |
| STANDHYD  (7502) |   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.75         2.75
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     191.49        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     143.36       101.50
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.27 (ii)   11.90 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.76         0.46
1.144 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      85.90        39.44
55.70
     TOTAL RAINFALL   (mm)=      91.90        91.90
91.90
     RUNOFF COEFFICIENT   =       0.93         0.43
0.61

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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 FINISH
=================================================================
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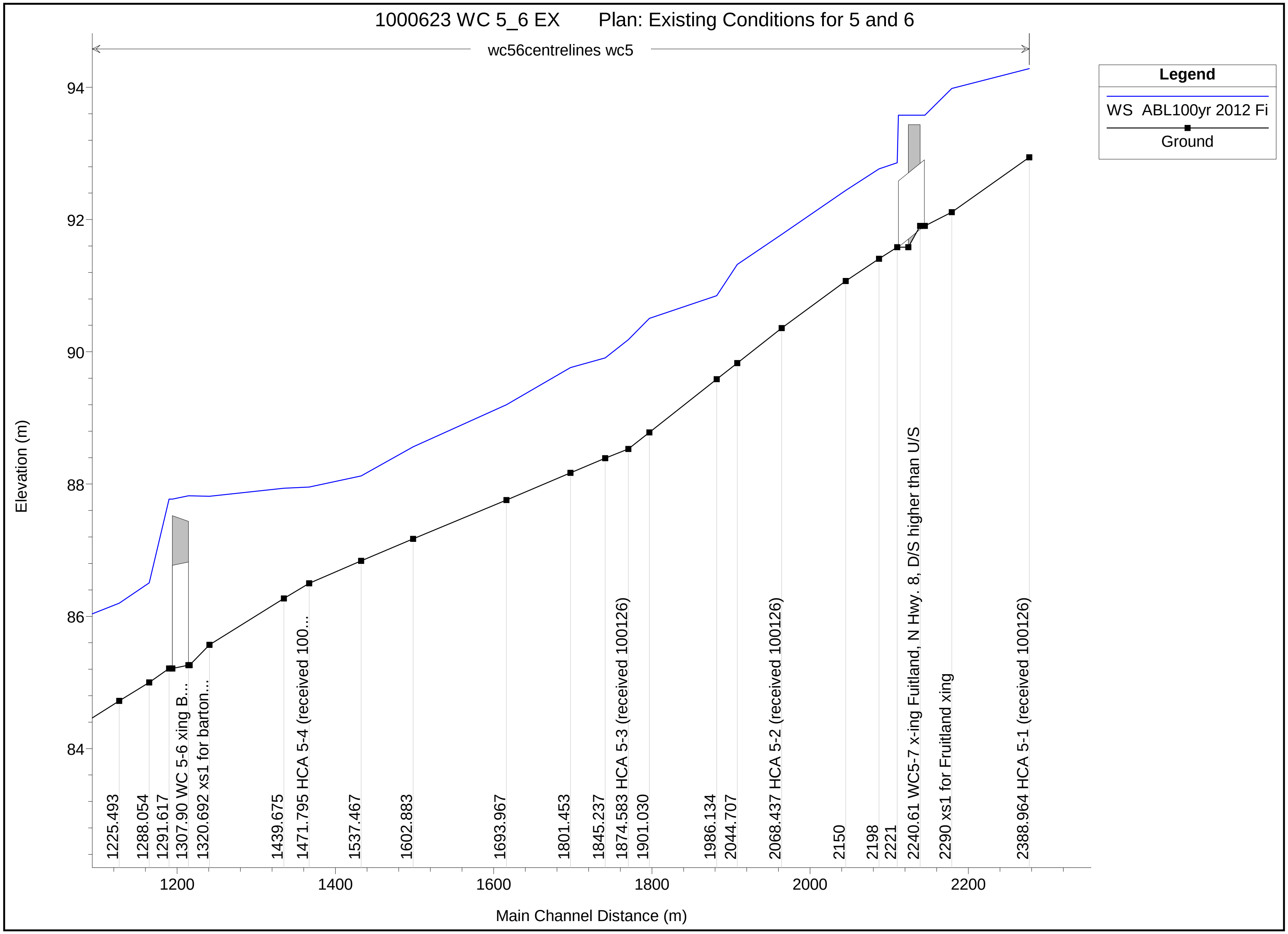
Hydraulic Model Output

1) Watercourse 5



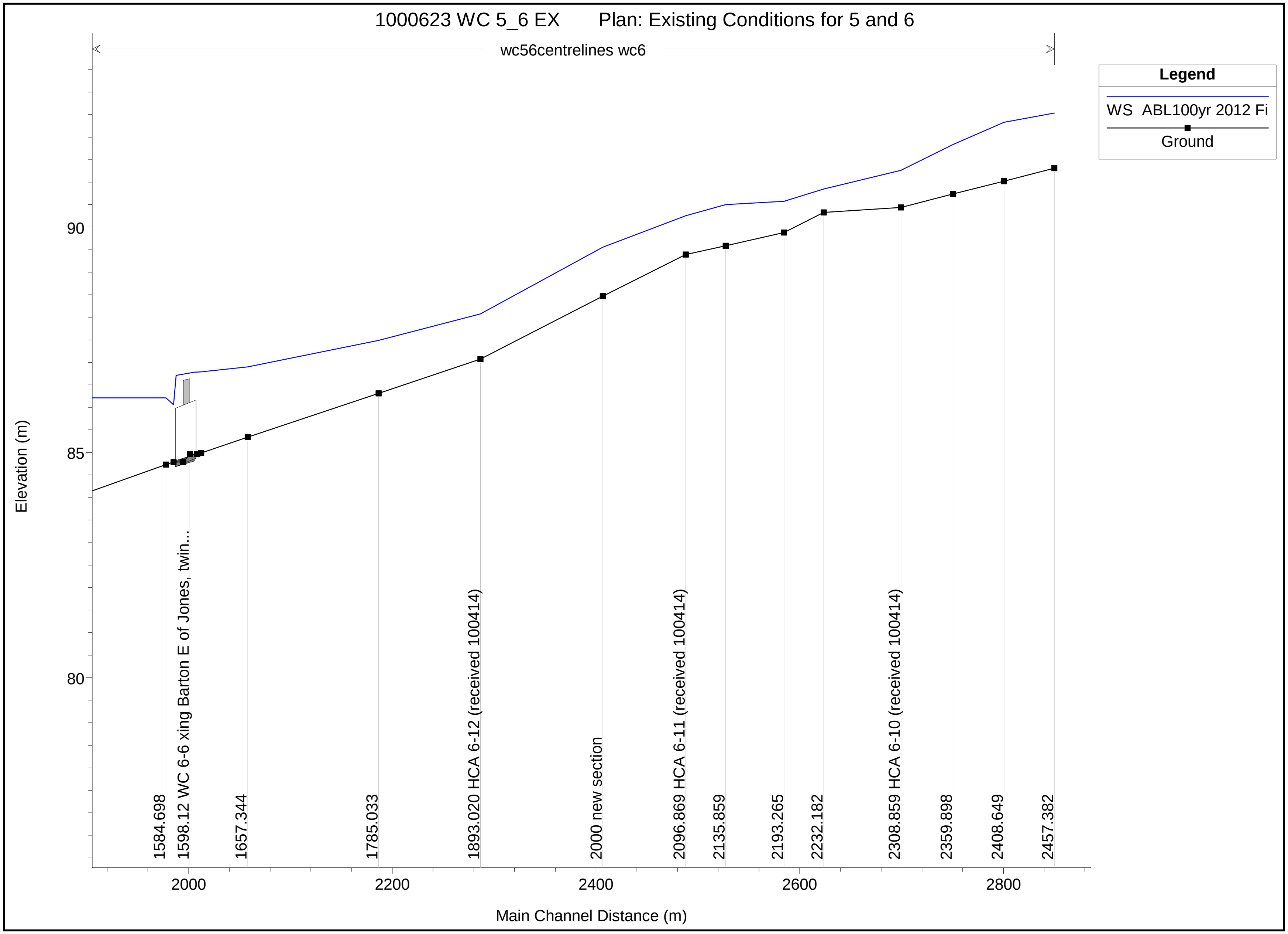
1000623 WC 5_6 EX Plan: Existing Conditions for 5 and 6
wc56centrelines wc5
Legend
WS ABL100yr 2012 Fi
Ground
Elevation (m)
94
92
90
88
86
84
Main Channel Distance (m)
1200
1400
1600
1800
2000
2200
1225.493
1288.054
1291.617
1307.90 WC 5-6 xing B...
1320.692 xs1 for barton...
1439.675
1471.795 HCA 5-4 (received 100...
1537.467
1602.883
1693.967
1801.453
1845.237
1874.583 HCA 5-3 (received 100126)
1901.030
1986.134
2044.707
2068.437 HCA 5-2 (received 100126)
2150
2198
2221
2240.61 WC5-7 x-ing Fuitland, N Hwy. 8, D/S higher than U/S
2290 xs1 for Fruitland xing
2388.964 HCA 5-1 (received 100126)

HEC-RAS Plan: EX 5&6 River: wc56centrelines Reach: wc5 Profile: ABL100yr 2012 Fi

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
wc5	2388.964	ABL100yr 2012 Fi	13.60	92.94	94.28	93.88	94.31	0.001156	0.99	28.80	42.44	0.31
wc5	2290	ABL100yr 2012 Fi	13.60	92.11	93.98		94.07	0.002120	1.35	10.93	16.57	0.41
wc5	2256	ABL100yr 2012 Fi	13.60	91.90	93.58	93.18	93.92	0.008374	2.61	5.98	13.81	0.73
wc5	2240.61		Culvert									
wc5	2221	ABL100yr 2012 Fi	13.60	91.58	92.86	92.86	93.50	0.011186	3.55	3.83	6.04	1.00
wc5	2198	ABL100yr 2012 Fi	13.60	91.41	92.77	92.65	93.06	0.008058	2.42	6.56	11.61	0.77
wc5	2150	ABL100yr 2012 Fi	13.60	91.07	92.44	92.31	92.72	0.007741	2.39	6.64	11.52	0.76
wc5	2068.437	ABL100yr 2012 Fi	13.60	90.36	91.78	91.78	92.03	0.009138	2.44	9.37	24.50	0.77
wc5	2044.707	ABL100yr 2012 Fi	13.60	89.83	91.32	91.08	91.54	0.005127	2.10	8.45	19.50	0.63
wc5	1986.134	ABL100yr 2012 Fi	14.70	89.59	90.85	90.85	91.30	0.013826	2.96	5.05	6.26	1.00
wc5	1901.030	ABL100yr 2012 Fi	14.70	88.78	90.50		90.63	0.002531	1.67	12.57	20.96	0.46
wc5	1874.583	ABL100yr 2012 Fi	14.70	88.53	90.18	90.18	90.50	0.008309	2.58	7.69	19.92	0.76
wc5	1845.237	ABL100yr 2012 Fi	14.70	88.39	89.91		90.12	0.005141	2.13	8.34	12.14	0.63
wc5	1801.453	ABL100yr 2012 Fi	14.70	88.17	89.76		89.92	0.003632	1.87	10.97	25.55	0.54
wc5	1693.967	ABL100yr 2012 Fi	14.70	87.76	89.20	89.05	89.49	0.007279	2.42	6.92	13.51	0.75
wc5	1602.883	ABL100yr 2012 Fi	15.70	87.17	88.56	88.56	88.73	0.005602	2.07	15.06	59.28	0.65
wc5	1537.467	ABL100yr 2012 Fi	15.70	86.84	88.12	88.12	88.26	0.006154	2.00	16.47	64.02	0.67
wc5	1471.795	ABL100yr 2012 Fi	15.70	86.50	87.95		87.98	0.001449	1.16	30.61	70.10	0.34
wc5	1439.675	ABL100yr 2012 Fi	15.70	86.27	87.94	87.48	87.95	0.000546	0.75	41.23	69.81	0.21
wc5	1320.692	ABL100yr 2012 Fi	16.50	85.57	87.82		87.87	0.000873	1.22	30.50	101.48	0.28
wc5	1316.508	ABL100yr 2012 Fi	16.50	85.26	87.82	87.76	87.84	0.001806	1.08	48.00	237.86	0.36
wc5	1307.90		Culvert									

Hydraulic Model Output

2) Watercourse 6



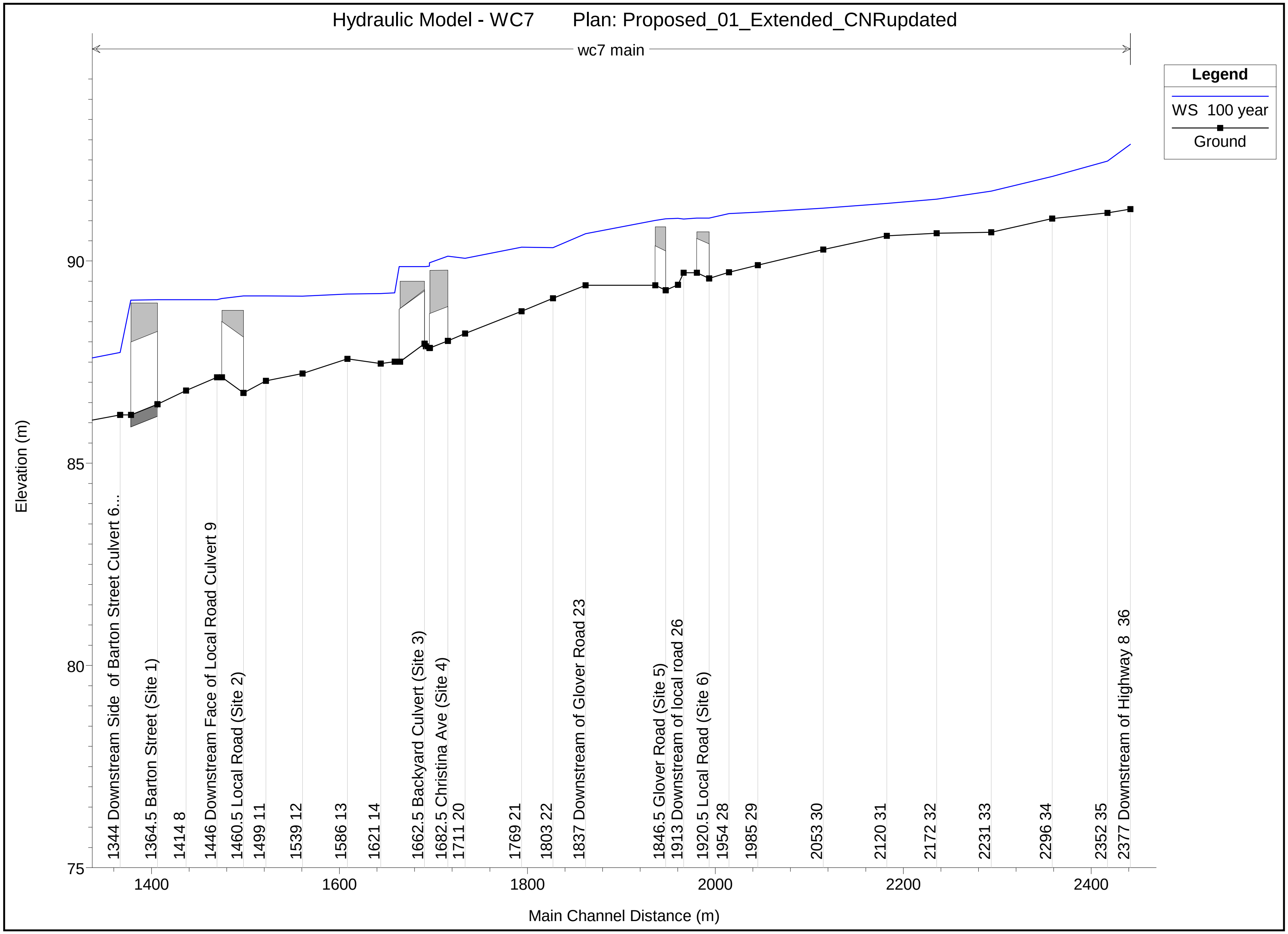
1000623 WC 5_6 EX Plan: Existing Conditions for 5 and 6
wc56centrelines wc6
Legend
WS ABL100yr 2012 Fi
Ground
Elevation (m)
90
85
80
Main Channel Distance (m)
2000
2200
2400
2600
2800
1584.698
1598.12 WC 6-6 xing Barton E of Jones, twin...
1657.344
1785.033
1893.020 HCA 6-12 (received 100414)
2000 new section
2096.869 HCA 6-11 (received 100414)
2135.859
2193.265
2232.182
2308.859 HCA 6-10 (received 100414)
2359.898
2408.649
2457.382

HEC-RAS Plan: EX 5&6 River: wc56centrelines Reach: wc6 Profile: ABL100yr 2012 Fi

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
wc6	2457.382	ABL100yr 2012 Fi	8.90	91.31	92.53	92.50	92.98	0.011755	3.02	3.43	4.22	0.91
wc6	2408.649	ABL100yr 2012 Fi	8.90	91.02	92.33	92.18	92.52	0.005514	2.17	5.78	9.90	0.63
wc6	2359.898	ABL100yr 2012 Fi	8.90	90.74	91.84	91.84	92.13	0.010955	2.60	4.34	8.18	0.87
wc6	2308.859	ABL100yr 2012 Fi	8.90	90.44	91.26		91.33	0.002765	1.16	7.78	12.55	0.44
wc6	2232.182	ABL100yr 2012 Fi	8.90	90.33	90.85	90.81	90.96	0.010581	1.52	7.11	29.70	0.80
wc6	2193.265	ABL100yr 2012 Fi	8.90	89.88	90.57	90.51	90.63	0.006425	1.39	13.57	50.10	0.63
wc6	2135.859	ABL100yr 2012 Fi	8.90	89.59	90.50	90.25	90.51	0.000849	0.65	36.13	92.31	0.23
wc6	2096.869	ABL100yr 2012 Fi	9.40	89.40	90.26	90.26	90.41	0.013116	2.39	8.63	25.37	0.91
wc6	2000	ABL100yr 2012 Fi	9.40	88.47	89.56	89.56	89.68	0.006096	1.93	12.26	53.86	0.63
wc6	1893.020	ABL100yr 2012 Fi	9.40	87.07	88.08	88.08	88.21	0.009775	1.95	9.37	35.35	0.76
wc6	1785.033	ABL100yr 2012 Fi	9.40	86.31	87.49	87.40	87.55	0.004124	1.35	14.73	68.61	0.52
wc6	1657.344	ABL100yr 2012 Fi	9.40	85.34	86.90	86.42	87.07	0.003307	1.87	6.78	18.56	0.50
wc6	1611.292	ABL100yr 2012 Fi	10.10	84.99	86.79		86.94	0.002347	1.74	6.83	8.05	0.43
wc6	1608.895	ABL100yr 2012 Fi	10.10	84.96	86.79	86.00	86.92	0.004018	1.66	7.26	16.29	0.50
wc6	1598.12		Culvert									

Hydraulic Model Output

3) Watercourse 7

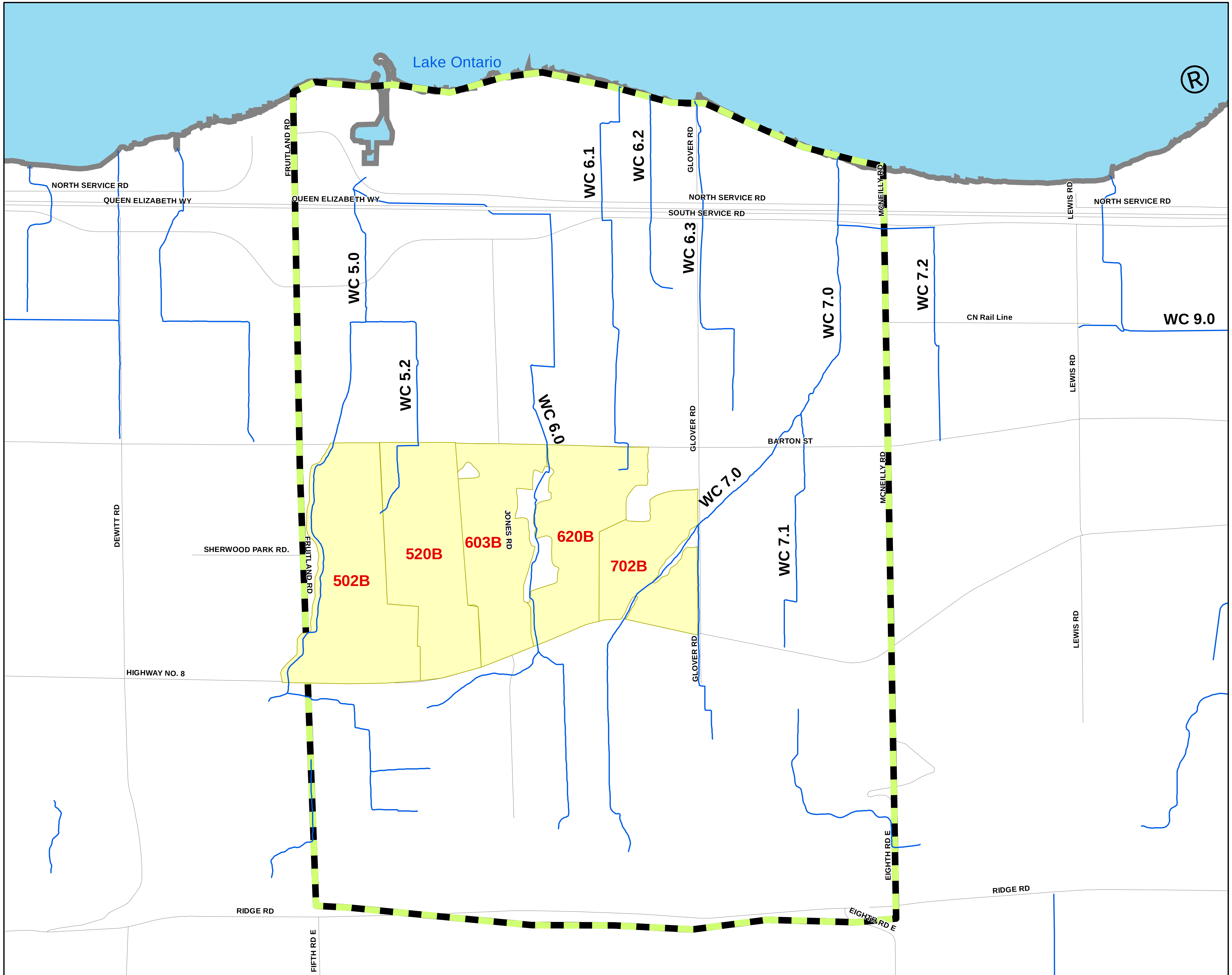


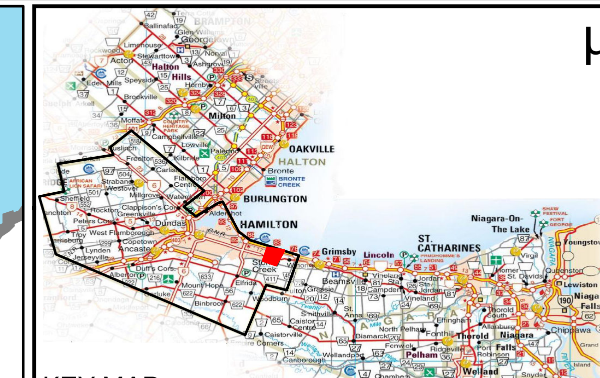
Hydraulic Model - WC7 Plan: Proposed_01_Extended_CNRupdated
wc7 main
Legend
WS 100 year
Ground
Elevation (m)
Main Channel Distance (m)
90
85
80
75
1400
1600
1800
2000
2200
2400
1344 Downstream Side of Barton Street Culvert 6...
1364.5 Barton Street (Site 1)
1414 8
1446 Downstream Face of Local Road Culvert 9
1460.5 Local Road (Site 2)
1499 11
1539 12
1586 13
1621 14
1662.5 Backyard Culvert (Site 3)
1682.5 Christina Ave (Site 4)
1711 20
1769 21
1803 22
1837 Downstream of Glover Road 23
1846.5 Glover Road (Site 5)
1913 Downstream of local road 26
1920.5 Local Road (Site 6)
1954 28
1985 29
2053 30
2120 31
2172 32
2231 33
2296 34
2352 35
2377 Downstream of Highway 8 36

HEC-RAS Plan: 01 River: wc7 Reach: main Profile: 100 year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
main	2377	100 year	8.50	91.29	92.89	92.89	93.45	0.026428	3.33	2.56	2.26	1.00
main	2352	100 year	8.50	91.19	92.47		92.56	0.004712	1.33	6.55	14.66	0.56
main	2296	100 year	8.50	91.05	92.09	92.09	92.17	0.010223	1.53	10.86	79.19	0.77
main	2231	100 year	8.50	90.71	91.73		91.75	0.002063	1.05	19.04	73.15	0.37
main	2172	100 year	8.50	90.69	91.53		91.58	0.004877	1.51	13.28	59.92	0.57
main	2120	100 year	8.50	90.62	91.42		91.43	0.001553	0.64	24.63	105.21	0.31
main	2053	100 year	8.50	90.29	91.31		91.32	0.001716	0.70	23.68	132.75	0.33
main	1985	100 year	8.50	89.90	91.21		91.23	0.001009	0.70	18.43	64.51	0.27
main	1954	100 year	8.50	89.72	91.17		91.19	0.001304	0.76	17.05	47.94	0.30
main	1928	100 year	8.50	89.57	91.06	90.97	91.13	0.003594	1.50	10.88	38.83	0.49
main	1920.5		Culvert									
main	1913	100 year	8.50	89.71	91.04	91.04	91.12	0.005706	1.49	11.16	74.71	0.60
main	1885	100 year	8.50	89.41	91.05		91.06	0.000536	0.45	32.21	116.21	0.19
main	1856	100 year	8.50	89.28	91.05	90.20	91.05	0.000409	0.52	37.70	140.89	0.16
main	1846.5		Culvert									
main	1837	100 year	8.50	89.40	90.68	90.53	90.70	0.002199	0.90	15.86	50.98	0.34
main	1803	100 year	8.50	89.08	90.33	90.33	90.51	0.012386	1.93	5.31	18.16	0.86
main	1769	100 year	8.50	88.76	90.34		90.35	0.000495	0.55	26.00	65.59	0.19
main	1711	100 year	8.50	88.21	90.06	89.88	90.25	0.009520	1.93	4.41	8.07	0.73
main	1692	100 year	8.50	88.03	90.12	88.95	90.14	0.000702	0.63	18.45	44.42	0.22
main	1682.5		Culvert									
main	1673	100 year	8.50	87.85	89.87	88.77	89.89	0.001037	0.64	19.40	52.27	0.24
main	1669	100 year	8.50	87.89	89.86		89.88	0.000419	0.71	16.69	39.13	0.19
main	1667	100 year	8.50	87.96	89.86	88.96	89.88	0.000506	0.62	19.22	43.91	0.19
main	1662.5		Culvert									
main	1636	100 year	8.50	87.51	89.22	88.51	89.30	0.002340	1.30	6.52	5.33	0.38
main	1621	100 year	8.50	87.47	89.19		89.26	0.002054	1.15	7.53	9.30	0.39
main	1586	100 year	8.50	87.58	89.18		89.21	0.000734	0.71	13.25	24.74	0.24
main	1539	100 year	8.50	87.22	89.13		89.17	0.000982	0.84	12.72	32.36	0.27
main	1499	100 year	8.50	87.04	89.14		89.15	0.000151	0.48	30.79	43.75	0.12
main	1475	100 year	8.50	86.74	89.14	88.41	89.14	0.000056	0.27	53.26	75.55	0.07
main	1460.5		Culvert									
main	1446	100 year	8.50	87.12	89.05	88.50	89.05	0.000114	0.38	36.95	58.20	0.10
main	1414	100 year	8.50	86.80	89.04		89.05	0.000086	0.31	40.12	60.98	0.09
main	1385	100 year	8.50	86.46	89.04	87.69	89.04	0.000053	0.28	55.93	109.95	0.07
main	1364.5		Culvert									

Stormwater Management Pond Parameter





KEY MAP

LEGEND:

- CREEK
- ROAD
- SWM POND CATCHMENT

NOTES:

0 150 300 600 900 1,200

Meters

Hamilton

Aquafor Beech Limited

STONEY CREEK URBAN EXPANSION (SCUBE) WEST SUBWATERSHED STUDY
Phase 1 and Phase 2

SWMHYMO HYDROLOGIC MODEL

FUTURE LANDUSE CATCHMENTS

FIGURE No. A.1

DATE: MAY, 2013

Stormwater Management Pond Output

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================================================================
========================================

      V   V  I   SSSSS  U   U    A    L
      V   V  I   SS     U   U   A A   L
       V V   I    SS    U   U  AAAAA  L
       V V   I     SS   U   U  A   A  L
        VV   I   SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O     Company
       OOO     T      T    H   H    Y    M   M   OOO
Serial

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                 ***** D E T A I L E D   O U T P U T *****

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2.4\VO2\voin.dat
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  Summary filename: C:\Users\Jenny\AppData\Local\Temp\772ef247-
53d3-4396-9ae6-fc27a8e398fc\Scenario.sum

DATE: 04/19/2013                          TIME: 01:26:15

USER:

COMMENTS: ____________________________________________________________

----------------------------------------------------------------
------------------------------------------
  ****************************
  ** SIMULATION NUMBER:   2 **
  ****************************

--------------------
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|                 |              ata\Local\Temp\
|                 |              772ef247-53d3-4396-9ae6-
fc27a8e398fc\ef8fa2e6
| Ptotal= 39.70 mm |    Comments: Mount Hope-6 hour SCS
Distribution Desig
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                 0.17    1.59 |  1.67    3.97 |  3.17    8.73 |
4.67    2.38
                 0.33    1.59 |  1.83    3.97 |  3.33    8.73 |
4.83    2.38
                 0.50    1.59 |  2.00    3.97 |  3.50    8.73 |
5.00    2.38
                 0.67    2.38 |  2.17    4.76 |  3.67    3.97 |
5.17    1.59
                 0.83    2.38 |  2.33    4.76 |  3.83    3.97 |
5.33    1.59
                 1.00    2.38 |  2.50    4.76 |  4.00    3.97 |
5.50    1.59
                 1.17    2.38 |  2.67   23.82 |  4.17    3.18 |
5.67    1.59
                 1.33    2.38 |  2.83   42.88 |  4.33    3.18 |
5.83    1.59
                 1.50    2.38 |  3.00   61.93 |  4.50    3.18 |
6.00    1.59

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| CALIB           |
| STANDHYD  (5102) |   Area    (ha)=   1.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09         0.61
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     106.46        40.00
     Mannings n          =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

                            ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                0.083    1.59 | 1.583    3.97 | 3.083    8.73 |
4.58    2.38
                0.167    1.59 | 1.667    3.97 | 3.167    8.73 |
4.67    2.38
                0.250    1.59 | 1.750    3.97 | 3.250    8.73 |
4.75    2.38
                0.333    1.59 | 1.833    3.97 | 3.333    8.73 |
4.83    2.38
                0.417    1.59 | 1.917    3.97 | 3.417    8.73 |
4.92    2.38
                0.500    1.59 | 2.000    3.97 | 3.500    8.73 |
5.00    2.38
                0.583    2.38 | 2.083    4.76 | 3.583    3.97 |
5.08    1.59
                0.667    2.38 | 2.167    4.76 | 3.667    3.97 |
5.17    1.59
                0.750    2.38 | 2.250    4.76 | 3.750    3.97 |
5.25    1.59
                0.833    2.38 | 2.333    4.76 | 3.833    3.97 |
5.33    1.59
                0.917    2.38 | 2.417    4.76 | 3.917    3.97 |
5.42    1.59
                1.000    2.38 | 2.500    4.76 | 4.000    3.97 |
5.50    1.59
                1.083    2.38 | 2.583   23.82 | 4.083    3.18 |
5.58    1.59
                1.167    2.38 | 2.667   23.82 | 4.167    3.18 |
5.67    1.59
                1.250    2.38 | 2.750   42.88 | 4.250    3.18 |
5.75    1.59
                1.333    2.38 | 2.833   42.88 | 4.333    3.18 |
5.83    1.59
                1.417    2.38 | 2.917   61.93 | 4.417    3.18 |
5.92    1.59
                1.500    2.38 | 3.000   61.93 | 4.500    3.18 |
6.00    1.59

     Max.Eff.Inten.(mm/hr)=      61.93        16.27
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       3.21 (ii)   21.18 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.27         0.05

*TOTALS*
    PEAK FLOW       (cms)=       0.15         0.02
0.158 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.33
3.00
    RUNOFF VOLUME    (mm)=      33.70         8.61
21.65
    TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
    RUNOFF COEFFICIENT   =       0.85         0.22
0.55

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0511) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation       Manning
                  0.00         81.24         0.1100
                 33.01         80.98         0.1100
                 49.97         81.27         0.1100
                 54.18         80.35         0.1100
                 60.88         81.23     0.1100 /0.0700  Main
Channel
                 69.13         79.02         0.0700      Main
Channel
                 92.42         79.04         0.0700      Main
Channel
                 98.70         80.89     0.0700 /0.1100  Main
Channel
                128.88         81.13         0.1100
                199.00         81.23         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
    DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.12    79.13    .361E+03       0.6          0.24
9.91
     0.23    79.25    .776E+03       2.1          0.40
6.09
     0.35    79.37    .121E+04       4.3          0.52
4.65
     0.47    79.48    .165E+04       7.1          0.63
3.85
     0.59    79.60    .211E+04      10.5          0.72
3.34
     0.70    79.72    .258E+04      14.4          0.81
2.98
     0.82    79.84    .307E+04      18.8          0.89
2.71
     0.94    79.95    .357E+04      23.8          0.97
2.50
     1.05    80.07    .408E+04      29.2          1.04
2.33
     1.17    80.19    .461E+04      35.1          1.10
2.19
     1.29    80.30    .515E+04      41.5          1.17
2.07
     1.41    80.42    .571E+04      48.4          1.23
1.97
     1.52    80.54    .631E+04      55.8          1.28
1.88
     1.64    80.66    .695E+04      63.8          1.33
1.81
     1.76    80.77    .762E+04      72.3          1.38
1.76
     1.87    80.89    .833E+04      81.4          1.42
1.71
     2.00    81.02    .931E+04      92.4          1.44
1.68
     2.13    81.14    .109E+05     104.8          1.39
1.74
     2.25    81.27    .140E+05     120.9          1.25
1.93

                                       <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (5102)    1.70     0.16    3.00  21.65
0.03     0.24
     OUTFLOW: ID= 1 (0511)    1.70     0.12    3.00  21.64
0.02     0.24

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--------------------
| CALIB           |
| STANDHYD  (5112) |   Area    (ha)=   3.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=
58.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.07         0.93
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     141.42        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        20.16
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       3.81 (ii)   20.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.25         0.05

*TOTALS*
    PEAK FLOW       (cms)=       0.29         0.03
0.307 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.33
3.00
    RUNOFF VOLUME    (mm)=      33.70        10.35
23.89
    TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
    RUNOFF COEFFICIENT   =       0.85         0.26
0.60

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0117) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0511):      1.70   0.117     3.00    21.64
        + ID2= 2 (5112):      3.00   0.307     3.00    23.89
          ==============================================
          ID = 3 (0117):      4.70   0.424     3.00    23.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0512) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 484.2) ------>
               Distance      Elevation       Manning
                  0.00         80.80         0.0900
                  9.73         80.46         0.0900
                 14.10         82.04         0.0900
                 17.18         82.28         0.0900
                 41.13         82.12     0.0900 /0.0700  Main
Channel
                 46.88         79.71         0.0700      Main
Channel
                 51.41         80.90     0.0700 /0.0900  Main
Channel
                 94.29         80.56         0.0900
                175.64         80.72         0.0900
                192.09         80.85         0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
    DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.13    79.84    .255E+02       0.0          0.14
54.71
     0.26    79.98    .102E+03       0.0          0.23
34.47
     0.40    80.11    .229E+03       0.1          0.30
26.30
     0.53    80.24    .408E+03       0.3          0.36
21.71
     0.66    80.37    .637E+03       0.6          0.42
18.71
     0.79    80.51    .934E+03       0.9          0.46
16.84
     0.93    80.64    .245E+04       1.6          0.31
24.96
     1.06    80.77    .873E+04       4.6          0.25
31.51
     1.19    80.90    .179E+05      11.4          0.30
26.08
     1.32    81.04    .278E+05      22.6          0.38
20.45
     1.46    81.17    .381E+05      37.5          0.46
16.91
     1.60    81.31    .484E+05      55.4          0.54
14.57
     1.74    81.45    .588E+05      76.0          0.61
12.90
     1.87    81.59    .693E+05      99.3          0.67
11.63
     2.01    81.72    .798E+05     125.0          0.73
10.64
     2.15    81.86    .903E+05     153.1          0.80
9.83
     2.29    82.00    .101E+06     183.5          0.85
9.16
     2.42    82.14    .112E+06     214.3          0.90
8.68
     2.56    82.27    .123E+06     244.4          0.93
8.40

                                       <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0117)    4.70     0.42    3.00  23.08
0.59     0.38
     OUTFLOW: ID= 1 (0512)    4.70     0.23    3.08  23.01
0.47     0.33

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| CALIB           |
| STANDHYD  (5122) |   Area    (ha)=   3.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=
57.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.65         1.25
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     161.25        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        19.82
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       4.12 (ii)   20.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.24         0.05

*TOTALS*
    PEAK FLOW       (cms)=       0.37         0.04
0.390 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.33
3.00
    RUNOFF VOLUME    (mm)=      33.70        10.26
23.62
    TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
    RUNOFF COEFFICIENT   =       0.85         0.26
0.59

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0119) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0512):      4.70   0.234     3.08    23.01
        + ID2= 2 (5122):      3.90   0.390     3.00    23.62
          ==============================================
          ID = 3 (0119):      8.60   0.606     3.00    23.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB           |
| STANDHYD  (5202) |   Area    (ha)=  24.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  52.00   Dir. Conn.(%)=
37.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.74        11.76
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     404.15        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        19.58
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       7.15 (ii)   23.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.17         0.05

*TOTALS*
    PEAK FLOW       (cms)=       1.40         0.34
1.569 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.33
3.00
    RUNOFF VOLUME    (mm)=      38.20        10.37
20.67
    TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
    RUNOFF COEFFICIENT   =       0.96         0.26
0.52

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
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     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| RESERVOIR (0002) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW
STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)
(ha.m.)
                          0.0000     0.0000   |   0.1590
0.3750
                          0.0240     0.2630   |   0.0000
0.0000

                               AREA     QPEAK     TPEAK
R.V.
                               (ha)     (cms)     (hrs)
(mm)
     INFLOW : ID= 2 (5202)     24.500      1.569      3.00
20.67
     OUTFLOW: ID= 1 (0002)     24.500      0.159      4.58
20.55

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.14
                  TIME SHIFT OF PEAK FLOW         (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.3751

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| ROUTE CHN (0521) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION ( 815.4) ------>
              Distance      Elevation       Manning
                415.18         83.86        0.0900
                461.15         83.40        0.0900
                501.83         83.53    0.0900 /0.0700  Main
Channel
                513.93         82.96        0.0700      Main
Channel
                526.85         83.23    0.0700 /0.0900  Main
Channel
                569.63         83.21        0.0900
                610.76         83.63        0.0900
                663.54         83.88        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.05    83.00   .378E+02      0.0          0.11
83.81
        0.09    83.05   .151E+03      0.0          0.17
52.79
        0.14    83.09   .340E+03      0.1          0.22
40.29
        0.18    83.14   .605E+03      0.3          0.27
33.26
        0.23    83.18   .946E+03      0.5          0.32
28.66
        0.27    83.23   .151E+04      0.9          0.33
27.77
        0.32    83.27   .323E+04      1.8          0.31
29.51
        0.37    83.32   .510E+04      3.2          0.34
26.44
        0.42    83.37   .713E+04      5.0          0.38
23.61
        0.46    83.42   .934E+04      7.3          0.42
21.44
        0.51    83.47   .121E+05     10.0          0.45
20.23
        0.56    83.52   .156E+05     13.4          0.47
19.44
        0.61    83.57   .196E+05     17.7          0.49
18.52
        0.66    83.61   .240E+05     22.8          0.52
17.49
        0.71    83.66   .286E+05     28.4          0.54
16.75
        0.75    83.71   .336E+05     34.7          0.56
16.14
        0.80    83.76   .390E+05     41.8          0.58
15.55
        0.85    83.81   .448E+05     49.8          0.60
14.99
        0.90    83.86   .510E+05     58.8          0.63
14.46

                                    <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (0002)   24.50    0.16    4.58  20.55
0.14     0.23
     OUTFLOW: ID= 1 (0521)   24.50    0.15    5.33  20.55
0.14     0.23

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| CALIB             |
| STANDHYD  (5212) |   Area    (ha)=  15.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
66.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.78         3.93
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     323.52        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        29.70
               over (min)        5.00        25.00
     Storage Coeff.  (min)=       6.26 (ii)   20.38 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.19         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.64         0.16
1.726 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70        12.76
26.58
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.32
0.67

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0113) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0521):    24.50   0.148     5.33    20.55
        + ID2= 2 (5212):    15.70   1.726     3.00    26.58
          ================================================
          ID = 3 (0113):    40.20   1.730     3.00    22.90
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     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| NASHYD    (5011) |   Area    (ha)=  80.20   Curve Number
(CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.85

     Unit Hyd Qpeak  (cms)=   3.621

     PEAK FLOW       (cms)=   0.550 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=   5.964
     TOTAL RAINFALL   (mm)=  39.698
     RUNOFF COEFFICIENT   =   0.150

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (5012) |   Area    (ha)=  39.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.97        24.43
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     512.51        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        13.05
               over (min)       10.00        30.00
     Storage Coeff.  (min)=       8.25 (ii)   27.87 (ii)
     Unit Hyd. Tpeak (min)=      10.00        30.00
     Unit Hyd. peak  (cms)=       0.13         0.04

*TOTALS*
     PEAK FLOW       (cms)=       1.32         0.43
1.476 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      33.70         7.60
13.86
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.19
0.35

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  65.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0100) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5011):    80.20   0.550     3.92     5.96
        + ID2= 2 (5012):    39.40   1.476     3.00    13.86
          ================================================
          ID = 3 (0100):   119.60   1.576     3.08     8.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0502) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1537.5) ------>
              Distance      Elevation       Manning
                  0.00         89.30        0.1100
                  4.20         89.28        0.1100
                  9.03         88.80        0.1100
                 21.55         88.78        0.1100
                 29.06         88.24        0.1100
                 39.87         87.83        0.1100
                 55.54         87.84    0.1100 /0.0700  Main
Channel
                 57.54         86.84        0.0700      Main
Channel
                 59.04         86.84        0.0700      Main
Channel
                 61.04         87.84    0.0700 /0.1100  Main
Channel
                 74.10         87.86        0.1100
                 87.72         88.07        0.1100
                101.34         88.18        0.1100
                113.53         88.23        0.1100
                128.57         88.32        0.1100
                142.19         88.61        0.1100
                155.81         88.53        0.1100
                183.05         88.85        0.1100
                187.19         88.84        0.1100
                211.21         88.88        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.10    86.94   .202E+03      0.0          0.25
78.80
        0.20    87.04   .452E+03      0.1          0.37
52.91
        0.30    87.14   .749E+03      0.3          0.47
42.34
        0.40    87.24   .109E+04      0.5          0.55
36.26
        0.50    87.34   .149E+04      0.8          0.62
32.18
        0.60    87.44   .193E+04      1.1          0.68
29.19
        0.70    87.54   .241E+04      1.5          0.74
26.87
        0.80    87.64   .295E+04      2.0          0.79
25.01
        0.90    87.74   .353E+04      2.5          0.84
23.46
        1.00    87.84   .421E+04      3.1          0.89
22.39
        1.10    87.94   .849E+04      4.5          0.63
31.56
        1.21    88.05   .150E+05      7.1          0.56
35.43
        1.33    88.17   .233E+05     10.6          0.54
36.49
        1.44    88.28   .346E+05     15.5          0.53
37.18
        1.56    88.40   .484E+05     22.8          0.56
35.35
        1.67    88.51   .634E+05     32.1          0.60
32.90
        1.79    88.63   .807E+05     41.2          0.61
32.65
        1.90    88.74   .101E+06     54.6          0.64
30.77
        2.02    88.86   .124E+06     64.7          0.62
31.85

                                    <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
```

```
                             (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (0100)  119.60    1.58    3.08   8.57
0.72     0.75
     OUTFLOW: ID= 1 (0502)  119.60    1.01    3.67   8.56
0.57     0.66

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-------------------
| CALIB             |
| STANDHYD  (5022) |   Area    (ha)=  39.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      19.90        19.90
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     515.11        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        13.36
               over (min)       10.00        30.00
     Storage Coeff.  (min)=       8.27 (ii)   27.71 (ii)
     Unit Hyd. Tpeak (min)=      10.00        30.00
     Unit Hyd. peak  (cms)=       0.13         0.04

*TOTALS*
     PEAK FLOW       (cms)=       1.94         0.36
2.075 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      38.20         7.34
18.14
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.96         0.18
0.46

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| RESERVOIR (0001) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW
STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)
(ha.m.)
                          0.0000     0.0000   |   0.1660
0.5730
                          0.0250     0.4010   |   0.0000
0.0000

                               AREA     QPEAK     TPEAK
R.V.
                               (ha)     (cms)     (hrs)
(mm)
     INFLOW : ID= 2 (5022)     39.800      2.075      3.00
18.14
     OUTFLOW: ID= 1 (0001)     39.800      0.166      5.08
17.82

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.98
                  TIME SHIFT OF PEAK FLOW         (min)=125.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5726

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-------------------
| ADD HYD   (0102) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0001):    39.80   0.166     5.08    17.82
        + ID2= 2 (0502):   119.60   1.014     3.67     8.56
          ================================================
          ID = 3 (0102):   159.40   1.122     3.75    10.88

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0503) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1157.9) ------>
              Distance      Elevation       Manning
                  0.00         86.78        0.0900
                 25.34         87.17        0.0900
                 68.44         87.04        0.0900
                117.13         86.81        0.0900
                125.36         85.21    0.0900 /0.0700  Main
Channel
                127.36         84.21        0.0700      Main
Channel
                128.86         84.21        0.0700      Main
Channel
                130.86         85.21    0.0700 /0.0900  Main
Channel
                131.88         86.36        0.0900
                140.63         86.77        0.0900
                168.26         86.90        0.0900
                169.81         87.10        0.0900
                202.11         87.50        0.0900
                239.06         87.35        0.0900
                270.29         87.83        0.0900
                283.90         87.90        0.0900
                297.51         87.86        0.0900
                324.73         87.89        0.0900
                351.95         87.78        0.0900
                388.59         87.46        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.17    84.38   .114E+03      0.1          0.34
18.34
        0.33    84.54   .269E+03      0.4          0.50
12.51
        0.50    84.71   .465E+03      0.8          0.62
10.07
        0.67    84.88   .703E+03      1.4          0.72
8.63
        0.83    85.04   .982E+03      2.1          0.81
7.65
        1.00    85.21   .130E+04      3.1          0.89
6.93
        1.21    85.42   .177E+04      5.0          1.06
5.87
        1.41    85.62   .234E+04      7.4          1.17
5.28
        1.62    85.83   .300E+04     10.2          1.27
4.89
        1.83    86.04   .376E+04     13.6          1.35
4.60
        2.03    86.24   .462E+04     17.6          1.42
4.37
        2.24    86.45   .560E+04     22.1          1.47
4.22
        2.45    86.66   .695E+04     27.6          1.48
4.20
        2.66    86.87   .925E+04     31.2          1.25
4.94
        2.86    87.07   .168E+05     43.1          0.96
6.48
```

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        3.07    87.28   .297E+05      67.7          0.85
7.30
        3.28    87.49   .456E+05     103.1          0.84
7.38
        3.48    87.69   .663E+05     159.6          0.89
6.93
        3.69    87.90   .907E+05     223.4          0.92
6.77

                                  <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0102)  159.40     1.12    3.75  10.88
0.60     0.67
     OUTFLOW: ID= 1 (0503)  159.40     1.11    3.92  10.87
0.60     0.67


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--------------------
| CALIB             |
| STANDHYD  (5032) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  76.00   Dir. Conn.(%)=
67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.49         3.31
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     303.32        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        20.79
               over (min)        5.00        25.00
     Storage Coeff.  (min)=       6.02 (ii)   22.31 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.19         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.48         0.11
1.529 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70        10.50
26.04
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.26
0.66


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0104) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0503):   159.40   1.112     3.92    10.87
        + ID2= 2 (5032):    13.80   1.529     3.00    26.04
          ===============================================
          ID = 3 (0104):   173.20   1.763     3.00    12.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0504) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                 <------ DATA FOR SECTION ( 815.4) ------>
                 Distance      Elevation       Manning
                   19.10         82.03         0.0900
                   29.01         83.14         0.0900
                   40.83         82.56         0.0900
                   81.51         82.27         0.0900
                  122.18         82.68         0.0900
                  169.31         82.61         0.0900
                  217.10         82.90         0.0900
                  229.61         83.66    0.0900 /0.0700  Main
Channel
                  232.80         81.85         0.0700      Main
Channel
                  243.24         83.87         0.0700      Main
Channel
                  257.77         84.06         0.0900
                  312.01         83.52         0.0900
                  415.18         83.86         0.0900
                  461.15         83.40         0.0900
                  501.83         83.53         0.0900
                  513.93         82.96         0.0900
                  526.85         83.23         0.0900
                  569.63         83.21         0.0900
                  610.76         83.63         0.0900
                  663.54         83.88         0.0900

         <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.11    81.96   .117E+02       0.0          0.18
23.95
        0.23    82.08   .492E+02       0.1          0.28
15.67
        0.34    82.19   .135E+03       0.2          0.34
13.00
        0.45    82.30   .312E+03       0.4          0.32
13.44
        0.57    82.42   .116E+04       1.2          0.28
15.74
        0.68    82.53   .287E+04       3.5          0.32
13.85
        0.79    82.64   .549E+04       7.0          0.33
13.13
        0.91    82.76   .101E+05      14.9          0.39
11.28
        1.02    82.87   .155E+05      27.5          0.47
9.38
        1.13    82.98   .214E+05      45.2          0.55
7.89
        1.25    83.10   .277E+05      67.2          0.64
6.87
        1.36    83.21   .344E+05      93.6          0.71
6.12
        1.47    83.32   .426E+05     125.3          0.77
5.67
        1.59    83.44   .516E+05     162.2          0.82
5.30
        1.70    83.55   .620E+05     204.2          0.86
5.06
        1.81    83.66   .747E+05     254.0          0.89
4.90
        1.95    83.80   .924E+05     324.9          0.92
4.74
        2.08    83.93   .113E+06     411.3          0.95
4.59
        2.21    84.06   .135E+06     515.5          1.00
4.37

                                  <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
```

```
     INFLOW : ID= 2 (0104)  173.20     1.76    3.00  12.08
0.59     0.29
     OUTFLOW: ID= 1 (0504)  173.20     1.26    4.00  12.08
0.57     0.28


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--------------------
| CALIB             |
| STANDHYD  (5042) |   Area    (ha)=   7.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.77         1.92
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     226.57        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        19.38
               over (min)        5.00        25.00
     Storage Coeff.  (min)=       5.05 (ii)   21.81 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.21         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.82         0.06
0.847 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70         9.68
25.29
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.24
0.64


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0106) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0504):   173.20   1.259     4.00    12.08
        + ID2= 2 (5042):     7.70   0.847     3.00    25.29
          ===============================================
          ID = 3 (0106):   180.90   1.838     3.00    12.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0114) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0106):   180.90   1.838     3.00    12.64
        + ID2= 2 (0113):    40.20   1.730     3.00    22.90
          ===============================================
          ID = 3 (0114):   221.10   3.568     3.00    14.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0505) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                 <------ DATA FOR SECTION ( 553.6) ------>
                 Distance      Elevation       Manning
                    0.00         81.24         0.1100
                   33.01         80.98         0.1100
                   49.97         81.27         0.1100
                   54.18         80.35         0.1100
                   60.88         81.23         0.1100
                   69.13         79.02         0.1100
                   92.42         79.04         0.1100
                   98.70         80.89         0.1100
                  128.88         81.13         0.1100
                  199.00         81.23         0.1100
                  266.11         81.68         0.1100
                  306.94         81.73         0.1100
                  331.74         81.55    0.1100 /0.0700  Main
Channel
                  336.74         80.15         0.0700      Main
Channel
                  346.34         81.64    0.0700 /0.0900  Main
Channel
                  394.77         81.68         0.0900
                  431.64         81.44         0.0900
                  477.44         82.08         0.0900
                  481.25         82.81         0.0900
                  501.53         83.16         0.0900

         <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.12    79.13   .418E+03       0.4          0.15
18.59
        0.23    79.25   .899E+03       1.3          0.25
11.41
        0.35    79.36   .140E+04       2.7          0.33
8.70
        0.46    79.48   .191E+04       4.4          0.39
7.22
        0.58    79.59   .244E+04       6.5          0.46
6.26
        0.69    79.71   .299E+04       8.9          0.51
5.58
        0.81    79.82   .355E+04      11.7          0.56
5.08
        0.92    79.94   .413E+04      14.7          0.61
4.68
        1.04    80.05   .472E+04      18.1          0.65
4.36
        1.15    80.17   .533E+04      21.7          0.70
4.09
        1.27    80.28   .598E+04      25.7          0.74
3.88
        1.38    80.40   .666E+04      29.7          0.76
3.74
        1.50    80.51   .740E+04      33.7          0.78
3.67
        1.61    80.63   .822E+04      38.1          0.79
3.59
        1.73    80.74   .909E+04      43.1          0.81
3.52
        1.84    80.86   .100E+05      48.6          0.83
3.45
        1.96    80.97   .111E+05      48.4          0.74
3.83
        2.07    81.09   .128E+05      43.8          0.59
4.86
        2.19    81.21   .155E+05      40.6          0.45
6.35

                                  <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
```

```
     INFLOW : ID= 2 (0114)  221.10     3.57    3.00  14.51
0.40     0.36
     OUTFLOW: ID= 1 (0505)  221.10     2.94    3.08  14.51
0.36     0.34


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--------------------
| CALIB             |
| STANDHYD  (5052) |   Area    (ha)=  15.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=
65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.77         4.13
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     325.58        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        17.84
               over (min)        5.00        25.00
     Storage Coeff.  (min)=       6.28 (ii)   23.60 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.19         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.64         0.11
1.692 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70         9.30
25.16
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.23
0.63


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0108) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0505):   221.10   2.940     3.08    14.51
        + ID2= 2 (5052):    15.90   1.692     3.00    25.16
          ===============================================
          ID = 3 (0108):   237.00   4.558     3.00    15.22

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0506) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
                 <------ DATA FOR SECTION ( 304.1) ------>
                 Distance      Elevation       Manning
                    0.00         81.42         0.0900
                    7.45         81.36         0.0900
                   32.34         80.38         0.0900
                   45.97         80.05         0.0900
                   65.23         79.93         0.0900
                   84.49         80.35         0.0900
                  113.49         80.02         0.0900
                  136.48         80.07         0.0900
                  188.81         79.81         0.0900
                  197.86         79.25    0.0900 /0.0700  Main
Channel
                  200.70         78.22         0.0700      Main
Channel
                  203.29         79.35    0.0700 /0.0900  Main
Channel
                  204.01         79.67         0.0900
                  236.47         80.40         0.0900
                  277.80         80.48         0.0900
                  305.35         80.37         0.0900
                  346.67         80.41         0.0900
                  387.99         80.33         0.0900
                  415.54         80.53         0.0900
                  447.88         80.49         0.0900

         <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.11    78.34   .979E+01       0.0          0.23
21.53
        0.23    78.45   .392E+02       0.0          0.37
13.56
        0.34    78.56   .881E+02       0.1          0.48
10.35
        0.46    78.68   .157E+03       0.3          0.58
8.54
        0.57    78.79   .245E+03       0.6          0.67
7.36
        0.68    78.91   .352E+03       0.9          0.76
6.52
        0.80    79.02   .480E+03       1.4          0.84
5.88
        0.91    79.13   .627E+03       1.9          0.92
5.38
        1.03    79.25   .793E+03       2.7          0.99
4.98
        1.15    79.37   .103E+04       3.8          1.09
4.55
        1.28    79.50   .135E+04       5.2          1.16
4.28
        1.40    79.62   .175E+04       7.1          1.20
4.12
        1.52    79.75   .228E+04       9.3          1.21
4.08
        1.65    79.87   .318E+04      11.7          1.10
4.52
        1.77    80.00   .524E+04      15.8          0.90
5.52
        1.90    80.12   .973E+04      24.3          0.74
6.69
        2.02    80.24   .158E+05      39.7          0.75
6.62
        2.15    80.37   .230E+05      59.2          0.77
6.46
        2.27    80.49   .349E+05      90.3          0.77
6.44

                                  <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0108)  237.00     4.56    3.00  15.22
1.22     1.12
     OUTFLOW: ID= 1 (0506)  237.00     4.18    3.08  15.22
1.19     1.11


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--------------------
| CALIB             |
| STANDHYD  (5062) |   Area    (ha)=  11.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
```

```
     Surface Area     (ha)=       8.78         2.92
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     279.28        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        21.58
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       5.73 (ii)   21.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.20         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.22         0.10
1.272 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70        10.68
25.64
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.27
0.65


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0110) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0506):   237.00   4.176     3.08    15.22
        + ID2= 2 (5062):    11.70   1.272     3.00    25.64
          ===============================================
          ID = 3 (0110):   248.70   5.144     3.00    15.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0120) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0110):   248.70   5.144     3.00    15.71
        + ID2= 2 (0119):     8.60   0.606     3.00    23.29
          ===============================================
          ID = 3 (0120):   257.30   5.750     3.00    15.97

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5302) |   Area    (ha)=   5.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
56.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.83         1.97
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     196.64        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        15.25
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       4.64 (ii)   23.08 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.22         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.54         0.05
0.558 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70         8.34
22.54
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.21
0.57

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6102) |   Area    (ha)=  21.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.55        10.55
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     375.06        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        17.81
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       6.84 (ii)   24.17 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.18         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.15         0.28
1.286 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      38.20         9.59
19.61
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.96         0.24
0.49


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0611) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 940.0) ------>
              Distance      Elevation       Manning
                 0.00         83.36         0.0900
                12.33         84.54         0.0900
                21.95         84.33     0.0900 /0.0700  Main
Channel
                25.80         83.10         0.0700      Main
Channel
                39.87         83.58     0.0700 /0.0900  Main
Channel
                95.01         83.67         0.0900
               132.30         84.45         0.0900
```

```
        <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    83.17    .442E+02       0.0          0.13
76.06
       0.14    83.24    .177E+03       0.1          0.20
47.91
       0.21    83.31    .398E+03       0.2          0.26
36.56
       0.28    83.38    .709E+03       0.4          0.32
30.22
       0.35    83.44    .113E+04       0.7          0.36
26.38
       0.41    83.51    .167E+04       1.2          0.41
23.66
       0.48    83.58    .232E+04       1.8          0.45
21.54
       0.56    83.66    .431E+04       3.1          0.42
23.06
       0.64    83.74    .779E+04       5.6          0.42
23.11
       0.72    83.82    .115E+05       9.1          0.46
20.97
       0.80    83.90    .154E+05      13.6          0.51
18.96
       0.88    83.98    .196E+05      18.9          0.55
17.31
       0.96    84.06    .240E+05      25.0          0.60
15.97
       1.04    84.14    .286E+05      32.1          0.65
14.88
       1.12    84.22    .334E+05      39.9          0.69
13.96
       1.20    84.30    .385E+05      48.6          0.73
13.19
       1.28    84.38    .438E+05      58.0          0.76
12.59
       1.36    84.46    .495E+05      68.4          0.80
12.06
       1.44    84.54    .555E+05      81.0          0.84
11.40
                                    <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
    INFLOW : ID= 2 (6102)   21.10     1.29    3.00  19.61
0.43     0.41
   OUTFLOW: ID= 1 (0611)   21.10     0.69    3.08  19.58
0.34     0.36


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--------------------
| CALIB            |
| STANDHYD  (6112) |   Area    (ha)=  11.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  72.00   Dir. Conn.(%)=
62.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.21         3.19
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     275.68        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        27.44
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       5.69 (ii)   20.26 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.20         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.14         0.12
1.199 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70        11.88
25.41
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.30
0.64


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0138) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0611):    21.10   0.688     3.08    19.58
        + ID2= 2 (6112):    11.40   1.199     3.00    25.41
          ===============================================
          ID = 3 (0138):    32.50   1.802     3.00    21.63

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6011) |   Area    (ha)=  44.10   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.83

     Unit Hyd Qpeak  (cms)=   2.027

     PEAK FLOW       (cms)=   0.275 (i)
     TIME TO PEAK    (hrs)=   3.917
     RUNOFF VOLUME    (mm)=   5.362
     TOTAL RAINFALL   (mm)=  39.698
     RUNOFF COEFFICIENT   =   0.135

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6012) |   Area    (ha)=  11.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
16.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.08         7.92
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     270.80        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93         8.91
                over (min)        5.00        30.00
     Storage Coeff.  (min)=       5.63 (ii)   28.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.20         0.04

*TOTALS*
     PEAK FLOW       (cms)=       0.28         0.11
0.323 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
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```
     RUNOFF VOLUME    (mm)=      33.70         6.49
10.84
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.16
0.27

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0124) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6011):    44.10   0.275     3.92     5.36
        + ID2= 2 (6012):    11.00   0.323     3.00    10.84
          ===============================================
          ID = 3 (0124):    55.10   0.372     3.75     6.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6021) |   Area    (ha)=  43.60   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   1.753

     PEAK FLOW       (cms)=   0.247 (i)
     TIME TO PEAK    (hrs)=   4.083
     RUNOFF VOLUME    (mm)=   5.362
     TOTAL RAINFALL   (mm)=  39.698
     RUNOFF COEFFICIENT   =   0.135

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6022) |   Area    (ha)=  12.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
23.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.51         8.39
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     293.26        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93         9.23
                over (min)        5.00        30.00
     Storage Coeff.  (min)=       5.90 (ii)   28.44 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.19         0.04

*TOTALS*
     PEAK FLOW       (cms)=       0.48         0.12
0.519 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      33.70         6.60
12.83
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.17
0.32


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0125) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6021):    43.60   0.247     4.08     5.36
        + ID2= 2 (6022):    12.90   0.519     3.00    12.83
          ===============================================
          ID = 3 (0125):    56.50   0.549     3.00     7.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0126) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0124):    55.10   0.372     3.75     6.46
        + ID2= 2 (0125):    56.50   0.549     3.00     7.07
          ===============================================
          ID = 3 (0126):   111.60   0.915     3.00     6.77

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0603) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (2135.9) ------>
              Distance      Elevation       Manning
                 0.00         92.58         0.1400
                 8.54         92.59         0.1400
                22.11         92.47         0.1400
                48.74         91.83         0.1400
                67.59         91.58         0.1400
                86.45         91.21         0.1400
               103.50         90.80         0.1400
               118.09         90.23         0.1400
               127.84         90.09     0.1400 /0.0700  Main
Channel
               129.84         89.59         0.0700      Main
Channel
               130.34         90.09     0.0700 /0.1400  Main
Channel
               140.57         90.14         0.1400
               161.87         90.11         0.1400
               177.03         90.04         0.1400
               188.67         89.87         0.1400
               199.59         90.31         0.1400
               212.02         90.96         0.1400
               225.58         91.35         0.1400
               252.71         91.66         0.1400
               274.11         91.86         0.1400

        <-------------------- TRAVEL TIME TABLE -----------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12    89.71    .358E+02       0.0          0.19
81.29
```

```
     0.25    89.84   .143E+03       0.0          0.30
51.21
     0.37    89.96   .689E+03       0.2          0.23
67.44
     0.50    90.09   .278E+04       0.6          0.20
77.83
     0.67    90.26   .132E+05       3.4          0.23
65.31
     0.83    90.42   .262E+05       9.3          0.33
46.76
     1.00    90.59   .403E+05      17.9          0.41
37.64
     1.17    90.76   .556E+05      28.8          0.48
32.17
     1.33    90.92   .721E+05      42.0          0.53
28.63
     1.50    91.09   .903E+05      57.1          0.58
26.37
     1.67    91.26   .110E+06      74.7          0.62
24.65
     1.83    91.42   .133E+06      93.4          0.64
23.71
     2.00    91.59   .159E+06     113.6          0.66
23.26
     2.17    91.76   .188E+06     136.6          0.67
22.96
     2.33    91.92   .222E+06     168.5          0.70
21.97
     2.50    92.09   .258E+06     211.3          0.75
20.33
     2.67    92.26   .294E+06     258.5          0.81
18.98
     2.83    92.42   .332E+06     310.1          0.86
17.85
     3.00    92.59   .371E+06     358.0          0.88
17.29

                                  <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0126)  111.60     0.92    3.00   6.77
0.52      0.20
     OUTFLOW: ID= 1 (0603)  111.60     0.52    4.83   6.76
0.48      0.20


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| CALIB              |
| STANDHYD  (6032) |   Area    (ha)=  26.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  48.00   Dir. Conn.(%)=
33.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       12.67        13.73
     Dep. Storage     (mm)=        1.50         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      419.52        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=       61.93        18.83
                over (min)         5.00        25.00
     Storage Coeff.  (min)=        7.32 (ii)   24.26 (ii)
     Unit Hyd. Tpeak (min)=        5.00        25.00
     Unit Hyd. peak  (cms)=        0.17         0.05

*TOTALS*
     PEAK FLOW       (cms)=        1.34         0.38
1.525 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=       38.20        10.18
19.43
     TOTAL RAINFALL   (mm)=       39.70        39.70
39.70
     RUNOFF COEFFICIENT   =        0.96         0.26
0.49


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  72.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| RESERVOIR (0003) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW
STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)
(ha.m.)
                          0.0000     0.0000   |   0.1710
0.3730
                          0.0260     0.2610   |   0.0000
0.0000

                                AREA     QPEAK     TPEAK
R.V.
                                (ha)     (cms)     (hrs)
(mm)
     INFLOW : ID= 2 (6032)     26.400      1.525      3.00
19.43
     OUTFLOW: ID= 1 (0003)     26.400      0.171      4.58
19.33

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.23
                   TIME SHIFT OF PEAK FLOW         (min)= 95.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.3732

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| ADD HYD   (0128) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0003):    26.40   0.171     4.58    19.33
        + ID2= 2 (0603):   111.60   0.522     4.83     6.76
          ==================================================
          ID = 3 (0128):   138.00   0.692     4.75     9.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0604) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1414.9) ------>
               Distance      Elevation      Manning
                   0.00         86.75        0.0900
                   3.09         87.40        0.0900
                  18.33         87.41        0.0900
                  35.33         86.99        0.0900
                  73.84         86.75        0.0900
                 103.33         86.41        0.0900
                 120.33         86.11        0.0900
                 129.46         86.13        0.0900
                 143.37         85.32        0.0900
                 154.33         85.02        0.0900
                 161.57         85.09        0.0900
                 163.05         84.78    0.0900 /0.0700  Main
Channel
                 166.55         83.78        0.0700      Main
Channel
                 168.05         84.78    0.0700 /0.1100  Main
Channel
                 172.02         85.29        0.1100
                 191.39         86.19        0.1100
                 270.18         85.78        0.1100
                 296.33         86.36        0.1100
                 324.34         86.68        0.1100
                 368.56         87.05        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.17    83.95   .465E+02       0.0          0.03
432.88
     0.33    84.11   .186E+03       0.0          0.04
272.70
     0.50    84.28   .418E+03       0.0          0.05
208.11
     0.67    84.45   .743E+03       0.1          0.06
171.79
     0.83    84.61   .116E+04       0.1          0.08
148.04
     1.00    84.78   .167E+04       0.2          0.09
131.10
     1.20    84.98   .252E+04       0.4          0.10
110.62
     1.41    85.19   .469E+04       0.6          0.09
121.59
     1.61    85.39   .842E+04       1.1          0.09
126.63
     1.81    85.59   .133E+05       1.8          0.09
121.99
     2.01    85.79   .192E+05       2.7          0.10
116.68
     2.22    86.00   .298E+05       4.0          0.09
125.45
     2.42    86.20   .487E+05       5.6          0.08
143.80
     2.62    86.40   .736E+05       9.0          0.08
137.02
     2.82    86.60   .102E+06      13.1          0.09
130.82
     3.03    86.81   .136E+06      18.1          0.09
125.42
     3.23    87.01   .178E+06      24.4          0.09
121.07
     3.43    87.21   .224E+06      34.2          0.10
108.80
     3.63    87.41   .271E+06      44.8          0.11
100.89

                                  <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0128)  138.00     0.69    4.75   9.17
1.43      0.09
     OUTFLOW: ID= 1 (0604)  138.00     0.51    5.50   9.16
1.30      0.10

     **** WARNING:  COMPUTATIONS FAILED TO CONVERGE.

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--------------------
| CALIB              |
| STANDHYD  (6042) |   Area    (ha)=  24.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=
69.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       18.72         5.28
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      400.00        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=       61.93        34.27
                over (min)         5.00        25.00
     Storage Coeff.  (min)=        7.11 (ii)   20.44 (ii)
     Unit Hyd. Tpeak (min)=        5.00        25.00
     Unit Hyd. peak  (cms)=        0.17         0.05

*TOTALS*
     PEAK FLOW       (cms)=        2.57         0.25
2.697 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=       33.70        14.13
27.63
     TOTAL RAINFALL   (mm)=       39.70        39.70
39.70
     RUNOFF COEFFICIENT   =        0.85         0.36
0.70


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  79.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0130) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0604):   138.00   0.509     5.50     9.16
        + ID2= 2 (6042):    24.00   2.697     3.00    27.63
          ==================================================
          ID = 3 (0130):   162.00   2.733     3.00    11.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0605) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 801.4) ------>
               Distance      Elevation      Manning
                   0.00         82.95        0.1100
                   3.78         82.95        0.1100
                   9.24         82.49        0.1100
                  50.67         82.10        0.1100
                 105.12         82.17        0.1100
                 119.34         81.56        0.1100
                 150.67         81.66        0.1100
                 157.23         82.37        0.1100
                 190.03         82.57        0.1100
                 223.75         82.27        0.1100
                 252.32         82.50        0.1100
                 254.65         81.95    0.1100 /0.0700  Main
Channel
                 258.15         80.95        0.0700      Main
Channel
                 259.65         81.95    0.0700 /0.1100  Main
Channel
                 263.15         82.90        0.1100
                 278.14         82.80        0.1100
                 282.35         81.68        0.1100
                 285.02         82.19        0.1100
                 336.56         82.53        0.1100
                 404.40         82.68        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.08    81.03   .125E+02       0.0          0.11
104.30
     0.17    81.12   .499E+02       0.0          0.18
65.70
     0.25    81.20   .112E+03       0.0          0.24
50.14
     0.33    81.28   .199E+03       0.1          0.29
41.39
     0.42    81.37   .312E+03       0.1          0.34
35.67
     0.50    81.45   .449E+03       0.2          0.38
31.59
     0.58    81.53   .611E+03       0.4          0.42
28.50
     0.67    81.62   .117E+04       0.5          0.33
36.10
     0.75    81.70   .316E+04       1.1          0.24
49.12
     0.83    81.78   .560E+04       2.1          0.27
45.15
     0.92    81.87   .827E+04       3.4          0.30
40.03
     1.00    81.95   .112E+05       5.2          0.33
35.88
     1.10    82.05   .151E+05       8.0          0.38
31.68
     1.21    82.16   .207E+05       8.8          0.30
39.37
     1.31    82.26   .306E+05      14.0          0.33
36.36
     1.41    82.36   .433E+05      20.3          0.34
35.59
     1.52    82.47   .606E+05      28.4          0.34
35.57
     1.62    82.57   .828E+05      41.0          0.36
33.68
     1.73    82.68   .109E+06      60.1          0.39
30.35

                                  <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0130)  162.00     2.73    3.00  11.89
0.87      0.28
     OUTFLOW: ID= 1 (0605)  162.00     0.97    3.42  11.89
0.73      0.26


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--------------------
| ADD HYD   (0139) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0138):    32.50   1.802     3.00    21.63
        + ID2= 2 (0605):   162.00   0.972     3.42    11.89
          ==================================================
          ID = 3 (0139):   194.50   2.640     3.00    13.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6052) |   Area    (ha)=  15.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=
65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.77         4.13
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      325.58        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=       61.93        16.60
                over (min)         5.00        25.00
     Storage Coeff.  (min)=        6.28 (ii)   24.10 (ii)
     Unit Hyd. Tpeak (min)=        5.00        25.00
     Unit Hyd. peak  (cms)=        0.19         0.05

*TOTALS*
     PEAK FLOW       (cms)=        1.64         0.10
1.688 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=       33.70         8.70
24.95
     TOTAL RAINFALL   (mm)=       39.70        39.70
39.70
     RUNOFF COEFFICIENT   =        0.85         0.22
0.63


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0132) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0139):   194.50   2.640     3.00    13.52
        + ID2= 2 (6052):    15.90   1.688     3.00    24.95
          ==================================================
          ID = 3 (0132):   210.40   4.328     3.00    14.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0530) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 350.0) ------>
               Distance      Elevation      Manning
                   0.00         81.70        0.1100
                   3.84         81.72        0.1100
                   5.87         80.72        0.1100
                   9.38         81.42        0.1100
                  49.64         81.07        0.1100
                  80.61         80.72        0.1100
                  85.61         81.14        0.1100
                  93.32         80.00        0.1100
                  95.04         80.45        0.1100
                 102.72         80.66        0.1100
                 110.13         78.93    0.1100 /0.0700  Main
Channel
                 118.05         78.63        0.0700      Main
Channel
                 124.40         78.89    0.0700 /0.1100  Main
Channel
                 132.18         79.61        0.1100
                 139.34         79.23        0.1100
                 144.67         79.43        0.1100
                 149.63         79.98        0.1100
                 153.42         79.79        0.1100
                 158.56         80.58        0.1100
                 176.89         81.15        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.13    78.76   .190E+03       0.1          0.19
38.41
     0.26    78.89   .758E+03       0.5          0.31
24.20
```

```
       0.43    79.05    .189E+04       2.1          0.50
14.77
       0.59    79.22    .321E+04       4.7          0.65
11.35
       0.76    79.39    .498E+04       8.2          0.73
10.10
       0.93    79.55    .743E+04      13.1          0.78
9.48
       1.09    79.72    .103E+05      19.5          0.84
8.84
       1.26    79.89    .135E+05      27.1          0.89
8.29
       1.43    80.05    .171E+05      36.3          0.94
7.85
       1.59    80.22    .209E+05      47.2          1.00
7.39
       1.76    80.39    .251E+05      59.8          1.06
6.99
       1.93    80.56    .296E+05      73.5          1.10
6.70
       2.10    80.72    .348E+05      87.6          1.12
6.61
       2.26    80.89    .412E+05     102.8          1.11
6.68
       2.43    81.06    .495E+05     122.0          1.09
6.77
       2.60    81.22    .596E+05     146.2          1.09
6.80
       2.76    81.39    .714E+05     176.9          1.10
6.72
       2.93    81.56    .841E+05     215.0          1.13
6.52
       3.10    81.72    .970E+05     256.7          1.18
6.30

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0132)  210.40     4.33    3.00  14.38
0.57      0.62
     OUTFLOW: ID= 1 (0530)  210.40     3.23    3.08  14.38
0.50      0.55


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--------------------
| ADD HYD   (0134) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0530):   210.40   3.226     3.08    14.38
        + ID2= 2 (5302):     5.80   0.558     3.00    22.54
          ===============================================
          ID = 3 (0134):   216.20   3.492     3.08    14.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0135) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0120):   257.30   5.750     3.00    15.97
        + ID2= 2 (0134):   216.20   3.492     3.08    14.60
          ===============================================
          ID = 3 (0135):   473.50   9.192     3.00    15.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0507) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (  40.0) ------>
               Distance      Elevation       Manning
                   0.00         79.36         0.0900
                   7.45         79.32         0.0900
                  13.77         79.27         0.0900
                  20.24         79.24         0.0900
                  27.28         79.26         0.0900
                  34.16         79.13         0.0900
                  40.79         79.05         0.0900
                  47.58         79.05         0.0900
                  54.30         79.07         0.0900
                  60.87         79.24         0.0900
                  71.39         79.48         0.0900
                  73.53         78.96         0.0900
                  76.96         78.07         0.0900
                  82.21         77.08     0.0900 /0.0700  Main
Channel
                  85.82         76.28         0.0700     Main
Channel
                  89.97         76.89         0.0700     Main
Channel
                  91.35         77.38     0.0700 /0.0900  Main
Channel
                  95.27         78.68         0.0900
                  98.44         79.63         0.0900
                 102.89         79.89         0.0900

      <--------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.16    76.44    .113E+03       0.0          0.14
88.10
       0.32    76.60    .451E+03       0.1          0.23
55.50
       0.49    76.76    .101E+04       0.4          0.30
42.35
       0.65    76.92    .180E+04       0.9          0.37
34.57
       0.81    77.09    .276E+04       1.6          0.44
28.86
       0.97    77.25    .388E+04       2.7          0.52
24.37
       1.14    77.41    .516E+04       4.0          0.59
21.56
       1.30    77.57    .660E+04       5.7          0.66
19.26
       1.46    77.74    .822E+04       7.8          0.72
17.67
       1.62    77.90    .100E+05      10.1          0.77
16.48
       1.79    78.06    .120E+05      12.8          0.82
15.54
       1.95    78.22    .141E+05      15.9          0.87
14.74
       2.11    78.39    .163E+05      19.4          0.91
14.06
       2.27    78.55    .187E+05      23.2          0.95
13.47
       2.44    78.71    .212E+05      27.3          0.99
12.95
       2.60    78.87    .239E+05      31.9          1.02
12.50
       2.76    79.04    .267E+05      36.8          1.06
12.10
       2.92    79.20    .320E+05      39.4          0.94
13.56
       3.09    79.36    .409E+05      45.7          0.85
14.94

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0135)  473.50     9.19    3.00  15.34
1.56      0.75
     OUTFLOW: ID= 1 (0507)  473.50     6.30    3.25  15.34
1.34      0.68

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--------------------
| CALIB            |
| STANDHYD  (5072) |   Area    (ha)=  48.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
36.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      24.45        24.45
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     570.96        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        20.04
                over (min)      10.00        30.00
     Storage Coeff.  (min)=       8.80 (ii)   25.33 (ii)
     Unit Hyd. Tpeak (min)=      10.00        30.00
     Unit Hyd. peak  (cms)=       0.12         0.04

*TOTALS*
     PEAK FLOW       (cms)=       2.41         0.69
2.678 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      33.70        10.84
19.07
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.27
0.48


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  74.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0122) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0507):   473.50   6.296     3.25    15.34
        + ID2= 2 (5072):    48.90   2.678     3.00    19.07
          ===============================================
          ID = 3 (0122):   522.40   8.335     3.08    15.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (5402) |   Area    (ha)=   9.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.70         4.70
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     250.33        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        15.40
                over (min)       5.00        25.00
     Storage Coeff.  (min)=       5.37 (ii)   23.73 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.21         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.53         0.11
0.585 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70         8.38
17.24
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.21
0.43


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| STORE HYD (1505) |   AREA       (ha)=  30.00
| ID= 1 DT= 5.0min |   QPEAK     (cms)=   0.78
--------------------   TPEAK     (hrs)=  15.58
                       VOLUME     (mm)= 402.14

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |'  TIME    FLOW |
TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |'   hrs     cms |
hrs     cms
  0.00    0.00 | 31.33    0.10 | 62.67    0.25 | 94.00    0.26
|125.33    0.16
  0.08    0.00 | 31.42    0.10 | 62.75    0.25 | 94.08    0.26
|125.42    0.16
  0.17    0.00 | 31.50    0.10 | 62.83    0.25 | 94.17    0.25
|125.50    0.16
  0.25    0.00 | 31.58    0.10 | 62.92    0.25 | 94.25    0.25
|125.58    0.16
  0.33    0.00 | 31.67    0.10 | 63.00    0.25 | 94.33    0.25
|125.67    0.17
  0.42    0.00 | 31.75    0.10 | 63.08    0.25 | 94.42    0.25
|125.75    0.16
  0.50    0.00 | 31.83    0.10 | 63.17    0.25 | 94.50    0.25
|125.83    0.16
  0.58    0.00 | 31.92    0.10 | 63.25    0.24 | 94.58    0.25
|125.92    0.17
  0.67    0.00 | 32.00    0.10 | 63.33    0.24 | 94.67    0.24
|126.00    0.15
  0.75    0.00 | 32.08    0.10 | 63.42    0.24 | 94.75    0.25
|126.08    0.16
  0.83    0.00 | 32.17    0.10 | 63.50    0.23 | 94.83    0.24
|126.17    0.16
  0.92    0.00 | 32.25    0.10 | 63.58    0.24 | 94.92    0.25
|126.25    0.16
  1.00    0.00 | 32.33    0.10 | 63.67    0.24 | 95.00    0.25
|126.33    0.16
  1.08    0.00 | 32.42    0.10 | 63.75    0.24 | 95.08    0.25
|126.42    0.16
  1.17    0.00 | 32.50    0.10 | 63.83    0.23 | 95.17    0.24
|126.50    0.17
  1.25    0.00 | 32.58    0.10 | 63.92    0.23 | 95.25    0.21
|126.58    0.16
  1.33    0.00 | 32.67    0.10 | 64.00    0.23 | 95.33    0.25
|126.67    0.16
  1.42    0.00 | 32.75    0.10 | 64.08    0.23 | 95.42    0.22
|126.75    0.17
  1.50    0.00 | 32.83    0.10 | 64.17    0.23 | 95.50    0.23
|126.83    0.17
  1.58    0.00 | 32.92    0.10 | 64.25    0.24 | 95.58    0.22
|126.92    0.17
  1.67    0.00 | 33.00    0.10 | 64.33    0.23 | 95.67    0.24
|127.00    0.17
  1.75    0.00 | 33.08    0.10 | 64.42    0.23 | 95.75    0.26
|127.08    0.17
  1.83    0.00 | 33.17    0.10 | 64.50    0.23 | 95.83    0.24
|127.17    0.18
  1.92    0.00 | 33.25    0.11 | 64.58    0.23 | 95.92    0.23
|127.25    0.17
  2.00    0.00 | 33.33    0.11 | 64.67    0.24 | 96.00    0.24
|127.33    0.18
  2.08    0.00 | 33.42    0.11 | 64.75    0.24 | 96.08    0.24
|127.42    0.18
  2.17    0.00 | 33.50    0.11 | 64.83    0.24 | 96.17    0.24
|127.50    0.16
  2.25    0.00 | 33.58    0.11 | 64.92    0.24 | 96.25    0.24
|127.58    0.18
  2.33    0.00 | 33.67    0.11 | 65.00    0.24 | 96.33    0.24
|127.67    0.17
  2.42    0.00 | 33.75    0.11 | 65.08    0.23 | 96.42    0.24
|127.75    0.18
  2.50    0.00 | 33.83    0.11 | 65.17    0.23 | 96.50    0.24
|127.83    0.17
  2.58    0.00 | 33.92    0.11 | 65.25    0.23 | 96.58    0.23
|127.92    0.17
  2.67    0.00 | 34.00    0.11 | 65.33    0.23 | 96.67    0.24
|128.00    0.17
  2.75    0.00 | 34.08    0.11 | 65.42    0.22 | 96.75    0.23
|128.08    0.17
  2.83    0.00 | 34.17    0.11 | 65.50    0.22 | 96.83    0.23
|128.17    0.17
  2.92    0.00 | 34.25    0.11 | 65.58    0.22 | 96.92    0.24
|128.25    0.18
  3.00    0.00 | 34.33    0.11 | 65.67    0.22 | 97.00    0.23
|128.33    0.18
  3.08    0.00 | 34.42    0.11 | 65.75    0.22 | 97.08    0.22
|128.42    0.19
  3.17    0.00 | 34.50    0.11 | 65.83    0.22 | 97.17    0.23
|128.50    0.18
  3.25    0.00 | 34.58    0.11 | 65.92    0.21 | 97.25    0.22
|128.58    0.17
  3.33    0.00 | 34.67    0.11 | 66.00    0.21 | 97.33    0.25
|128.67    0.18
  3.42    0.00 | 34.75    0.11 | 66.08    0.21 | 97.42    0.22
|128.75    0.18
  3.50    0.00 | 34.83    0.11 | 66.17    0.20 | 97.50    0.24
|128.83    0.18
  3.58    0.00 | 34.92    0.11 | 66.25    0.20 | 97.58    0.23
|128.92    0.18
  3.67    0.00 | 35.00    0.11 | 66.33    0.20 | 97.67    0.22
|129.00    0.18
  3.75    0.00 | 35.08    0.11 | 66.42    0.20 | 97.75    0.23
|129.08    0.19
  3.83    0.00 | 35.17    0.11 | 66.50    0.19 | 97.83    0.22
|129.17    0.17
  3.92    0.00 | 35.25    0.11 | 66.58    0.20 | 97.92    0.21
|129.25    0.17
  4.00    0.00 | 35.33    0.11 | 66.67    0.20 | 98.00    0.22
|129.33    0.17
  4.08    0.00 | 35.42    0.11 | 66.75    0.20 | 98.08    0.23
|129.42    0.18
  4.17    0.00 | 35.50    0.11 | 66.83    0.19 | 98.17    0.21
|129.50    0.18
  4.25    0.00 | 35.58    0.11 | 66.92    0.19 | 98.25    0.21
|129.58    0.18
  4.33    0.00 | 35.67    0.11 | 67.00    0.20 | 98.33    0.23
|129.67    0.18
  4.42    0.00 | 35.75    0.11 | 67.08    0.20 | 98.42    0.21
|129.75    0.18
  4.50    0.00 | 35.83    0.11 | 67.17    0.20 | 98.50    0.21
|129.83    0.18
  4.58    0.00 | 35.92    0.11 | 67.25    0.20 | 98.58    0.23
|129.92    0.18
  4.67    0.00 | 36.00    0.11 | 67.33    0.20 | 98.67    0.22
|130.00    0.18
  4.75    0.00 | 36.08    0.11 | 67.42    0.21 | 98.75    0.23
|130.08    0.17
  4.83    0.00 | 36.17    0.11 | 67.50    0.22 | 98.83    0.24
|130.17    0.17
  4.92    0.00 | 36.25    0.11 | 67.58    0.22 | 98.92    0.22
|130.25    0.17
  5.00    0.00 | 36.33    0.11 | 67.67    0.23 | 99.00    0.20
|130.33    0.17
  5.08    0.00 | 36.42    0.12 | 67.75    0.24 | 99.08    0.20
|130.42    0.18
  5.17    0.00 | 36.50    0.12 | 67.83    0.26 | 99.17    0.22
|130.50    0.18
  5.25    0.00 | 36.58    0.12 | 67.92    0.27 | 99.25    0.21
|130.58    0.18
  5.33    0.00 | 36.67    0.12 | 68.00    0.28 | 99.33    0.22
|130.67    0.17
  5.42    0.00 | 36.75    0.12 | 68.08    0.31 | 99.42    0.21
|130.75    0.17
  5.50    0.00 | 36.83    0.12 | 68.17    0.32 | 99.50    0.20
|130.83    0.18
  5.58    0.00 | 36.92    0.12 | 68.25    0.34 | 99.58    0.21
|130.92    0.17
  5.67    0.00 | 37.00    0.12 | 68.33    0.35 | 99.67    0.20
|131.00    0.17
  5.75    0.00 | 37.08    0.12 | 68.42    0.38 | 99.75    0.19
|131.08    0.17
  5.83    0.00 | 37.17    0.12 | 68.50    0.39 | 99.83    0.20
|131.17    0.18
  5.92    0.00 | 37.25    0.12 | 68.58    0.40 | 99.92    0.22
|131.25    0.18
  6.00    0.00 | 37.33    0.12 | 68.67    0.42 |100.00    0.21
|131.33    0.17
  6.08    0.00 | 37.42    0.12 | 68.75    0.44 |100.08    0.20
|131.42    0.17
  6.17    0.00 | 37.50    0.12 | 68.83    0.46 |100.17    0.21
|131.50    0.17
  6.25    0.00 | 37.58    0.12 | 68.92    0.49 |100.25    0.19
|131.58    0.17
  6.33    0.00 | 37.67    0.13 | 69.00    0.51 |100.33    0.19
|131.67    0.17
  6.42    0.00 | 37.75    0.12 | 69.08    0.54 |100.42    0.19
|131.75    0.17
  6.50    0.00 | 37.83    0.12 | 69.17    0.56 |100.50    0.19
|131.83    0.17
  6.58    0.00 | 37.92    0.12 | 69.25    0.60 |100.58    0.19
|131.92    0.17
  6.67    0.00 | 38.00    0.12 | 69.33    0.64 |100.67    0.19
|132.00    0.16
  6.75    0.00 | 38.08    0.12 | 69.42    0.67 |100.75    0.21
|132.08    0.17
  6.83    0.00 | 38.17    0.12 | 69.50    0.67 |100.83    0.19
|132.17    0.17
  6.92    0.00 | 38.25    0.12 | 69.58    0.68 |100.92    0.19
|132.25    0.17
  7.00    0.00 | 38.33    0.12 | 69.67    0.65 |101.00    0.19
|132.33    0.17
  7.08    0.00 | 38.42    0.12 | 69.75    0.66 |101.08    0.19
|132.42    0.18
  7.17    0.00 | 38.50    0.12 | 69.83    0.66 |101.17    0.20
|132.50    0.17
  7.25    0.00 | 38.58    0.12 | 69.92    0.67 |101.25    0.19
|132.58    0.16
  7.33    0.00 | 38.67    0.13 | 70.00    0.66 |101.33    0.18
|132.67    0.17
  7.42    0.00 | 38.75    0.13 | 70.08    0.67 |101.42    0.19
|132.75    0.17
  7.50    0.00 | 38.83    0.13 | 70.17    0.67 |101.50    0.19
|132.83    0.17
  7.58    0.00 | 38.92    0.13 | 70.25    0.70 |101.58    0.19
|132.92    0.16
  7.67    0.00 | 39.00    0.13 | 70.33    0.74 |101.67    0.20
|133.00    0.17
  7.75    0.00 | 39.08    0.14 | 70.42    0.73 |101.75    0.19
|133.08    0.16
  7.83    0.00 | 39.17    0.14 | 70.50    0.74 |101.83    0.18
|133.17    0.16
  7.92    0.00 | 39.25    0.14 | 70.58    0.74 |101.92    0.19
|133.25    0.16
  8.00    0.00 | 39.33    0.14 | 70.67    0.74 |102.00    0.19
|133.33    0.15
  8.08    0.00 | 39.42    0.14 | 70.75    0.75 |102.08    0.19
|133.42    0.16
  8.17    0.00 | 39.50    0.15 | 70.83    0.75 |102.17    0.19
|133.50    0.16
  8.25    0.00 | 39.58    0.16 | 70.92    0.74 |102.25    0.18
|133.58    0.17
  8.33    0.00 | 39.67    0.16 | 71.00    0.74 |102.33    0.18
|133.67    0.16
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8.42	0.00	39.75	0.16	71.08	0.75	102.42	0.19	133.75	0.15
8.50	0.00	39.83	0.16	71.17	0.77	102.50	0.19	133.83	0.16
8.58	0.00	39.92	0.17	71.25	0.76	102.58	0.19	133.92	0.16
8.67	0.00	40.00	0.17	71.33	0.76	102.67	0.18	134.00	0.16
8.75	0.00	40.08	0.17	71.42	0.77	102.75	0.20	134.08	0.16
8.83	0.00	40.17	0.17	71.50	0.76	102.83	0.18	134.17	0.15
8.92	0.00	40.25	0.18	71.58	0.77	102.92	0.18	134.25	0.16
9.00	0.00	40.33	0.18	71.67	0.76	103.00	0.17	134.33	0.16
9.08	0.00	40.42	0.18	71.75	0.76	103.08	0.17	134.42	0.16
9.17	0.00	40.50	0.18	71.83	0.78	103.17	0.18	134.50	0.16
9.25	0.00	40.58	0.19	71.92	0.77	103.25	0.18	134.58	0.15
9.33	0.00	40.67	0.19	72.00	0.76	103.33	0.17	134.67	0.16
9.42	0.00	40.75	0.19	72.08	0.74	103.42	0.17	134.75	0.15
9.50	0.00	40.83	0.19	72.17	0.75	103.50	0.17	134.83	0.15
9.58	0.00	40.92	0.19	72.25	0.74	103.58	0.18	134.92	0.16
9.67	0.00	41.00	0.19	72.33	0.72	103.67	0.18	135.00	0.15
9.75	0.00	41.08	0.19	72.42	0.70	103.75	0.18	135.08	0.15
9.83	0.00	41.17	0.20	72.50	0.70	103.83	0.18	135.17	0.15
9.92	0.00	41.25	0.20	72.58	0.69	103.92	0.19	135.25	0.15
10.00	0.00	41.33	0.21	72.67	0.70	104.00	0.17	135.33	0.15
10.08	0.00	41.42	0.22	72.75	0.68	104.08	0.18	135.42	0.15
10.17	0.00	41.50	0.23	72.83	0.67	104.17	0.18	135.50	0.15
10.25	0.00	41.58	0.23	72.92	0.66	104.25	0.17	135.58	0.15
10.33	0.00	41.67	0.23	73.00	0.64	104.33	0.17	135.67	0.14
10.42	0.00	41.75	0.24	73.08	0.63	104.42	0.17	135.75	0.15
10.50	0.00	41.83	0.25	73.17	0.63	104.50	0.18	135.83	0.16
10.58	0.00	41.92	0.25	73.25	0.61	104.58	0.17	135.92	0.15
10.67	0.00	42.00	0.26	73.33	0.62	104.67	0.16	136.00	0.15
10.75	0.00	42.08	0.25	73.42	0.61	104.75	0.16	136.08	0.15
10.83	0.00	42.17	0.26	73.50	0.62	104.83	0.18	136.17	0.15
10.92	0.00	42.25	0.26	73.58	0.60	104.92	0.16	136.25	0.15
11.00	0.00	42.33	0.26	73.67	0.62	105.00	0.17	136.33	0.15
11.08	0.00	42.42	0.26	73.75	0.58	105.08	0.16	136.42	0.15
11.17	0.00	42.50	0.26	73.83	0.59	105.17	0.16	136.50	0.15
11.25	0.00	42.58	0.26	73.92	0.57	105.25	0.16	136.58	0.15
11.33	0.00	42.67	0.26	74.00	0.57	105.33	0.16	136.67	0.14
11.42	0.00	42.75	0.25	74.08	0.57	105.42	0.16	136.75	0.15
11.50	0.00	42.83	0.26	74.17	0.56	105.50	0.16	136.83	0.14
11.58	0.00	42.92	0.25	74.25	0.58	105.58	0.16	136.92	0.14
11.67	0.00	43.00	0.25	74.33	0.58	105.67	0.16	137.00	0.14
11.75	0.00	43.08	0.25	74.42	0.58	105.75	0.17	137.08	0.15
11.83	0.00	43.17	0.25	74.50	0.59	105.83	0.16	137.17	0.14
11.92	0.00	43.25	0.25	74.58	0.60	105.92	0.16	137.25	0.15
12.00	0.00	43.33	0.25	74.67	0.57	106.00	0.16	137.33	0.15
12.08	0.00	43.42	0.25	74.75	0.56	106.08	0.16	137.42	0.14
12.17	0.00	43.50	0.25	74.83	0.54	106.17	0.16	137.50	0.14
12.25	0.00	43.58	0.25	74.92	0.56	106.25	0.17	137.58	0.14
12.33	0.00	43.67	0.25	75.00	0.53	106.33	0.16	137.67	0.15
12.42	0.00	43.75	0.25	75.08	0.51	106.42	0.16	137.75	0.14
12.50	0.00	43.83	0.26	75.17	0.51	106.50	0.16	137.83	0.14
12.58	0.00	43.92	0.26	75.25	0.51	106.58	0.16	137.92	0.14
12.67	0.00	44.00	0.26	75.33	0.51	106.67	0.16	138.00	0.14
12.75	0.00	44.08	0.26	75.42	0.50	106.75	0.16	138.08	0.14
12.83	0.00	44.17	0.26	75.50	0.50	106.83	0.15	138.17	0.14
12.92	0.00	44.25	0.27	75.58	0.49	106.92	0.15	138.25	0.14
13.00	0.00	44.33	0.26	75.67	0.49	107.00	0.16	138.33	0.14
13.08	0.00	44.42	0.26	75.75	0.49	107.08	0.16	138.42	0.14
13.17	0.00	44.50	0.26	75.83	0.48	107.17	0.16	138.50	0.14
13.25	0.00	44.58	0.26	75.92	0.47	107.25	0.15	138.58	0.14
13.33	0.00	44.67	0.26	76.00	0.47	107.33	0.16	138.67	0.14
13.42	0.00	44.75	0.26	76.08	0.48	107.42	0.16	138.75	0.14
13.50	0.00	44.83	0.26	76.17	0.46	107.50	0.15	138.83	0.14
13.58	0.00	44.92	0.26	76.25	0.45	107.58	0.16	138.92	0.14
13.67	0.00	45.00	0.26	76.33	0.45	107.67	0.15	139.00	0.14
13.75	0.00	45.08	0.26	76.42	0.43	107.75	0.15	139.08	0.14
13.83	0.00	45.17	0.25	76.50	0.44	107.83	0.16	139.17	0.13
13.92	0.00	45.25	0.25	76.58	0.46	107.92	0.16	139.25	0.14
14.00	0.00	45.33	0.25	76.67	0.43	108.00	0.16	139.33	0.14
14.08	0.00	45.42	0.25	76.75	0.44	108.08	0.15	139.42	0.14
14.17	0.00	45.50	0.25	76.83	0.43	108.17	0.15	139.50	0.14
14.25	0.00	45.58	0.25	76.92	0.45	108.25	0.15	139.58	0.13
14.33	0.00	45.67	0.25	77.00	0.42	108.33	0.16	139.67	0.14
14.42	0.00	45.75	0.25	77.08	0.43	108.42	0.16	139.75	0.14
14.50	0.00	45.83	0.26	77.17	0.43	108.50	0.15	139.83	0.13
14.58	0.00	45.92	0.25	77.25	0.42	108.58	0.15	139.92	0.14
14.67	0.00	46.00	0.26	77.33	0.41	108.67	0.15	140.00	0.14
14.75	0.00	46.08	0.26	77.42	0.43	108.75	0.16	140.08	0.13
14.83	0.00	46.17	0.25	77.50	0.41	108.83	0.15	140.17	0.13
14.92	0.69	46.25	0.26	77.58	0.43	108.92	0.15	140.25	0.13
15.00	0.69	46.33	0.26	77.67	0.39	109.00	0.15	140.33	0.13
15.08	0.71	46.42	0.26	77.75	0.39	109.08	0.15	140.42	0.14
15.17	0.74	46.50	0.26	77.83	0.37	109.17	0.15	140.50	0.13
15.25	0.74	46.58	0.26	77.92	0.39	109.25	0.15	140.58	0.13
15.33	0.74	46.67	0.26	78.00	0.39	109.33	0.14	140.67	0.13
15.42	0.77	46.75	0.26	78.08	0.39	109.42	0.15	140.75	0.13
15.50	0.76	46.83	0.25	78.17	0.37	109.50	0.15	140.83	0.13
15.58	0.78	46.92	0.25	78.25	0.36	109.58	0.14	140.92	0.13
15.67	0.78	47.00	0.25	78.33	0.37	109.67	0.15	141.00	0.13
15.75	0.77	47.08	0.25	78.42	0.38	109.75	0.14	141.08	0.13
15.83	0.77	47.17	0.26	78.50	0.36	109.83	0.15	141.17	0.13
15.92	0.77	47.25	0.26	78.58	0.36	109.92	0.14	141.25	0.13
16.00	0.76	47.33	0.26	78.67	0.36	110.00	0.14	141.33	0.13
16.08	0.74	47.42	0.26	78.75	0.37	110.08	0.14	141.42	0.13
16.17	0.74	47.50	0.26	78.83	0.34	110.17	0.14	141.50	0.13
16.25	0.74	47.58	0.25	78.92	0.35	110.25	0.14	141.58	0.13
16.33	0.72	47.67	0.26	79.00	0.36	110.33	0.15	141.67	0.13
16.42	0.69	47.75	0.26	79.08	0.35	110.42	0.15	141.75	0.13
16.50	0.69	47.83	0.26	79.17	0.35	110.50	0.14	141.83	0.13
16.58	0.67	47.92	0.26	79.25	0.36	110.58	0.14	141.92	0.13
16.67	0.66	48.00	0.25	79.33	0.36	110.67	0.14	142.00	0.13
16.75	0.64	48.08	0.25	79.42	0.33	110.75	0.15	142.08	0.12
16.83	0.63	48.17	0.26	79.50	0.33	110.83	0.14	142.17	0.13
16.92	0.63	48.25	0.25	79.58	0.33	110.92	0.15	142.25	0.13
17.00	0.60	48.33	0.25	79.67	0.32	111.00	0.15	142.33	0.13
17.08	0.58	48.42	0.25	79.75	0.33	111.08	0.14	142.42	0.12
17.17	0.58	48.50	0.25	79.83	0.33	111.17	0.14	142.50	0.13
17.25	0.57	48.58	0.25	79.92	0.32	111.25	0.14	142.58	0.13
17.33	0.56	48.67	0.24	80.00	0.33	111.33	0.15	142.67	0.13
17.42	0.55	48.75	0.24	80.08	0.34	111.42	0.14	142.75	0.13
17.50	0.54	48.83	0.24	80.17	0.32	111.50	0.15	142.83	0.12
17.58	0.51	48.92	0.24	80.25	0.31	111.58	0.14	142.92	0.13
17.67	0.50	49.00	0.24	80.33	0.33	111.67	0.14	143.00	0.12
17.75	0.48	49.08	0.25	80.42	0.31	111.75	0.14	143.08	0.12
17.83	0.47	49.17	0.24	80.50	0.32	111.83	0.14	143.17	0.12
17.92	0.47	49.25	0.24	80.58	0.31	111.92	0.14	143.25	0.12
18.00	0.45	49.33	0.24	80.67	0.31	112.00	0.15	143.33	0.12
18.08	0.44	49.42	0.23	80.75	0.33	112.08	0.15	143.42	0.12
18.17	0.41	49.50	0.23	80.83	0.31	112.17	0.14	143.50	0.12
18.25	0.42	49.58	0.24	80.92	0.32	112.25	0.14	143.58	0.12
18.33	0.40	49.67	0.23	81.00	0.32	112.33	0.14	143.67	0.12
18.42	0.39	49.75	0.24	81.08	0.31	112.42	0.15	143.75	0.12
18.50	0.38	49.83	0.24	81.17	0.31	112.50	0.14	143.83	0.12
18.58	0.38	49.92	0.23	81.25	0.31	112.58	0.15	143.92	0.12
18.67	0.37	50.00	0.23	81.33	0.31	112.67	0.15	144.00	0.12
18.75	0.37	50.08	0.23	81.42	0.31	112.75	0.14	144.08	0.12
18.83	0.36	50.17	0.24	81.50	0.32	112.83	0.15	144.17	0.12
18.92	0.35	50.25	0.23	81.58	0.32	112.92	0.14	144.25	0.12
19.00	0.34	50.33	0.23	81.67	0.34	113.00	0.15	144.33	0.12
19.08	0.34	50.42	0.23	81.75	0.34	113.08	0.15	144.42	0.12
19.17	0.34	50.50	0.23	81.83	0.35	113.17	0.14	144.50	0.12
19.25	0.34	50.58	0.23	81.92	0.37	113.25	0.15	144.58	0.12
19.33	0.33	50.67	0.23	82.00	0.36	113.33	0.15	144.67	0.12
19.42	0.33	50.75	0.23	82.08	0.37	113.42	0.14	144.75	0.12
19.50	0.32	50.83	0.23	82.17	0.38	113.50	0.14	144.83	0.12
19.58	0.32	50.92	0.23	82.25	0.36	113.58	0.14	144.92	0.12
19.67	0.32	51.00	0.23	82.33	0.35	113.67	0.14	145.00	0.12
19.75	0.31	51.08	0.23	82.42	0.37	113.75	0.14	145.08	0.12
19.83	0.30	51.17	0.23	82.50	0.37	113.83	0.14	145.17	0.12
19.92	0.30	51.25	0.23	82.58	0.36	113.92	0.14	145.25	0.12
20.00	0.29	51.33	0.23	82.67	0.38	114.00	0.14	145.33	0.12
20.08	0.29	51.42	0.23	82.75	0.38	114.08	0.14	145.42	0.12
20.17	0.28	51.50	0.23	82.83	0.41	114.17	0.14	145.50	0.12
20.25	0.28	51.58	0.23	82.92	0.40	114.25	0.14	145.58	0.12
20.33	0.28	51.67	0.23	83.00	0.40	114.33	0.14	145.67	0.12
20.42	0.27	51.75	0.23	83.08	0.40	114.42	0.14	145.75	0.12
20.50	0.27	51.83	0.23	83.17	0.44	114.50	0.15	145.83	0.12
20.58	0.26	51.92	0.23	83.25	0.44	114.58	0.14	145.92	0.12
20.67	0.27	52.00	0.23	83.33	0.42	114.67	0.14	146.00	0.12
20.75	0.26	52.08	0.24	83.42	0.42	114.75	0.14	146.08	0.11
20.83	0.26	52.17	0.24	83.50	0.42	114.83	0.15	146.17	0.11
20.92	0.25	52.25	0.24	83.58	0.41	114.92	0.14	146.25	0.11
21.00	0.25	52.33	0.25	83.67	0.41	115.00	0.15	146.33	0.12
21.08	0.25	52.42	0.25	83.75	0.42	115.08	0.14	146.42	0.11
21.17	0.24	52.50	0.25	83.83	0.41	115.17	0.14	146.50	0.12
21.25	0.25	52.58	0.25	83.92	0.41	115.25	0.14	146.58	0.12
21.33	0.24	52.67	0.25	84.00	0.43	115.33	0.15	146.67	0.11
21.42	0.24	52.75	0.25	84.08	0.40	115.42	0.14	146.75	0.12
21.50	0.24	52.83	0.25	84.17	0.42	115.50	0.15	146.83	0.11
21.58	0.23	52.92	0.25	84.25	0.41	115.58	0.14	146.92	0.12
21.67	0.23	53.00	0.27	84.33	0.42	115.67	0.14	147.00	0.11
21.75	0.23	53.08	0.27	84.42	0.42	115.75	0.14	147.08	0.12
21.83	0.23	53.17	0.28	84.50	0.43	115.83	0.14	147.17	0.11
21.92	0.23	53.25	0.28	84.58	0.44	115.92	0.14	147.25	0.12
22.00	0.23	53.33	0.28	84.67	0.42	116.00	0.15	147.33	0.12
22.08	0.22	53.42	0.28	84.75	0.44	116.08	0.14	147.42	0.11
22.17	0.22	53.50	0.28	84.83	0.45	116.17	0.15	147.50	0.11
22.25	0.22	53.58	0.29	84.92	0.45	116.25	0.14	147.58	0.11
22.33	0.22	53.67	0.29	85.00	0.46	116.33	0.14	147.67	0.11
22.42	0.21	53.75	0.29	85.08	0.47	116.42	0.14	147.75	0.11
22.50	0.21	53.83	0.30	85.17	0.46	116.50	0.14	147.83	0.11
22.58	0.21	53.92	0.30	85.25	0.46	116.58	0.14	147.92	0.11
22.67	0.21	54.00	0.30	85.33	0.44	116.67	0.14	148.00	0.11
22.75	0.21	54.08	0.30	85.42	0.45	116.75	0.14	148.08	0.11
22.83	0.20	54.17	0.31	85.50	0.45	116.83	0.14	148.17	0.11
22.92	0.20	54.25	0.30	85.58	0.45	116.92	0.14	148.25	0.11
23.00	0.20	54.33	0.31	85.67	0.45	117.00	0.14	148.33	0.11
23.08	0.20	54.42	0.30	85.75	0.46	117.08	0.14	148.42	0.11
23.17	0.20	54.50	0.31	85.83	0.45	117.17	0.14	148.50	0.11
23.25	0.20	54.58	0.32	85.92	0.47	117.25	0.14	148.58	0.11
23.33	0.19	54.67	0.32	86.00	0.44	117.33	0.14	148.67	0.11
23.42	0.19	54.75	0.32	86.08	0.45	117.42	0.14	148.75	0.11
23.50	0.19	54.83	0.32	86.17	0.43	117.50	0.14	148.83	0.11
23.58	0.19	54.92	0.32	86.25	0.43	117.58	0.14	148.92	0.11
23.67	0.19	55.00	0.32	86.33	0.43	117.67	0.13	149.00	0.11
23.75	0.18	55.08	0.32	86.42	0.43	117.75	0.13	149.08	0.11
23.83	0.18	55.17	0.32	86.50	0.45	117.83	0.14	149.17	0.11
23.92	0.18	55.25	0.33	86.58	0.42	117.92	0.13	149.25	0.11
24.00	0.18	55.33	0.33	86.67	0.42	118.00	0.13	149.33	0.11
24.08	0.18	55.42	0.33	86.75	0.43	118.08	0.13	149.42	0.11
24.17	0.18	55.50	0.33	86.83	0.41	118.17	0.13	149.50	0.11
24.25	0.17	55.58	0.32	86.92	0.40	118.25	0.13	149.58	0.11
24.33	0.18	55.67	0.32	87.00	0.40	118.33	0.13	149.67	0.11
24.42	0.17	55.75	0.32	87.08	0.39	118.42	0.13	149.75	0.11
24.50	0.17	55.83	0.32	87.17	0.39	118.50	0.13	149.83	0.11
24.58	0.17	55.92	0.32	87.25	0.39	118.58	0.13	149.92	0.11
24.67	0.17	56.00	0.32	87.33	0.37	118.67	0.13	150.00	0.11
24.75	0.16	56.08	0.32	87.42	0.37	118.75	0.13	150.08	0.11
24.83	0.16	56.17	0.32	87.50	0.38	118.83	0.13	150.17	0.11
24.92	0.16	56.25	0.32	87.58	0.37	118.92	0.13	150.25	0.11
25.00	0.16	56.33	0.32	87.67	0.36	119.00	0.13	150.33	0.11
25.08	0.16	56.42	0.32	87.75	0.38	119.08	0.13	150.42	0.11
25.17	0.16	56.50	0.32	87.83	0.38	119.17	0.13	150.50	0.11
25.25	0.16	56.58	0.31	87.92	0.34	119.25	0.13	150.58	0.11
25.33	0.15	56.67	0.31	88.00	0.35	119.33	0.13	150.67	0.11
25.42	0.16	56.75	0.32	88.08	0.34	119.42	0.13	150.75	0.11
25.50	0.15	56.83	0.31	88.17	0.35	119.50	0.13	150.83	0.11
25.58	0.15	56.92	0.31	88.25	0.34	119.58	0.13	150.92	0.11
25.67	0.15	57.00	0.31	88.33	0.36	119.67	0.13	151.00	0.11
25.75	0.15	57.08	0.31	88.42	0.33	119.75	0.13	151.08	0.11
25.83	0.15	57.17	0.31	88.50	0.33	119.83	0.13	151.17	0.11
25.92	0.15	57.25	0.31	88.58	0.34	119.92	0.13	151.25	0.11
26.00	0.15	57.33	0.30	88.67	0.33	120.00	0.13	151.33	0.11
26.08	0.15	57.42	0.30	88.75	0.33	120.08	0.13	151.42	0.11
26.17	0.15	57.50	0.30	88.83	0.32	120.17	0.13	151.50	0.11
26.25	0.14	57.58	0.30	88.92	0.30	120.25	0.14	151.58	0.11
26.33	0.14	57.67	0.31	89.00	0.31	120.33	0.14	151.67	0.11
26.42	0.14	57.75	0.30	89.08	0.31	120.42	0.13	151.75	0.11
26.50	0.14	57.83	0.30	89.17	0.30	120.50	0.14	151.83	0.11
26.58	0.14	57.92	0.30	89.25	0.31	120.58	0.14	151.92	0.11
26.67	0.14	58.00	0.29	89.33	0.32	120.67	0.14	152.00	0.11
26.75	0.14	58.08	0.29	89.42	0.31	120.75	0.14	152.08	0.11
26.83	0.14	58.17	0.29	89.50	0.30	120.83	0.14	152.17	0.11
26.92	0.14	58.25	0.29	89.58	0.29	120.92	0.14	152.25	0.11
27.00	0.14	58.33	0.29	89.67	0.29	121.00	0.14	152.33	0.10
27.08	0.13	58.42	0.29	89.75	0.29	121.08	0.14	152.42	0.11
27.17	0.13	58.50	0.29	89.83	0.28	121.17	0.14	152.50	0.11
27.25	0.13	58.58	0.29	89.92	0.30	121.25	0.14	152.58	0.10
27.33	0.13	58.67	0.28	90.00	0.31	121.33	0.14	152.67	0.10
27.42	0.13	58.75	0.28	90.08	0.31	121.42	0.14	152.75	0.10
27.50	0.13	58.83	0.28	90.17	0.30	121.50	0.14	152.83	0.10
27.58	0.13	58.92	0.29	90.25	0.30	121.58	0.14	152.92	0.10
27.67	0.13	59.00	0.29	90.33	0.31	121.67	0.14	153.00	0.11
27.75	0.13	59.08	0.29	90.42	0.30	121.75	0.14	153.08	0.10
27.83	0.13	59.17	0.28	90.50	0.31	121.83	0.14	153.17	0.10
27.92	0.12	59.25	0.28	90.58	0.31	121.92	0.14	153.25	0.11
28.00	0.13	59.33	0.28	90.67	0.31	122.00	0.15	153.33	0.10
28.08	0.12	59.42	0.27	90.75	0.31	122.08	0.14	153.42	0.11

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 28.17    0.12 | 59.50    0.27 | 90.83    0.30 |122.17    0.14 |153.50    0.10
 28.25    0.12 | 59.58    0.27 | 90.92    0.31 |122.25    0.14 |153.58    0.10
 28.33    0.12 | 59.67    0.26 | 91.00    0.30 |122.33    0.14 |153.67    0.10
 28.42    0.12 | 59.75    0.26 | 91.08    0.30 |122.42    0.15 |153.75    0.11
 28.50    0.12 | 59.83    0.26 | 91.17    0.32 |122.50    0.15 |153.83    0.10
 28.58    0.12 | 59.92    0.26 | 91.25    0.30 |122.58    0.15 |153.92    0.10
 28.67    0.12 | 60.00    0.25 | 91.33    0.28 |122.67    0.14 |154.00    0.10
 28.75    0.12 | 60.08    0.25 | 91.42    0.30 |122.75    0.15 |154.08    0.10
 28.83    0.12 | 60.17    0.25 | 91.50    0.28 |122.83    0.14 |154.17    0.10
 28.92    0.12 | 60.25    0.25 | 91.58    0.31 |122.92    0.14 |154.25    0.10
 29.00    0.12 | 60.33    0.25 | 91.67    0.28 |123.00    0.15 |154.33    0.10
 29.08    0.12 | 60.42    0.24 | 91.75    0.30 |123.08    0.15 |154.42    0.10
 29.17    0.11 | 60.50    0.24 | 91.83    0.31 |123.17    0.15 |154.50    0.10
 29.25    0.11 | 60.58    0.24 | 91.92    0.27 |123.25    0.15 |154.58    0.10
 29.33    0.11 | 60.67    0.23 | 92.00    0.28 |123.33    0.15 |154.67    0.10
 29.42    0.11 | 60.75    0.24 | 92.08    0.29 |123.42    0.15 |154.75    0.10
 29.50    0.11 | 60.83    0.23 | 92.17    0.27 |123.50    0.15 |154.83    0.10
 29.58    0.11 | 60.92    0.23 | 92.25    0.28 |123.58    0.15 |154.92    0.10
 29.67    0.11 | 61.00    0.23 | 92.33    0.28 |123.67    0.15 |155.00    0.10
 29.75    0.11 | 61.08    0.23 | 92.42    0.31 |123.75    0.15 |155.08    0.10
 29.83    0.11 | 61.17    0.23 | 92.50    0.28 |123.83    0.15 |155.17    0.10
 29.92    0.11 | 61.25    0.22 | 92.58    0.28 |123.92    0.15 |155.25    0.10
 30.00    0.11 | 61.33    0.23 | 92.67    0.28 |124.00    0.15 |155.33    0.10
 30.08    0.11 | 61.42    0.23 | 92.75    0.28 |124.08    0.15 |155.42    0.10
 30.17    0.11 | 61.50    0.24 | 92.83    0.27 |124.17    0.15 |155.50    0.10
 30.25    0.11 | 61.58    0.24 | 92.92    0.28 |124.25    0.15 |155.58    0.10
 30.33    0.11 | 61.67    0.23 | 93.00    0.28 |124.33    0.14 |155.67    0.10
 30.42    0.11 | 61.75    0.23 | 93.08    0.27 |124.42    0.15 |155.75    0.10
 30.50    0.11 | 61.83    0.23 | 93.17    0.29 |124.50    0.15 |155.83    0.10
 30.58    0.11 | 61.92    0.23 | 93.25    0.28 |124.58    0.16 |155.92    0.10
 30.67    0.11 | 62.00    0.23 | 93.33    0.26 |124.67    0.15 |156.00    0.10
 30.75    0.11 | 62.08    0.23 | 93.42    0.27 |124.75    0.15 |156.08    0.10
 30.83    0.11 | 62.17    0.23 | 93.50    0.27 |124.83    0.15 |156.17    0.10
 30.92    0.11 | 62.25    0.23 | 93.58    0.26 |124.92    0.17 |156.25    0.10
 31.00    0.11 | 62.33    0.24 | 93.67    0.26 |125.00    0.16 |
 31.08    0.10 | 62.42    0.25 | 93.75    0.28 |125.08    0.16 |
 31.17    0.10 | 62.50    0.25 | 93.83    0.25 |125.17    0.16 |
 31.25    0.10 | 62.58    0.26 | 93.92    0.28 |125.25    0.16 |
------------------------------------------------------------------------------
-------------------
| STORE HYD (1605) |   AREA     (ha)=  30.00
| ID= 1 DT= 5.0min |   QPEAK    (cms)=   1.37
--------------------   TPEAK    (hrs)=  71.92
                       VOLUME    (mm)= 625.27

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |' TIME    FLOW |  TIME    FLOW
   hrs     cms |   hrs     cms |   hrs     cms |'  hrs     cms |   hrs     cms
  0.00    0.00 | 31.25    0.15 | 62.50    0.38 | 93.75    0.37 |125.00    0.20
  0.08    0.00 | 31.33    0.15 | 62.58    0.38 | 93.83    0.36 |125.08    0.20
  0.17    0.00 | 31.42    0.15 | 62.67    0.38 | 93.92    0.36 |125.17    0.20
  0.25    0.00 | 31.50    0.15 | 62.75    0.38 | 94.00    0.36 |125.25    0.20
  0.33    0.00 | 31.58    0.15 | 62.83    0.38 | 94.08    0.36 |125.33    0.20
  0.42    0.00 | 31.67    0.15 | 62.92    0.38 | 94.17    0.36 |125.42    0.20
  0.50    0.00 | 31.75    0.15 | 63.00    0.37 | 94.25    0.36 |125.50    0.20
  0.58    0.00 | 31.83    0.14 | 63.08    0.38 | 94.33    0.36 |125.58    0.20
  0.67    0.00 | 31.92    0.14 | 63.17    0.37 | 94.42    0.36 |125.67    0.21
  0.75    0.00 | 32.00    0.14 | 63.25    0.37 | 94.50    0.36 |125.75    0.21
  0.83    0.00 | 32.08    0.14 | 63.33    0.37 | 94.58    0.36 |125.83    0.21
  0.92    0.00 | 32.17    0.14 | 63.42    0.37 | 94.67    0.36 |125.92    0.21
  1.00    0.00 | 32.25    0.14 | 63.50    0.37 | 94.75    0.36 |126.00    0.21
  1.08    0.00 | 32.33    0.14 | 63.58    0.37 | 94.83    0.36 |126.08    0.21
  1.17    0.00 | 32.42    0.14 | 63.67    0.36 | 94.92    0.35 |126.17    0.21
  1.25    0.00 | 32.50    0.14 | 63.75    0.36 | 95.00    0.35 |126.25    0.21
  1.33    0.00 | 32.58    0.14 | 63.83    0.36 | 95.08    0.35 |126.33    0.21
  1.42    0.00 | 32.67    0.14 | 63.92    0.36 | 95.17    0.35 |126.42    0.22
  1.50    0.00 | 32.75    0.14 | 64.00    0.36 | 95.25    0.35 |126.50    0.22
  1.58    0.00 | 32.83    0.14 | 64.08    0.36 | 95.33    0.35 |126.58    0.22
  1.67    0.00 | 32.92    0.14 | 64.17    0.36 | 95.42    0.35 |126.67    0.22
  1.75    0.00 | 33.00    0.14 | 64.25    0.35 | 95.50    0.35 |126.75    0.22
  1.83    0.00 | 33.08    0.14 | 64.33    0.35 | 95.58    0.34 |126.83    0.22
  1.92    0.00 | 33.17    0.14 | 64.42    0.35 | 95.67    0.34 |126.92    0.23
  2.00    0.00 | 33.25    0.14 | 64.50    0.35 | 95.75    0.34 |127.00    0.23
  2.08    0.00 | 33.33    0.14 | 64.58    0.34 | 95.83    0.34 |127.08    0.23
  2.17    0.00 | 33.42    0.14 | 64.67    0.34 | 95.92    0.34 |127.17    0.23
  2.25    0.00 | 33.50    0.14 | 64.75    0.34 | 96.00    0.34 |127.25    0.23
  2.33    0.00 | 33.58    0.14 | 64.83    0.34 | 96.08    0.34 |127.33    0.24
  2.42    0.00 | 33.67    0.14 | 64.92    0.34 | 96.17    0.34 |127.42    0.24
  2.50    0.00 | 33.75    0.14 | 65.00    0.34 | 96.25    0.34 |127.50    0.24
  2.58    0.00 | 33.83    0.14 | 65.08    0.34 | 96.33    0.34 |127.58    0.24
  2.67    0.00 | 33.92    0.14 | 65.17    0.34 | 96.42    0.34 |127.67    0.24
  2.75    0.00 | 34.00    0.14 | 65.25    0.34 | 96.50    0.34 |127.75    0.24
  2.83    0.00 | 34.08    0.14 | 65.33    0.34 | 96.58    0.34 |127.83    0.25
  2.92    0.00 | 34.17    0.14 | 65.42    0.34 | 96.67    0.34 |127.92    0.25
  3.00    0.00 | 34.25    0.14 | 65.50    0.34 | 96.75    0.33 |128.00    0.25
  3.08    0.00 | 34.33    0.14 | 65.58    0.33 | 96.83    0.33 |128.08    0.25
  3.17    0.00 | 34.42    0.14 | 65.67    0.34 | 96.92    0.33 |128.17    0.25
  3.25    0.00 | 34.50    0.14 | 65.75    0.33 | 97.00    0.33 |128.25    0.25
  3.33    0.00 | 34.58    0.14 | 65.83    0.33 | 97.08    0.33 |128.33    0.25
  3.42    0.00 | 34.67    0.14 | 65.92    0.33 | 97.17    0.33 |128.42    0.25
  3.50    0.00 | 34.75    0.14 | 66.00    0.33 | 97.25    0.33 |128.50    0.25
  3.58    0.00 | 34.83    0.14 | 66.08    0.32 | 97.33    0.33 |128.58    0.26
  3.67    0.00 | 34.92    0.14 | 66.17    0.33 | 97.42    0.33 |128.67    0.26
  3.75    0.00 | 35.00    0.14 | 66.25    0.33 | 97.50    0.33 |128.75    0.26
  3.83    0.00 | 35.08    0.14 | 66.33    0.32 | 97.58    0.33 |128.83    0.26
  3.92    0.00 | 35.17    0.14 | 66.42    0.32 | 97.67    0.33 |128.92    0.26
  4.00    0.00 | 35.25    0.14 | 66.50    0.33 | 97.75    0.33 |129.00    0.26
  4.08    0.00 | 35.33    0.14 | 66.58    0.32 | 97.83    0.33 |129.08    0.26
  4.17    0.00 | 35.42    0.14 | 66.67    0.32 | 97.92    0.33 |129.17    0.26
  4.25    0.00 | 35.50    0.14 | 66.75    0.32 | 98.00    0.32 |129.25    0.27
  4.33    0.00 | 35.58    0.14 | 66.83    0.32 | 98.08    0.32 |129.33    0.27
  4.42    0.00 | 35.67    0.14 | 66.92    0.32 | 98.17    0.32 |129.42    0.27
  4.50    0.00 | 35.75    0.14 | 67.00    0.32 | 98.25    0.32 |129.50    0.27
  4.58    0.00 | 35.83    0.14 | 67.08    0.32 | 98.33    0.32 |129.58    0.28
  4.67    0.00 | 35.92    0.14 | 67.17    0.32 | 98.42    0.32 |129.67    0.28
  4.75    0.00 | 36.00    0.14 | 67.25    0.32 | 98.50    0.32 |129.75    0.28
  4.83    0.00 | 36.08    0.14 | 67.33    0.33 | 98.58    0.32 |129.83    0.29
  4.92    0.00 | 36.17    0.14 | 67.42    0.34 | 98.67    0.32 |129.92    0.29
  5.00    0.00 | 36.25    0.14 | 67.50    0.34 | 98.75    0.32 |130.00    0.29
  5.08    0.00 | 36.33    0.15 | 67.58    0.35 | 98.83    0.32 |130.08    0.29
  5.17    0.00 | 36.42    0.15 | 67.67    0.35 | 98.92    0.32 |130.17    0.29
  5.25    0.00 | 36.50    0.15 | 67.75    0.36 | 99.00    0.32 |130.25    0.29
  5.33    0.00 | 36.58    0.15 | 67.83    0.37 | 99.08    0.32 |130.33    0.29
  5.42    0.00 | 36.67    0.15 | 67.92    0.38 | 99.17    0.32 |130.42    0.29
  5.50    0.00 | 36.75    0.15 | 68.00    0.40 | 99.25    0.32 |130.50    0.29
  5.58    0.00 | 36.83    0.15 | 68.08    0.41 | 99.33    0.32 |130.58    0.29
  5.67    0.00 | 36.92    0.15 | 68.17    0.42 | 99.42    0.32 |130.67    0.29
  5.75    0.00 | 37.00    0.15 | 68.25    0.43 | 99.50    0.32 |130.75    0.29
  5.83    0.00 | 37.08    0.15 | 68.33    0.45 | 99.58    0.31 |130.83    0.29
  5.92    0.00 | 37.17    0.15 | 68.42    0.47 | 99.67    0.31 |130.92    0.29
  6.00    0.00 | 37.25    0.15 | 68.50    0.48 | 99.75    0.31 |131.00    0.29
  6.08    0.00 | 37.33    0.15 | 68.58    0.50 | 99.83    0.31 |131.08    0.29
  6.17    0.00 | 37.42    0.15 | 68.67    0.52 | 99.92    0.31 |131.17    0.29
  6.25    0.00 | 37.50    0.15 | 68.75    0.53 |100.00    0.31 |131.25    0.29
  6.33    0.00 | 37.58    0.15 | 68.83    0.56 |100.08    0.31 |131.33    0.29
  6.42    0.00 | 37.67    0.15 | 68.92    0.57 |100.17    0.31 |131.42    0.29
  6.50    0.00 | 37.75    0.16 | 69.00    0.58 |100.25    0.31 |131.50    0.29
  6.58    0.00 | 37.83    0.16 | 69.08    0.60 |100.33    0.31 |131.58    0.28
  6.67    0.00 | 37.92    0.16 | 69.17    0.61 |100.42    0.31 |131.67    0.28
  6.75    0.00 | 38.00    0.16 | 69.25    0.63 |100.50    0.30 |131.75    0.28
  6.83    0.00 | 38.08    0.16 | 69.33    0.63 |100.58    0.30 |131.83    0.28
  6.92    0.00 | 38.17    0.16 | 69.42    0.64 |100.67    0.30 |131.92    0.28
  7.00    0.00 | 38.25    0.16 | 69.50    0.66 |100.75    0.30 |132.00    0.28
  7.08    0.00 | 38.33    0.16 | 69.58    0.68 |100.83    0.30 |132.08    0.28
  7.17    0.00 | 38.42    0.16 | 69.67    0.70 |100.92    0.30 |132.17    0.28
  7.25    0.00 | 38.50    0.16 | 69.75    0.71 |101.00    0.30 |132.25    0.28
  7.33    0.00 | 38.58    0.16 | 69.83    0.74 |101.08    0.30 |132.33    0.28
  7.42    0.00 | 38.67    0.17 | 69.92    0.76 |101.17    0.30 |132.42    0.28
  7.50    0.00 | 38.75    0.17 | 70.00    0.78 |101.25    0.30 |132.50    0.27
  7.58    0.00 | 38.83    0.17 | 70.08    0.80 |101.33    0.29 |132.58    0.27
  7.67    0.00 | 38.92    0.17 | 70.17    0.82 |101.42    0.29 |132.67    0.27
  7.75    0.00 | 39.00    0.17 | 70.25    0.84 |101.50    0.29 |132.75    0.27
  7.83    0.00 | 39.08    0.17 | 70.33    0.87 |101.58    0.29 |132.83    0.27
  7.92    0.00 | 39.17    0.17 | 70.42    0.91 |101.67    0.29 |132.92    0.27
  8.00    0.00 | 39.25    0.18 | 70.50    0.94 |101.75    0.28 |133.00    0.27
  8.08    0.00 | 39.33    0.18 | 70.58    0.98 |101.83    0.28 |133.08    0.27
  8.17    0.00 | 39.42    0.18 | 70.67    1.01 |101.92    0.28 |133.17    0.27
  8.25    0.00 | 39.50    0.18 | 70.75    1.04 |102.00    0.28 |133.25    0.26
  8.33    0.00 | 39.58    0.19 | 70.83    1.09 |102.08    0.28 |133.33    0.26
  8.42    0.00 | 39.67    0.19 | 70.92    1.14 |102.17    0.28 |133.42    0.26
  8.50    0.00 | 39.75    0.19 | 71.00    1.20 |102.25    0.28 |133.50    0.26
  8.58    0.00 | 39.83    0.19 | 71.08    1.23 |102.33    0.28 |133.58    0.26
  8.67    0.00 | 39.92    0.20 | 71.17    1.25 |102.42    0.27 |133.67    0.26
  8.75    0.00 | 40.00    0.20 | 71.25    1.30 |102.50    0.27 |133.75    0.26
  8.83    0.00 | 40.08    0.20 | 71.33    1.32 |102.58    0.27 |133.83    0.25
  8.92    0.00 | 40.17    0.21 | 71.42    1.33 |102.67    0.27 |133.92    0.25
  9.00    0.00 | 40.25    0.21 | 71.50    1.34 |102.75    0.27 |134.00    0.25
  9.08    0.00 | 40.33    0.21 | 71.58    1.36 |102.83    0.27 |134.08    0.25
  9.17    0.00 | 40.42    0.22 | 71.67    1.36 |102.92    0.27 |134.17    0.25
  9.25    0.00 | 40.50    0.22 | 71.75    1.36 |103.00    0.27 |134.25    0.25
  9.33    0.00 | 40.58    0.22 | 71.83    1.37 |103.08    0.27 |134.33    0.25
  9.42    0.00 | 40.67    0.23 | 71.92    1.37 |103.17    0.27 |134.42    0.25
  9.50    0.00 | 40.75    0.23 | 72.00    1.36 |103.25    0.26 |134.50    0.25
  9.58    0.00 | 40.83    0.24 | 72.08    1.35 |103.33    0.26 |134.58    0.24
  9.67    0.00 | 40.92    0.24 | 72.17    1.35 |103.42    0.26 |134.67    0.24
  9.75    0.00 | 41.00    0.24 | 72.25    1.33 |103.50    0.26 |134.75    0.24
  9.83    0.00 | 41.08    0.25 | 72.33    1.32 |103.58    0.26 |134.83    0.24
  9.92    0.00 | 41.17    0.25 | 72.42    1.31 |103.67    0.26 |134.92    0.24
 10.00    0.00 | 41.25    0.26 | 72.50    1.29 |103.75    0.25 |135.00    0.24
 10.08    0.00 | 41.33    0.27 | 72.58    1.27 |103.83    0.25 |135.08    0.24
 10.17    0.00 | 41.42    0.27 | 72.67    1.26 |103.92    0.25 |135.17    0.24
 10.25    0.00 | 41.50    0.28 | 72.75    1.23 |104.00    0.25 |135.25    0.24
 10.33    0.00 | 41.58    0.29 | 72.83    1.23 |104.08    0.25 |135.33    0.23
 10.42    0.00 | 41.67    0.29 | 72.92    1.21 |104.17    0.25 |135.42    0.23
 10.50    0.00 | 41.75    0.30 | 73.00    1.20 |104.25    0.25 |135.50    0.23
 10.58    0.00 | 41.83    0.30 | 73.08    1.17 |104.33    0.25 |135.58    0.23
 10.67    0.00 | 41.92    0.31 | 73.17    1.17 |104.42    0.24 |135.67    0.23
 10.75    0.00 | 42.00    0.32 | 73.25    1.16 |104.50    0.24 |135.75    0.23
 10.83    0.00 | 42.08    0.32 | 73.33    1.15 |104.58    0.24 |135.83    0.23
 10.92    0.00 | 42.17    0.33 | 73.42    1.12 |104.67    0.24 |135.92    0.23
 11.00    0.00 | 42.25    0.33 | 73.50    1.12 |104.75    0.24 |136.00    0.22
 11.08    0.00 | 42.33    0.34 | 73.58    1.11 |104.83    0.24 |136.08    0.22
 11.17    0.00 | 42.42    0.34 | 73.67    1.09 |104.92    0.24 |136.17    0.22
 11.25    0.00 | 42.50    0.35 | 73.75    1.08 |105.00    0.24 |136.25    0.22
 11.33    0.00 | 42.58    0.36 | 73.83    1.06 |105.08    0.24 |136.33    0.22
 11.42    0.00 | 42.67    0.36 | 73.92    1.05 |105.17    0.23 |136.42    0.22
 11.50    0.00 | 42.75    0.37 | 74.00    1.03 |105.25    0.23 |136.50    0.22
 11.58    0.00 | 42.83    0.38 | 74.08    1.03 |105.33    0.23 |136.58    0.22
 11.67    0.00 | 42.92    0.39 | 74.17    1.02 |105.42    0.23 |136.67    0.21
 11.75    0.00 | 43.00    0.40 | 74.25    1.00 |105.50    0.23 |136.75    0.21
 11.83    0.00 | 43.08    0.40 | 74.33    0.99 |105.58    0.23 |136.83    0.21
 11.92    0.00 | 43.17    0.42 | 74.42    0.97 |105.67    0.23 |136.92    0.21
 12.00    0.00 | 43.25    0.42 | 74.50    0.96 |105.75    0.23 |137.00    0.21
 12.08    0.00 | 43.33    0.43 | 74.58    0.95 |105.83    0.23 |137.08    0.21
 12.17    0.00 | 43.42    0.44 | 74.67    0.94 |105.92    0.23 |137.17    0.21
 12.25    0.00 | 43.50    0.45 | 74.75    0.92 |106.00    0.22 |137.25    0.21
 12.33    0.00 | 43.58    0.46 | 74.83    0.91 |106.08    0.22 |137.33    0.21
 12.42    0.00 | 43.67    0.47 | 74.92    0.89 |106.17    0.22 |137.42    0.21
 12.50    0.00 | 43.75    0.48 | 75.00    0.88 |106.25    0.22 |137.50    0.20
 12.58    0.00 | 43.83    0.49 | 75.08    0.87 |106.33    0.22 |137.58    0.20
 12.67    0.00 | 43.92    0.50 | 75.17    0.85 |106.42    0.22 |137.67    0.20
 12.75    0.00 | 44.00    0.50 | 75.25    0.84 |106.50    0.22 |137.75    0.20
 12.83    0.00 | 44.08    0.51 | 75.33    0.83 |106.58    0.22 |137.83    0.20
 12.92    0.00 | 44.17    0.51 | 75.42    0.81 |106.67    0.22 |137.92    0.20
 13.00    0.00 | 44.25    0.52 | 75.50    0.80 |106.75    0.21 |138.00    0.20
 13.08    0.00 | 44.33    0.52 | 75.58    0.79 |106.83    0.21 |138.08    0.20
 13.17    0.00 | 44.42    0.53 | 75.67    0.77 |106.92    0.21 |138.17    0.20
 13.25    0.00 | 44.50    0.53 | 75.75    0.77 |107.00    0.21 |138.25    0.19
 13.33    0.00 | 44.58    0.53 | 75.83    0.76 |107.08    0.21 |138.33    0.19
 13.42    0.00 | 44.67    0.54 | 75.92    0.74 |107.17    0.21 |138.42    0.19
 13.50    0.00 | 44.75    0.54 | 76.00    0.74 |107.25    0.21 |138.50    0.19
 13.58    0.00 | 44.83    0.54 | 76.08    0.72 |107.33    0.21 |138.58    0.19
 13.67    0.00 | 44.92    0.55 | 76.17    0.72 |107.42    0.21 |138.67    0.19
 13.75    0.00 | 45.00    0.55 | 76.25    0.71 |107.50    0.21 |138.75    0.19
 13.83    0.00 | 45.08    0.55 | 76.33    0.70 |107.58    0.21 |138.83    0.19
 13.92    0.00 | 45.17    0.55 | 76.42    0.69 |107.67    0.21 |138.92    0.19
 14.00    0.00 | 45.25    0.55 | 76.50    0.68 |107.75    0.20 |139.00    0.19
 14.08    0.00 | 45.33    0.55 | 76.58    0.68 |107.83    0.20 |139.08    0.19
 14.17    0.00 | 45.42    0.55 | 76.67    0.68 |107.92    0.20 |139.17    0.18
 14.25    0.00 | 45.50    0.55 | 76.75    0.66 |108.00    0.20 |139.25    0.18
 14.33    0.00 | 45.58    0.55 | 76.83    0.65 |108.08    0.20 |139.33    0.18
 14.42    0.00 | 45.67    0.55 | 76.92    0.65 |108.17    0.20 |139.42    0.18
 14.50    0.00 | 45.75    0.55 | 77.00    0.64 |108.25    0.20 |139.50    0.18
 14.58    0.00 | 45.83    0.55 | 77.08    0.63 |108.33    0.20 |139.58    0.18
 14.67    0.00 | 45.92    0.55 | 77.17    0.63 |108.42    0.20 |139.67    0.18
 14.75    0.99 | 46.00    0.54 | 77.25    0.63 |108.50    0.20 |139.75    0.18
 14.83    0.99 | 46.08    0.54 | 77.33    0.62 |108.58    0.20 |139.83    0.18
 14.92    1.00 | 46.17    0.54 | 77.42    0.61 |108.67    0.20 |139.92    0.18
 15.00    1.00 | 46.25    0.54 | 77.50    0.60 |108.75    0.19 |140.00    0.18
 15.08    1.01 | 46.33    0.53 | 77.58    0.60 |108.83    0.19 |140.08    0.18
 15.17    1.01 | 46.42    0.53 | 77.67    0.59 |108.92    0.19 |140.17    0.18
 15.25    1.02 | 46.50    0.53 | 77.75    0.59 |109.00    0.19 |140.25    0.18
 15.33    1.03 | 46.58    0.52 | 77.83    0.58 |109.08    0.19 |140.33    0.18
 15.42    1.04 | 46.67    0.52 | 77.92    0.58 |109.17    0.19 |140.42    0.17
 15.50    1.05 | 46.75    0.52 | 78.00    0.58 |109.25    0.19 |140.50    0.17
 15.58    1.06 | 46.83    0.52 | 78.08    0.58 |109.33    0.19 |140.58    0.17
 15.67    1.07 | 46.92    0.51 | 78.17    0.57 |109.42    0.19 |140.67    0.17
 15.75    1.08 | 47.00    0.51 | 78.25    0.56 |109.50    0.19 |140.75    0.17
 15.83    1.08 | 47.08    0.51 | 78.33    0.56 |109.58    0.19 |140.83    0.17
 15.92    1.08 | 47.17    0.51 | 78.42    0.55 |109.67    0.18 |140.92    0.17
 16.00    1.09 | 47.25    0.51 | 78.50    0.55 |109.75    0.18 |141.00    0.17
 16.08    1.09 | 47.33    0.51 | 78.58    0.55 |109.83    0.18 |141.08    0.17
 16.17    1.09 | 47.42    0.51 | 78.67    0.55 |109.92    0.18 |141.17    0.17
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 16.25    1.09 | 47.50    0.50 | 78.75    0.54 |110.00    0.18
|141.25   0.17
 16.33    1.09 | 47.58    0.50 | 78.83    0.54 |110.08    0.18
|141.33   0.17
 16.42    1.09 | 47.67    0.50 | 78.92    0.54 |110.17    0.18
|141.42   0.17
 16.50    1.09 | 47.75    0.50 | 79.00    0.54 |110.25    0.18
|141.50   0.16
 16.58    1.10 | 47.83    0.50 | 79.08    0.53 |110.33    0.18
|141.58   0.16
 16.67    1.09 | 47.92    0.50 | 79.17    0.52 |110.42    0.18
|141.67   0.16
 16.75    1.09 | 48.00    0.50 | 79.25    0.52 |110.50    0.18
|141.75   0.16
 16.83    1.08 | 48.08    0.50 | 79.33    0.51 |110.58    0.18
|141.83   0.16
 16.92    1.09 | 48.17    0.49 | 79.42    0.50 |110.67    0.18
|141.92   0.16
 17.00    1.08 | 48.25    0.49 | 79.50    0.50 |110.75    0.18
|142.00   0.16
 17.08    1.07 | 48.33    0.49 | 79.58    0.49 |110.83    0.18
|142.08   0.16
 17.17    1.06 | 48.42    0.49 | 79.67    0.49 |110.92    0.18
|142.17   0.16
 17.25    1.06 | 48.50    0.49 | 79.75    0.48 |111.00    0.18
|142.25   0.16
 17.33    1.05 | 48.58    0.49 | 79.83    0.48 |111.08    0.18
|142.33   0.16
 17.42    1.04 | 48.67    0.48 | 79.92    0.48 |111.17    0.18
|142.42   0.16
 17.50    1.04 | 48.75    0.48 | 80.00    0.47 |111.25    0.18
|142.50   0.16
 17.58    1.03 | 48.83    0.48 | 80.08    0.47 |111.33    0.18
|142.58   0.16
 17.67    1.02 | 48.92    0.48 | 80.17    0.46 |111.42    0.18
|142.67   0.16
 17.75    1.01 | 49.00    0.47 | 80.25    0.46 |111.50    0.18
|142.75   0.16
 17.83    1.00 | 49.08    0.47 | 80.33    0.46 |111.58    0.18
|142.83   0.16
 17.92    0.99 | 49.17    0.47 | 80.42    0.45 |111.67    0.18
|142.92   0.16
 18.00    0.98 | 49.25    0.47 | 80.50    0.45 |111.75    0.18
|143.00   0.16
 18.08    0.97 | 49.33    0.47 | 80.58    0.45 |111.83    0.17
|143.08   0.15
 18.17    0.96 | 49.42    0.46 | 80.67    0.45 |111.92    0.17
|143.17   0.15
 18.25    0.95 | 49.50    0.46 | 80.75    0.44 |112.00    0.17
|143.25   0.15
 18.33    0.93 | 49.58    0.46 | 80.83    0.44 |112.08    0.17
|143.33   0.15
 18.42    0.92 | 49.67    0.46 | 80.92    0.44 |112.17    0.17
|143.42   0.15
 18.50    0.91 | 49.75    0.45 | 81.00    0.44 |112.25    0.17
|143.50   0.15
 18.58    0.89 | 49.83    0.45 | 81.08    0.44 |112.33    0.17
|143.58   0.15
 18.67    0.87 | 49.92    0.45 | 81.17    0.44 |112.42    0.17
|143.67   0.15
 18.75    0.86 | 50.00    0.45 | 81.25    0.44 |112.50    0.17
|143.75   0.15
 18.83    0.84 | 50.08    0.44 | 81.33    0.44 |112.58    0.17
|143.83   0.15
 18.92    0.83 | 50.17    0.44 | 81.42    0.43 |112.67    0.17
|143.92   0.15
 19.00    0.81 | 50.25    0.44 | 81.50    0.44 |112.75    0.17
|144.00   0.15
 19.08    0.79 | 50.33    0.44 | 81.58    0.45 |112.83    0.17
|144.08   0.15
 19.17    0.78 | 50.42    0.44 | 81.67    0.46 |112.92    0.17
|144.17   0.15
 19.25    0.76 | 50.50    0.44 | 81.75    0.45 |113.00    0.17
|144.25   0.15
 19.33    0.74 | 50.58    0.44 | 81.83    0.46 |113.08    0.17
|144.33   0.15
 19.42    0.72 | 50.67    0.44 | 81.92    0.46 |113.17    0.16
|144.42   0.15
 19.50    0.71 | 50.75    0.43 | 82.00    0.47 |113.25    0.16
|144.50   0.15
 19.58    0.69 | 50.83    0.43 | 82.08    0.47 |113.33    0.16
|144.58   0.15
 19.67    0.68 | 50.92    0.43 | 82.17    0.47 |113.42    0.16
|144.67   0.15
 19.75    0.66 | 51.00    0.43 | 82.25    0.48 |113.50    0.16
|144.75   0.15
 19.83    0.65 | 51.08    0.43 | 82.33    0.49 |113.58    0.16
|144.83   0.14
 19.92    0.64 | 51.17    0.43 | 82.42    0.49 |113.67    0.16
|144.92   0.14
 20.00    0.62 | 51.25    0.43 | 82.50    0.49 |113.75    0.16
|145.00   0.14
 20.08    0.61 | 51.33    0.43 | 82.58    0.49 |113.83    0.16
|145.08   0.14
 20.17    0.60 | 51.42    0.43 | 82.67    0.50 |113.92    0.16
|145.17   0.14
 20.25    0.58 | 51.50    0.43 | 82.75    0.50 |114.00    0.16
|145.25   0.14
 20.33    0.58 | 51.58    0.43 | 82.83    0.50 |114.08    0.16
|145.33   0.14
 20.42    0.56 | 51.67    0.43 | 82.92    0.50 |114.17    0.16
|145.42   0.14
 20.50    0.55 | 51.75    0.43 | 83.00    0.50 |114.25    0.16
|145.50   0.14
 20.58    0.54 | 51.83    0.43 | 83.08    0.50 |114.33    0.16
|145.58   0.14
 20.67    0.53 | 51.92    0.43 | 83.17    0.51 |114.42    0.16
|145.67   0.14
 20.75    0.52 | 52.00    0.43 | 83.25    0.51 |114.50    0.16
|145.75   0.14
 20.83    0.51 | 52.08    0.43 | 83.33    0.51 |114.58    0.16
|145.83   0.14
 20.92    0.50 | 52.17    0.43 | 83.42    0.51 |114.67    0.16
|145.92   0.14
 21.00    0.49 | 52.25    0.43 | 83.50    0.52 |114.75    0.16
|146.00   0.14
 21.08    0.49 | 52.33    0.43 | 83.58    0.52 |114.83    0.16
|146.08   0.14
 21.17    0.48 | 52.42    0.43 | 83.67    0.53 |114.92    0.16
|146.17   0.14
 21.25    0.47 | 52.50    0.43 | 83.75    0.53 |115.00    0.16
|146.25   0.14
 21.33    0.47 | 52.58    0.43 | 83.83    0.54 |115.08    0.16
|146.33   0.14
 21.42    0.46 | 52.67    0.43 | 83.92    0.55 |115.17    0.16
|146.42   0.14
 21.50    0.45 | 52.75    0.43 | 84.00    0.56 |115.25    0.16
|146.50   0.14
 21.58    0.45 | 52.83    0.43 | 84.08    0.57 |115.33    0.16
|146.58   0.14
 21.67    0.44 | 52.92    0.44 | 84.17    0.58 |115.42    0.16
|146.67   0.14
 21.75    0.43 | 53.00    0.44 | 84.25    0.60 |115.50    0.16
|146.75   0.14
 21.83    0.43 | 53.08    0.44 | 84.33    0.62 |115.58    0.16
|146.83   0.14
 21.92    0.42 | 53.17    0.44 | 84.42    0.64 |115.67    0.16
|146.92   0.13
 22.00    0.42 | 53.25    0.44 | 84.50    0.66 |115.75    0.16
|147.00   0.13
 22.08    0.41 | 53.33    0.45 | 84.58    0.69 |115.83    0.16
|147.08   0.13
 22.17    0.41 | 53.42    0.45 | 84.67    0.72 |115.92    0.16
|147.17   0.13
 22.25    0.40 | 53.50    0.45 | 84.75    0.74 |116.00    0.16
|147.25   0.13
 22.33    0.40 | 53.58    0.45 | 84.83    0.77 |116.08    0.15
|147.33   0.13
 22.42    0.39 | 53.67    0.46 | 84.92    0.79 |116.17    0.15
|147.42   0.13
 22.50    0.39 | 53.75    0.46 | 85.00    0.81 |116.25    0.16
|147.50   0.13
 22.58    0.38 | 53.83    0.46 | 85.08    0.82 |116.33    0.16
|147.58   0.13
 22.67    0.38 | 53.92    0.46 | 85.17    0.84 |116.42    0.16
|147.67   0.13
 22.75    0.37 | 54.00    0.47 | 85.25    0.85 |116.50    0.16
|147.75   0.13
 22.83    0.37 | 54.08    0.47 | 85.33    0.85 |116.58    0.16
|147.83   0.13
 22.92    0.36 | 54.17    0.47 | 85.42    0.86 |116.67    0.16
|147.92   0.13
 23.00    0.36 | 54.25    0.48 | 85.50    0.87 |116.75    0.16
|148.00   0.13
 23.08    0.36 | 54.33    0.48 | 85.58    0.86 |116.83    0.16
|148.08   0.13
 23.17    0.35 | 54.42    0.49 | 85.67    0.87 |116.92    0.16
|148.17   0.13
 23.25    0.35 | 54.50    0.49 | 85.75    0.86 |117.00    0.16
|148.25   0.13
 23.33    0.34 | 54.58    0.50 | 85.83    0.85 |117.08    0.16
|148.33   0.13
 23.42    0.34 | 54.67    0.50 | 85.92    0.85 |117.17    0.16
|148.42   0.13
 23.50    0.34 | 54.75    0.51 | 86.00    0.84 |117.25    0.16
|148.50   0.13
 23.58    0.33 | 54.83    0.52 | 86.08    0.83 |117.33    0.16
|148.58   0.13
 23.67    0.33 | 54.92    0.53 | 86.17    0.82 |117.42    0.16
|148.67   0.13
 23.75    0.32 | 55.00    0.53 | 86.25    0.81 |117.50    0.16
|148.75   0.13
 23.83    0.32 | 55.08    0.54 | 86.33    0.81 |117.58    0.16
|148.83   0.13
 23.92    0.32 | 55.17    0.55 | 86.42    0.79 |117.67    0.16
|148.92   0.13
 24.00    0.31 | 55.25    0.55 | 86.50    0.78 |117.75    0.16
|149.00   0.13
 24.08    0.31 | 55.33    0.55 | 86.58    0.77 |117.83    0.16
|149.08   0.13
 24.17    0.30 | 55.42    0.56 | 86.67    0.76 |117.92    0.16
|149.17   0.13
 24.25    0.30 | 55.50    0.56 | 86.75    0.74 |118.00    0.16
|149.25   0.12
 24.33    0.30 | 55.58    0.57 | 86.83    0.74 |118.08    0.16
|149.33   0.12
 24.42    0.30 | 55.67    0.57 | 86.92    0.73 |118.17    0.16
|149.42   0.12
 24.50    0.29 | 55.75    0.58 | 87.00    0.71 |118.25    0.16
|149.50   0.12
 24.58    0.29 | 55.83    0.58 | 87.08    0.71 |118.33    0.16
|149.58   0.12
 24.67    0.29 | 55.92    0.58 | 87.17    0.70 |118.42    0.16
|149.67   0.12
 24.75    0.28 | 56.00    0.58 | 87.25    0.68 |118.50    0.16
|149.75   0.12
 24.83    0.28 | 56.08    0.58 | 87.33    0.68 |118.58    0.15
|149.83   0.12
 24.92    0.28 | 56.17    0.58 | 87.42    0.66 |118.67    0.15
|149.92   0.12
 25.00    0.27 | 56.25    0.58 | 87.50    0.66 |118.75    0.15
|150.00   0.12
 25.08    0.27 | 56.33    0.58 | 87.58    0.65 |118.83    0.15
|150.08   0.12
 25.17    0.27 | 56.42    0.58 | 87.67    0.64 |118.92    0.15
|150.17   0.12
 25.25    0.27 | 56.50    0.59 | 87.75    0.63 |119.00    0.15
|150.25   0.12
 25.33    0.26 | 56.58    0.59 | 87.83    0.62 |119.08    0.15
|150.33   0.12
 25.42    0.26 | 56.67    0.59 | 87.92    0.62 |119.17    0.15
|150.42   0.12
 25.50    0.26 | 56.75    0.59 | 88.00    0.61 |119.25    0.15
|150.50   0.12
 25.58    0.25 | 56.83    0.59 | 88.08    0.60 |119.33    0.15
|150.58   0.12
 25.67    0.25 | 56.92    0.59 | 88.17    0.59 |119.42    0.15
|150.67   0.12
 25.75    0.25 | 57.00    0.59 | 88.25    0.58 |119.50    0.15
|150.75   0.12
 25.83    0.25 | 57.08    0.59 | 88.33    0.58 |119.58    0.15
|150.83   0.12
 25.92    0.25 | 57.17    0.59 | 88.42    0.57 |119.67    0.15
|150.92   0.12
 26.00    0.24 | 57.25    0.59 | 88.50    0.57 |119.75    0.15
|151.00   0.12
 26.08    0.24 | 57.33    0.59 | 88.58    0.56 |119.83    0.16
|151.08   0.12
 26.17    0.24 | 57.42    0.59 | 88.67    0.55 |119.92    0.16
|151.17   0.12
 26.25    0.24 | 57.50    0.59 | 88.75    0.55 |120.00    0.16
|151.25   0.12
 26.33    0.23 | 57.58    0.58 | 88.83    0.54 |120.08    0.16
|151.33   0.12
 26.42    0.23 | 57.67    0.58 | 88.92    0.53 |120.17    0.16
|151.42   0.12
 26.50    0.23 | 57.75    0.58 | 89.00    0.53 |120.25    0.16
|151.50   0.12
 26.58    0.23 | 57.83    0.57 | 89.08    0.52 |120.33    0.16
|151.58   0.12
 26.67    0.23 | 57.92    0.57 | 89.17    0.51 |120.42    0.16
|151.67   0.12
 26.75    0.22 | 58.00    0.57 | 89.25    0.51 |120.50    0.16
|151.75   0.12
 26.83    0.22 | 58.08    0.57 | 89.33    0.50 |120.58    0.16
|151.83   0.12
 26.92    0.22 | 58.17    0.56 | 89.42    0.50 |120.67    0.16
|151.92   0.12
 27.00    0.22 | 58.25    0.56 | 89.50    0.49 |120.75    0.16
|152.00   0.12
 27.08    0.22 | 58.33    0.56 | 89.58    0.48 |120.83    0.16
|152.08   0.12
 27.17    0.21 | 58.42    0.55 | 89.67    0.48 |120.92    0.16
|152.17   0.12
 27.25    0.21 | 58.50    0.55 | 89.75    0.47 |121.00    0.16
|152.25   0.12
 27.33    0.21 | 58.58    0.54 | 89.83    0.47 |121.08    0.16
|152.33   0.11
 27.42    0.21 | 58.67    0.54 | 89.92    0.47 |121.17    0.17
|152.42   0.11
 27.50    0.21 | 58.75    0.53 | 90.00    0.47 |121.25    0.17
|152.50   0.11
 27.58    0.21 | 58.83    0.53 | 90.08    0.46 |121.33    0.17
|152.58   0.11
 27.67    0.20 | 58.92    0.52 | 90.17    0.46 |121.42    0.17
|152.67   0.11
 27.75    0.20 | 59.00    0.52 | 90.25    0.45 |121.50    0.17
|152.75   0.11
 27.83    0.20 | 59.08    0.52 | 90.33    0.45 |121.58    0.17
|152.83   0.11
 27.92    0.20 | 59.17    0.51 | 90.42    0.44 |121.67    0.17
|152.92   0.11
 28.00    0.19 | 59.25    0.51 | 90.50    0.44 |121.75    0.17
|153.00   0.11
 28.08    0.19 | 59.33    0.50 | 90.58    0.44 |121.83    0.17
|153.08   0.11
 28.17    0.19 | 59.42    0.50 | 90.67    0.43 |121.92    0.17
|153.17   0.11
 28.25    0.19 | 59.50    0.49 | 90.75    0.43 |122.00    0.17
|153.25   0.11
 28.33    0.19 | 59.58    0.49 | 90.83    0.43 |122.08    0.17
|153.33   0.11
 28.42    0.19 | 59.67    0.49 | 90.92    0.43 |122.17    0.17
|153.42   0.11
 28.50    0.19 | 59.75    0.48 | 91.00    0.42 |122.25    0.18
|153.50   0.11
 28.58    0.18 | 59.83    0.48 | 91.08    0.42 |122.33    0.18
|153.58   0.11
 28.67    0.18 | 59.92    0.47 | 91.17    0.42 |122.42    0.18
|153.67   0.11
 28.75    0.18 | 60.00    0.47 | 91.25    0.42 |122.50    0.18
|153.75   0.11
 28.83    0.18 | 60.08    0.47 | 91.33    0.41 |122.58    0.18
|153.83   0.11
 28.92    0.18 | 60.17    0.46 | 91.42    0.41 |122.67    0.18
|153.92   0.11
 29.00    0.18 | 60.25    0.46 | 91.50    0.41 |122.75    0.18
|154.00   0.11
 29.08    0.18 | 60.33    0.45 | 91.58    0.41 |122.83    0.18
|154.08   0.11
 29.17    0.18 | 60.42    0.45 | 91.67    0.41 |122.92    0.18
|154.17   0.11
 29.25    0.17 | 60.50    0.44 | 91.75    0.41 |123.00    0.18
|154.25   0.11
 29.33    0.17 | 60.58    0.44 | 91.83    0.40 |123.08    0.18
|154.33   0.11
 29.42    0.17 | 60.67    0.44 | 91.92    0.40 |123.17    0.18
|154.42   0.11
 29.50    0.17 | 60.75    0.43 | 92.00    0.40 |123.25    0.18
|154.50   0.11
 29.58    0.17 | 60.83    0.43 | 92.08    0.40 |123.33    0.18
|154.58   0.11
 29.67    0.17 | 60.92    0.42 | 92.17    0.40 |123.42    0.18
|154.67   0.11
 29.75    0.17 | 61.00    0.42 | 92.25    0.39 |123.50    0.18
|154.75   0.11
 29.83    0.17 | 61.08    0.42 | 92.33    0.39 |123.58    0.18
|154.83   0.11
 29.92    0.16 | 61.17    0.42 | 92.42    0.39 |123.67    0.18
|154.92   0.11
 30.00    0.16 | 61.25    0.41 | 92.50    0.39 |123.75    0.18
|155.00   0.11
 30.08    0.16 | 61.33    0.41 | 92.58    0.38 |123.83    0.18
|155.08   0.11
 30.17    0.16 | 61.42    0.40 | 92.67    0.38 |123.92    0.18
|155.17   0.11
 30.25    0.16 | 61.50    0.40 | 92.75    0.38 |124.00    0.18
|155.25   0.11
 30.33    0.16 | 61.58    0.40 | 92.83    0.38 |124.08    0.18
|155.33   0.11
 30.42    0.16 | 61.67    0.40 | 92.92    0.38 |124.17    0.18
|155.42   0.11
 30.50    0.16 | 61.75    0.39 | 93.00    0.37 |124.25    0.18
|155.50   0.11
 30.58    0.16 | 61.83    0.39 | 93.08    0.37 |124.33    0.19
|155.58   0.11
 30.67    0.16 | 61.92    0.39 | 93.17    0.37 |124.42    0.19
|155.67   0.11
 30.75    0.16 | 62.00    0.38 | 93.25    0.37 |124.50    0.19
|155.75   0.11
 30.83    0.15 | 62.08    0.38 | 93.33    0.37 |124.58    0.19
|155.83   0.10
 30.92    0.15 | 62.17    0.38 | 93.42    0.37 |124.67    0.20
|155.92   0.11
 31.00    0.15 | 62.25    0.38 | 93.50    0.37 |124.75    0.20
|156.00   0.10
 31.08    0.15 | 62.33    0.39 | 93.58    0.37 |124.83    0.20 |
 31.17    0.15 | 62.42    0.39 | 93.67    0.37 |124.92    0.20 |
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--------------------
| CALIB            |
| STANDHYD  (6202) |   Area    (ha)=  26.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  52.00   Dir. Conn.(%)=
37.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=      13.78        12.72
     Dep. Storage      (mm)=       1.50         8.00
     Average Slope      (%)=       1.00         1.00
     Length             (m)=     420.32        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        27.72
               over (min)          5.00        25.00
     Storage Coeff.  (min)=       7.32 (ii)   21.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.17         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.51         0.47
1.743 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      38.20        12.35
21.92
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.96         0.31
0.55


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| RESERVOIR (0004) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |      OUTFLOW    STORAGE   |   OUTFLOW
STORAGE
--------------------       (cms)     (ha.m.)   |    (cms)
(ha.m.)
                          0.0000     0.0000    |   0.2480
0.4000
                          0.0370     0.2800    |   0.0000
0.0000

                                 AREA     QPEAK     TPEAK
R.V.
                                 (ha)     (cms)     (hrs)
(mm)
    INFLOW : ID= 2 (6202)      26.500     1.743      3.00
21.92
    OUTFLOW: ID= 1 (0004)      26.500     0.247      4.17
21.84

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 14.18
                   TIME SHIFT OF PEAK FLOW         (min)= 70.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.3996

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--------------------
| ROUTE CHN (0621) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1549.0) ------>
               Distance      Elevation       Manning
                   0.00          87.56        0.0900
                   3.37          87.60        0.0900
                  16.78          87.21        0.0900
                  31.08          87.29        0.0900
                  43.62          87.28        0.0900
                  62.88          87.41        0.0900
                  68.00          87.22        0.0900
                  96.20          87.43        0.0900
                 112.60          86.39     0.0900 /0.0700  Main
Channel
                 113.70          86.10        0.0700      Main
Channel
                 114.40          86.51     0.0700 /0.0900  Main
Channel
                 114.60          86.67        0.0900
                 131.60          87.07        0.0900
                 156.70          87.16        0.0900
                 184.59          87.41        0.0900
                 194.09          87.56        0.0900
                 202.66          87.64        0.0900
                 221.43          87.69        0.0900
                 230.63          87.86        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.07    86.17    .898E+01      0.0          0.13
79.55
     0.14    86.24    .359E+02      0.0          0.21
50.11
     0.21    86.31    .808E+02      0.0          0.28
38.24
     0.29    86.39    .144E+03      0.1          0.33
31.57
     0.36    86.46    .256E+03      0.2          0.39
27.10
     0.44    86.54    .435E+03      0.3          0.42
25.03
```

```
      0.52    86.62    .680E+03       0.5          0.46
23.12
      0.60    86.70    .998E+03       0.8          0.48
21.78
      0.68    86.78    .150E+04       1.2          0.48
21.76
      0.76    86.85    .223E+04       1.7          0.48
21.78
      0.83    86.93    .319E+04       2.5          0.49
21.41
      0.91    87.01    .437E+04       3.5          0.51
20.74
      0.99    87.09    .580E+04       4.7          0.51
20.64
      1.07    87.17    .811E+04       6.2          0.48
21.90
      1.15    87.25    .113E+05       7.8          0.44
24.18
      1.23    87.32    .165E+05      10.6          0.41
26.00
      1.30    87.40    .239E+05      16.0          0.42
24.97
      1.38    87.48    .327E+05      24.3          0.47
22.45
      1.46    87.56    .419E+05      34.6          0.52
20.16

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0004)   26.50     0.25    4.17  21.84
0.42     0.41
     OUTFLOW: ID= 1 (0621)   26.50     0.23    4.75  21.84
0.41     0.41

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--------------------
| CALIB              |
| STANDHYD  (6212) |   Area    (ha)=  21.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  76.00   Dir. Conn.(%)=
67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.49         5.21
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     380.35        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        34.03
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       6.90 (ii)   20.27 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.18         0.05

*TOTALS*
     PEAK FLOW       (cms)=       2.27         0.24
2.394 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.25
3.00
     RUNOFF VOLUME    (mm)=      33.70        14.34
27.31
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.36
0.69

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  80.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0142) |
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0621):    26.50   0.232     4.75    21.84
       + ID2= 2 (6212):    21.70   2.394     3.00    27.31
         ===============================================
         ID = 3 (0142):    48.20   2.403     3.00    24.30

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0622) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 953.0) ------>
              Distance      Elevation       Manning
                16.75         82.21         0.1100
                30.34         82.03         0.1100
                44.96         81.97         0.1100
                58.95         81.94         0.1100
                71.21         81.85         0.1100
               100.74         81.58         0.1100
               112.29         81.50         0.1100
               121.63         81.56         0.1100
               127.04         81.66     0.1100 /0.0700  Main
Channel
               129.04         80.66         0.0700      Main
Channel
               130.04         80.66         0.0700      Main
Channel
               131.04         80.66         0.0700      Main
Channel
               133.04         81.66     0.0700 /0.1100  Main
Channel
               134.58         82.08         0.1100
               135.14         82.01         0.1100
               139.68         81.73         0.1100
               151.74         81.75         0.1100
               153.37         81.71         0.1100
               167.06         81.83         0.1100
               187.62         81.87         0.1100
       <--------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.06    80.72    .649E+02       0.0          0.17
49.00
      0.12    80.79    .138E+03       0.1          0.25
32.10
      0.19    80.85    .218E+03       0.1          0.32
25.32
      0.25    80.91    .306E+03       0.2          0.38
21.50
      0.31    80.97    .401E+03       0.4          0.43
18.99
      0.37    81.04    .504E+03       0.5          0.47
17.19
      0.44    81.10    .615E+03       0.6          0.52
15.81
      0.50    81.16    .733E+03       0.8          0.55
14.71
      0.56    81.22    .860E+03       1.0          0.59
13.81
      0.62    81.29    .993E+03       1.3          0.62
13.06
      0.69    81.35    .113E+04       1.5          0.66
12.41
      0.75    81.41    .128E+04       1.8          0.69
11.84
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      0.81    81.47    .144E+04       2.1          0.72
11.35
      0.87    81.54    .170E+04       2.5          0.71
11.50
      0.94    81.60    .245E+04       3.0          0.59
13.80
      1.00    81.66    .355E+04       3.7          0.51
16.06
      1.07    81.73    .511E+04       4.9          0.47
17.27
      1.14    81.80    .759E+04       6.7          0.43
18.98
      1.21    81.87    .109E+05       9.0          0.40
20.28

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0142)   48.20     2.40    3.00  24.30
0.86     0.71
     OUTFLOW: ID= 1 (0622)   48.20     1.74    3.08  24.30
0.74     0.68

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--------------------
| CALIB              |
| STANDHYD  (6222) |   Area    (ha)=  16.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=
69.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      13.18         3.72
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     335.66        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        18.96
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       6.40 (ii)   23.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.18         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.84         0.11
1.896 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70         9.42
26.17
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.24
0.66

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  67.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0144) |
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0622):    48.20   1.743     3.08    24.30
       + ID2= 2 (6222):    16.90   1.896     3.00    26.17
         ===============================================
         ID = 3 (0144):    65.10   3.587     3.00    24.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6232) |   Area    (ha)=  20.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.30        10.30
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     370.59        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        15.40
                over (min)        5.00        30.00
     Storage Coeff.  (min)=       6.79 (ii)   25.16 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.18         0.04

*TOTALS*
     PEAK FLOW       (cms)=       1.13         0.22
1.214 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      33.70         8.38
17.24
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.21
0.43

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0146) |
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0144):    65.10   3.587     3.00    24.79
       + ID2= 2 (6232):    20.60   1.214     3.00    17.24
         ===============================================
         ID = 3 (0146):    85.70   4.801     3.00    22.97

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6302) |   Area    (ha)=   2.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=
58.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.79         0.81
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     131.66        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        33.11
                over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.65 (ii)   17.17 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.25         0.06

*TOTALS*
```

```
     PEAK FLOW       (cms)=       0.25         0.04
0.280 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.17
3.00
     RUNOFF VOLUME    (mm)=      33.70        14.16
25.49
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.36
0.64

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  80.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0631) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 788.2) ------>
              Distance      Elevation       Manning
                 0.00         81.00         0.1100
                15.70         81.00         0.1100
                17.50         80.50     0.1100 /0.0700  Main
Channel
                18.50         80.50         0.0700      Main
Channel
                20.00         81.00     0.0700 /0.1100  Main
Channel
                24.00         81.00         0.1100
                38.00         81.50         0.1100
       <--------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.03    80.53    .174E+02       0.0          0.10
100.96
      0.05    80.55    .375E+02       0.0          0.15
66.64
      0.08    80.58    .604E+02       0.0          0.19
52.98
      0.11    80.61    .861E+02       0.0          0.22
45.34
      0.13    80.63    .115E+03       0.0          0.25
40.34
      0.16    80.66    .146E+03       0.1          0.28
36.75
      0.18    80.68    .180E+03       0.1          0.30
34.02
      0.21    80.71    .217E+03       0.1          0.32
31.85
      0.24    80.74    .256E+03       0.1          0.34
30.07
      0.26    80.76    .298E+03       0.2          0.35
28.57
      0.29    80.79    .344E+03       0.2          0.37
27.28
      0.32    80.82    .391E+03       0.2          0.39
26.15
      0.34    80.84    .442E+03       0.3          0.40
25.16
      0.37    80.87    .495E+03       0.3          0.42
24.27
      0.39    80.89    .552E+03       0.4          0.43
23.48
      0.42    80.92    .611E+03       0.4          0.44
22.75
      0.45    80.95    .672E+03       0.5          0.46
22.09
      0.47    80.97    .737E+03       0.6          0.47
21.48
      0.50    81.00    .804E+03       0.6          0.48
20.91

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6302)    2.60     0.28    3.00  25.49
0.33     0.40
     OUTFLOW: ID= 1 (0631)    2.60     0.13    3.08  25.27
0.23     0.33

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--------------------
| CALIB              |
| STANDHYD  (6312) |   Area    (ha)=   8.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=
59.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.16         2.64
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     242.21        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        17.77
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       5.26 (ii)   22.60 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.21         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.85         0.07
0.880 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70         9.14
23.63
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.23
0.60

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  67.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0149) |
|  1 +  2 =  3     |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0631):     2.60   0.133     3.08    25.27
       + ID2= 2 (6312):     8.80   0.880     3.00    23.63
         ===============================================
         ID = 3 (0149):    11.40   1.003     3.00    24.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0632) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 924.2) ------>
              Distance      Elevation       Manning
                 0.00         82.50         0.1100
```

```
                6.00         82.00        0.1100
               11.00         81.00        0.1100
               12.00         80.00        0.1100
               13.50         79.50    0.1100 /0.0700  Main
Channel
               14.50         79.50        0.0700      Main
Channel
               16.00         80.00    0.0700 /0.1100  Main
Channel
               18.00         80.00        0.1100
               29.70         80.00        0.1100
               37.00         80.50        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.05    79.55    .330E+02       0.0          0.17
52.00
       0.11    79.61    .749E+02       0.0          0.26
35.21
       0.16    79.66    .126E+03       0.1          0.32
28.45
       0.21    79.71    .186E+03       0.1          0.37
24.60
       0.26    79.76    .255E+03       0.2          0.41
22.04
       0.32    79.82    .333E+03       0.3          0.45
20.16
       0.37    79.87    .420E+03       0.4          0.48
18.69
       0.42    79.92    .515E+03       0.5          0.51
17.51
       0.47    79.97    .620E+03       0.6          0.55
16.53
       0.53    80.03    .931E+03       0.8          0.48
18.86
       0.58    80.08    .146E+04       1.2          0.43
20.73
       0.63    80.13    .201E+04       1.6          0.44
20.51
       0.68    80.18    .258E+04       2.2          0.46
19.66
       0.74    80.24    .318E+04       2.8          0.48
18.66
       0.79    80.29    .380E+04       3.6          0.51
17.70
       0.84    80.34    .445E+04       4.4          0.54
16.82
       0.89    80.39    .511E+04       5.3          0.56
16.03
       0.95    80.45    .580E+04       6.3          0.59
15.32
       1.00    80.50    .652E+04       7.4          0.61
14.69

                                        <---- hydrograph ---->   <-
pipe / channel->
                                  AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                  (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0149)   11.40     1.00     3.00  24.00
0.55     0.45
     OUTFLOW: ID= 1 (0632)   11.40     0.63     3.08  23.98
0.47     0.55


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-------------------
| CALIB            |
| STANDHYD  (6322) |   Area    (ha)=   5.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        2.65          2.65
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      187.97         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=       61.93         15.40
               over (min)         5.00         25.00
     Storage Coeff.  (min)=        4.52 (ii)    22.88 (ii)
     Unit Hyd. Tpeak (min)=        5.00         25.00
     Unit Hyd. peak  (cms)=        0.23          0.05

*TOTALS*
     PEAK FLOW       (cms)=        0.31          0.06
0.337 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=       33.70          8.38
17.24
     TOTAL RAINFALL   (mm)=       39.70         39.70
39.70
     RUNOFF COEFFICIENT   =        0.85          0.21
0.43

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0174) |
|   1 +  2 =  3    |           AREA    QPEAK    TPEAK     R.V.
-------------------            (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0632):     11.40   0.627     3.08    23.98
        + ID2= 2 (6322):      5.30   0.337     3.00    17.24
          ==================================================
          ID = 3 (0174):     16.70   0.877     3.00    21.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (6402) |   Area    (ha)=  16.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
66.00
-------------------
                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       12.60          4.20
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      334.66         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=       61.93         33.34
               over (min)         5.00         20.00
     Storage Coeff.  (min)=        6.39 (ii)    19.87 (ii)
     Unit Hyd. Tpeak (min)=        5.00         20.00
     Unit Hyd. peak  (cms)=        0.18          0.06

*TOTALS*
     PEAK FLOW       (cms)=        1.75          0.20
1.882 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.25
3.00
     RUNOFF VOLUME    (mm)=       33.70         14.20
27.07
     TOTAL RAINFALL   (mm)=       39.70         39.70
39.70
     RUNOFF COEFFICIENT   =        0.85          0.36
0.68
```

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ROUTE CHN (0641) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 910.0) ------>
               Distance      Elevation       Manning
                   0.00         83.92        0.1100
                   1.93         83.93        0.1100
                   3.02         83.94        0.1100
                   5.01         83.96        0.1100
                   6.81         83.80        0.1100
                   7.33         83.77        0.1100
                   8.42         83.41    0.1100 /0.0700  Main
Channel
                  10.42         82.41        0.0700      Main
Channel
                  11.17         82.41        0.0700      Main
Channel
                  11.92         82.41        0.0700      Main
Channel
                  13.92         83.41    0.0700 /0.1100  Main
Channel
                  21.33         84.40        0.1100
                  23.85         84.09        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.10    82.51    .768E+02       0.0          0.24
32.02
       0.20    82.61    .172E+03       0.1          0.35
21.50
       0.30    82.71    .285E+03       0.3          0.44
17.20
       0.40    82.81    .416E+03       0.5          0.51
14.73
       0.50    82.91    .565E+03       0.7          0.58
13.08
       0.60    83.01    .732E+03       1.0          0.64
11.86
       0.70    83.11    .918E+03       1.4          0.69
10.92
       0.80    83.21    .112E+04       1.8          0.74
10.16
       0.90    83.31    .134E+04       2.3          0.79
9.53
       1.00    83.41    .158E+04       2.9          0.84
9.00
       1.11    83.52    .188E+04       3.8          0.92
8.20
       1.22    83.63    .224E+04       4.8          0.98
7.72
       1.33    83.74    .266E+04       6.0          1.02
7.39
       1.44    83.85    .315E+04       7.3          1.05
7.20
       1.55    83.96    .379E+04       8.7          1.04
7.24
       1.66    84.07    .471E+04      10.6          1.02
7.41
       1.77    84.18    .567E+04      12.7          1.01
7.46
       1.88    84.29    .673E+04      15.1          1.01
7.43
       1.99    84.40    .787E+04      17.8          1.02
7.36

                                        <---- hydrograph ---->   <-
pipe / channel->
                                  AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                  (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6402)   16.80     1.88     3.00  27.07
0.81     0.75
     OUTFLOW: ID= 1 (0641)   16.80     1.40     3.08  27.06
0.70     0.69


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-------------------
| CALIB            |
| STANDHYD  (6412) |   Area    (ha)=  13.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
67.00
-------------------
                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       10.47          3.13
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      301.11         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=       61.93         27.45
               over (min)         5.00         25.00
     Storage Coeff.  (min)=        6.00 (ii)    20.57 (ii)
     Unit Hyd. Tpeak (min)=        5.00         25.00
     Unit Hyd. peak  (cms)=        0.19          0.05

*TOTALS*
     PEAK FLOW       (cms)=        1.46          0.12
1.515 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=       33.70         11.31
26.31
     TOTAL RAINFALL   (mm)=       39.70         39.70
39.70
     RUNOFF COEFFICIENT   =        0.85          0.28
0.66

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0184) |
|   1 +  2 =  3    |           AREA    QPEAK    TPEAK     R.V.
-------------------            (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0641):     16.80   1.397     3.08    27.06
        + ID2= 2 (6412):     13.60   1.515     3.00    26.31
          ==================================================
          ID = 3 (0184):     30.40   2.894     3.00    26.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0642) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1099.5) ------>
               Distance      Elevation       Manning
                   0.00         85.00        0.1100
                  14.50         80.00        0.1100
                  15.30         80.00        0.1100
                  16.80         79.50    0.1100 /0.0700  Main
Channel
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               17.80         79.50        0.0700      Main
Channel
               19.30         80.00    0.0700 /0.1100  Main
Channel
               20.30         80.00        0.1100
               27.30         81.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.08    79.58    .520E+02       0.0          0.24
36.74
       0.16    79.66    .124E+03       0.1          0.35
25.35
       0.24    79.74    .216E+03       0.2          0.43
20.68
       0.32    79.82    .328E+03       0.3          0.49
17.96
       0.39    79.89    .460E+03       0.5          0.55
16.11
       0.47    79.97    .611E+03       0.7          0.60
14.73
       0.55    80.05    .836E+03       1.0          0.62
14.31
       0.63    80.13    .112E+04       1.4          0.66
13.40
       0.71    80.21    .143E+04       1.9          0.70
12.62
       0.79    80.29    .178E+04       2.5          0.74
11.97
       0.87    80.37    .216E+04       3.2          0.78
11.42
       0.95    80.45    .258E+04       3.9          0.81
10.93
       1.03    80.53    .302E+04       4.8          0.85
10.51
       1.11    80.61    .350E+04       5.8          0.88
10.14
       1.18    80.68    .402E+04       6.8          0.91
9.80
       1.26    80.76    .456E+04       8.0          0.94
9.49
       1.34    80.84    .514E+04       9.3          0.96
9.21
       1.42    80.92    .575E+04      10.7          0.99
8.96
       1.50    81.00    .640E+04      12.2          1.02
8.72

                                        <---- hydrograph ---->   <-
pipe / channel->
                                  AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                                  (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0184)   30.40     2.89     3.00  26.72
0.84     0.76
     OUTFLOW: ID= 1 (0642)   30.40     2.09     3.08  26.72
0.74     0.72


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-------------------
| CALIB            |
| STANDHYD  (6422) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        8.75          8.75
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      341.57         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=       61.93         19.19
               over (min)         5.00         25.00
     Storage Coeff.  (min)=        6.47 (ii)    23.28 (ii)
     Unit Hyd. Tpeak (min)=        5.00         25.00
     Unit Hyd. peak  (cms)=        0.18          0.05

*TOTALS*
     PEAK FLOW       (cms)=        0.97          0.25
1.088 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=       33.70         10.27
18.47
     TOTAL RAINFALL   (mm)=       39.70         39.70
39.70
     RUNOFF COEFFICIENT   =        0.85          0.26
0.47

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0187) |
|   1 +  2 =  3    |           AREA    QPEAK    TPEAK     R.V.
-------------------            (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0642):     30.40   2.095     3.08    26.72
        + ID2= 2 (6422):     17.50   1.088     3.00    18.47
          ==================================================
          ID = 3 (0187):     47.90   2.906     3.00    23.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (6502) |   Area    (ha)=   9.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        4.55          4.55
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      246.31         40.00
     Mannings n          =        0.013         0.250

     Max.Eff.Inten.(mm/hr)=       61.93         15.40
               over (min)         5.00         25.00
     Storage Coeff.  (min)=        5.31 (ii)    23.68 (ii)
     Unit Hyd. Tpeak (min)=        5.00         25.00
     Unit Hyd. peak  (cms)=        0.21          0.05

*TOTALS*
     PEAK FLOW       (cms)=        0.52          0.11
0.567 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.33
3.00
     RUNOFF VOLUME    (mm)=       33.70          8.38
17.24
     TOTAL RAINFALL   (mm)=       39.70         39.70
39.70
     RUNOFF COEFFICIENT   =        0.85          0.21
0.43

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| CALIB             |
| STANDHYD  (6602) |   Area    (ha)=  13.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.85         6.85
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     302.21        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        29.42
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       6.01 (ii)   20.18 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.19         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.77         0.28
0.906 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70        13.16
20.35
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.33
0.51


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7302) |   Area    (ha)=   3.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.70         1.70
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     150.55        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        15.40
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       3.96 (ii)   22.32 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.24         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.20         0.04
0.218 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70         8.38
17.24
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.21
0.43

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7402) |   Area    (ha)=   3.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.85         1.85
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     157.06        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        15.40
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       4.06 (ii)   22.42 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.24         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.22         0.04
0.237 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70         8.38
17.24
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.21
0.43

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| NASHYD    (7101) |   Area    (ha)=  70.70   Curve Number
(CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.78

     Unit Hyd Qpeak  (cms)=   3.471

     PEAK FLOW       (cms)=   0.322 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=   3.775
     TOTAL RAINFALL   (mm)=  39.698
     RUNOFF COEFFICIENT   =   0.095

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7102) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
33.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.88         9.62
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     341.57        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93         6.11
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```
                over (min)        5.00        35.00
     Storage Coeff.  (min)=       6.47 (ii)   33.04 (ii)
     Unit Hyd. Tpeak (min)=       5.00        35.00
     Unit Hyd. peak  (cms)=       0.18         0.03

*TOTALS*
     PEAK FLOW       (cms)=       0.91         0.09
0.939 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.50
3.00
     RUNOFF VOLUME    (mm)=      33.70         4.87
14.38
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.12
0.36


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0218) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7101):    70.70   0.322     3.83     3.78
        + ID2= 2 (7102):    17.50   0.939     3.00    14.38
          ==============================================
          ID = 3 (0218):    88.20   0.994     3.00     5.88

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0711) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1487.9) ------>
              Distance      Elevation       Manning
                  0.00         95.00        0.1100
                 89.00         94.00        0.1100
                135.70         94.00    0.1100 /0.0700  Main
Channel
                137.20         93.50        0.0700      Main
Channel
                138.20         93.50        0.0700      Main
Channel
                139.70         94.00    0.0700 /0.1100  Main
Channel
                211.60         94.00        0.1100
                249.00         95.00        0.1100

       <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.07    93.57    .969E+02       0.0          0.20
95.33
        0.14    93.64    .228E+03       0.1          0.29
64.56
        0.21    93.71    .393E+03       0.1          0.36
51.73
        0.29    93.79    .593E+03       0.2          0.42
44.23
        0.36    93.86    .826E+03       0.4          0.48
39.15
        0.43    93.93    .109E+04       0.5          0.53
35.40
        0.50    94.00    .140E+04       0.7          0.57
32.52
        0.58    94.08    .133E+05       2.6          0.22
84.59
        0.67    94.17    .262E+05       6.5          0.28
67.17
        0.75    94.25    .400E+05      12.0          0.33
55.64
        0.83    94.33    .549E+05      19.0          0.39
48.10
        0.92    94.42    .707E+05      27.5          0.43
42.81
        1.00    94.50    .875E+05      37.5          0.48
38.86
        1.08    94.58    .105E+06      49.0          0.52
35.80
        1.17    94.67    .124E+06      62.0          0.56
33.34
        1.25    94.75    .144E+06      76.6          0.59
31.30
        1.33    94.83    .165E+06      92.7          0.63
29.59
        1.42    94.92    .186E+06     110.4          0.66
28.12
        1.50    95.00    .209E+06     129.7          0.69
26.84

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0218)   88.20     0.99    3.00   5.88
0.51     0.46
     OUTFLOW: ID= 1 (0711)   88.20     0.46    3.58   5.87
0.41     0.51


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-------------------
| CALIB             |
| NASHYD    (7111) |   Area    (ha)=  48.10   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.43

     Unit Hyd Qpeak  (cms)=   1.285

     PEAK FLOW       (cms)=   0.272 (i)
     TIME TO PEAK    (hrs)=   4.750
     RUNOFF VOLUME    (mm)=   7.149
     TOTAL RAINFALL   (mm)=  39.698
     RUNOFF COEFFICIENT   =   0.180

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7112) |   Area    (ha)=  12.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  39.00   Dir. Conn.(%)=
27.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.76         7.44
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     285.19        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        14.88
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       5.80 (ii)   24.42 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.20         0.05

*TOTALS*
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     PEAK FLOW       (cms)=       0.53         0.16
0.604 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70         8.79
15.51
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.22
0.39


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0222) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7111):    48.10   0.272     4.75     7.15
        + ID2= 2 (7112):    12.20   0.604     3.00    15.51
          ==============================================
          ID = 3 (0222):    60.30   0.620     3.00     8.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0223) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0222):    60.30   0.620     3.00     8.84
        + ID2= 2 (0711):    88.20   0.465     3.58     5.87
          ==============================================
          ID = 3 (0223):   148.50   0.942     3.00     7.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (7011) |   Area    (ha)=  90.40   Curve Number
(CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.77

     Unit Hyd Qpeak  (cms)=   4.467

     PEAK FLOW       (cms)=   0.532 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=   4.826
     TOTAL RAINFALL   (mm)=  39.698
     RUNOFF COEFFICIENT   =   0.122

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7012) |   Area    (ha)=  25.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
25.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.54        15.56
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     409.06        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93         8.70
                over (min)        5.00        35.00
     Storage Coeff.  (min)=       7.21 (ii)   30.28 (ii)
     Unit Hyd. Tpeak (min)=       5.00        35.00
     Unit Hyd. peak  (cms)=       0.17         0.04

*TOTALS*
     PEAK FLOW       (cms)=       0.97         0.20
1.030 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.50
3.00
     RUNOFF VOLUME    (mm)=      33.70         6.12
13.01
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.15
0.33


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  59.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0205) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7011):    90.40   0.532     3.83     4.83
        + ID2= 2 (7012):    25.10   1.030     3.00    13.01
          ==============================================
          ID = 3 (0205):   115.50   1.123     3.00     6.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0702) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1184.6) ------>
              Distance      Elevation       Manning
                  0.00         93.00        0.1100
                 56.00         92.00        0.1100
                 65.40         92.00        0.1100
                 74.80         91.50    0.1100 /0.0700  Main
Channel
                 75.80         91.50        0.0700      Main
Channel
                 77.30         92.00    0.0700 /0.1100  Main
Channel
                144.00         92.00        0.1100
                186.00         93.00        0.1100

       <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.08    91.58    .236E+03       0.0          0.13
200.27
        0.16    91.66    .689E+03       0.1          0.18
146.52
        0.24    91.74    .136E+04       0.2          0.22
121.67
        0.32    91.82    .225E+04       0.4          0.25
105.99
        0.39    91.89    .336E+04       0.6          0.28
94.79
        0.47    91.97    .468E+04       0.9          0.31
86.24
```

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      0.55    92.05    .128E+05       1.5          0.19
142.36
      0.63    92.13    .251E+05       3.4          0.22
123.43
      0.71    92.21    .384E+05       6.1          0.26
104.46
      0.79    92.29    .526E+05       9.6          0.29
90.95
      0.87    92.37    .678E+05      13.9          0.33
81.16
      0.95    92.45    .840E+05      19.0          0.36
73.76
      1.03    92.53    .101E+06      24.8          0.39
67.97
      1.11    92.61    .119E+06      31.4          0.42
63.30
      1.18    92.68    .139E+06      38.8          0.45
59.44
      1.26    92.76    .159E+06      47.1          0.48
56.18
      1.34    92.84    .180E+06      56.1          0.50
53.38
      1.42    92.92    .202E+06      66.0          0.52
50.95
      1.50    93.00    .225E+06      76.8          0.55
48.81

                                 <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0205)  115.50     1.12    3.00   6.60
0.50     0.25
     OUTFLOW: ID= 1 (0702)  115.50     0.50    4.50   6.59
0.36     0.27


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--------------------
| CALIB              |
| NASHYD    (7021) |   Area    (ha)=   7.30   Curve Number
(CN)= 64.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.72

     Unit Hyd Qpeak  (cms)=   0.162

     PEAK FLOW       (cms)=   0.029 (i)
     TIME TO PEAK    (hrs)=   5.167
     RUNOFF VOLUME    (mm)=   5.755
     TOTAL RAINFALL   (mm)=  39.698
     RUNOFF COEFFICIENT   =   0.145

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| STANDHYD  (7022) |   Area    (ha)=  21.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.55        10.55
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     375.06        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        14.34
                over (min)        5.00        30.00
     Storage Coeff.  (min)=       6.84 (ii)   25.74 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.18         0.04

*TOTALS*
     PEAK FLOW       (cms)=       1.15         0.21
1.235 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      38.20         7.84
18.47
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.96         0.20
0.47


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  64.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR (0005) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW
STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)
(ha.m.)
                         0.0000     0.0000   |   0.0840
0.3140
                         0.0130     0.2200   |   0.0000
0.0000

                               AREA      QPEAK      TPEAK
R.V.
                               (ha)      (cms)      (hrs)
(mm)
     INFLOW : ID= 2 (7022)     21.100      1.235      3.00
18.47
     OUTFLOW: ID= 1 (0005)     21.100      0.084      5.17
18.07

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.77
                   TIME SHIFT OF PEAK FLOW         (min)=130.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.3135

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| ADD HYD   (0209) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (0005):     21.10   0.084     5.17    18.07
     + ID2= 2 (7021):      7.30   0.029     5.17     5.76
       ==================================================
       ID = 3 (0209):     28.40   0.113     5.17    14.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0210) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (0209):     28.40   0.113     5.17    14.90
     + ID2= 2 (0702):    115.50   0.498     4.50     6.59
       ==================================================
       ID = 3 (0210):    143.90   0.604     4.58     8.23

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0224) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (0210):    143.90   0.604     4.58     8.23
     + ID2= 2 (0223):    148.50   0.942     3.00     7.08
       ==================================================
       ID = 3 (0224):    292.40   1.366     4.33     7.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0703) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (2329.2) ------>
               Distance      Elevation       Manning
                  0.00          88.00        0.1100
                 37.50          87.00        0.1100
                 51.30          86.00        0.1100
                 82.80          86.00        0.1100
                107.50          87.00        0.1100
                117.30          86.00        0.1100
                125.90          86.00    0.1100 /0.0700  Main
Channel
                127.40          85.50        0.0700      Main
Channel
                128.40          85.50        0.0700      Main
Channel
                129.90          86.00    0.0700 /0.1100  Main
Channel
                133.00          86.00        0.1100
                149.00          87.00        0.1100
                193.00          88.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)     (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.12    85.62    .787E+02       0.0          0.19
40.30
      0.25    85.75    .200E+03       0.1          0.28
27.58
      0.37    85.88    .365E+03       0.3          0.35
22.10
      0.50    86.00    .572E+03       0.5          0.41
18.84
      0.63    86.13    .372E+04       1.8          0.22
34.16
      0.77    86.27    .738E+04       4.4          0.27
28.02
      0.90    86.40    .116E+05       8.1          0.32
23.77
      1.03    86.53    .163E+05      13.0          0.37
20.89
      1.17    86.67    .215E+05      19.1          0.41
18.82
      1.30    86.80    .273E+05      26.4          0.44
17.24
      1.43    86.93    .336E+05      35.0          0.48
15.99
      1.57    87.07    .404E+05      44.9          0.51
15.00
      1.70    87.20    .479E+05      56.3          0.54
14.18
      1.83    87.33    .560E+05      69.3          0.57
13.47
      1.97    87.47    .648E+05      84.0          0.59
12.85
      2.10    87.60    .743E+05     100.6          0.62
12.31
      2.23    87.73    .844E+05     119.0          0.65
11.82
      2.37    87.87    .952E+05     139.3          0.67
11.39
      2.50    88.00    .107E+06     161.7          0.69
11.00

                                 <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0224)  292.40     1.37    4.33   7.65
0.59     0.26
     OUTFLOW: ID= 1 (0703)  292.40     1.29    4.92   7.65
0.58     0.27


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--------------------
| CALIB              |
| STANDHYD  (7032) |   Area    (ha)=  23.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      17.94         5.36
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     394.12        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        16.04
                over (min)        5.00        30.00
     Storage Coeff.  (min)=       7.05 (ii)   25.11 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.17         0.04

*TOTALS*
     PEAK FLOW       (cms)=       2.46         0.12
2.509 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      33.70         8.16
25.53
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.21
0.64


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  63.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0215) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (0703):    292.40   1.286     4.92     7.65
     + ID2= 2 (7032):     23.30   2.509     3.00    25.53
       ==================================================
       ID = 3 (0215):    315.70   2.973     3.00     8.97

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0704) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (2755.4) ------>
               Distance      Elevation       Manning
                  0.00          85.00        0.1100
                 25.00          84.00        0.1100
```

```
                 32.00          84.00    0.1100 /0.0700  Main
Channel
                 33.50          83.50        0.0700      Main
Channel
                 34.50          83.50        0.0700      Main
Channel
                 36.00          84.00    0.0700 /0.1100  Main
Channel
                 65.00          84.00        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
       (m)     (m)      (cu.m.)      (cms)        (m/s)
(min)
      0.03    83.53    .121E+02       0.0          0.12
61.52
      0.05    83.55    .259E+02       0.0          0.19
40.35
      0.08    83.58    .414E+02       0.0          0.24
31.84
      0.10    83.60    .585E+02       0.0          0.28
27.04
      0.13    83.63    .774E+02       0.1          0.31
23.87
      0.15    83.65    .979E+02       0.1          0.35
21.59
      0.18    83.68    .120E+03       0.1          0.38
19.84
      0.20    83.70    .144E+03       0.1          0.41
18.45
      0.23    83.73    .170E+03       0.2          0.43
17.31
      0.25    83.75    .197E+03       0.2          0.46
16.34
      0.28    83.78    .226E+03       0.2          0.48
15.52
      0.30    83.80    .257E+03       0.3          0.51
14.80
      0.33    83.83    .289E+03       0.3          0.53
14.16
      0.35    83.85    .323E+03       0.4          0.55
13.60
      0.38    83.88    .359E+03       0.5          0.57
13.09
      0.40    83.90    .396E+03       0.5          0.59
12.64
      0.43    83.93    .435E+03       0.6          0.61
12.22
      0.45    83.95    .476E+03       0.7          0.63
11.84
      0.48    83.98    .518E+03       0.8          0.65
11.49

      **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                 <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0215)  315.70     2.97    3.00   8.97
0.47     0.65
     OUTFLOW: ID= 1 (0704)  315.70     1.91    3.08   8.97
0.48     0.65


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| CALIB              |
| STANDHYD  (7042) |   Area    (ha)=  23.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      18.25         5.45
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     397.49        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        14.96
                over (min)        5.00        30.00
     Storage Coeff.  (min)=       7.08 (ii)   25.66 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.17         0.04

*TOTALS*
     PEAK FLOW       (cms)=       2.50         0.11
2.546 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      33.70         7.65
25.36
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.19
0.64


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  61.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0229) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (0704):    315.70   1.908     3.08     8.97
     + ID2= 2 (7042):     23.70   2.546     3.00    25.36
       ==================================================
       ID = 3 (0229):    339.40   4.224     3.00    10.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB              |
| STANDHYD  (7202) |   Area    (ha)=  22.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      17.33         5.18
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     387.30        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        17.82
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       6.97 (ii)   24.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.17         0.05

*TOTALS*
     PEAK FLOW       (cms)=       2.38         0.14
2.447 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70         9.00
25.80
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.23
0.65


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
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      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0721) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 920.0) ------>
              Distance      Elevation       Manning
                  0.00         82.00         0.1100
                 41.00         82.00         0.1100
                 50.70         82.00         0.1100
                 57.80         81.00    0.1100 /0.0700  Main
Channel
                 59.30         79.84         0.0700      Main
Channel
                 60.30         79.84         0.0700      Main
Channel
                 61.80         81.00    0.0700 /0.1100  Main
Channel
                 63.30         81.00         0.1100
                 85.90         81.00         0.1100
                100.00         82.00         0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.11    79.95    .515E+02       0.0          0.20
35.58
       0.21    80.05    .115E+03       0.1          0.30
24.20
       0.32    80.16    .192E+03       0.2          0.37
19.53
       0.42    80.26    .280E+03       0.3          0.43
16.82
       0.53    80.37    .381E+03       0.4          0.48
15.00
       0.63    80.47    .494E+03       0.6          0.53
13.65
       0.74    80.58    .620E+03       0.8          0.57
12.60
       0.84    80.68    .758E+03       1.1          0.61
11.75
       0.95    80.79    .908E+03       1.4          0.65
11.04
       1.05    80.89    .107E+04       1.7          0.69
10.44
       1.16    81.00    .125E+04       2.1          0.72
9.92
       1.28    81.12    .283E+04       3.2          0.49
14.61
       1.41    81.25    .455E+04       5.0          0.48
15.04
       1.53    81.37    .642E+04       7.4          0.50
14.36
       1.66    81.50    .843E+04      10.4          0.53
13.50
       1.78    81.62    .106E+05      13.9          0.57
12.67
       1.91    81.75    .129E+05      18.0          0.60
11.93
       2.03    81.87    .153E+05      22.6          0.63
11.29
       2.16    82.00    .179E+05      27.8          0.67
10.73

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (7202)   22.50     2.45    3.00  25.80
1.20      0.63
     OUTFLOW: ID= 1 (0721)   22.50     1.78    3.08  25.79
1.07      0.69


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--------------------
| CALIB             |
| STANDHYD  (7212) |   Area    (ha)=  18.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      13.94         4.16
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     347.37        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        17.82
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       6.53 (ii)   23.86 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.18         0.05

*TOTALS*
     PEAK FLOW       (cms)=       1.94         0.11
1.993 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70         9.00
25.80
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.23
0.65


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0237) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0721):    22.50   1.784     3.08    25.79
        + ID2= 2 (7212):    18.10   1.993     3.00    25.80
          ================================================
          ID = 3 (0237):    40.60   3.761     3.00    25.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0238) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0229):   339.40   4.224     3.00    10.11
        + ID2= 2 (0237):    40.60   3.761     3.00    25.79
          ================================================
          ID = 3 (0238):   380.00   7.985     3.00    11.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0705) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
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               <------ DATA FOR SECTION (3276.8) ------>
               Distance      Elevation       Manning
                   0.00         80.50         0.1100
                   5.70         80.00         0.1100
                  14.00         79.00         0.1100
                  22.00         79.00    0.1100 /0.0700  Main
Channel
                  23.50         78.50         0.0700      Main
Channel
                  24.50         78.50         0.0700      Main
Channel
                  26.00         79.00    0.0700 /0.1100  Main
Channel
                  28.00         79.00         0.1100
                  41.00         80.00         0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    78.57    .248E+02       0.0          0.26
18.45
       0.14    78.64    .584E+02       0.1          0.38
12.49
       0.21    78.71    .101E+03       0.2          0.48
10.01
       0.29    78.79    .152E+03       0.3          0.56
8.56
       0.36    78.86    .212E+03       0.5          0.63
7.58
       0.43    78.93    .280E+03       0.7          0.70
6.85
       0.50    79.00    .358E+03       0.9          0.76
6.29
       0.58    79.08    .712E+03       1.6          0.64
7.50
       0.67    79.17    .111E+04       2.5          0.65
7.35
       0.75    79.25    .155E+04       3.7          0.69
6.94
       0.83    79.33    .203E+04       5.2          0.73
6.52
       0.92    79.42    .255E+04       6.9          0.78
6.14
       1.00    79.50    .312E+04       9.0          0.82
5.81
       1.08    79.58    .373E+04      11.3          0.86
5.52
       1.17    79.67    .438E+04      13.9          0.90
5.27
       1.25    79.75    .507E+04      16.7          0.94
5.05
       1.33    79.83    .581E+04      20.0          0.98
4.85
       1.42    79.92    .659E+04      23.5          1.02
4.68
       1.50    80.00    .741E+04      27.3          1.06
4.52

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0238)  380.00     7.98    3.00  11.79
0.96      0.80
     OUTFLOW: ID= 1 (0705)  380.00     6.91    3.08  11.79
0.91      0.78


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| CALIB             |
| STANDHYD  (7052) |   Area    (ha)=   6.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.40         3.40
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     212.92        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93         7.73
                over (min)        5.00        30.00
     Storage Coeff.  (min)=       4.87 (ii)   29.07 (ii)
     Unit Hyd. Tpeak (min)=       5.00        30.00
     Unit Hyd. peak  (cms)=       0.22         0.04

*TOTALS*
     PEAK FLOW       (cms)=       0.39         0.04
0.406 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.42
3.00
     RUNOFF VOLUME    (mm)=      33.70         5.09
15.10
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
     RUNOFF COEFFICIENT   =       0.85         0.13
0.38

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  51.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0243) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0705):   380.00   6.909     3.08    11.79
        + ID2= 2 (7052):     6.80   0.406     3.00    15.10
          ================================================
          ID = 3 (0243):   386.80   7.108     3.08    11.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| STANDHYD  (7502) |   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.75         2.75
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     191.49        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      61.93        15.40
                over (min)        5.00        25.00
     Storage Coeff.  (min)=       4.57 (ii)   22.93 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.23         0.05

*TOTALS*
     PEAK FLOW       (cms)=       0.32         0.06
0.349 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.33
3.00
     RUNOFF VOLUME    (mm)=      33.70         8.38
17.24
     TOTAL RAINFALL   (mm)=      39.70        39.70
39.70
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     RUNOFF COEFFICIENT   =       0.85         0.21
0.43

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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      V    V   I    SSSSS  U   U    A    L
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O    Company
       OOO     T      T    H   H    Y    M   M   OOO
Serial
```



```
                   *****  D E T A I L E D   O U T P U T *****

  Input   filename: C:\Program Files (x86)\Visual Otthymo
2.4\VO2\voin.dat
  Output  filename: C:\Users\Jenny\AppData\Local\Temp\1b267fdb-
17cf-44ac-82af-f7591f719950\Scenario.out
  Summary filename: C:\Users\Jenny\AppData\Local\Temp\1b267fdb-
17cf-44ac-82af-f7591f719950\Scenario.sum


DATE: 04/19/2013                            TIME: 01:47:55

USER:


COMMENTS: ____________________________________________________________


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  ****************************
  ** SIMULATION NUMBER:   1 **
  ****************************


--------------------
|    READ STORM    |    Filename: C:\Users\Jenny\AppD
|                  |              ata\Local\Temp\
|                  |              1b267fdb-17cf-44ac-82af-
f7591f719950\93dc9cef
| Ptotal=101.62 mm |    Comments: Mount Hope-6 hour SCS
Distribution Desig
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                 0.17    4.09 |  1.67   10.23 |  3.17   22.51 |
4.67    6.14
                 0.33    4.09 |  1.83   10.23 |  3.33   22.51 |
4.83    6.14
                 0.50    4.09 |  2.00   10.23 |  3.50   22.51 |
5.00    6.14
                 0.67    6.14 |  2.17   12.28 |  3.67   10.23 |
5.17    4.09
                 0.83    6.14 |  2.33   12.28 |  3.83   10.23 |
5.33    4.09
                 1.00    6.14 |  2.50   12.28 |  4.00   10.23 |
5.50    4.09
                 1.17    6.14 |  2.67   61.38 |  4.17    8.18 |
5.67    4.09
                 1.33    6.14 |  2.83  110.48 |  4.33    8.18 |
5.83    4.09
                 1.50    6.14 |  3.00  159.59 |  4.50    8.18 |

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| CALIB            |
| STANDHYD  (5102) |   Area    (ha)=   1.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  64.00   Dir. Conn.(%)=
52.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09         0.61
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     106.46        40.00
     Mannings n          =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                            ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |
TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |
hrs   mm/hr
                0.083    4.09 | 1.583   10.23 | 3.083   22.51 |
4.58    6.14
                0.167    4.09 | 1.667   10.23 | 3.167   22.51 |
4.67    6.14
                0.250    4.09 | 1.750   10.23 | 3.250   22.51 |
4.75    6.14
                0.333    4.09 | 1.833   10.23 | 3.333   22.51 |
4.83    6.14
                0.417    4.09 | 1.917   10.23 | 3.417   22.51 |
4.92    6.14
                0.500    4.09 | 2.000   10.23 | 3.500   22.51 |
5.00    6.14
                0.583    6.14 | 2.083   12.28 | 3.583   10.23 |
5.08    4.09
                0.667    6.14 | 2.167   12.28 | 3.667   10.23 |
5.17    4.09
                0.750    6.14 | 2.250   12.28 | 3.750   10.23 |
5.25    4.09
                0.833    6.14 | 2.333   12.28 | 3.833   10.23 |
5.33    4.09
                0.917    6.14 | 2.417   12.28 | 3.917   10.23 |
5.42    4.09
                1.000    6.14 | 2.500   12.28 | 4.000   10.23 |
5.50    4.09
                1.083    6.14 | 2.583   61.38 | 4.083    8.18 |
5.58    4.09
                1.167    6.14 | 2.667   61.38 | 4.167    8.18 |
5.67    4.09
                1.250    6.14 | 2.750  110.48 | 4.250    8.18 |
5.75    4.09
                1.333    6.14 | 2.833  110.48 | 4.333    8.18 |
5.83    4.09
                1.417    6.14 | 2.917  159.59 | 4.417    8.18 |
                1.500    6.14 | 3.000  159.59 | 4.500    8.18 |

     Max.Eff.Inten.(mm/hr)=     159.59       125.18
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.20 (ii)   10.14 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.30         0.10

*TOTALS*
     PEAK FLOW       (cms)=       0.39         0.14
0.507 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        47.19
72.37
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.46
0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0511) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation      Manning
                  0.00          81.24        0.1100
                 33.01          80.98        0.1100
                 49.97          81.27        0.1100
                 54.18          80.35        0.1100
                 60.88          81.23    0.1100 /0.0700  Main
Channel
                 69.13          79.02        0.0700      Main
Channel
                 92.42          79.04        0.0700      Main
Channel
                 98.70          80.89    0.0700 /0.1100  Main
Channel
                128.88          81.13        0.1100
                199.00          81.23        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)       (cms)        (m/s)
(min)
       0.12    79.13    .361E+03        0.6          0.24
9.91
       0.23    79.25    .776E+03        2.1          0.40
6.09
       0.35    79.37    .121E+04        4.3          0.52
4.65
       0.47    79.48    .165E+04        7.1          0.63
3.85
       0.59    79.60    .211E+04       10.5          0.72
3.34
       0.70    79.72    .258E+04       14.4          0.81
2.98
       0.82    79.84    .307E+04       18.8          0.89
2.71
       0.94    79.95    .357E+04       23.8          0.97
2.50
       1.05    80.07    .408E+04       29.2          1.04
2.33
       1.17    80.19    .461E+04       35.1          1.10
2.19
       1.29    80.30    .515E+04       41.5          1.17
2.07
       1.41    80.42    .571E+04       48.4          1.23
1.97
       1.52    80.54    .631E+04       55.8          1.28
1.88
       1.64    80.66    .695E+04       63.8          1.33
1.81
       1.76    80.77    .762E+04       72.3          1.38
1.76
       1.87    80.89    .833E+04       81.4          1.42
1.71
       2.00    81.02    .931E+04       92.4          1.44
1.68
       2.13    81.14    .109E+05      104.8          1.39
1.74
       2.25    81.27    .140E+05      120.9          1.25
1.93

                              <---- hydrograph ---->   <-
pipe / channel->
                           AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                           (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
   INFLOW : ID= 2 (5102)    1.70     0.51    3.00  72.37
0.10      0.24
   OUTFLOW: ID= 1 (0511)    1.70     0.37    3.00  72.34
0.07      0.24


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| CALIB            |
| STANDHYD  (5112) |   Area    (ha)=   3.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=
58.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.07         0.93
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     141.42        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       142.77
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.61 (ii)   10.14 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.10

*TOTALS*
     PEAK FLOW       (cms)=       0.77         0.24
0.972 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        53.17
77.79
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.52
0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  71.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0117) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0511):     1.70   0.367     3.00    72.34
        + ID2= 2 (5112):     3.00   0.972     3.00    77.79
          ==================================================
          ID = 3 (0117):     4.70   1.339     3.00    75.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0512) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 484.2) ------>
               Distance      Elevation      Manning
                  0.00          80.80        0.0900
                  9.73          80.46        0.0900
                 14.10          82.04        0.0900
                 17.18          82.28        0.0900
                 41.13          82.12    0.0900 /0.0700  Main
Channel
                 46.88          79.71        0.0700      Main
Channel
                 51.41          80.90    0.0700 /0.0900  Main
Channel
                 94.29          80.56        0.0900
                175.64          80.72        0.0900
                192.09          80.85        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)       (cms)        (m/s)
(min)
       0.13    79.84    .255E+02        0.0          0.14
54.71
       0.26    79.98    .102E+03        0.0          0.23
34.47
       0.40    80.11    .229E+03        0.1          0.30
26.30
       0.53    80.24    .408E+03        0.3          0.36
21.71
       0.66    80.37    .637E+03        0.6          0.42
18.71
       0.79    80.51    .934E+03        0.9          0.46
16.84
       0.93    80.64    .245E+04        1.6          0.31
24.96
       1.06    80.77    .873E+04        4.6          0.25
31.51
       1.19    80.90    .179E+05       11.4          0.30
26.08
       1.32    81.04    .278E+05       22.6          0.38
20.45
       1.46    81.17    .381E+05       37.5          0.46
16.91
       1.60    81.31    .484E+05       55.4          0.54
14.57
       1.74    81.45    .588E+05       76.0          0.61
12.90
       1.87    81.59    .693E+05       99.3          0.67
11.63
       2.01    81.72    .798E+05      125.0          0.73
10.64
       2.15    81.86    .903E+05      153.1          0.80
9.83
       2.29    82.00    .101E+06      183.5          0.85
9.16
       2.42    82.14    .112E+06      214.3          0.90
8.68
       2.56    82.27    .123E+06      244.4          0.93
8.40

                              <---- hydrograph ---->   <-
pipe / channel->
                           AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                           (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
   INFLOW : ID= 2 (0117)    4.70     1.34    3.00  75.82
0.87      0.36
   OUTFLOW: ID= 1 (0512)    4.70     0.82    3.08  75.75
0.76      0.45


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| CALIB            |
| STANDHYD  (5122) |   Area    (ha)=   3.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.00   Dir. Conn.(%)=
57.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.65         1.25
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     161.25        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       141.05
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.82 (ii)   10.39 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.98         0.31
1.247 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        52.94
77.27
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.52
0.76

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  71.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0119) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0512):     4.70   0.822     3.08    75.75
        + ID2= 2 (5122):     3.90   1.247     3.00    77.27
          ==================================================
          ID = 3 (0119):     8.60   1.969     3.00    76.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (5202) |   Area    (ha)=  24.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  52.00   Dir. Conn.(%)=
37.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.74        11.76
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     404.15        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       139.12
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.90 (ii)   12.51 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.83         2.73
6.155 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=     100.12        53.43
70.71
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.99         0.53
0.70

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  72.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| RESERVOIR (0002) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW
STORAGE
-------------------       (cms)     (ha.m.)   |   (cms)
(ha.m.)
                          0.0000     0.0000   |   0.1590
0.3750
                          0.0240     0.2630   |   0.9970
1.1180
                                AREA     QPEAK     TPEAK
R.V.
                                (ha)     (cms)     (hrs)
(mm)
     INFLOW : ID= 2 (5202)     24.500      6.155      3.00
70.71
     OUTFLOW: ID= 1 (0002)     24.500      0.997      3.75
70.59

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 16.19
                   TIME SHIFT OF PEAK FLOW         (min)= 45.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  1.1188

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| ROUTE CHN (0521) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
                <------ DATA FOR SECTION ( 815.4) ------>
                 Distance      Elevation       Manning
                   415.18         83.86        0.0900
                   461.15         83.40        0.0900
                   501.83         83.53    0.0900 /0.0700  Main
Channel
                   513.93         82.96        0.0700      Main
Channel
                   526.85         83.23    0.0700 /0.0900  Main
Channel
                   569.63         83.21        0.0900
                   610.76         83.63        0.0900
                   663.54         83.88        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.05    83.00    .378E+02       0.0          0.11
83.81
       0.09    83.05    .151E+03       0.0          0.17
52.79
       0.14    83.09    .340E+03       0.1          0.22
40.29
       0.18    83.14    .605E+03       0.3          0.27
33.26
       0.23    83.18    .946E+03       0.5          0.32
28.66
       0.27    83.23    .151E+04       0.9          0.33
27.77
       0.32    83.27    .323E+04       1.8          0.31
29.51
       0.37    83.32    .510E+04       3.2          0.34
26.44
       0.42    83.37    .713E+04       5.0          0.38
23.61
       0.46    83.42    .934E+04       7.3          0.42
21.44
       0.51    83.47    .121E+05      10.0          0.45
20.23
       0.56    83.52    .156E+05      13.4          0.47
19.44
       0.61    83.57    .196E+05      17.7          0.49
18.52
       0.66    83.61    .240E+05      22.8          0.52
17.49
       0.71    83.66    .286E+05      28.4          0.54
16.75
       0.75    83.71    .336E+05      34.7          0.56
16.14
       0.80    83.76    .390E+05      41.8          0.58
15.55
       0.85    83.81    .448E+05      49.8          0.60
14.99
       0.90    83.86    .510E+05      58.8          0.63
14.46

                                    <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (0002)   24.50     1.00    3.75  70.59
0.27     0.32
     OUTFLOW: ID= 1 (0521)   24.50     0.91    4.42  70.59
0.27     0.33

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-------------------
| CALIB            |
| STANDHYD  (5212) |   Area    (ha)=  15.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
66.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.78         3.93
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      323.52        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      159.59       161.71
               over (min)          5.00        10.00
     Storage Coeff.  (min)=        4.29 (ii)    9.17 (ii)
     Unit Hyd. Tpeak (min)=        5.00        10.00
     Unit Hyd. peak  (cms)=        0.23         0.12

*TOTALS*
     PEAK FLOW       (cms)=        4.44         1.27
5.713 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=       95.62        60.49
83.68
     TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
     RUNOFF COEFFICIENT   =        0.94         0.60
0.82

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0113) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0521):    24.50   0.913     4.42     70.59
        + ID2= 2 (5212):    15.70   5.713     3.00     83.68
          ===============================================
          ID = 3 (0113):    40.20   5.816     3.00     75.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| CALIB            |
| NASHYD    (5011) |   Area    (ha)=  80.20   Curve Number
(CN)= 65.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.85

     Unit Hyd Qpeak  (cms)=   3.621

     PEAK FLOW       (cms)=   3.787 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)= 38.043
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.374

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB            |
| STANDHYD  (5012) |   Area    (ha)=  39.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
24.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       14.97        24.43
     Dep. Storage     (mm)=        6.00         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      512.51        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      159.59       107.14
               over (min)          5.00        15.00
     Storage Coeff.  (min)=        5.65 (ii)   14.10 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.20         0.08

*TOTALS*
     PEAK FLOW       (cms)=        3.93         4.06
7.301 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=       95.62        43.76
56.20
     TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
     RUNOFF COEFFICIENT   =        0.94         0.43
0.55

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  65.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0100) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (5011):    80.20   3.787     3.83     38.04
        + ID2= 2 (5012):    39.40   7.301     3.00     56.20
          ===============================================
          ID = 3 (0100):   119.60   8.229     3.00     44.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0502) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
                <------ DATA FOR SECTION (1537.5) ------>
                 Distance      Elevation       Manning
                     0.00         89.30        0.1100
                     4.20         89.28        0.1100
                     9.03         88.80        0.1100
                    21.55         88.78        0.1100
                    29.06         88.24        0.1100
                    39.87         87.83        0.1100
                    55.54         87.84    0.1100 /0.0700  Main
Channel
                    57.54         86.84        0.0700      Main
Channel
                    59.04         86.84        0.0700      Main
Channel
                    61.04         87.84    0.0700 /0.1100  Main
Channel
                    74.10         87.86        0.1100
                    87.72         88.07        0.1100
                   101.34         88.18        0.1100
                   113.53         88.23        0.1100
                   128.57         88.32        0.1100
                   142.19         88.61        0.1100
                   155.81         88.53        0.1100
                   183.05         88.85        0.1100
                   187.19         88.84        0.1100
                   211.21         88.88        0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.10    86.94    .202E+03       0.0          0.25
78.80
       0.20    87.04    .452E+03       0.1          0.37
52.91
       0.30    87.14    .749E+03       0.3          0.47
42.34
       0.40    87.24    .109E+04       0.5          0.55
36.26
       0.50    87.34    .149E+04       0.8          0.62
32.18
       0.60    87.44    .193E+04       1.1          0.68
29.19
       0.70    87.54    .241E+04       1.5          0.74
26.87
       0.80    87.64    .295E+04       2.0          0.79
25.01
       0.90    87.74    .353E+04       2.5          0.84
23.46
       1.00    87.84    .421E+04       3.1          0.89
22.39
       1.10    87.94    .849E+04       4.5          0.63
31.56
       1.21    88.05    .150E+05       7.1          0.56
35.43
       1.33    88.17    .233E+05      10.6          0.54
36.49
       1.44    88.28    .346E+05      15.5          0.53
37.18
       1.56    88.40    .484E+05      22.8          0.56
35.35
       1.67    88.51    .634E+05      32.1          0.60
32.90
       1.79    88.63    .807E+05      41.2          0.61
32.65
       1.90    88.74    .101E+06      54.6          0.64
30.77
       2.02    88.86    .124E+06      64.7          0.62
31.85

                                    <---- hydrograph ---->   <-
pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
```

```
                               (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (0100)  119.60     8.23    3.00  44.03
1.25     0.55
     OUTFLOW: ID= 1 (0502)  119.60     5.08    3.83  44.02
1.13     0.61

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| CALIB            |
| STANDHYD  (5022) |   Area    (ha)=  39.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       19.90        19.90
     Dep. Storage     (mm)=        1.50         8.00
     Average Slope     (%)=        1.00         1.00
     Length            (m)=      515.11        40.00
     Mannings n          =        0.013        0.250

     Max.Eff.Inten.(mm/hr)=      159.59       109.73
               over (min)          5.00        15.00
     Storage Coeff.  (min)=        5.67 (ii)   14.04 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.20         0.08

*TOTALS*
     PEAK FLOW       (cms)=        5.78         3.39
8.597 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      100.12        42.35
62.57
     TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
     RUNOFF COEFFICIENT   =        0.99         0.42
0.62

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| RESERVOIR (0001) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW
STORAGE
-------------------       (cms)     (ha.m.)   |   (cms)
(ha.m.)
                          0.0000     0.0000   |   0.1660
0.5730
                          0.0250     0.4010   |   1.1430
1.6830
                                AREA     QPEAK     TPEAK
R.V.
                                (ha)     (cms)     (hrs)
(mm)
     INFLOW : ID= 2 (5022)     39.800      8.597      3.00
62.57
     OUTFLOW: ID= 1 (0001)     39.800      1.143      3.92
62.21

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 13.30
                   TIME SHIFT OF PEAK FLOW         (min)= 55.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  1.6838

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| ADD HYD   (0102) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0001):    39.80   1.143     3.92     62.21
        + ID2= 2 (0502):   119.60   5.084     3.83     44.02
          ===============================================
          ID = 3 (0102):   159.40   6.227     3.83     48.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0503) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
                <------ DATA FOR SECTION (1157.9) ------>
                 Distance      Elevation       Manning
                     0.00         86.78        0.0900
                    25.34         87.17        0.0900
                    68.44         87.04        0.0900
                   117.13         86.81        0.0900
                   125.36         85.21    0.0900 /0.0700  Main
Channel
                   127.36         84.21        0.0700      Main
Channel
                   128.86         84.21        0.0700      Main
Channel
                   130.86         85.21    0.0700 /0.0900  Main
Channel
                   131.88         86.36        0.0900
                   140.63         86.77        0.0900
                   168.26         86.90        0.0900
                   169.81         87.10        0.0900
                   202.11         87.50        0.0900
                   239.06         87.35        0.0900
                   270.29         87.83        0.0900
                   283.90         87.90        0.0900
                   297.51         87.86        0.0900
                   324.73         87.89        0.0900
                   351.95         87.78        0.0900
                   388.59         87.46        0.0900

      <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
       0.17    84.38    .114E+03       0.1          0.34
18.34
       0.33    84.54    .269E+03       0.4          0.50
12.51
       0.50    84.71    .465E+03       0.8          0.62
10.07
       0.67    84.88    .703E+03       1.4          0.72
8.63
       0.83    85.04    .982E+03       2.1          0.81
7.65
       1.00    85.21    .130E+04       3.1          0.89
6.93
       1.21    85.42    .177E+04       5.0          1.06
5.87
       1.41    85.62    .234E+04       7.4          1.17
5.28
       1.62    85.83    .300E+04      10.2          1.27
4.89
       1.83    86.04    .376E+04      13.6          1.35
4.60
       2.03    86.24    .462E+04      17.6          1.42
4.37
       2.24    86.45    .560E+04      22.1          1.47
4.22
       2.45    86.66    .695E+04      27.6          1.48
4.20
       2.66    86.87    .925E+04      31.2          1.25
4.94
       2.86    87.07    .168E+05      43.1          0.96
6.48
```

```
     3.07    87.28    .297E+05      67.7          0.85
7.30
     3.28    87.49    .456E+05     103.1          0.84
7.38
     3.48    87.69    .663E+05     159.6          0.89
6.93
     3.69    87.90    .907E+05     223.4          0.92
6.77

                                  <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0102)  159.40     6.23    3.83  48.56
1.31      1.11
    OUTFLOW: ID= 1 (0503)  159.40     6.22    3.92  48.56
1.31      1.11


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--------------------
| CALIB              |
| STANDHYD  (5032) |   Area    (ha)=  13.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  76.00   Dir. Conn.(%)=
67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.49         3.31
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     303.32        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       145.90
                over (min)        5.00        10.00
     Storage Coeff.  (min)=       4.12 (ii)    8.90 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.24         0.12

*TOTALS*
     PEAK FLOW       (cms)=       3.98         0.96
4.940 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=      95.62        53.59
81.75
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.53
0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0104) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0503):   159.40   6.215     3.92     48.56
        + ID2= 2 (5032):    13.80   4.940     3.00     81.75
          ===============================================
          ID = 3 (0104):   173.20   7.390     3.00     51.21

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0504) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 815.4) ------>
               Distance      Elevation        Manning
                  19.10         82.03         0.0900
                  29.01         83.14         0.0900
                  40.83         82.56         0.0900
                  81.51         82.27         0.0900
                 122.18         82.68         0.0900
                 169.31         82.61         0.0900
                 217.10         82.90         0.0900
                 229.61         83.66     0.0900 /0.0700  Main
Channel
                 232.80         81.85         0.0700      Main
Channel
                 243.24         83.87         0.0700      Main
Channel
                 257.77         84.06         0.0900
                 312.01         83.52         0.0900
                 415.18         83.86         0.0900
                 461.15         83.40         0.0900
                 501.83         83.53         0.0900
                 513.93         82.96         0.0900
                 526.85         83.23         0.0900
                 569.63         83.21         0.0900
                 610.76         83.63         0.0900
                 663.54         83.88         0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.11    81.96    .117E+02       0.0          0.18
23.95
     0.23    82.08    .492E+02       0.1          0.28
15.67
     0.34    82.19    .135E+03       0.2          0.34
13.00
     0.45    82.30    .312E+03       0.4          0.32
13.44
     0.57    82.42    .116E+04       1.2          0.28
15.74
     0.68    82.53    .287E+04       3.5          0.32
13.85
     0.79    82.64    .549E+04       7.0          0.33
13.13
     0.91    82.76    .101E+05      14.9          0.39
11.28
     1.02    82.87    .155E+05      27.5          0.47
9.38
     1.13    82.98    .214E+05      45.2          0.55
7.89
     1.25    83.10    .277E+05      67.2          0.64
6.87
     1.36    83.21    .344E+05      93.6          0.71
6.12
     1.47    83.32    .426E+05     125.3          0.77
5.67
     1.59    83.44    .516E+05     162.2          0.82
5.30
     1.70    83.55    .620E+05     204.2          0.86
5.06
     1.81    83.66    .747E+05     254.0          0.89
4.90
     1.95    83.80    .924E+05     324.9          0.92
4.74
     2.08    83.93    .113E+06     411.3          0.95
4.59
     2.21    84.06    .135E+06     515.5          1.00
4.37

                                  <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
```

```
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0104)  173.20     7.39    3.00  51.21
0.80      0.34
    OUTFLOW: ID= 1 (0504)  173.20     6.52    4.08  51.21
0.78      0.33


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--------------------
| CALIB              |
| STANDHYD  (5042) |   Area    (ha)=   7.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.77         1.92
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     226.57        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       140.83
                over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.46 (ii)    8.38 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.26         0.12

*TOTALS*
     PEAK FLOW       (cms)=       2.18         0.55
2.728 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=      95.62        50.74
79.91
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.50
0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0106) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0504):   173.20   6.525     4.08     51.21
        + ID2= 2 (5042):     7.70   2.728     3.00     79.91
          ===============================================
          ID = 3 (0106):   180.90   7.161     3.00     52.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0114) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0106):   180.90   7.161     3.00     52.43
        + ID2= 2 (0113):    40.20   5.816     3.00     75.70
          ===============================================
          ID = 3 (0114):   221.10  12.977     3.00     56.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0505) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 553.6) ------>
               Distance      Elevation        Manning
                   0.00         81.24         0.1100
                  33.01         80.98         0.1100
                  49.97         81.27         0.1100
                  54.18         80.35         0.1100
                  60.88         81.23         0.1100
                  69.13         79.02         0.1100
                  92.42         79.04         0.1100
                  98.70         80.89         0.1100
                 128.88         81.13         0.1100
                 199.00         81.23         0.1100
                 266.11         81.68         0.1100
                 306.94         81.73         0.1100
                 331.74         81.55     0.1100 /0.0700  Main
Channel
                 336.74         80.15         0.0700      Main
Channel
                 346.34         81.64     0.0700 /0.0900  Main
Channel
                 394.77         81.68         0.0900
                 431.64         81.44         0.0900
                 477.44         82.08         0.0900
                 481.25         82.81         0.0900
                 501.51         83.16         0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.12    79.13    .418E+03       0.4          0.15
18.59
     0.23    79.25    .899E+03       1.3          0.25
11.41
     0.35    79.36    .140E+04       2.7          0.33
8.70
     0.46    79.48    .191E+04       4.4          0.39
7.22
     0.58    79.59    .244E+04       6.5          0.46
6.26
     0.69    79.71    .299E+04       8.9          0.51
5.58
     0.81    79.82    .355E+04      11.7          0.56
5.08
     0.92    79.94    .413E+04      14.7          0.61
4.68
     1.04    80.05    .472E+04      18.1          0.65
4.36
     1.15    80.17    .533E+04      21.7          0.70
4.09
     1.27    80.28    .598E+04      25.7          0.74
3.88
     1.38    80.40    .666E+04      29.7          0.76
3.74
     1.50    80.51    .740E+04      33.7          0.78
3.67
     1.61    80.63    .822E+04      38.1          0.79
3.59
     1.73    80.74    .909E+04      43.1          0.81
3.52
     1.84    80.86    .100E+05      48.6          0.83
3.45
     1.96    80.97    .111E+05      48.4          0.74
3.83
     2.07    81.09    .128E+05      43.8          0.59
4.86
     2.19    81.21    .155E+05      40.6          0.45
6.35

                                  <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
```

```
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0114)  221.10    12.98    3.00  56.66
0.86      0.58
    OUTFLOW: ID= 1 (0505)  221.10    11.38    3.00  56.66
0.79      0.56


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--------------------
| CALIB              |
| STANDHYD  (5052) |   Area    (ha)=  15.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=
65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.77         4.13
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     325.58        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59      ********
                over (min)        5.00        10.00
     Storage Coeff.  (min)=       4.30 (ii)    9.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.23         0.12

*TOTALS*
     PEAK FLOW       (cms)=       4.43         1.07
5.495 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=      95.62        49.62
79.52
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.49
0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  68.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0108) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0505):   221.10  11.378     3.00     56.66
        + ID2= 2 (5052):    15.90   5.495     3.00     79.52
          ===============================================
          ID = 3 (0108):   237.00  16.873     3.00     58.19

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0506) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 304.1) ------>
               Distance      Elevation        Manning
                   0.00         81.42         0.0900
                   7.45         81.36         0.0900
                  32.34         80.38         0.0900
                  45.97         80.05         0.0900
                  65.23         79.93         0.0900
                  84.49         80.35         0.0900
                 113.49         80.02         0.0900
                 136.48         80.07         0.0900
                 188.81         79.81         0.0900
                 197.86         79.25     0.0900 /0.0700  Main
Channel
                 200.70         78.22         0.0700      Main
Channel
                 203.29         79.35     0.0700 /0.0900  Main
Channel
                 204.01         79.67         0.0900
                 236.47         80.40         0.0900
                 277.80         80.48         0.0900
                 305.35         80.37         0.0900
                 346.67         80.41         0.0900
                 387.99         80.33         0.0900
                 415.54         80.53         0.0900
                 447.88         80.49         0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.11    78.34    .979E+01       0.0          0.23
21.53
     0.23    78.45    .392E+02       0.0          0.37
13.56
     0.34    78.56    .881E+02       0.1          0.48
10.35
     0.46    78.68    .157E+03       0.3          0.58
8.54
     0.57    78.79    .245E+03       0.6          0.67
7.36
     0.68    78.91    .352E+03       0.9          0.76
6.52
     0.80    79.02    .480E+03       1.4          0.84
5.88
     0.91    79.13    .627E+03       1.9          0.92
5.38
     1.03    79.25    .793E+03       2.7          0.99
4.98
     1.15    79.37    .103E+04       3.8          1.09
4.55
     1.28    79.50    .135E+04       5.2          1.16
4.28
     1.40    79.62    .175E+04       7.1          1.20
4.12
     1.52    79.75    .228E+04       9.3          1.21
4.08
     1.65    79.87    .318E+04      11.7          1.10
4.52
     1.77    80.00    .524E+04      15.8          0.90
5.52
     1.90    80.12    .973E+04      24.3          0.74
6.69
     2.02    80.24    .158E+05      39.7          0.75
6.62
     2.15    80.37    .230E+05      59.2          0.77
6.46
     2.27    80.49    .349E+05      90.3          0.77
6.44

                                  <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0108)  237.00    16.87    3.00  58.19
1.79      0.87
    OUTFLOW: ID= 1 (0506)  237.00    14.11    3.08  58.19
1.72      0.97


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--------------------
| CALIB              |
| STANDHYD  (5062) |   Area    (ha)=  11.70
```

```
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.78          2.92
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     279.28         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     159.59        149.80
                over (min)        5.00         10.00
     Storage Coeff.  (min)=       3.92 (ii)     8.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.24          0.12

*TOTALS*
     PEAK FLOW       (cms)=       3.28          0.88
4.160 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.00
3.00
     RUNOFF VOLUME    (mm)=      95.62         54.10
81.09
     TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
     RUNOFF COEFFICIENT   =       0.94          0.53
0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  71.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0110) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0506):   237.00  14.107     3.08    58.19
        + ID2= 2 (5062):    11.70   4.160     3.00    81.09
          ==================================================
          ID = 3 (0110):   248.70  17.044     3.00    59.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0120) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0110):   248.70  17.044     3.00    59.27
        + ID2= 2 (0119):     8.60   1.969     3.00    76.44
          ==================================================
          ID = 3 (0120):   257.30  19.013     3.00    59.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (5302) |   Area    (ha)=   5.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  66.00   Dir. Conn.(%)=
56.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.83          1.97
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     196.64         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     159.59        119.48
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       3.18 (ii)    11.27 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.27          0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.42          0.40
1.761 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62         46.34
73.94
     TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
     RUNOFF COEFFICIENT   =       0.94          0.46
0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6102) |   Area    (ha)=  21.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.55         10.55
     Dep. Storage     (mm)=       1.50          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     375.06         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     159.59        131.44
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       4.68 (ii)    12.47 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.22          0.08

*TOTALS*
     PEAK FLOW       (cms)=       3.14          2.30
5.089 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=     100.12         50.86
68.10
     TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
     RUNOFF COEFFICIENT   =       0.99          0.50
0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0611) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 940.0) ------>
               Distance      Elevation       Manning
                  0.00          83.36        0.0900
                 12.33          84.54        0.0900
                 21.95          84.33    0.0900 /0.0700  Main
Channel
                 25.80          83.10        0.0700      Main
Channel
                 39.87          83.58    0.0700 /0.0900  Main
Channel
                 95.01          83.67        0.0900
                132.30          84.45        0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.07    83.17    .442E+02       0.0          0.13
76.06
     0.14    83.24    .177E+03       0.1          0.20
47.91
     0.21    83.31    .398E+03       0.2          0.26
36.56
     0.28    83.38    .709E+03       0.4          0.32
30.22
     0.35    83.44    .113E+04       0.7          0.36
26.38
     0.41    83.51    .167E+04       1.2          0.41
23.66
     0.48    83.58    .232E+04       1.8          0.45
21.54
     0.56    83.66    .431E+04       3.1          0.42
23.06
     0.64    83.74    .779E+04       5.6          0.42
23.11
     0.72    83.82    .115E+05       9.1          0.46
20.97
     0.80    83.90    .154E+05      13.6          0.51
18.96
     0.88    83.98    .196E+05      18.9          0.55
17.31
     0.96    84.06    .240E+05      25.0          0.60
15.97
     1.04    84.14    .286E+05      32.1          0.65
14.88
     1.12    84.22    .334E+05      39.9          0.69
13.96
     1.20    84.30    .385E+05      48.6          0.73
13.19
     1.28    84.38    .438E+05      58.0          0.76
12.59
     1.36    84.46    .495E+05      68.4          0.80
12.06
     1.44    84.54    .555E+05      81.0          0.84
11.40

                                  <---- hydrograph ---->   <-
pipe / channel->
                            AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                            (ha)    (cms)   (hrs)   (mm)
(m)     (m/s)
     INFLOW : ID= 2 (6102)   21.10     5.09    3.00  68.10
0.63     0.42
     OUTFLOW: ID= 1 (0611)   21.10     2.83    3.17  68.08
0.55     0.42

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--------------------
| CALIB            |
| STANDHYD  (6112) |   Area    (ha)=  11.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  72.00   Dir. Conn.(%)=
62.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.21          3.19
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     275.68         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     159.59        155.13
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       3.89 (ii)    11.18 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.25          0.09

*TOTALS*
     PEAK FLOW       (cms)=       3.05          0.87
3.805 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62         57.95
81.31
     TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
     RUNOFF COEFFICIENT   =       0.94          0.57
0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  75.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0138) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0611):    21.10   2.828     3.17    68.08
        + ID2= 2 (6112):    11.40   3.805     3.00    81.31
          ==================================================
          ID = 3 (0138):    32.50   6.164     3.00    72.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6011) |   Area    (ha)=  44.10   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.83

     Unit Hyd Qpeak  (cms)=   2.027

     PEAK FLOW       (cms)=   1.942 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  35.157
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.346

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6012) |   Area    (ha)=  11.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=
16.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.08          7.92
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     270.80         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     159.59         91.88
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       3.85 (ii)    12.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.25          0.08

*TOTALS*
     PEAK FLOW       (cms)=       0.76          1.16
1.726 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62         39.35
48.35
     TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
     RUNOFF COEFFICIENT   =       0.94          0.39
0.48

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0124) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6011):    44.10   1.942     3.83    35.16
        + ID2= 2 (6012):    11.00   1.726     3.00    48.35
          ==================================================
          ID = 3 (0124):    55.10   2.327     3.50    37.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| NASHYD    (6021) |   Area    (ha)=  43.60   Curve Number
(CN)= 62.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.95

     Unit Hyd Qpeak  (cms)=   1.753

     PEAK FLOW       (cms)=   1.734 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  35.157
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.346

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6022) |   Area    (ha)=  12.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  35.00   Dir. Conn.(%)=
23.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.51          8.39
     Dep. Storage     (mm)=       6.00          8.00
     Average Slope     (%)=       1.00          1.00
     Length            (m)=     293.26         40.00
     Mannings n          =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     159.59         94.24
                over (min)        5.00         15.00
     Storage Coeff.  (min)=       4.04 (ii)    12.94 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.24          0.08

*TOTALS*
     PEAK FLOW       (cms)=       1.28          1.26
2.325 (iii)
     TIME TO PEAK    (hrs)=       3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62         39.77
52.62
     TOTAL RAINFALL   (mm)=     101.62        101.62
101.62
     RUNOFF COEFFICIENT   =       0.94          0.39
0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  62.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0125) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (6021):    43.60   1.734     4.00    35.16
        + ID2= 2 (6022):    12.90   2.325     3.00    52.62
          ==================================================
          ID = 3 (0125):    56.50   2.680     3.00    39.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0126) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0124):    55.10   2.327     3.50    37.79
        + ID2= 2 (0125):    56.50   2.680     3.00    39.14
          ==================================================
          ID = 3 (0126):   111.60   4.886     3.00    38.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0603) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (2135.9) ------>
               Distance      Elevation       Manning
                  0.00          92.58        0.1400
                  8.54          92.59        0.1400
                 22.11          92.47        0.1400
                 48.74          91.83        0.1400
                 67.59          91.58        0.1400
                 86.45          91.21        0.1400
                103.50          90.80        0.1400
                118.09          90.23        0.1400
                127.84          90.09    0.1400 /0.0700  Main
Channel
                129.84          89.59        0.0700      Main
Channel
                130.34          90.09    0.0700 /0.1400  Main
Channel
                140.57          90.14        0.1400
                161.87          90.11        0.1400
                177.03          90.04        0.1400
                188.67          89.87        0.1400
                199.59          90.31        0.1400
                212.02          90.96        0.1400
                225.58          91.35        0.1400
                252.71          91.66        0.1400
                274.11          91.86        0.1400
```

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      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.12    89.71   .358E+02       0.0          0.19
81.29
       0.25    89.84   .143E+03       0.0          0.30
51.21
       0.37    89.96   .689E+03       0.2          0.23
67.44
       0.50    90.09   .278E+04       0.6          0.20
77.83
       0.67    90.26   .132E+05       3.4          0.23
65.31
       0.83    90.42   .262E+05       9.3          0.33
46.76
       1.00    90.59   .403E+05      17.9          0.41
37.64
       1.17    90.76   .556E+05      28.8          0.48
32.17
       1.33    90.92   .721E+05      42.0          0.53
28.63
       1.50    91.09   .903E+05      57.1          0.58
26.37
       1.67    91.26   .110E+06      74.7          0.62
24.65
       1.83    91.42   .133E+06      93.4          0.64
23.71
       2.00    91.59   .159E+06     113.6          0.66
23.26
       2.17    91.76   .188E+06     136.6          0.67
22.96
       2.33    91.92   .222E+06     168.5          0.70
21.97
       2.50    92.09   .258E+06     211.3          0.75
20.33
       2.67    92.26   .294E+06     258.5          0.81
18.98
       2.83    92.42   .332E+06     310.1          0.86
17.85
       3.00    92.59   .371E+06     358.0          0.88
17.29

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0126)  111.60     4.89    3.00  38.48
0.71     0.25
     OUTFLOW: ID= 1 (0603)  111.60     3.29    4.50  38.47
0.66     0.23

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--------------------
| CALIB              |
| STANDHYD  (6032)   |   Area    (ha)=  26.40
|ID= 1 DT= 5.0 min   |   Total Imp(%)=  48.00   Dir. Conn.(%)=
33.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=      12.67        13.73
     Dep. Storage      (mm)=       1.50         8.00
     Average Slope      (%)=       1.00         1.00
     Length             (m)=     419.52        40.00
     Mannings n           =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      159.59       135.38
                over (min)         5.00        15.00
     Storage Coeff.  (min)=        5.01 (ii)   12.71 (ii)
     Unit Hyd. Tpeak (min)=        5.00        15.00
     Unit Hyd. peak  (cms)=        0.21         0.08

*TOTALS*
     PEAK FLOW       (cms)=        3.68         3.08
6.286 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      100.12        52.90
68.48
     TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
     RUNOFF COEFFICIENT   =        0.99         0.52
0.67

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  72.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR (0003) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW
STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)
(ha.m.)
                         0.0000     0.0000   |   0.1710
0.3730
                         0.0260     0.2610   |   1.0710
1.1500

                                 AREA     QPEAK     TPEAK
R.V.
                                 (ha)     (cms)     (hrs)
(mm)
     INFLOW : ID= 2 (6032)     26.400      6.286      3.00
68.48
     OUTFLOW: ID= 1 (0003)     26.400      1.071      3.75
68.39

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 17.03
                  TIME SHIFT OF PEAK FLOW         (min)= 45.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.1506

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--------------------
| ADD HYD   (0128) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0003):    26.40   1.071     3.75    68.39
        + ID2= 2 (0603):   111.60   3.287     4.50    38.47
          ==================================================
          ID = 3 (0128):   138.00   4.263     4.42    44.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0604) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION (1414.9) ------>
               Distance      Elevation       Manning
                  0.00          86.75        0.0900
                  3.09          87.40        0.0900
                 18.33          87.41        0.0900
                 35.33          86.99        0.0900
                 73.84          86.75        0.0900
                103.33          86.41        0.0900
                120.33          86.11        0.0900
                129.46          86.13        0.0900
                143.37          85.32        0.0900
                154.33          85.02        0.0900
                161.57          85.09        0.0900
                163.05          84.78     0.0900 /0.0700  Main
Channel
                166.55          83.78        0.0700      Main
Channel
                168.05          84.78     0.0700 /0.1100  Main
Channel
                172.02          85.29        0.1100
                191.39          86.19        0.1100
                270.18          85.78        0.1100
                296.33          86.36        0.1100
                324.34          86.68        0.1100
                368.56          87.05        0.1100
      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.17    83.95   .465E+02       0.0          0.03
432.88
       0.33    84.11   .186E+03       0.0          0.04
272.70
       0.50    84.28   .418E+03       0.0          0.05
208.11
       0.67    84.45   .743E+03       0.1          0.06
171.79
       0.83    84.61   .116E+04       0.1          0.08
148.04
       1.00    84.78   .167E+04       0.2          0.09
131.10
       1.20    84.98   .252E+04       0.4          0.10
110.62
       1.41    85.19   .469E+04       0.6          0.09
121.59
       1.61    85.39   .842E+04       1.1          0.09
126.63
       1.81    85.59   .133E+05       1.8          0.09
121.99
       2.01    85.79   .192E+05       2.7          0.10
116.68
       2.22    86.00   .298E+05       4.0          0.09
125.45
       2.42    86.20   .487E+05       5.6          0.08
143.80
       2.62    86.40   .736E+05       9.0          0.08
137.02
       2.82    86.60   .102E+06      13.1          0.09
130.82
       3.03    86.81   .136E+06      18.1          0.09
125.42
       3.23    87.01   .178E+06      24.4          0.09
121.07
       3.43    87.21   .224E+06      34.2          0.10
108.80
       3.63    87.41   .271E+06      44.8          0.11
100.89

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0128)  138.00     4.26    4.42  44.20
2.25     0.09
     OUTFLOW: ID= 1 (0604)  138.00     3.01    5.00  44.19
2.06     0.09

     **** WARNING:  COMPUTATIONS FAILED TO CONVERGE.

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--------------------
| CALIB              |
| STANDHYD  (6042)   |   Area    (ha)=  24.00
|ID= 1 DT= 5.0 min   |   Total Imp(%)=  78.00   Dir. Conn.(%)=
69.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=      18.72         5.28
     Dep. Storage      (mm)=       6.00         8.00
     Average Slope      (%)=       1.00         1.00
     Length             (m)=     400.00        40.00
     Mannings n           =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      159.59       175.99
                over (min)         5.00        10.00
     Storage Coeff.  (min)=        4.87 (ii)    9.43 (ii)
     Unit Hyd. Tpeak (min)=        5.00        10.00
     Unit Hyd. peak  (cms)=        0.22         0.12

*TOTALS*
     PEAK FLOW       (cms)=        7.01         1.86
8.868 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=       95.62        63.99
85.81
     TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
     RUNOFF COEFFICIENT   =        0.94         0.63
0.84

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0130) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0604):   138.00   3.009     5.00    44.19
        + ID2= 2 (6042):    24.00   8.868     3.00    85.81
          ==================================================
          ID = 3 (0130):   162.00   9.229     3.00    50.35

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0605) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 801.4) ------>
               Distance      Elevation       Manning
                  0.00          82.95        0.1100
                  3.78          82.95        0.1100
                  9.24          82.49        0.1100
                 50.67          82.10        0.1100
                105.12          82.17        0.1100
                119.34          81.56        0.1100
                150.67          81.66        0.1100
                157.23          82.37        0.1100
                190.03          82.57        0.1100
                223.75          82.27        0.1100
                252.32          82.50        0.1100
                254.65          81.95     0.1100 /0.0700  Main
Channel
                258.15          80.95        0.0700      Main
Channel
                259.65          81.95     0.0700 /0.1100  Main
Channel
                263.15          82.90        0.1100
                278.14          82.80        0.1100
                282.35          81.68        0.1100
                285.02          82.19        0.1100
                336.56          82.53        0.1100
                404.40          82.68        0.1100
      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.08    81.03   .125E+02       0.0          0.11
104.30
       0.17    81.12   .499E+02       0.0          0.18
65.70
       0.25    81.20   .112E+03       0.0          0.24
50.14
       0.33    81.28   .199E+03       0.1          0.29
41.39
       0.42    81.37   .312E+03       0.1          0.34
35.67
       0.50    81.45   .449E+03       0.2          0.38
31.59
       0.58    81.53   .611E+03       0.4          0.42
28.50
       0.67    81.62   .117E+04       0.5          0.33
36.10
       0.75    81.70   .316E+04       1.1          0.24
49.12
       0.83    81.78   .560E+04       2.1          0.27
45.15
       0.92    81.87   .827E+04       3.4          0.30
40.03
       1.00    81.95   .112E+05       5.2          0.33
35.88
       1.10    82.05   .151E+05       8.0          0.38
31.68
       1.21    82.16   .207E+05       8.8          0.30
39.37
       1.31    82.26   .306E+05      14.0          0.33
36.36
       1.41    82.36   .433E+05      20.3          0.34
35.59
       1.52    82.47   .606E+05      28.4          0.34
35.57
       1.62    82.57   .828E+05      41.0          0.36
33.68
       1.73    82.68   .109E+06      60.1          0.39
30.35

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0130)  162.00     9.23    3.00  50.35
1.22     0.31
     OUTFLOW: ID= 1 (0605)  162.00     3.78    3.17  50.35
0.93     0.30

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--------------------
| ADD HYD   (0139) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0138):    32.50   6.164     3.00    72.72
        + ID2= 2 (0605):   162.00   3.779     3.17    50.35
          ==================================================
          ID = 3 (0139):   194.50   9.370     3.00    54.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB              |
| STANDHYD  (6052)   |   Area    (ha)=  15.90
|ID= 1 DT= 5.0 min   |   Total Imp(%)=  74.00   Dir. Conn.(%)=
65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=      11.77         4.13
     Dep. Storage      (mm)=       6.00         8.00
     Average Slope      (%)=       1.00         1.00
     Length             (m)=     325.58        40.00
     Mannings n           =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      159.59       127.05
                over (min)         5.00        10.00
     Storage Coeff.  (min)=        4.30 (ii)    9.30 (ii)
     Unit Hyd. Tpeak (min)=        5.00        10.00
     Unit Hyd. peak  (cms)=        0.23         0.12

*TOTALS*
     PEAK FLOW       (cms)=        4.43         1.02
5.445 (iii)
     TIME TO PEAK    (hrs)=        3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=       95.62        47.46
78.76
     TOTAL RAINFALL   (mm)=      101.62       101.62
101.62
     RUNOFF COEFFICIENT   =        0.94         0.47
0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0132) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0139):   194.50   9.370     3.00    54.09
        + ID2= 2 (6052):    15.90   5.445     3.00    78.76
          ==================================================
          ID = 3 (0132):   210.40  14.815     3.00    55.95

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0530) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
               <------ DATA FOR SECTION ( 350.0) ------>
               Distance      Elevation       Manning
                  0.00          81.70        0.1100
                  3.84          81.72        0.1100
                  5.87          80.72        0.1100
                  9.38          81.42        0.1100
                 49.64          81.07        0.1100
                 80.61          80.72        0.1100
                 85.61          81.14        0.1100
                 93.32          80.00        0.1100
                 95.04          80.45        0.1100
                102.72          80.66        0.1100
                110.13          78.93     0.1100 /0.0700  Main
Channel
                118.05          78.63        0.0700      Main
Channel
                124.40          78.89     0.0700 /0.1100  Main
Channel
                132.18          79.61        0.1100
                139.34          79.23        0.1100
                144.67          79.43        0.1100
                149.63          79.98        0.1100
                153.42          79.79        0.1100
                158.56          80.58        0.1100
                176.89          81.15        0.1100
```

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     <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.13    78.76    .190E+03       0.1          0.19
38.41
     0.26    78.89    .758E+03       0.5          0.31
24.20
     0.43    79.05    .189E+04       2.1          0.50
14.77
     0.59    79.22    .321E+04       4.7          0.65
11.35
     0.76    79.39    .498E+04       8.2          0.73
10.10
     0.93    79.55    .743E+04      13.1          0.78
9.48
     1.09    79.72    .103E+05      19.5          0.84
8.84
     1.26    79.89    .135E+05      27.1          0.89
8.29
     1.43    80.05    .171E+05      36.3          0.94
7.85
     1.59    80.22    .209E+05      47.2          1.00
7.39
     1.76    80.39    .251E+05      59.8          1.06
6.99
     1.93    80.56    .296E+05      73.5          1.10
6.70
     2.10    80.72    .348E+05      87.6          1.12
6.61
     2.26    80.89    .412E+05     102.8          1.11
6.68
     2.43    81.06    .495E+05     122.0          1.09
6.77
     2.60    81.22    .596E+05     146.2          1.09
6.80
     2.76    81.39    .714E+05     176.9          1.10
6.72
     2.93    81.56    .841E+05     215.0          1.13
6.52
     3.10    81.72    .970E+05     256.7          1.18
6.30

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0132)  210.40    14.82    3.00  55.95
0.97     0.80
     OUTFLOW: ID= 1 (0530)  210.40    11.66    3.08  55.95
0.88     0.77


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| ADD HYD   (0134) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0530):   210.40  11.663     3.08     55.95
        + ID2= 2 (5302):     5.80   1.761     3.00     73.94
          ==============================================
          ID = 3 (0134):   216.20  12.522     3.08     56.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0135) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0120):   257.30  19.013     3.00     59.84
        + ID2= 2 (0134):   216.20  12.522     3.08     56.44
          ==============================================
          ID = 3 (0135):   473.50  31.487     3.00     58.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0507) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (  40.0) ------>
               Distance       Elevation        Manning
                   0.00          79.36          0.0900
                   7.45          79.32          0.0900
                  13.77          79.27          0.0900
                  20.24          79.24          0.0900
                  27.28          79.26          0.0900
                  34.16          79.13          0.0900
                  40.79          79.05          0.0900
                  47.58          79.05          0.0900
                  54.30          79.07          0.0900
                  60.87          79.24          0.0900
                  71.39          79.48          0.0900
                  73.53          78.96          0.0900
                  76.96          78.07          0.0900
                  82.21          77.08      0.0900 /0.0700  Main
Channel
                  85.82          76.28          0.0700      Main
Channel
                  89.97          76.89          0.0700      Main
Channel
                  91.35          77.38      0.0700 /0.0900  Main
Channel
                  95.27          78.68          0.0900
                  98.44          79.63          0.0900
                 102.89          79.89          0.0900
     <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.16    76.44    .113E+03       0.0          0.14
88.10
     0.32    76.60    .451E+03       0.1          0.23
55.50
     0.49    76.76    .101E+04       0.4          0.30
42.35
     0.65    76.92    .180E+04       0.9          0.37
34.57
     0.81    77.09    .276E+04       1.6          0.44
28.86
     0.97    77.25    .388E+04       2.7          0.52
24.37
     1.14    77.41    .516E+04       4.0          0.59
21.56
     1.30    77.57    .660E+04       5.7          0.66
19.26
     1.46    77.74    .822E+04       7.8          0.72
17.67
     1.62    77.90    .100E+05      10.1          0.77
16.48
     1.79    78.06    .120E+05      12.8          0.82
15.54
     1.95    78.22    .141E+05      15.9          0.87
14.74
     2.11    78.39    .163E+05      19.4          0.91
14.06
     2.27    78.55    .187E+05      23.2          0.95
13.47
     2.44    78.71    .212E+05      27.3          0.99
12.95
     2.60    78.87    .239E+05      31.9          1.02
12.50
     2.76    79.04    .267E+05      36.8          1.06
12.10
```

```
     2.92    79.20    .320E+05      39.4          0.94
13.56
     3.09    79.36    .409E+05      45.7          0.85
14.94

                                   <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0135)  473.50    31.49    3.00  58.29
2.58     1.02
     OUTFLOW: ID= 1 (0507)  473.50    25.19    3.17  58.29
2.35     0.97

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-------------------
| CALIB             |
| STANDHYD  (5072) |   Area    (ha)=  48.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
36.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      24.45        24.45
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     570.96        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       139.84
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       6.03 (ii)   13.63 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.19         0.08

*TOTALS*
     PEAK FLOW       (cms)=       7.24         5.52
11.930 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        55.09
69.68
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.54
0.69


        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN* =  74.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0122) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0507):   473.50  25.185     3.17     58.29
        + ID2= 2 (5072):    48.90  11.930     3.00     69.68
          ==============================================
          ID = 3 (0122):   522.40  33.489     3.08     59.35

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| STANDHYD  (5402) |   Area    (ha)=   9.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.70         4.70
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     250.33        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       120.33
                over (min)       5.00        15.00
     Storage Coeff.  (min)=       3.67 (ii)   11.74 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.43         0.95
2.231 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        46.47
63.67
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.46
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN* =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| STORE HYD (1505) |   AREA       (ha)=  30.00
| ID= 1 DT= 5.0min |   QPEAK     (cms)=   0.78
-------------------    TPEAK     (hrs)=  15.58
                       VOLUME     (mm)= 402.14

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |'  TIME    FLOW |
TIME   FLOW
   hrs    cms |   hrs     cms |   hrs     cms |'   hrs     cms |
hrs     cms
  0.00    0.00 | 31.33    0.10 | 62.67    0.25 | 94.00    0.26
|125.33    0.16
  0.08    0.00 | 31.42    0.10 | 62.75    0.25 | 94.08    0.26
|125.42    0.16
  0.17    0.00 | 31.50    0.10 | 62.83    0.25 | 94.17    0.25
|125.50    0.16
  0.25    0.00 | 31.58    0.10 | 62.92    0.25 | 94.25    0.25
|125.58    0.16
  0.33    0.00 | 31.67    0.10 | 63.00    0.25 | 94.33    0.25
|125.67    0.17
  0.42    0.00 | 31.75    0.10 | 63.08    0.25 | 94.42    0.25
|125.75    0.16
  0.50    0.00 | 31.83    0.10 | 63.17    0.25 | 94.50    0.25
|125.83    0.16
  0.58    0.00 | 31.92    0.10 | 63.25    0.24 | 94.58    0.25
|125.92    0.17
  0.67    0.00 | 32.00    0.10 | 63.33    0.24 | 94.67    0.24
|126.00    0.15
  0.75    0.00 | 32.08    0.10 | 63.42    0.24 | 94.75    0.25
|126.08    0.16
  0.83    0.00 | 32.17    0.10 | 63.50    0.23 | 94.83    0.24
|126.17    0.16
  0.92    0.00 | 32.25    0.10 | 63.58    0.24 | 94.92    0.25
|126.25    0.16
  1.00    0.00 | 32.33    0.10 | 63.67    0.24 | 95.00    0.25
|126.33    0.16
  1.08    0.00 | 32.42    0.10 | 63.75    0.24 | 95.08    0.25
|126.42    0.16
  1.17    0.00 | 32.50    0.10 | 63.83    0.23 | 95.17    0.24
|126.50    0.17
  1.25    0.00 | 32.58    0.10 | 63.92    0.23 | 95.25    0.21
|126.58    0.16
  1.33    0.00 | 32.67    0.10 | 64.00    0.23 | 95.33    0.25
|126.67    0.16
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  1.42    0.00 | 32.75    0.10 | 64.08    0.23 | 95.42    0.22
|126.75    0.17
  1.50    0.00 | 32.83    0.10 | 64.17    0.23 | 95.50    0.23
|126.83    0.17
  1.58    0.00 | 32.92    0.10 | 64.25    0.24 | 95.58    0.22
|126.92    0.17
  1.67    0.00 | 33.00    0.10 | 64.33    0.23 | 95.67    0.24
|127.00    0.17
  1.75    0.00 | 33.08    0.10 | 64.42    0.23 | 95.75    0.26
|127.08    0.17
  1.83    0.00 | 33.17    0.10 | 64.50    0.23 | 95.83    0.24
|127.17    0.18
  1.92    0.00 | 33.25    0.11 | 64.58    0.23 | 95.92    0.23
|127.25    0.17
  2.00    0.00 | 33.33    0.11 | 64.67    0.24 | 96.00    0.24
|127.33    0.18
  2.08    0.00 | 33.42    0.11 | 64.75    0.24 | 96.08    0.24
|127.42    0.18
  2.17    0.00 | 33.50    0.11 | 64.83    0.24 | 96.17    0.24
|127.50    0.16
  2.25    0.00 | 33.58    0.11 | 64.92    0.24 | 96.25    0.24
|127.58    0.18
  2.33    0.00 | 33.67    0.11 | 65.00    0.24 | 96.33    0.24
|127.67    0.17
  2.42    0.00 | 33.75    0.11 | 65.08    0.23 | 96.42    0.24
|127.75    0.18
  2.50    0.00 | 33.83    0.11 | 65.17    0.23 | 96.50    0.24
|127.83    0.17
  2.58    0.00 | 33.92    0.11 | 65.25    0.23 | 96.58    0.23
|127.92    0.17
  2.67    0.00 | 34.00    0.11 | 65.33    0.23 | 96.67    0.24
|128.00    0.17
  2.75    0.00 | 34.08    0.11 | 65.42    0.22 | 96.75    0.23
|128.08    0.17
  2.83    0.00 | 34.17    0.11 | 65.50    0.22 | 96.83    0.23
|128.17    0.17
  2.92    0.00 | 34.25    0.11 | 65.58    0.22 | 96.92    0.24
|128.25    0.18
  3.00    0.00 | 34.33    0.11 | 65.67    0.22 | 97.00    0.23
|128.33    0.18
  3.08    0.00 | 34.42    0.11 | 65.75    0.22 | 97.08    0.22
|128.42    0.19
  3.17    0.00 | 34.50    0.11 | 65.83    0.22 | 97.17    0.23
|128.50    0.18
  3.25    0.00 | 34.58    0.11 | 65.92    0.21 | 97.25    0.22
|128.58    0.17
  3.33    0.00 | 34.67    0.11 | 66.00    0.21 | 97.33    0.25
|128.67    0.18
  3.42    0.00 | 34.75    0.11 | 66.08    0.21 | 97.42    0.22
|128.75    0.18
  3.50    0.00 | 34.83    0.11 | 66.17    0.20 | 97.50    0.24
|128.83    0.18
  3.58    0.00 | 34.92    0.11 | 66.25    0.20 | 97.58    0.23
|128.92    0.18
  3.67    0.00 | 35.00    0.11 | 66.33    0.20 | 97.67    0.22
|129.00    0.18
  3.75    0.00 | 35.08    0.11 | 66.42    0.20 | 97.75    0.23
|129.08    0.19
  3.83    0.00 | 35.17    0.11 | 66.50    0.19 | 97.83    0.22
|129.17    0.17
  3.92    0.00 | 35.25    0.11 | 66.58    0.20 | 97.92    0.21
|129.25    0.17
  4.00    0.00 | 35.33    0.11 | 66.67    0.20 | 98.00    0.22
|129.33    0.17
  4.08    0.00 | 35.42    0.11 | 66.75    0.20 | 98.08    0.23
|129.42    0.18
  4.17    0.00 | 35.50    0.11 | 66.83    0.19 | 98.17    0.21
|129.50    0.18
  4.25    0.00 | 35.58    0.11 | 66.92    0.19 | 98.25    0.21
|129.58    0.18
  4.33    0.00 | 35.67    0.11 | 67.00    0.20 | 98.33    0.23
|129.67    0.18
  4.42    0.00 | 35.75    0.11 | 67.08    0.20 | 98.42    0.21
|129.75    0.18
  4.50    0.00 | 35.83    0.11 | 67.17    0.20 | 98.50    0.21
|129.83    0.18
  4.58    0.00 | 35.92    0.11 | 67.25    0.20 | 98.58    0.23
|129.92    0.18
  4.67    0.00 | 36.00    0.11 | 67.33    0.20 | 98.67    0.22
|130.00    0.18
  4.75    0.00 | 36.08    0.11 | 67.42    0.21 | 98.75    0.23
|130.08    0.17
  4.83    0.00 | 36.17    0.11 | 67.50    0.22 | 98.83    0.24
|130.17    0.17
  4.92    0.00 | 36.25    0.11 | 67.58    0.22 | 98.92    0.22
|130.25    0.17
  5.00    0.00 | 36.33    0.11 | 67.67    0.23 | 99.00    0.20
|130.33    0.17
  5.08    0.00 | 36.42    0.12 | 67.75    0.24 | 99.08    0.20
|130.42    0.18
  5.17    0.00 | 36.50    0.12 | 67.83    0.26 | 99.17    0.22
|130.50    0.18
  5.25    0.00 | 36.58    0.12 | 67.92    0.27 | 99.25    0.21
|130.58    0.18
  5.33    0.00 | 36.67    0.12 | 68.00    0.28 | 99.33    0.22
|130.67    0.17
  5.42    0.00 | 36.75    0.12 | 68.08    0.31 | 99.42    0.21
|130.75    0.17
  5.50    0.00 | 36.83    0.12 | 68.17    0.32 | 99.50    0.20
|130.83    0.18
  5.58    0.00 | 36.92    0.12 | 68.25    0.34 | 99.58    0.21
|130.92    0.17
  5.67    0.00 | 37.00    0.12 | 68.33    0.35 | 99.67    0.20
|131.00    0.17
  5.75    0.00 | 37.08    0.12 | 68.42    0.38 | 99.75    0.19
|131.08    0.17
  5.83    0.00 | 37.17    0.12 | 68.50    0.39 | 99.83    0.20
|131.17    0.18
  5.92    0.00 | 37.25    0.12 | 68.58    0.40 | 99.92    0.22
|131.25    0.18
  6.00    0.00 | 37.33    0.12 | 68.67    0.42 |100.00    0.21
|131.33    0.17
  6.08    0.00 | 37.42    0.12 | 68.75    0.44 |100.08    0.20
|131.42    0.17
  6.17    0.00 | 37.50    0.12 | 68.83    0.46 |100.17    0.21
|131.50    0.17
  6.25    0.00 | 37.58    0.12 | 68.92    0.49 |100.25    0.19
|131.58    0.17
  6.33    0.00 | 37.67    0.13 | 69.00    0.51 |100.33    0.19
|131.67    0.17
  6.42    0.00 | 37.75    0.12 | 69.08    0.54 |100.42    0.19
|131.75    0.17
  6.50    0.00 | 37.83    0.12 | 69.17    0.56 |100.50    0.19
|131.83    0.17
  6.58    0.00 | 37.92    0.12 | 69.25    0.60 |100.58    0.19
|131.92    0.17
  6.67    0.00 | 38.00    0.12 | 69.33    0.64 |100.67    0.19
|132.00    0.16
  6.75    0.00 | 38.08    0.12 | 69.42    0.67 |100.75    0.21
|132.08    0.17
  6.83    0.00 | 38.17    0.12 | 69.50    0.67 |100.83    0.19
|132.17    0.17
  6.92    0.00 | 38.25    0.12 | 69.58    0.68 |100.92    0.19
|132.25    0.17
  7.00    0.00 | 38.33    0.12 | 69.67    0.65 |101.00    0.19
|132.33    0.17
  7.08    0.00 | 38.42    0.12 | 69.75    0.66 |101.08    0.19
|132.42    0.18
  7.17    0.00 | 38.50    0.12 | 69.83    0.66 |101.17    0.20
|132.50    0.17
  7.25    0.00 | 38.58    0.12 | 69.92    0.67 |101.25    0.19
|132.58    0.16
  7.33    0.00 | 38.67    0.13 | 70.00    0.66 |101.33    0.18
|132.67    0.17
  7.42    0.00 | 38.75    0.13 | 70.08    0.67 |101.42    0.19
|132.75    0.17
  7.50    0.00 | 38.83    0.13 | 70.17    0.67 |101.50    0.19
|132.83    0.17
  7.58    0.00 | 38.92    0.13 | 70.25    0.70 |101.58    0.19
|132.92    0.16
  7.67    0.00 | 39.00    0.13 | 70.33    0.74 |101.67    0.20
|133.00    0.17
  7.75    0.00 | 39.08    0.14 | 70.42    0.73 |101.75    0.19
|133.08    0.16
  7.83    0.00 | 39.17    0.14 | 70.50    0.74 |101.83    0.18
|133.17    0.16
  7.92    0.00 | 39.25    0.14 | 70.58    0.74 |101.92    0.19
|133.25    0.16
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8.00   0.00 | 39.33   0.14 | 70.67   0.74 |102.00   0.19 |133.33   0.15
8.08   0.00 | 39.42   0.14 | 70.75   0.75 |102.08   0.19 |133.42   0.16
8.17   0.00 | 39.50   0.15 | 70.83   0.75 |102.17   0.19 |133.50   0.16
8.25   0.00 | 39.58   0.16 | 70.92   0.74 |102.25   0.18 |133.58   0.17
8.33   0.00 | 39.67   0.16 | 71.00   0.74 |102.33   0.18 |133.67   0.16
8.42   0.00 | 39.75   0.16 | 71.08   0.75 |102.42   0.19 |133.75   0.15
8.50   0.00 | 39.83   0.16 | 71.17   0.77 |102.50   0.19 |133.83   0.16
8.58   0.00 | 39.92   0.17 | 71.25   0.76 |102.58   0.19 |133.92   0.16
8.67   0.00 | 40.00   0.17 | 71.33   0.76 |102.67   0.18 |134.00   0.16
8.75   0.00 | 40.08   0.17 | 71.42   0.77 |102.75   0.20 |134.08   0.16
8.83   0.00 | 40.17   0.17 | 71.50   0.76 |102.83   0.18 |134.17   0.15
8.92   0.00 | 40.25   0.18 | 71.58   0.77 |102.92   0.18 |134.25   0.16
9.00   0.00 | 40.33   0.18 | 71.67   0.76 |103.00   0.17 |134.33   0.16
9.08   0.00 | 40.42   0.18 | 71.75   0.76 |103.08   0.17 |134.42   0.16
9.17   0.00 | 40.50   0.18 | 71.83   0.78 |103.17   0.18 |134.50   0.16
9.25   0.00 | 40.58   0.19 | 71.92   0.77 |103.25   0.18 |134.58   0.15
9.33   0.00 | 40.67   0.19 | 72.00   0.76 |103.33   0.17 |134.67   0.16
9.42   0.00 | 40.75   0.19 | 72.08   0.74 |103.42   0.17 |134.75   0.15
9.50   0.00 | 40.83   0.19 | 72.17   0.75 |103.50   0.17 |134.83   0.15
9.58   0.00 | 40.92   0.19 | 72.25   0.74 |103.58   0.18 |134.92   0.16
9.67   0.00 | 41.00   0.19 | 72.33   0.72 |103.67   0.18 |135.00   0.15
9.75   0.00 | 41.08   0.19 | 72.42   0.70 |103.75   0.18 |135.08   0.15
9.83   0.00 | 41.17   0.20 | 72.50   0.70 |103.83   0.18 |135.17   0.15
9.92   0.00 | 41.25   0.20 | 72.58   0.69 |103.92   0.19 |135.25   0.15
10.00   0.00 | 41.33   0.21 | 72.67   0.70 |104.00   0.17 |135.33   0.15
10.08   0.00 | 41.42   0.22 | 72.75   0.68 |104.08   0.18 |135.42   0.15
10.17   0.00 | 41.50   0.23 | 72.83   0.67 |104.17   0.18 |135.50   0.15
10.25   0.00 | 41.58   0.23 | 72.92   0.66 |104.25   0.17 |135.58   0.15
10.33   0.00 | 41.67   0.23 | 73.00   0.64 |104.33   0.17 |135.67   0.14
10.42   0.00 | 41.75   0.24 | 73.08   0.63 |104.42   0.17 |135.75   0.15
10.50   0.00 | 41.83   0.25 | 73.17   0.63 |104.50   0.18 |135.83   0.16
10.58   0.00 | 41.92   0.25 | 73.25   0.61 |104.58   0.17 |135.92   0.15
10.67   0.00 | 42.00   0.26 | 73.33   0.62 |104.67   0.16 |136.00   0.15
10.75   0.00 | 42.08   0.25 | 73.42   0.61 |104.75   0.16 |136.08   0.15
10.83   0.00 | 42.17   0.26 | 73.50   0.62 |104.83   0.18 |136.17   0.15
10.92   0.00 | 42.25   0.26 | 73.58   0.60 |104.92   0.16 |136.25   0.15
11.00   0.00 | 42.33   0.26 | 73.67   0.62 |105.00   0.17 |136.33   0.15
11.08   0.00 | 42.42   0.26 | 73.75   0.58 |105.08   0.16 |136.42   0.15
11.17   0.00 | 42.50   0.26 | 73.83   0.59 |105.17   0.16 |136.50   0.15
11.25   0.00 | 42.58   0.26 | 73.92   0.57 |105.25   0.16 |136.58   0.15
11.33   0.00 | 42.67   0.26 | 74.00   0.57 |105.33   0.16 |136.67   0.14
11.42   0.00 | 42.75   0.25 | 74.08   0.57 |105.42   0.16 |136.75   0.15
11.50   0.00 | 42.83   0.26 | 74.17   0.56 |105.50   0.16 |136.83   0.14
11.58   0.00 | 42.92   0.25 | 74.25   0.58 |105.58   0.16 |136.92   0.14
11.67   0.00 | 43.00   0.25 | 74.33   0.58 |105.67   0.16 |137.00   0.14
11.75   0.00 | 43.08   0.25 | 74.42   0.58 |105.75   0.17 |137.08   0.15
11.83   0.00 | 43.17   0.25 | 74.50   0.59 |105.83   0.16 |137.17   0.14
11.92   0.00 | 43.25   0.25 | 74.58   0.60 |105.92   0.16 |137.25   0.15
12.00   0.00 | 43.33   0.25 | 74.67   0.57 |106.00   0.16 |137.33   0.15
12.08   0.00 | 43.42   0.25 | 74.75   0.56 |106.08   0.16 |137.42   0.14
12.17   0.00 | 43.50   0.25 | 74.83   0.54 |106.17   0.16 |137.50   0.14
12.25   0.00 | 43.58   0.25 | 74.92   0.56 |106.25   0.17 |137.58   0.14
12.33   0.00 | 43.67   0.25 | 75.00   0.53 |106.33   0.16 |137.67   0.15
12.42   0.00 | 43.75   0.25 | 75.08   0.51 |106.42   0.16 |137.75   0.14
12.50   0.00 | 43.83   0.26 | 75.17   0.51 |106.50   0.16 |137.83   0.14
12.58   0.00 | 43.92   0.26 | 75.25   0.51 |106.58   0.16 |137.92   0.14
12.67   0.00 | 44.00   0.26 | 75.33   0.51 |106.67   0.16 |138.00   0.14
12.75   0.00 | 44.08   0.26 | 75.42   0.50 |106.75   0.16 |138.08   0.14
12.83   0.00 | 44.17   0.26 | 75.50   0.50 |106.83   0.15 |138.17   0.14
12.92   0.00 | 44.25   0.27 | 75.58   0.49 |106.92   0.15 |138.25   0.14
13.00   0.00 | 44.33   0.26 | 75.67   0.49 |107.00   0.16 |138.33   0.14
13.08   0.00 | 44.42   0.26 | 75.75   0.49 |107.08   0.16 |138.42   0.14
13.17   0.00 | 44.50   0.26 | 75.83   0.48 |107.17   0.16 |138.50   0.14
13.25   0.00 | 44.58   0.26 | 75.92   0.47 |107.25   0.15 |138.58   0.14
13.33   0.00 | 44.67   0.26 | 76.00   0.47 |107.33   0.16 |138.67   0.14
13.42   0.00 | 44.75   0.26 | 76.08   0.48 |107.42   0.16 |138.75   0.14
13.50   0.00 | 44.83   0.26 | 76.17   0.46 |107.50   0.15 |138.83   0.14
13.58   0.00 | 44.92   0.26 | 76.25   0.45 |107.58   0.16 |138.92   0.14
13.67   0.00 | 45.00   0.26 | 76.33   0.45 |107.67   0.15 |139.00   0.14
13.75   0.00 | 45.08   0.26 | 76.42   0.43 |107.75   0.15 |139.08   0.14
13.83   0.00 | 45.17   0.25 | 76.50   0.44 |107.83   0.16 |139.17   0.13
13.92   0.00 | 45.25   0.25 | 76.58   0.46 |107.92   0.16 |139.25   0.14
14.00   0.00 | 45.33   0.25 | 76.67   0.43 |108.00   0.16 |139.33   0.14
14.08   0.00 | 45.42   0.25 | 76.75   0.44 |108.08   0.15 |139.42   0.14
14.17   0.00 | 45.50   0.25 | 76.83   0.43 |108.17   0.15 |139.50   0.14
14.25   0.00 | 45.58   0.25 | 76.92   0.45 |108.25   0.15 |139.58   0.13
14.33   0.00 | 45.67   0.25 | 77.00   0.42 |108.33   0.16 |139.67   0.14
14.42   0.00 | 45.75   0.25 | 77.08   0.43 |108.42   0.16 |139.75   0.14
14.50   0.00 | 45.83   0.26 | 77.17   0.43 |108.50   0.15 |139.83   0.13
14.58   0.00 | 45.92   0.25 | 77.25   0.42 |108.58   0.15 |139.92   0.14
14.67   0.00 | 46.00   0.26 | 77.33   0.41 |108.67   0.15 |140.00   0.14
14.75   0.00 | 46.08   0.26 | 77.42   0.43 |108.75   0.16 |140.08   0.13
14.83   0.00 | 46.17   0.25 | 77.50   0.41 |108.83   0.15 |140.17   0.13
14.92   0.69 | 46.25   0.26 | 77.58   0.43 |108.92   0.15 |140.25   0.13
15.00   0.69 | 46.33   0.26 | 77.67   0.39 |109.00   0.15 |140.33   0.13
15.08   0.71 | 46.42   0.26 | 77.75   0.39 |109.08   0.15 |140.42   0.14
15.17   0.74 | 46.50   0.26 | 77.83   0.37 |109.17   0.15 |140.50   0.13
15.25   0.74 | 46.58   0.26 | 77.92   0.39 |109.25   0.15 |140.58   0.13
15.33   0.74 | 46.67   0.26 | 78.00   0.39 |109.33   0.14 |140.67   0.13
15.42   0.77 | 46.75   0.26 | 78.08   0.39 |109.42   0.15 |140.75   0.13
15.50   0.76 | 46.83   0.25 | 78.17   0.37 |109.50   0.15 |140.83   0.13
15.58   0.78 | 46.92   0.25 | 78.25   0.36 |109.58   0.14 |140.92   0.13
15.67   0.78 | 47.00   0.25 | 78.33   0.37 |109.67   0.15 |141.00   0.13
15.75   0.77 | 47.08   0.25 | 78.42   0.38 |109.75   0.14 |141.08   0.13
15.83   0.77 | 47.17   0.26 | 78.50   0.36 |109.83   0.15 |141.17   0.13
15.92   0.77 | 47.25   0.26 | 78.58   0.36 |109.92   0.14 |141.25   0.13
16.00   0.76 | 47.33   0.26 | 78.67   0.36 |110.00   0.14 |141.33   0.13
16.08   0.74 | 47.42   0.26 | 78.75   0.37 |110.08   0.14 |141.42   0.13
16.17   0.74 | 47.50   0.26 | 78.83   0.34 |110.17   0.14 |141.50   0.13
16.25   0.74 | 47.58   0.25 | 78.92   0.35 |110.25   0.14 |141.58   0.13
16.33   0.72 | 47.67   0.26 | 79.00   0.36 |110.33   0.15 |141.67   0.13
16.42   0.69 | 47.75   0.26 | 79.08   0.35 |110.42   0.15 |141.75   0.13
16.50   0.69 | 47.83   0.26 | 79.17   0.35 |110.50   0.14 |141.83   0.13
16.58   0.67 | 47.92   0.26 | 79.25   0.36 |110.58   0.14 |141.92   0.13
16.67   0.66 | 48.00   0.25 | 79.33   0.36 |110.67   0.14 |142.00   0.13
16.75   0.64 | 48.08   0.25 | 79.42   0.33 |110.75   0.15 |142.08   0.12
16.83   0.63 | 48.17   0.26 | 79.50   0.33 |110.83   0.14 |142.17   0.13
16.92   0.63 | 48.25   0.25 | 79.58   0.33 |110.92   0.15 |142.25   0.13
17.00   0.60 | 48.33   0.25 | 79.67   0.32 |111.00   0.15 |142.33   0.13
17.08   0.58 | 48.42   0.25 | 79.75   0.33 |111.08   0.14 |142.42   0.12
17.17   0.58 | 48.50   0.25 | 79.83   0.33 |111.17   0.14 |142.50   0.13
17.25   0.57 | 48.58   0.25 | 79.92   0.32 |111.25   0.14 |142.58   0.13
17.33   0.56 | 48.67   0.24 | 80.00   0.33 |111.33   0.15 |142.67   0.13
17.42   0.55 | 48.75   0.24 | 80.08   0.34 |111.42   0.14 |142.75   0.13
17.50   0.54 | 48.83   0.24 | 80.17   0.32 |111.50   0.15 |142.83   0.12
17.58   0.51 | 48.92   0.24 | 80.25   0.31 |111.58   0.14 |142.92   0.13
17.67   0.50 | 49.00   0.24 | 80.33   0.33 |111.67   0.14 |143.00   0.12
17.75   0.48 | 49.08   0.25 | 80.42   0.31 |111.75   0.14 |143.08   0.12
17.83   0.47 | 49.17   0.24 | 80.50   0.32 |111.83   0.14 |143.17   0.12
17.92   0.47 | 49.25   0.24 | 80.58   0.31 |111.92   0.14 |143.25   0.12
18.00   0.45 | 49.33   0.24 | 80.67   0.31 |112.00   0.15 |143.33   0.12
18.08   0.44 | 49.42   0.23 | 80.75   0.33 |112.08   0.15 |143.42   0.12
18.17   0.41 | 49.50   0.23 | 80.83   0.31 |112.17   0.14 |143.50   0.12
18.25   0.42 | 49.58   0.24 | 80.92   0.32 |112.25   0.14 |143.58   0.12
18.33   0.40 | 49.67   0.23 | 81.00   0.32 |112.33   0.14 |143.67   0.12
18.42   0.39 | 49.75   0.24 | 81.08   0.31 |112.42   0.15 |143.75   0.12
18.50   0.38 | 49.83   0.24 | 81.17   0.31 |112.50   0.15 |143.83   0.12
18.58   0.38 | 49.92   0.23 | 81.25   0.31 |112.58   0.15 |143.92   0.12
18.67   0.37 | 50.00   0.23 | 81.33   0.31 |112.67   0.15 |144.00   0.12
18.75   0.37 | 50.08   0.23 | 81.42   0.31 |112.75   0.14 |144.08   0.12
18.83   0.36 | 50.17   0.24 | 81.50   0.32 |112.83   0.15 |144.17   0.12
18.92   0.35 | 50.25   0.23 | 81.58   0.32 |112.92   0.14 |144.25   0.12
19.00   0.34 | 50.33   0.23 | 81.67   0.34 |113.00   0.15 |144.33   0.12
19.08   0.34 | 50.42   0.23 | 81.75   0.34 |113.08   0.15 |144.42   0.12
19.17   0.34 | 50.50   0.23 | 81.83   0.35 |113.17   0.14 |144.50   0.12
19.25   0.34 | 50.58   0.23 | 81.92   0.37 |113.25   0.15 |144.58   0.12
19.33   0.33 | 50.67   0.23 | 82.00   0.36 |113.33   0.15 |144.67   0.12
19.42   0.33 | 50.75   0.23 | 82.08   0.37 |113.42   0.14 |144.75   0.12
19.50   0.32 | 50.83   0.23 | 82.17   0.38 |113.50   0.14 |144.83   0.12
19.58   0.32 | 50.92   0.23 | 82.25   0.36 |113.58   0.14 |144.92   0.12
19.67   0.32 | 51.00   0.23 | 82.33   0.35 |113.67   0.14 |145.00   0.12
19.75   0.31 | 51.08   0.23 | 82.42   0.37 |113.75   0.14 |145.08   0.12
19.83   0.30 | 51.17   0.23 | 82.50   0.37 |113.83   0.14 |145.17   0.12
19.92   0.30 | 51.25   0.23 | 82.58   0.36 |113.92   0.14 |145.25   0.12
20.00   0.29 | 51.33   0.23 | 82.67   0.38 |114.00   0.14 |145.33   0.12
20.08   0.29 | 51.42   0.23 | 82.75   0.38 |114.08   0.14 |145.42   0.12
20.17   0.28 | 51.50   0.23 | 82.83   0.41 |114.17   0.14 |145.50   0.12
20.25   0.28 | 51.58   0.23 | 82.92   0.40 |114.25   0.14 |145.58   0.12
20.33   0.28 | 51.67   0.23 | 83.00   0.40 |114.33   0.14 |145.67   0.12
20.42   0.27 | 51.75   0.23 | 83.08   0.40 |114.42   0.14 |145.75   0.12
20.50   0.27 | 51.83   0.23 | 83.17   0.44 |114.50   0.15 |145.83   0.12
20.58   0.26 | 51.92   0.23 | 83.25   0.44 |114.58   0.14 |145.92   0.11
20.67   0.27 | 52.00   0.23 | 83.33   0.42 |114.67   0.14 |146.00   0.12
20.75   0.26 | 52.08   0.24 | 83.42   0.42 |114.75   0.14 |146.08   0.11
20.83   0.26 | 52.17   0.24 | 83.50   0.42 |114.83   0.15 |146.17   0.11
20.92   0.25 | 52.25   0.24 | 83.58   0.41 |114.92   0.14 |146.25   0.11
21.00   0.25 | 52.33   0.25 | 83.67   0.41 |115.00   0.15 |146.33   0.12
21.08   0.25 | 52.42   0.25 | 83.75   0.42 |115.08   0.14 |146.42   0.11
21.17   0.24 | 52.50   0.25 | 83.83   0.41 |115.17   0.14 |146.50   0.12
21.25   0.25 | 52.58   0.25 | 83.92   0.41 |115.25   0.14 |146.58   0.12
21.33   0.24 | 52.67   0.25 | 84.00   0.43 |115.33   0.15 |146.67   0.11
21.42   0.24 | 52.75   0.25 | 84.08   0.40 |115.42   0.14 |146.75   0.12
21.50   0.24 | 52.83   0.25 | 84.17   0.42 |115.50   0.15 |146.83   0.11
21.58   0.23 | 52.92   0.25 | 84.25   0.41 |115.58   0.14 |146.92   0.12
21.67   0.23 | 53.00   0.27 | 84.33   0.42 |115.67   0.14 |147.00   0.11
21.75   0.23 | 53.08   0.27 | 84.42   0.42 |115.75   0.14 |147.08   0.12
21.83   0.23 | 53.17   0.28 | 84.50   0.43 |115.83   0.14 |147.17   0.11
21.92   0.23 | 53.25   0.28 | 84.58   0.44 |115.92   0.14 |147.25   0.12
22.00   0.23 | 53.33   0.28 | 84.67   0.42 |116.00   0.15 |147.33   0.12
22.08   0.22 | 53.42   0.28 | 84.75   0.44 |116.08   0.14 |147.42   0.11
22.17   0.22 | 53.50   0.28 | 84.83   0.45 |116.17   0.15 |147.50   0.11
22.25   0.22 | 53.58   0.29 | 84.92   0.45 |116.25   0.14 |147.58   0.11
22.33   0.22 | 53.67   0.29 | 85.00   0.46 |116.33   0.14 |147.67   0.11
22.42   0.21 | 53.75   0.29 | 85.08   0.47 |116.42   0.14 |147.75   0.11
22.50   0.21 | 53.83   0.30 | 85.17   0.46 |116.50   0.14 |147.83   0.11
22.58   0.21 | 53.92   0.30 | 85.25   0.46 |116.58   0.14 |147.92   0.11
22.67   0.21 | 54.00   0.30 | 85.33   0.44 |116.67   0.14 |148.00   0.11
22.75   0.21 | 54.08   0.30 | 85.42   0.45 |116.75   0.14 |148.08   0.11
22.83   0.20 | 54.17   0.31 | 85.50   0.45 |116.83   0.14 |148.17   0.11
22.92   0.20 | 54.25   0.30 | 85.58   0.45 |116.92   0.14 |148.25   0.11
23.00   0.20 | 54.33   0.31 | 85.67   0.45 |117.00   0.14 |148.33   0.11
23.08   0.20 | 54.42   0.30 | 85.75   0.46 |117.08   0.14 |148.42   0.11
23.17   0.20 | 54.50   0.31 | 85.83   0.45 |117.17   0.14 |148.50   0.11
23.25   0.20 | 54.58   0.32 | 85.92   0.47 |117.25   0.14 |148.58   0.11
23.33   0.19 | 54.67   0.32 | 86.00   0.44 |117.33   0.14 |148.67   0.11
23.42   0.19 | 54.75   0.32 | 86.08   0.45 |117.42   0.14 |148.75   0.11
23.50   0.19 | 54.83   0.32 | 86.17   0.43 |117.50   0.14 |148.83   0.11
23.58   0.19 | 54.92   0.32 | 86.25   0.43 |117.58   0.14 |148.92   0.11
23.67   0.19 | 55.00   0.32 | 86.33   0.43 |117.67   0.13 |149.00   0.11
23.75   0.18 | 55.08   0.32 | 86.42   0.43 |117.75   0.13 |149.08   0.11
23.83   0.18 | 55.17   0.32 | 86.50   0.45 |117.83   0.14 |149.17   0.11
23.92   0.18 | 55.25   0.33 | 86.58   0.42 |117.92   0.13 |149.25   0.11
24.00   0.18 | 55.33   0.33 | 86.67   0.42 |118.00   0.13 |149.33   0.11
24.08   0.18 | 55.42   0.33 | 86.75   0.43 |118.08   0.13 |149.42   0.11
24.17   0.18 | 55.50   0.33 | 86.83   0.41 |118.17   0.13 |149.50   0.11
24.25   0.17 | 55.58   0.32 | 86.92   0.40 |118.25   0.13 |149.58   0.11
24.33   0.18 | 55.67   0.32 | 87.00   0.40 |118.33   0.13 |149.67   0.11
24.42   0.17 | 55.75   0.32 | 87.08   0.39 |118.42   0.13 |149.75   0.11
24.50   0.17 | 55.83   0.32 | 87.17   0.39 |118.50   0.13 |149.83   0.11
24.58   0.17 | 55.92   0.32 | 87.25   0.39 |118.58   0.13 |149.92   0.11
24.67   0.17 | 56.00   0.32 | 87.33   0.37 |118.67   0.13 |150.00   0.11
24.75   0.16 | 56.08   0.32 | 87.42   0.37 |118.75   0.13 |150.08   0.11
24.83   0.16 | 56.17   0.32 | 87.50   0.38 |118.83   0.13 |150.17   0.11
24.92   0.16 | 56.25   0.32 | 87.58   0.37 |118.92   0.13 |150.25   0.11
25.00   0.16 | 56.33   0.32 | 87.67   0.36 |119.00   0.13 |150.33   0.11
25.08   0.16 | 56.42   0.32 | 87.75   0.38 |119.08   0.13 |150.42   0.11
25.17   0.16 | 56.50   0.32 | 87.83   0.38 |119.17   0.13 |150.50   0.11
25.25   0.16 | 56.58   0.31 | 87.92   0.34 |119.25   0.13 |150.58   0.11
25.33   0.15 | 56.67   0.31 | 88.00   0.35 |119.33   0.13 |150.67   0.11
25.42   0.16 | 56.75   0.32 | 88.08   0.34 |119.42   0.13 |150.75   0.11
25.50   0.15 | 56.83   0.31 | 88.17   0.35 |119.50   0.13 |150.83   0.11
25.58   0.15 | 56.92   0.31 | 88.25   0.34 |119.58   0.13 |150.92   0.11
25.67   0.15 | 57.00   0.31 | 88.33   0.36 |119.67   0.13 |151.00   0.11
25.75   0.15 | 57.08   0.31 | 88.42   0.33 |119.75   0.13 |151.08   0.11
25.83   0.15 | 57.17   0.31 | 88.50   0.33 |119.83   0.13 |151.17   0.11
25.92   0.15 | 57.25   0.31 | 88.58   0.34 |119.92   0.13 |151.25   0.11
26.00   0.15 | 57.33   0.30 | 88.67   0.33 |120.00   0.13 |151.33   0.11
26.08   0.15 | 57.42   0.30 | 88.75   0.33 |120.08   0.13 |151.42   0.11
26.17   0.15 | 57.50   0.30 | 88.83   0.32 |120.17   0.13 |151.50   0.11
26.25   0.14 | 57.58   0.30 | 88.92   0.30 |120.25   0.14 |151.58   0.11
26.33   0.14 | 57.67   0.31 | 89.00   0.31 |120.33   0.14 |151.67   0.11
26.42   0.14 | 57.75   0.30 | 89.08   0.31 |120.42   0.13 |151.75   0.11
26.50   0.14 | 57.83   0.30 | 89.17   0.30 |120.50   0.14 |151.83   0.11
26.58   0.14 | 57.92   0.30 | 89.25   0.31 |120.58   0.14 |151.92   0.11
26.67   0.14 | 58.00   0.29 | 89.33   0.32 |120.67   0.14 |152.00   0.11
26.75   0.14 | 58.08   0.29 | 89.42   0.31 |120.75   0.14 |152.08   0.11
26.83   0.14 | 58.17   0.29 | 89.50   0.30 |120.83   0.14 |152.17   0.11
26.92   0.14 | 58.25   0.29 | 89.58   0.29 |120.92   0.14 |152.25   0.11
27.00   0.14 | 58.33   0.29 | 89.67   0.29 |121.00   0.14 |152.33   0.10
27.08   0.13 | 58.42   0.29 | 89.75   0.29 |121.08   0.14 |152.42   0.11
27.17   0.13 | 58.50   0.29 | 89.83   0.28 |121.17   0.14 |152.50   0.11
27.25   0.13 | 58.58   0.29 | 89.92   0.30 |121.25   0.14 |152.58   0.10
27.33   0.13 | 58.67   0.28 | 90.00   0.31 |121.33   0.14 |152.67   0.10
27.42   0.13 | 58.75   0.28 | 90.08   0.31 |121.42   0.14 |152.75   0.10
27.50   0.13 | 58.83   0.28 | 90.17   0.30 |121.50   0.14 |152.83   0.10
27.58   0.13 | 58.92   0.29 | 90.25   0.30 |121.58   0.14 |152.92   0.10
27.67   0.13 | 59.00   0.29 | 90.33   0.31 |121.67   0.14 |153.00   0.11
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 27.75   0.13 | 59.08   0.29 | 90.42   0.30 |121.75   0.14 |153.08   0.10
 27.83   0.13 | 59.17   0.28 | 90.50   0.31 |121.83   0.14 |153.17   0.10
 27.92   0.12 | 59.25   0.28 | 90.58   0.31 |121.92   0.14 |153.25   0.11
 28.00   0.13 | 59.33   0.28 | 90.67   0.31 |122.00   0.15 |153.33   0.10
 28.08   0.12 | 59.42   0.27 | 90.75   0.31 |122.08   0.14 |153.42   0.11
 28.17   0.12 | 59.50   0.27 | 90.83   0.30 |122.17   0.14 |153.50   0.10
 28.25   0.12 | 59.58   0.27 | 90.92   0.31 |122.25   0.14 |153.58   0.10
 28.33   0.12 | 59.67   0.26 | 91.00   0.30 |122.33   0.14 |153.67   0.10
 28.42   0.12 | 59.75   0.26 | 91.08   0.30 |122.42   0.15 |153.75   0.11
 28.50   0.12 | 59.83   0.26 | 91.17   0.32 |122.50   0.15 |153.83   0.10
 28.58   0.12 | 59.92   0.26 | 91.25   0.30 |122.58   0.15 |153.92   0.10
 28.67   0.12 | 60.00   0.25 | 91.33   0.28 |122.67   0.14 |154.00   0.10
 28.75   0.12 | 60.08   0.25 | 91.42   0.30 |122.75   0.15 |154.08   0.10
 28.83   0.12 | 60.17   0.25 | 91.50   0.28 |122.83   0.14 |154.17   0.10
 28.92   0.12 | 60.25   0.25 | 91.58   0.31 |122.92   0.14 |154.25   0.10
 29.00   0.12 | 60.33   0.25 | 91.67   0.28 |123.00   0.15 |154.33   0.10
 29.08   0.12 | 60.42   0.24 | 91.75   0.30 |123.08   0.15 |154.42   0.10
 29.17   0.11 | 60.50   0.24 | 91.83   0.31 |123.17   0.15 |154.50   0.10
 29.25   0.11 | 60.58   0.24 | 91.92   0.27 |123.25   0.15 |154.58   0.10
 29.33   0.11 | 60.67   0.23 | 92.00   0.28 |123.33   0.15 |154.67   0.10
 29.42   0.11 | 60.75   0.24 | 92.08   0.29 |123.42   0.15 |154.75   0.10
 29.50   0.11 | 60.83   0.23 | 92.17   0.27 |123.50   0.15 |154.83   0.10
 29.58   0.11 | 60.92   0.23 | 92.25   0.28 |123.58   0.15 |154.92   0.10
 29.67   0.11 | 61.00   0.23 | 92.33   0.28 |123.67   0.15 |155.00   0.10
 29.75   0.11 | 61.08   0.23 | 92.42   0.31 |123.75   0.15 |155.08   0.10
 29.83   0.11 | 61.17   0.23 | 92.50   0.28 |123.83   0.15 |155.17   0.10
 29.92   0.11 | 61.25   0.22 | 92.58   0.28 |123.92   0.15 |155.25   0.10
 30.00   0.11 | 61.33   0.23 | 92.67   0.28 |124.00   0.15 |155.33   0.10
 30.08   0.11 | 61.42   0.23 | 92.75   0.28 |124.08   0.15 |155.42   0.10
 30.17   0.11 | 61.50   0.24 | 92.83   0.27 |124.17   0.15 |155.50   0.10
 30.25   0.11 | 61.58   0.24 | 92.92   0.28 |124.25   0.15 |155.58   0.10
 30.33   0.11 | 61.67   0.23 | 93.00   0.28 |124.33   0.14 |155.67   0.10
 30.42   0.11 | 61.75   0.23 | 93.08   0.27 |124.42   0.15 |155.75   0.10
 30.50   0.11 | 61.83   0.23 | 93.17   0.29 |124.50   0.15 |155.83   0.10
 30.58   0.11 | 61.92   0.23 | 93.25   0.28 |124.58   0.16 |155.92   0.10
 30.67   0.11 | 62.00   0.23 | 93.33   0.26 |124.67   0.15 |156.00   0.10
 30.75   0.11 | 62.08   0.23 | 93.42   0.27 |124.75   0.15 |156.08   0.10
 30.83   0.11 | 62.17   0.23 | 93.50   0.27 |124.83   0.15 |156.17   0.10
 30.92   0.11 | 62.25   0.23 | 93.58   0.26 |124.92   0.17 |156.25   0.10
 31.00   0.11 | 62.33   0.24 | 93.67   0.26 |125.00   0.16 |
 31.08   0.10 | 62.42   0.25 | 93.75   0.28 |125.08   0.16 |
 31.17   0.10 | 62.50   0.25 | 93.83   0.25 |125.17   0.16 |
 31.25   0.10 | 62.58   0.26 | 93.92   0.28 |125.25   0.16 |
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| STORE HYD (1605) |   AREA      (ha)=  30.00
| ID= 1 DT= 5.0min |   QPEAK     (cms)=  1.37
-------------------    TPEAK     (hrs)=  71.92
                       VOLUME     (mm)= 625.27

  TIME    FLOW |  TIME    FLOW |  TIME    FLOW |'  TIME    FLOW |  TIME   FLOW
   hrs     cms |   hrs     cms |   hrs     cms |'   hrs     cms |  hrs    cms
  0.00   0.00 | 31.25   0.15 | 62.50   0.38 | 93.75   0.37 |125.00   0.20
  0.08   0.00 | 31.33   0.15 | 62.58   0.38 | 93.83   0.36 |125.08   0.20
  0.17   0.00 | 31.42   0.15 | 62.67   0.38 | 93.92   0.36 |125.17   0.20
  0.25   0.00 | 31.50   0.15 | 62.75   0.38 | 94.00   0.36 |125.25   0.20
  0.33   0.00 | 31.58   0.15 | 62.83   0.38 | 94.08   0.36 |125.33   0.20
  0.42   0.00 | 31.67   0.15 | 62.92   0.38 | 94.17   0.36 |125.42   0.20
  0.50   0.00 | 31.75   0.15 | 63.00   0.37 | 94.25   0.36 |125.50   0.20
  0.58   0.00 | 31.83   0.14 | 63.08   0.38 | 94.33   0.36 |125.58   0.20
  0.67   0.00 | 31.92   0.14 | 63.17   0.37 | 94.42   0.36 |125.67   0.21
  0.75   0.00 | 32.00   0.14 | 63.25   0.37 | 94.50   0.36 |125.75   0.21
  0.83   0.00 | 32.08   0.14 | 63.33   0.37 | 94.58   0.36 |125.83   0.21
  0.92   0.00 | 32.17   0.14 | 63.42   0.37 | 94.67   0.36 |125.92   0.21
  1.00   0.00 | 32.25   0.14 | 63.50   0.37 | 94.75   0.36 |126.00   0.21
  1.08   0.00 | 32.33   0.14 | 63.58   0.37 | 94.83   0.36 |126.08   0.21
  1.17   0.00 | 32.42   0.14 | 63.67   0.36 | 94.92   0.35 |126.17   0.21
  1.25   0.00 | 32.50   0.14 | 63.75   0.36 | 95.00   0.35 |126.25   0.21
  1.33   0.00 | 32.58   0.14 | 63.83   0.36 | 95.08   0.35 |126.33   0.21
  1.42   0.00 | 32.67   0.14 | 63.92   0.36 | 95.17   0.35 |126.42   0.22
  1.50   0.00 | 32.75   0.14 | 64.00   0.36 | 95.25   0.35 |126.50   0.22
  1.58   0.00 | 32.83   0.14 | 64.08   0.36 | 95.33   0.35 |126.58   0.22
  1.67   0.00 | 32.92   0.14 | 64.17   0.36 | 95.42   0.35 |126.67   0.22
  1.75   0.00 | 33.00   0.14 | 64.25   0.35 | 95.50   0.35 |126.75   0.22
  1.83   0.00 | 33.08   0.14 | 64.33   0.35 | 95.58   0.34 |126.83   0.22
  1.92   0.00 | 33.17   0.14 | 64.42   0.35 | 95.67   0.34 |126.92   0.23
  2.00   0.00 | 33.25   0.14 | 64.50   0.35 | 95.75   0.34 |127.00   0.23
  2.08   0.00 | 33.33   0.14 | 64.58   0.34 | 95.83   0.34 |127.08   0.23
  2.17   0.00 | 33.42   0.14 | 64.67   0.34 | 95.92   0.34 |127.17   0.23
  2.25   0.00 | 33.50   0.14 | 64.75   0.34 | 96.00   0.34 |127.25   0.23
  2.33   0.00 | 33.58   0.14 | 64.83   0.34 | 96.08   0.34 |127.33   0.24
  2.42   0.00 | 33.67   0.14 | 64.92   0.34 | 96.17   0.34 |127.42   0.24
  2.50   0.00 | 33.75   0.14 | 65.00   0.34 | 96.25   0.34 |127.50   0.24
  2.58   0.00 | 33.83   0.14 | 65.08   0.34 | 96.33   0.34 |127.58   0.24
  2.67   0.00 | 33.92   0.14 | 65.17   0.34 | 96.42   0.34 |127.67   0.24
  2.75   0.00 | 34.00   0.14 | 65.25   0.34 | 96.50   0.34 |127.75   0.24
  2.83   0.00 | 34.08   0.14 | 65.33   0.34 | 96.58   0.34 |127.83   0.25
  2.92   0.00 | 34.17   0.14 | 65.42   0.34 | 96.67   0.34 |127.92   0.25
  3.00   0.00 | 34.25   0.14 | 65.50   0.34 | 96.75   0.33 |128.00   0.25
  3.08   0.00 | 34.33   0.14 | 65.58   0.33 | 96.83   0.33 |128.08   0.25
  3.17   0.00 | 34.42   0.14 | 65.67   0.34 | 96.92   0.33 |128.17   0.25
  3.25   0.00 | 34.50   0.14 | 65.75   0.33 | 97.00   0.33 |128.25   0.25
  3.33   0.00 | 34.58   0.14 | 65.83   0.33 | 97.08   0.33 |128.33   0.25
  3.42   0.00 | 34.67   0.14 | 65.92   0.33 | 97.17   0.33 |128.42   0.25
  3.50   0.00 | 34.75   0.14 | 66.00   0.33 | 97.25   0.33 |128.50   0.25
  3.58   0.00 | 34.83   0.14 | 66.08   0.32 | 97.33   0.33 |128.58   0.26
  3.67   0.00 | 34.92   0.14 | 66.17   0.33 | 97.42   0.33 |128.67   0.26
  3.75   0.00 | 35.00   0.14 | 66.25   0.33 | 97.50   0.33 |128.75   0.26
  3.83   0.00 | 35.08   0.14 | 66.33   0.32 | 97.58   0.33 |128.83   0.26
  3.92   0.00 | 35.17   0.14 | 66.42   0.32 | 97.67   0.33 |128.92   0.26
  4.00   0.00 | 35.25   0.14 | 66.50   0.33 | 97.75   0.33 |129.00   0.26
  4.08   0.00 | 35.33   0.14 | 66.58   0.32 | 97.83   0.33 |129.08   0.26
  4.17   0.00 | 35.42   0.14 | 66.67   0.32 | 97.92   0.33 |129.17   0.26
  4.25   0.00 | 35.50   0.14 | 66.75   0.32 | 98.00   0.32 |129.25   0.27
  4.33   0.00 | 35.58   0.14 | 66.83   0.32 | 98.08   0.32 |129.33   0.27
  4.42   0.00 | 35.67   0.14 | 66.92   0.32 | 98.17   0.32 |129.42   0.27
  4.50   0.00 | 35.75   0.14 | 67.00   0.32 | 98.25   0.32 |129.50   0.27
  4.58   0.00 | 35.83   0.14 | 67.08   0.32 | 98.33   0.32 |129.58   0.28
  4.67   0.00 | 35.92   0.14 | 67.17   0.32 | 98.42   0.32 |129.67   0.28
  4.75   0.00 | 36.00   0.14 | 67.25   0.32 | 98.50   0.32 |129.75   0.28
  4.83   0.00 | 36.08   0.14 | 67.33   0.33 | 98.58   0.32 |129.83   0.29
  4.92   0.00 | 36.17   0.14 | 67.42   0.34 | 98.67   0.32 |129.92   0.29
  5.00   0.00 | 36.25   0.14 | 67.50   0.34 | 98.75   0.32 |130.00   0.29
  5.08   0.00 | 36.33   0.15 | 67.58   0.35 | 98.83   0.32 |130.08   0.29
  5.17   0.00 | 36.42   0.15 | 67.67   0.35 | 98.92   0.32 |130.17   0.29
  5.25   0.00 | 36.50   0.15 | 67.75   0.36 | 99.00   0.32 |130.25   0.29
  5.33   0.00 | 36.58   0.15 | 67.83   0.37 | 99.08   0.32 |130.33   0.29
  5.42   0.00 | 36.67   0.15 | 67.92   0.38 | 99.17   0.32 |130.42   0.29
  5.50   0.00 | 36.75   0.15 | 68.00   0.40 | 99.25   0.32 |130.50   0.29
  5.58   0.00 | 36.83   0.15 | 68.08   0.41 | 99.33   0.32 |130.58   0.29
  5.67   0.00 | 36.92   0.15 | 68.17   0.42 | 99.42   0.32 |130.67   0.29
  5.75   0.00 | 37.00   0.15 | 68.25   0.43 | 99.50   0.32 |130.75   0.29
  5.83   0.00 | 37.08   0.15 | 68.33   0.45 | 99.58   0.31 |130.83   0.29
  5.92   0.00 | 37.17   0.15 | 68.42   0.47 | 99.67   0.31 |130.92   0.29
  6.00   0.00 | 37.25   0.15 | 68.50   0.48 | 99.75   0.31 |131.00   0.29
  6.08   0.00 | 37.33   0.15 | 68.58   0.50 | 99.83   0.31 |131.08   0.29
  6.17   0.00 | 37.42   0.15 | 68.67   0.52 | 99.92   0.31 |131.17   0.29
  6.25   0.00 | 37.50   0.15 | 68.75   0.53 |100.00   0.31 |131.25   0.29
  6.33   0.00 | 37.58   0.15 | 68.83   0.56 |100.08   0.31 |131.33   0.29
  6.42   0.00 | 37.67   0.15 | 68.92   0.57 |100.17   0.31 |131.42   0.29
  6.50   0.00 | 37.75   0.16 | 69.00   0.58 |100.25   0.31 |131.50   0.29
  6.58   0.00 | 37.83   0.16 | 69.08   0.60 |100.33   0.31 |131.58   0.28
  6.67   0.00 | 37.92   0.16 | 69.17   0.61 |100.42   0.31 |131.67   0.28
  6.75   0.00 | 38.00   0.16 | 69.25   0.63 |100.50   0.30 |131.75   0.28
  6.83   0.00 | 38.08   0.16 | 69.33   0.63 |100.58   0.30 |131.83   0.28
  6.92   0.00 | 38.17   0.16 | 69.42   0.64 |100.67   0.30 |131.92   0.28
  7.00   0.00 | 38.25   0.16 | 69.50   0.66 |100.75   0.30 |132.00   0.28
  7.08   0.00 | 38.33   0.16 | 69.58   0.68 |100.83   0.30 |132.08   0.28
  7.17   0.00 | 38.42   0.16 | 69.67   0.70 |100.92   0.30 |132.17   0.28
  7.25   0.00 | 38.50   0.16 | 69.75   0.71 |101.00   0.30 |132.25   0.28
  7.33   0.00 | 38.58   0.16 | 69.83   0.74 |101.08   0.30 |132.33   0.28
  7.42   0.00 | 38.67   0.17 | 69.92   0.76 |101.17   0.30 |132.42   0.28
  7.50   0.00 | 38.75   0.17 | 70.00   0.78 |101.25   0.30 |132.50   0.27
  7.58   0.00 | 38.83   0.17 | 70.08   0.80 |101.33   0.29 |132.58   0.27
  7.67   0.00 | 38.92   0.17 | 70.17   0.82 |101.42   0.29 |132.67   0.27
  7.75   0.00 | 39.00   0.17 | 70.25   0.84 |101.50   0.29 |132.75   0.27
  7.83   0.00 | 39.08   0.17 | 70.33   0.87 |101.58   0.29 |132.83   0.27
  7.92   0.00 | 39.17   0.17 | 70.42   0.91 |101.67   0.29 |132.92   0.27
  8.00   0.00 | 39.25   0.18 | 70.50   0.94 |101.75   0.28 |133.00   0.27
  8.08   0.00 | 39.33   0.18 | 70.58   0.98 |101.83   0.28 |133.08   0.27
  8.17   0.00 | 39.42   0.18 | 70.67   1.01 |101.92   0.28 |133.17   0.27
  8.25   0.00 | 39.50   0.18 | 70.75   1.04 |102.00   0.28 |133.25   0.26
  8.33   0.00 | 39.58   0.19 | 70.83   1.09 |102.08   0.28 |133.33   0.26
  8.42   0.00 | 39.67   0.19 | 70.92   1.14 |102.17   0.28 |133.42   0.26
  8.50   0.00 | 39.75   0.19 | 71.00   1.20 |102.25   0.28 |133.50   0.26
  8.58   0.00 | 39.83   0.19 | 71.08   1.23 |102.33   0.28 |133.58   0.26
  8.67   0.00 | 39.92   0.20 | 71.17   1.25 |102.42   0.27 |133.67   0.26
  8.75   0.00 | 40.00   0.20 | 71.25   1.30 |102.50   0.27 |133.75   0.26
  8.83   0.00 | 40.08   0.20 | 71.33   1.32 |102.58   0.27 |133.83   0.25
  8.92   0.00 | 40.17   0.21 | 71.42   1.33 |102.67   0.27 |133.92   0.25
  9.00   0.00 | 40.25   0.21 | 71.50   1.34 |102.75   0.27 |134.00   0.25
  9.08   0.00 | 40.33   0.21 | 71.58   1.36 |102.83   0.27 |134.08   0.25
  9.17   0.00 | 40.42   0.22 | 71.67   1.36 |102.92   0.27 |134.17   0.25
  9.25   0.00 | 40.50   0.22 | 71.75   1.36 |103.00   0.27 |134.25   0.25
  9.33   0.00 | 40.58   0.22 | 71.83   1.37 |103.08   0.27 |134.33   0.25
  9.42   0.00 | 40.67   0.23 | 71.92   1.37 |103.17   0.27 |134.42   0.25
  9.50   0.00 | 40.75   0.23 | 72.00   1.36 |103.25   0.26 |134.50   0.25
  9.58   0.00 | 40.83   0.24 | 72.08   1.35 |103.33   0.26 |134.58   0.24
  9.67   0.00 | 40.92   0.24 | 72.17   1.35 |103.42   0.26 |134.67   0.24
  9.75   0.00 | 41.00   0.24 | 72.25   1.33 |103.50   0.26 |134.75   0.24
  9.83   0.00 | 41.08   0.25 | 72.33   1.32 |103.58   0.26 |134.83   0.24
  9.92   0.00 | 41.17   0.25 | 72.42   1.31 |103.67   0.26 |134.92   0.24
 10.00   0.00 | 41.25   0.26 | 72.50   1.29 |103.75   0.25 |135.00   0.24
 10.08   0.00 | 41.33   0.27 | 72.58   1.27 |103.83   0.25 |135.08   0.24
 10.17   0.00 | 41.42   0.27 | 72.67   1.26 |103.92   0.25 |135.17   0.24
 10.25   0.00 | 41.50   0.28 | 72.75   1.23 |104.00   0.25 |135.25   0.24
 10.33   0.00 | 41.58   0.29 | 72.83   1.23 |104.08   0.25 |135.33   0.23
 10.42   0.00 | 41.67   0.29 | 72.92   1.21 |104.17   0.25 |135.42   0.23
 10.50   0.00 | 41.75   0.30 | 73.00   1.20 |104.25   0.25 |135.50   0.23
 10.58   0.00 | 41.83   0.30 | 73.08   1.17 |104.33   0.25 |135.58   0.23
 10.67   0.00 | 41.92   0.31 | 73.17   1.17 |104.42   0.24 |135.67   0.23
 10.75   0.00 | 42.00   0.32 | 73.25   1.16 |104.50   0.24 |135.75   0.23
 10.83   0.00 | 42.08   0.32 | 73.33   1.15 |104.58   0.24 |135.83   0.23
 10.92   0.00 | 42.17   0.33 | 73.42   1.12 |104.67   0.24 |135.92   0.23
 11.00   0.00 | 42.25   0.33 | 73.50   1.12 |104.75   0.24 |136.00   0.22
 11.08   0.00 | 42.33   0.34 | 73.58   1.11 |104.83   0.24 |136.08   0.22
 11.17   0.00 | 42.42   0.34 | 73.67   1.09 |104.92   0.24 |136.17   0.22
 11.25   0.00 | 42.50   0.35 | 73.75   1.08 |105.00   0.24 |136.25   0.22
 11.33   0.00 | 42.58   0.36 | 73.83   1.06 |105.08   0.24 |136.33   0.22
 11.42   0.00 | 42.67   0.36 | 73.92   1.05 |105.17   0.23 |136.42   0.22
 11.50   0.00 | 42.75   0.37 | 74.00   1.03 |105.25   0.23 |136.50   0.22
 11.58   0.00 | 42.83   0.38 | 74.08   1.03 |105.33   0.23 |136.58   0.22
 11.67   0.00 | 42.92   0.39 | 74.17   1.02 |105.42   0.23 |136.67   0.21
 11.75   0.00 | 43.00   0.40 | 74.25   1.00 |105.50   0.23 |136.75   0.21
 11.83   0.00 | 43.08   0.40 | 74.33   0.99 |105.58   0.23 |136.83   0.21
 11.92   0.00 | 43.17   0.42 | 74.42   0.97 |105.67   0.23 |136.92   0.21
 12.00   0.00 | 43.25   0.42 | 74.50   0.96 |105.75   0.23 |137.00   0.21
 12.08   0.00 | 43.33   0.43 | 74.58   0.95 |105.83   0.23 |137.08   0.21
 12.17   0.00 | 43.42   0.44 | 74.67   0.94 |105.92   0.23 |137.17   0.21
 12.25   0.00 | 43.50   0.45 | 74.75   0.92 |106.00   0.22 |137.25   0.21
 12.33   0.00 | 43.58   0.46 | 74.83   0.91 |106.08   0.22 |137.33   0.21
 12.42   0.00 | 43.67   0.47 | 74.92   0.89 |106.17   0.22 |137.42   0.21
 12.50   0.00 | 43.75   0.48 | 75.00   0.88 |106.25   0.22 |137.50   0.20
 12.58   0.00 | 43.83   0.49 | 75.08   0.87 |106.33   0.22 |137.58   0.20
 12.67   0.00 | 43.92   0.50 | 75.17   0.85 |106.42   0.22 |137.67   0.20
 12.75   0.00 | 44.00   0.50 | 75.25   0.84 |106.50   0.22 |137.75   0.20
 12.83   0.00 | 44.08   0.51 | 75.33   0.83 |106.58   0.22 |137.83   0.20
 12.92   0.00 | 44.17   0.51 | 75.42   0.81 |106.67   0.22 |137.92   0.20
 13.00   0.00 | 44.25   0.52 | 75.50   0.80 |106.75   0.21 |138.00   0.20
 13.08   0.00 | 44.33   0.52 | 75.58   0.79 |106.83   0.21 |138.08   0.20
 13.17   0.00 | 44.42   0.53 | 75.67   0.77 |106.92   0.21 |138.17   0.20
 13.25   0.00 | 44.50   0.53 | 75.75   0.77 |107.00   0.21 |138.25   0.19
 13.33   0.00 | 44.58   0.53 | 75.83   0.76 |107.08   0.21 |138.33   0.19
 13.42   0.00 | 44.67   0.54 | 75.92   0.74 |107.17   0.21 |138.42   0.19
 13.50   0.00 | 44.75   0.54 | 76.00   0.74 |107.25   0.21 |138.50   0.19
 13.58   0.00 | 44.83   0.54 | 76.08   0.72 |107.33   0.21 |138.58   0.19
 13.67   0.00 | 44.92   0.55 | 76.17   0.72 |107.42   0.21 |138.67   0.19
 13.75   0.00 | 45.00   0.55 | 76.25   0.71 |107.50   0.21 |138.75   0.19
 13.83   0.00 | 45.08   0.55 | 76.33   0.70 |107.58   0.21 |138.83   0.19
 13.92   0.00 | 45.17   0.55 | 76.42   0.69 |107.67   0.21 |138.92   0.19
 14.00   0.00 | 45.25   0.55 | 76.50   0.68 |107.75   0.20 |139.00   0.19
 14.08   0.00 | 45.33   0.55 | 76.58   0.68 |107.83   0.20 |139.08   0.19
 14.17   0.00 | 45.42   0.55 | 76.67   0.68 |107.92   0.20 |139.17   0.18
 14.25   0.00 | 45.50   0.55 | 76.75   0.66 |108.00   0.20 |139.25   0.18
 14.33   0.00 | 45.58   0.55 | 76.83   0.65 |108.08   0.20 |139.33   0.18
 14.42   0.00 | 45.67   0.55 | 76.92   0.65 |108.17   0.20 |139.42   0.18
 14.50   0.00 | 45.75   0.55 | 77.00   0.64 |108.25   0.20 |139.50   0.18
 14.58   0.00 | 45.83   0.55 | 77.08   0.63 |108.33   0.20 |139.58   0.18
 14.67   0.00 | 45.92   0.55 | 77.17   0.63 |108.42   0.20 |139.67   0.18
 14.75   0.99 | 46.00   0.54 | 77.25   0.63 |108.50   0.20 |139.75   0.18
 14.83   0.99 | 46.08   0.54 | 77.33   0.62 |108.58   0.20 |139.83   0.18
 14.92   1.00 | 46.17   0.54 | 77.42   0.61 |108.67   0.20 |139.92   0.18
 15.00   1.00 | 46.25   0.54 | 77.50   0.60 |108.75   0.19 |140.00   0.18
 15.08   1.01 | 46.33   0.53 | 77.58   0.60 |108.83   0.19 |140.08   0.18
 15.17   1.01 | 46.42   0.53 | 77.67   0.59 |108.92   0.19 |140.17   0.18
 15.25   1.02 | 46.50   0.53 | 77.75   0.59 |109.00   0.19 |140.25   0.18
 15.33   1.03 | 46.58   0.52 | 77.83   0.58 |109.08   0.19 |140.33   0.18
 15.42   1.04 | 46.67   0.52 | 77.92   0.58 |109.17   0.19 |140.42   0.17
 15.50   1.05 | 46.75   0.52 | 78.00   0.58 |109.25   0.19 |140.50   0.17
 15.58   1.06 | 46.83   0.52 | 78.08   0.58 |109.33   0.19 |140.58   0.17
 15.67   1.07 | 46.92   0.51 | 78.17   0.57 |109.42   0.19 |140.67   0.17
 15.75   1.08 | 47.00   0.51 | 78.25   0.56 |109.50   0.19 |140.75   0.17
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 15.83    1.08 | 47.08    0.51 | 78.33    0.56 |109.58    0.19
|140.83    0.17
 15.92    1.08 | 47.17    0.51 | 78.42    0.55 |109.67    0.18
|140.92    0.17
 16.00    1.09 | 47.25    0.51 | 78.50    0.55 |109.75    0.18
|141.00    0.17
 16.08    1.09 | 47.33    0.51 | 78.58    0.55 |109.83    0.18
|141.08    0.17
 16.17    1.09 | 47.42    0.51 | 78.67    0.55 |109.92    0.18
|141.17    0.17
 16.25    1.09 | 47.50    0.50 | 78.75    0.54 |110.00    0.18
|141.25    0.17
 16.33    1.09 | 47.58    0.50 | 78.83    0.54 |110.08    0.18
|141.33    0.17
 16.42    1.09 | 47.67    0.50 | 78.92    0.54 |110.17    0.18
|141.42    0.17
 16.50    1.09 | 47.75    0.50 | 79.00    0.54 |110.25    0.18
|141.50    0.16
 16.58    1.10 | 47.83    0.50 | 79.08    0.53 |110.33    0.18
|141.58    0.16
 16.67    1.09 | 47.92    0.50 | 79.17    0.52 |110.42    0.18
|141.67    0.16
 16.75    1.09 | 48.00    0.50 | 79.25    0.52 |110.50    0.18
|141.75    0.16
 16.83    1.08 | 48.08    0.50 | 79.33    0.51 |110.58    0.18
|141.83    0.16
 16.92    1.09 | 48.17    0.49 | 79.42    0.50 |110.67    0.18
|141.92    0.16
 17.00    1.08 | 48.25    0.49 | 79.50    0.50 |110.75    0.18
|142.00    0.16
 17.08    1.07 | 48.33    0.49 | 79.58    0.49 |110.83    0.18
|142.08    0.16
 17.17    1.06 | 48.42    0.49 | 79.67    0.49 |110.92    0.18
|142.17    0.16
 17.25    1.06 | 48.50    0.49 | 79.75    0.48 |111.00    0.18
|142.25    0.16
 17.33    1.05 | 48.58    0.49 | 79.83    0.48 |111.08    0.18
|142.33    0.16
 17.42    1.04 | 48.67    0.48 | 79.92    0.48 |111.17    0.18
|142.42    0.16
 17.50    1.04 | 48.75    0.48 | 80.00    0.47 |111.25    0.18
|142.50    0.16
 17.58    1.03 | 48.83    0.48 | 80.08    0.47 |111.33    0.18
|142.58    0.16
 17.67    1.02 | 48.92    0.48 | 80.17    0.46 |111.42    0.18
|142.67    0.16
 17.75    1.01 | 49.00    0.47 | 80.25    0.46 |111.50    0.18
|142.75    0.16
 17.83    1.00 | 49.08    0.47 | 80.33    0.46 |111.58    0.18
|142.83    0.16
 17.92    0.99 | 49.17    0.47 | 80.42    0.45 |111.67    0.18
|142.92    0.16
 18.00    0.98 | 49.25    0.47 | 80.50    0.45 |111.75    0.18
|143.00    0.16
 18.08    0.97 | 49.33    0.47 | 80.58    0.45 |111.83    0.17
|143.08    0.15
 18.17    0.96 | 49.42    0.46 | 80.67    0.45 |111.92    0.17
|143.17    0.15
 18.25    0.95 | 49.50    0.46 | 80.75    0.44 |112.00    0.17
|143.25    0.15
 18.33    0.93 | 49.58    0.46 | 80.83    0.44 |112.08    0.17
|143.33    0.15
 18.42    0.92 | 49.67    0.46 | 80.92    0.44 |112.17    0.17
|143.42    0.15
 18.50    0.91 | 49.75    0.45 | 81.00    0.44 |112.25    0.17
|143.50    0.15
 18.58    0.89 | 49.83    0.45 | 81.08    0.44 |112.33    0.17
|143.58    0.15
 18.67    0.87 | 49.92    0.45 | 81.17    0.44 |112.42    0.17
|143.67    0.15
 18.75    0.86 | 50.00    0.45 | 81.25    0.44 |112.50    0.17
|143.75    0.15
 18.83    0.84 | 50.08    0.44 | 81.33    0.44 |112.58    0.17
|143.83    0.15
 18.92    0.83 | 50.17    0.44 | 81.42    0.43 |112.67    0.17
|143.92    0.15
 19.00    0.81 | 50.25    0.44 | 81.50    0.44 |112.75    0.17
|144.00    0.15
 19.08    0.79 | 50.33    0.44 | 81.58    0.45 |112.83    0.17
|144.08    0.15
 19.17    0.78 | 50.42    0.44 | 81.67    0.46 |112.92    0.17
|144.17    0.15
 19.25    0.76 | 50.50    0.44 | 81.75    0.45 |113.00    0.17
|144.25    0.15
 19.33    0.74 | 50.58    0.44 | 81.83    0.46 |113.08    0.17
|144.33    0.15
 19.42    0.72 | 50.67    0.44 | 81.92    0.46 |113.17    0.16
|144.42    0.15
 19.50    0.71 | 50.75    0.43 | 82.00    0.47 |113.25    0.16
|144.50    0.15
 19.58    0.69 | 50.83    0.43 | 82.08    0.47 |113.33    0.16
|144.58    0.15
 19.67    0.68 | 50.92    0.43 | 82.17    0.47 |113.42    0.16
|144.67    0.15
 19.75    0.66 | 51.00    0.43 | 82.25    0.48 |113.50    0.16
|144.75    0.15
 19.83    0.65 | 51.08    0.43 | 82.33    0.49 |113.58    0.16
|144.83    0.14
 19.92    0.64 | 51.17    0.43 | 82.42    0.49 |113.67    0.16
|144.92    0.14
 20.00    0.62 | 51.25    0.43 | 82.50    0.49 |113.75    0.16
|145.00    0.14
 20.08    0.61 | 51.33    0.43 | 82.58    0.49 |113.83    0.16
|145.08    0.14
 20.17    0.60 | 51.42    0.43 | 82.67    0.50 |113.92    0.16
|145.17    0.14
 20.25    0.58 | 51.50    0.43 | 82.75    0.50 |114.00    0.16
|145.25    0.14
 20.33    0.58 | 51.58    0.43 | 82.83    0.50 |114.08    0.16
|145.33    0.14
 20.42    0.56 | 51.67    0.43 | 82.92    0.50 |114.17    0.16
|145.42    0.14
 20.50    0.55 | 51.75    0.43 | 83.00    0.50 |114.25    0.16
|145.50    0.14
 20.58    0.54 | 51.83    0.43 | 83.08    0.50 |114.33    0.16
|145.58    0.14
 20.67    0.53 | 51.92    0.43 | 83.17    0.51 |114.42    0.16
|145.67    0.14
 20.75    0.52 | 52.00    0.43 | 83.25    0.51 |114.50    0.16
|145.75    0.14
 20.83    0.51 | 52.08    0.43 | 83.33    0.51 |114.58    0.16
|145.83    0.14
 20.92    0.50 | 52.17    0.43 | 83.42    0.51 |114.67    0.16
|145.92    0.14
 21.00    0.49 | 52.25    0.43 | 83.50    0.52 |114.75    0.16
|146.00    0.14
 21.08    0.49 | 52.33    0.43 | 83.58    0.52 |114.83    0.16
|146.08    0.14
 21.17    0.48 | 52.42    0.43 | 83.67    0.53 |114.92    0.16
|146.17    0.14
 21.25    0.47 | 52.50    0.43 | 83.75    0.53 |115.00    0.16
|146.25    0.14
 21.33    0.47 | 52.58    0.43 | 83.83    0.54 |115.08    0.16
|146.33    0.14
 21.42    0.46 | 52.67    0.43 | 83.92    0.55 |115.17    0.16
|146.42    0.14
 21.50    0.45 | 52.75    0.43 | 84.00    0.56 |115.25    0.16
|146.50    0.14
 21.58    0.45 | 52.83    0.43 | 84.08    0.57 |115.33    0.16
|146.58    0.14
 21.67    0.44 | 52.92    0.44 | 84.17    0.58 |115.42    0.16
|146.67    0.14
 21.75    0.43 | 53.00    0.44 | 84.25    0.60 |115.50    0.16
|146.75    0.14
 21.83    0.43 | 53.08    0.44 | 84.33    0.62 |115.58    0.16
|146.83    0.14
 21.92    0.42 | 53.17    0.44 | 84.42    0.64 |115.67    0.16
|146.92    0.13
 22.00    0.42 | 53.25    0.44 | 84.50    0.66 |115.75    0.16
|147.00    0.13
 22.08    0.41 | 53.33    0.45 | 84.58    0.69 |115.83    0.16
|147.08    0.13
 22.17    0.41 | 53.42    0.45 | 84.67    0.72 |115.92    0.16
|147.17    0.13
 22.25    0.40 | 53.50    0.45 | 84.75    0.74 |116.00    0.16
|147.25    0.13
 22.33    0.40 | 53.58    0.45 | 84.83    0.77 |116.08    0.15
|147.33    0.13
 22.42    0.39 | 53.67    0.46 | 84.92    0.79 |116.17    0.15
|147.42    0.13
 22.50    0.39 | 53.75    0.46 | 85.00    0.81 |116.25    0.16
|147.50    0.13
 22.58    0.38 | 53.83    0.46 | 85.08    0.82 |116.33    0.16
|147.58    0.13
 22.67    0.38 | 53.92    0.46 | 85.17    0.84 |116.42    0.16
|147.67    0.13
 22.75    0.37 | 54.00    0.47 | 85.25    0.85 |116.50    0.16
|147.75    0.13
 22.83    0.37 | 54.08    0.47 | 85.33    0.85 |116.58    0.16
|147.83    0.13
 22.92    0.36 | 54.17    0.47 | 85.42    0.86 |116.67    0.16
|147.92    0.13
 23.00    0.36 | 54.25    0.48 | 85.50    0.87 |116.75    0.16
|148.00    0.13
 23.08    0.36 | 54.33    0.48 | 85.58    0.86 |116.83    0.16
|148.08    0.13
 23.17    0.35 | 54.42    0.49 | 85.67    0.87 |116.92    0.16
|148.17    0.13
 23.25    0.35 | 54.50    0.49 | 85.75    0.86 |117.00    0.16
|148.25    0.13
 23.33    0.34 | 54.58    0.50 | 85.83    0.85 |117.08    0.16
|148.33    0.13
 23.42    0.34 | 54.67    0.50 | 85.92    0.85 |117.17    0.16
|148.42    0.13
 23.50    0.34 | 54.75    0.51 | 86.00    0.84 |117.25    0.16
|148.50    0.13
 23.58    0.33 | 54.83    0.52 | 86.08    0.83 |117.33    0.16
|148.58    0.13
 23.67    0.33 | 54.92    0.53 | 86.17    0.82 |117.42    0.16
|148.67    0.13
 23.75    0.32 | 55.00    0.53 | 86.25    0.81 |117.50    0.16
|148.75    0.13
 23.83    0.32 | 55.08    0.54 | 86.33    0.81 |117.58    0.16
|148.83    0.13
 23.92    0.32 | 55.17    0.55 | 86.42    0.79 |117.67    0.16
|148.92    0.13
 24.00    0.31 | 55.25    0.55 | 86.50    0.78 |117.75    0.16
|149.00    0.13
 24.08    0.31 | 55.33    0.55 | 86.58    0.77 |117.83    0.16
|149.08    0.13
 24.17    0.30 | 55.42    0.56 | 86.67    0.76 |117.92    0.16
|149.17    0.13
 24.25    0.30 | 55.50    0.56 | 86.75    0.74 |118.00    0.16
|149.25    0.12
 24.33    0.30 | 55.58    0.57 | 86.83    0.74 |118.08    0.16
|149.33    0.12
 24.42    0.30 | 55.67    0.57 | 86.92    0.73 |118.17    0.16
|149.42    0.12
 24.50    0.29 | 55.75    0.58 | 87.00    0.71 |118.25    0.16
|149.50    0.12
 24.58    0.29 | 55.83    0.58 | 87.08    0.71 |118.33    0.16
|149.58    0.12
 24.67    0.29 | 55.92    0.58 | 87.17    0.70 |118.42    0.16
|149.67    0.12
 24.75    0.28 | 56.00    0.58 | 87.25    0.68 |118.50    0.16
|149.75    0.12
 24.83    0.28 | 56.08    0.58 | 87.33    0.68 |118.58    0.15
|149.83    0.12
 24.92    0.28 | 56.17    0.58 | 87.42    0.66 |118.67    0.15
|149.92    0.12
 25.00    0.27 | 56.25    0.58 | 87.50    0.66 |118.75    0.15
|150.00    0.12
 25.08    0.27 | 56.33    0.58 | 87.58    0.65 |118.83    0.15
|150.08    0.12
 25.17    0.27 | 56.42    0.58 | 87.67    0.64 |118.92    0.15
|150.17    0.12
 25.25    0.27 | 56.50    0.59 | 87.75    0.63 |119.00    0.15
|150.25    0.12
 25.33    0.26 | 56.58    0.59 | 87.83    0.62 |119.08    0.15
|150.33    0.12
 25.42    0.26 | 56.67    0.59 | 87.92    0.62 |119.17    0.15
|150.42    0.12
 25.50    0.26 | 56.75    0.59 | 88.00    0.61 |119.25    0.15
|150.50    0.12
 25.58    0.25 | 56.83    0.59 | 88.08    0.60 |119.33    0.15
|150.58    0.12
 25.67    0.25 | 56.92    0.59 | 88.17    0.59 |119.42    0.15
|150.67    0.12
 25.75    0.25 | 57.00    0.59 | 88.25    0.58 |119.50    0.15
|150.75    0.12
 25.83    0.25 | 57.08    0.59 | 88.33    0.58 |119.58    0.15
|150.83    0.12
 25.92    0.25 | 57.17    0.59 | 88.42    0.57 |119.67    0.15
|150.92    0.12
 26.00    0.24 | 57.25    0.59 | 88.50    0.57 |119.75    0.15
|151.00    0.12
 26.08    0.24 | 57.33    0.59 | 88.58    0.56 |119.83    0.16
|151.08    0.12
 26.17    0.24 | 57.42    0.59 | 88.67    0.55 |119.92    0.16
|151.17    0.12
 26.25    0.24 | 57.50    0.59 | 88.75    0.55 |120.00    0.16
|151.25    0.12
 26.33    0.23 | 57.58    0.58 | 88.83    0.54 |120.08    0.16
|151.33    0.12
 26.42    0.23 | 57.67    0.58 | 88.92    0.53 |120.17    0.16
|151.42    0.12
 26.50    0.23 | 57.75    0.58 | 89.00    0.53 |120.25    0.16
|151.50    0.12
 26.58    0.23 | 57.83    0.57 | 89.08    0.52 |120.33    0.16
|151.58    0.12
 26.67    0.23 | 57.92    0.57 | 89.17    0.51 |120.42    0.16
|151.67    0.12
 26.75    0.22 | 58.00    0.57 | 89.25    0.51 |120.50    0.16
|151.75    0.12
 26.83    0.22 | 58.08    0.57 | 89.33    0.50 |120.58    0.16
|151.83    0.12
 26.92    0.22 | 58.17    0.56 | 89.42    0.50 |120.67    0.16
|151.92    0.12
 27.00    0.22 | 58.25    0.56 | 89.50    0.49 |120.75    0.16
|152.00    0.12
 27.08    0.22 | 58.33    0.56 | 89.58    0.48 |120.83    0.16
|152.08    0.12
 27.17    0.21 | 58.42    0.55 | 89.67    0.48 |120.92    0.16
|152.17    0.12
 27.25    0.21 | 58.50    0.55 | 89.75    0.47 |121.00    0.16
|152.25    0.12
 27.33    0.21 | 58.58    0.54 | 89.83    0.47 |121.08    0.16
|152.33    0.11
 27.42    0.21 | 58.67    0.54 | 89.92    0.47 |121.17    0.17
|152.42    0.11
 27.50    0.21 | 58.75    0.53 | 90.00    0.47 |121.25    0.17
|152.50    0.11
 27.58    0.21 | 58.83    0.53 | 90.08    0.46 |121.33    0.17
|152.58    0.11
 27.67    0.20 | 58.92    0.52 | 90.17    0.46 |121.42    0.17
|152.67    0.11
 27.75    0.20 | 59.00    0.52 | 90.25    0.45 |121.50    0.17
|152.75    0.11
 27.83    0.20 | 59.08    0.52 | 90.33    0.45 |121.58    0.17
|152.83    0.11
 27.92    0.20 | 59.17    0.51 | 90.42    0.44 |121.67    0.17
|152.92    0.11
 28.00    0.19 | 59.25    0.51 | 90.50    0.44 |121.75    0.17
|153.00    0.11
 28.08    0.19 | 59.33    0.50 | 90.58    0.44 |121.83    0.17
|153.08    0.11
 28.17    0.19 | 59.42    0.50 | 90.67    0.43 |121.92    0.17
|153.17    0.11
 28.25    0.19 | 59.50    0.49 | 90.75    0.43 |122.00    0.17
|153.25    0.11
 28.33    0.19 | 59.58    0.49 | 90.83    0.43 |122.08    0.17
|153.33    0.11
 28.42    0.19 | 59.67    0.49 | 90.92    0.43 |122.17    0.17
|153.42    0.11
 28.50    0.19 | 59.75    0.48 | 91.00    0.42 |122.25    0.18
|153.50    0.11
 28.58    0.18 | 59.83    0.48 | 91.08    0.42 |122.33    0.18
|153.58    0.11
 28.67    0.18 | 59.92    0.47 | 91.17    0.42 |122.42    0.18
|153.67    0.11
 28.75    0.18 | 60.00    0.47 | 91.25    0.42 |122.50    0.18
|153.75    0.11
 28.83    0.18 | 60.08    0.47 | 91.33    0.41 |122.58    0.18
|153.83    0.11
 28.92    0.18 | 60.17    0.46 | 91.42    0.41 |122.67    0.18
|153.92    0.11
 29.00    0.18 | 60.25    0.46 | 91.50    0.41 |122.75    0.18
|154.00    0.11
 29.08    0.18 | 60.33    0.45 | 91.58    0.41 |122.83    0.18
|154.08    0.11
 29.17    0.18 | 60.42    0.45 | 91.67    0.41 |122.92    0.18
|154.17    0.11
 29.25    0.17 | 60.50    0.44 | 91.75    0.41 |123.00    0.18
|154.25    0.11
 29.33    0.17 | 60.58    0.44 | 91.83    0.40 |123.08    0.18
|154.33    0.11
 29.42    0.17 | 60.67    0.44 | 91.92    0.40 |123.17    0.18
|154.42    0.11
 29.50    0.17 | 60.75    0.43 | 92.00    0.40 |123.25    0.18
|154.50    0.11
 29.58    0.17 | 60.83    0.43 | 92.08    0.40 |123.33    0.18
|154.58    0.11
 29.67    0.17 | 60.92    0.42 | 92.17    0.40 |123.42    0.18
|154.67    0.11
 29.75    0.17 | 61.00    0.42 | 92.25    0.39 |123.50    0.18
|154.75    0.11
 29.83    0.17 | 61.08    0.42 | 92.33    0.39 |123.58    0.18
|154.83    0.11
 29.92    0.16 | 61.17    0.42 | 92.42    0.39 |123.67    0.18
|154.92    0.11
 30.00    0.16 | 61.25    0.41 | 92.50    0.39 |123.75    0.18
|155.00    0.11
 30.08    0.16 | 61.33    0.41 | 92.58    0.38 |123.83    0.18
|155.08    0.11
 30.17    0.16 | 61.42    0.40 | 92.67    0.38 |123.92    0.18
|155.17    0.11
 30.25    0.16 | 61.50    0.40 | 92.75    0.38 |124.00    0.18
|155.25    0.11
 30.33    0.16 | 61.58    0.40 | 92.83    0.38 |124.08    0.18
|155.33    0.11
 30.42    0.16 | 61.67    0.40 | 92.92    0.38 |124.17    0.18
|155.42    0.11
 30.50    0.16 | 61.75    0.39 | 93.00    0.37 |124.25    0.18
|155.50    0.11
 30.58    0.16 | 61.83    0.39 | 93.08    0.37 |124.33    0.19
|155.58    0.11
 30.67    0.16 | 61.92    0.39 | 93.17    0.37 |124.42    0.19
|155.67    0.11
 30.75    0.16 | 62.00    0.38 | 93.25    0.37 |124.50    0.19
|155.75    0.11
 30.83    0.15 | 62.08    0.38 | 93.33    0.37 |124.58    0.19
|155.83    0.10
 30.92    0.15 | 62.17    0.38 | 93.42    0.37 |124.67    0.20
|155.92    0.11
 31.00    0.15 | 62.25    0.38 | 93.50    0.37 |124.75    0.20
|156.00    0.10
 31.08    0.15 | 62.33    0.39 | 93.58    0.37 |124.83    0.20 |
 31.17    0.15 | 62.42    0.39 | 93.67    0.37 |124.92    0.20 |
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--------------------
| CALIB             |
| STANDHYD  (6202) |   Area    (ha)=  26.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  52.00   Dir. Conn.(%)=
37.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      13.78        12.72
     Dep. Storage     (mm)=       1.50         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     420.32        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       153.97
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       5.02 (ii)   12.33 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.21         0.08

*TOTALS*
     PEAK FLOW       (cms)=       4.14         3.33
7.003 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=     100.12        59.51
74.54
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.99         0.59
0.73

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| RESERVOIR (0004) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |      OUTFLOW    STORAGE   |  OUTFLOW
STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)
(ha.m.)
                          0.0000     0.0000    |   0.2480
0.4000
                          0.0370     0.2800    |   1.4770
1.1850

                                AREA     QPEAK     TPEAK
R.V.
                                (ha)     (cms)     (hrs)
(mm)
     INFLOW : ID= 2 (6202)     26.500     7.003      3.00
74.54
     OUTFLOW: ID= 1 (0004)     26.500     1.477      3.58
74.46

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 21.10
                  TIME SHIFT OF PEAK FLOW        (min)= 35.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.1859

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| ROUTE CHN (0621) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION (1549.0) ------>
              Distance      Elevation       Manning
                  0.00         87.56         0.0900
                  3.37         87.60         0.0900
                 16.78         87.21         0.0900
                 31.08         87.29         0.0900
                 43.62         87.28         0.0900
                 62.88         87.41         0.0900
                 68.00         87.22         0.0900
                 96.20         87.43         0.0900
                112.60         86.39     0.0900 /0.0700  Main
Channel
                113.70         86.10         0.0700      Main
Channel
                114.40         86.51     0.0700 /0.0900  Main
Channel
                114.60         86.67         0.0900
                131.60         87.07         0.0900
                156.70         87.16         0.0900
                184.59         87.41         0.0900
                194.09         87.56         0.0900
                202.66         87.64         0.0900
                221.43         87.69         0.0900
                230.63         87.86         0.0900

      <-------------------- TRAVEL TIME TABLE ------------------
---->
    DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
     (m)      (m)      (cu.m.)     (cms)        (m/s)
(min)
     0.07    86.17    .898E+01      0.0          0.13
79.55
```

```
     0.14    86.24    .359E+02       0.0          0.21
50.11
     0.21    86.31    .808E+02       0.0          0.28
38.24
     0.29    86.39    .144E+03       0.1          0.33
31.57
     0.36    86.46    .256E+03       0.2          0.39
27.10
     0.44    86.54    .435E+03       0.3          0.42
25.03
     0.52    86.62    .680E+03       0.5          0.46
23.12
     0.60    86.70    .998E+03       0.8          0.48
21.78
     0.68    86.78    .150E+04       1.2          0.48
21.76
     0.76    86.85    .223E+04       1.7          0.48
21.78
     0.83    86.93    .319E+04       2.5          0.49
21.41
     0.91    87.01    .437E+04       3.5          0.51
20.74
     0.99    87.09    .580E+04       4.7          0.51
20.64
     1.07    87.17    .811E+04       6.2          0.48
21.90
     1.15    87.25    .113E+05       7.8          0.44
24.18
     1.23    87.32    .165E+05      10.6          0.41
26.00
     1.30    87.40    .239E+05      16.0          0.42
24.97
     1.38    87.48    .327E+05      24.3          0.47
22.45
     1.46    87.56    .419E+05      34.6          0.52
20.16

                                    <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0004)   26.50     1.48    3.58  74.46
0.72     0.48
    OUTFLOW: ID= 1 (0621)   26.50     1.35    4.08  74.46
0.70     0.48


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--------------------
| CALIB            |
| STANDHYD  (6212) |   Area    (ha)=  21.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  76.00   Dir. Conn.(%)=
67.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       16.49          5.21
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      380.35         40.00
     Mannings n           =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      159.59        173.44
                over (min)        5.00         10.00
     Storage Coeff.  (min)=        4.72 (ii)    9.50 (ii)
     Unit Hyd. Tpeak (min)=        5.00         10.00
     Unit Hyd. peak  (cms)=        0.22          0.12

*TOTALS*
     PEAK FLOW       (cms)=        6.17          1.80
7.979 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.00
3.00
     RUNOFF VOLUME    (mm)=       95.62         64.64
85.40
     TOTAL RAINFALL   (mm)=      101.62        101.62
101.62
     RUNOFF COEFFICIENT   =        0.94          0.64
0.84

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0142) |
|  1 +  2 =  3     |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
           ID1= 1 (0621):    26.50   1.346     4.08    74.46
         + ID2= 2 (6212):    21.70   7.979     3.00    85.40
           ===============================================
           ID = 3 (0142):    48.20   8.221     3.00    79.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ROUTE CHN (0622) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 953.0) ------>
                  Distance      Elevation      Manning
                    16.75         82.21        0.1100
                    30.34         82.03        0.1100
                    44.96         81.97        0.1100
                    58.95         81.94        0.1100
                    71.21         81.85        0.1100
                   100.74         81.58        0.1100
                   112.29         81.50        0.1100
                   121.63         81.56        0.1100
                   127.04         81.66    0.1100 /0.0700  Main
Channel
                   129.04         80.66        0.0700      Main
Channel
                   130.04         80.66        0.0700      Main
Channel
                   131.04         80.66        0.0700      Main
Channel
                   133.04         81.66    0.0700 /0.1100  Main
Channel
                   134.58         82.08        0.1100
                   135.14         82.01        0.1100
                   139.68         81.73        0.1100
                   151.74         81.75        0.1100
                   153.37         81.71        0.1100
                   167.06         81.83        0.1100
                   187.62         81.87        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
     0.06    80.72    .649E+02       0.0          0.17
49.00
     0.12    80.79    .138E+03       0.1          0.25
32.10
     0.19    80.85    .218E+03       0.1          0.32
25.32
     0.25    80.91    .306E+03       0.2          0.38
21.50
     0.31    80.97    .401E+03       0.4          0.43
18.99
     0.37    81.04    .504E+03       0.5          0.47
17.19
     0.44    81.10    .615E+03       0.6          0.52
15.81
```

```
     0.50    81.16    .733E+03       0.8          0.55
14.71
     0.56    81.22    .860E+03       1.0          0.59
13.81
     0.62    81.29    .993E+03       1.3          0.62
13.06
     0.69    81.35    .113E+04       1.5          0.66
12.41
     0.75    81.41    .128E+04       1.8          0.69
11.84
     0.81    81.47    .144E+04       2.1          0.72
11.35
     0.87    81.54    .170E+04       2.5          0.71
11.50
     0.94    81.60    .245E+04       3.0          0.59
13.80
     1.00    81.66    .355E+04       3.7          0.51
16.06
     1.07    81.73    .511E+04       4.9          0.47
17.27
     1.14    81.80    .759E+04       6.7          0.43
18.98
     1.21    81.87    .109E+05       9.0          0.40
20.28

                                    <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0142)   48.20     8.22    3.00  79.38
1.19     0.41
    OUTFLOW: ID= 1 (0622)   48.20     4.77    3.17  79.38
1.06     0.48


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--------------------
| CALIB            |
| STANDHYD  (6222) |   Area    (ha)=  16.90
|ID= 1 DT= 5.0 min |   Total Imp(%)=  78.00   Dir. Conn.(%)=
69.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       13.18          3.72
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      335.66         40.00
     Mannings n           =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      159.59        139.24
                over (min)        5.00         10.00
     Storage Coeff.  (min)=        4.38 (ii)    8.94 (ii)
     Unit Hyd. Tpeak (min)=        5.00         10.00
     Unit Hyd. peak  (cms)=        0.23          0.12

*TOTALS*
     PEAK FLOW       (cms)=        4.99          1.02
6.011 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.00
3.00
     RUNOFF VOLUME    (mm)=       95.62         49.83
81.42
     TOTAL RAINFALL   (mm)=      101.62        101.62
101.62
     RUNOFF COEFFICIENT   =        0.94          0.49
0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0144) |
|  1 +  2 =  3     |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
           ID1= 1 (0622):    48.20   4.766     3.17    79.38
         + ID2= 2 (6222):    16.90   6.011     3.00    81.42
           ===============================================
           ID = 3 (0144):    65.10  10.237     3.00    79.91

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6232) |   Area    (ha)=  20.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       10.30         10.30
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      370.59         40.00
     Mannings n           =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      159.59        120.33
                over (min)        5.00         15.00
     Storage Coeff.  (min)=        4.65 (ii)   12.72 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.22          0.08

*TOTALS*
     PEAK FLOW       (cms)=        3.07          2.02
4.766 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       95.62         46.47
63.67
     TOTAL RAINFALL   (mm)=      101.62        101.62
101.62
     RUNOFF COEFFICIENT   =        0.94          0.46
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0146) |
|  1 +  2 =  3     |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
           ID1= 1 (0144):    65.10  10.237     3.00    79.91
         + ID2= 2 (6232):    20.60   4.766     3.00    63.67
           ===============================================
           ID = 3 (0146):    85.70  15.003     3.00    76.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (6302) |   Area    (ha)=   2.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  69.00   Dir. Conn.(%)=
58.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        1.79          0.81
     Dep. Storage     (mm)=        6.00          8.00
```

```
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      131.66         40.00
     Mannings n           =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      159.59        170.10
                over (min)        5.00         10.00
     Storage Coeff.  (min)=        2.50 (ii)    9.53 (ii)
     Unit Hyd. Tpeak (min)=        5.00         10.00
     Unit Hyd. peak  (cms)=        0.29          0.12

*TOTALS*
     PEAK FLOW       (cms)=        0.66          0.27
0.938 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.00
3.00
     RUNOFF VOLUME    (mm)=       95.62         64.25
82.44
     TOTAL RAINFALL   (mm)=      101.62        101.62
101.62
     RUNOFF COEFFICIENT   =        0.94          0.63
0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  80.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ROUTE CHN (0631) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
--------------------
              <------ DATA FOR SECTION ( 788.2) ------>
                  Distance      Elevation      Manning
                     0.00         81.00        0.1100
                    15.70         81.00        0.1100
                    17.50         80.50    0.1100 /0.0700  Main
Channel
                    18.50         80.50        0.0700      Main
Channel
                    20.00         81.00    0.0700 /0.1100  Main
Channel
                    24.00         81.00        0.1100
                    38.00         81.50        0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
      DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)      (cu.m.)      (cms)        (m/s)
(min)
     0.03    80.53    .174E+02       0.0          0.10
100.96
     0.05    80.55    .375E+02       0.0          0.15
66.64
     0.08    80.58    .604E+02       0.0          0.19
52.98
     0.11    80.61    .861E+02       0.0          0.22
45.34
     0.13    80.63    .115E+03       0.0          0.25
40.34
     0.16    80.66    .146E+03       0.1          0.28
36.75
     0.18    80.68    .180E+03       0.1          0.30
34.02
     0.21    80.71    .217E+03       0.1          0.32
31.85
     0.24    80.74    .256E+03       0.1          0.34
30.07
     0.26    80.76    .298E+03       0.2          0.35
28.57
     0.29    80.79    .344E+03       0.2          0.37
27.28
     0.32    80.82    .391E+03       0.2          0.39
26.15
     0.34    80.84    .442E+03       0.3          0.40
25.16
     0.37    80.87    .495E+03       0.3          0.42
24.27
     0.39    80.89    .552E+03       0.4          0.43
23.48
     0.42    80.92    .611E+03       0.4          0.44
22.75
     0.45    80.95    .672E+03       0.5          0.46
22.09
     0.47    80.97    .737E+03       0.6          0.47
21.48
     0.50    81.00    .804E+03       0.6          0.48
20.91

     **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                    <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (6302)    2.60     0.94    3.00  82.44
0.48     0.48
    OUTFLOW: ID= 1 (0631)    2.60     0.52    3.08  82.22
0.45     0.46


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--------------------
| CALIB            |
| STANDHYD  (6312) |   Area    (ha)=   8.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=
59.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        6.16          2.64
     Dep. Storage     (mm)=        6.00          8.00
     Average Slope     (%)=        1.00          1.00
     Length            (m)=      242.21         40.00
     Mannings n           =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      159.59        132.91
                over (min)        5.00         15.00
     Storage Coeff.  (min)=        3.60 (ii)   11.36 (ii)
     Unit Hyd. Tpeak (min)=        5.00         15.00
     Unit Hyd. peak  (cms)=        0.25          0.09

*TOTALS*
     PEAK FLOW       (cms)=        2.25          0.60
2.766 (iii)
     TIME TO PEAK    (hrs)=        3.00          3.08
3.00
     RUNOFF VOLUME    (mm)=       95.62         48.96
76.49
     TOTAL RAINFALL   (mm)=      101.62        101.62
101.62
     RUNOFF COEFFICIENT   =        0.94          0.48
0.75

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  67.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0149) |
|  1 +  2 =  3     |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
           ID1= 1 (0631):     2.60   0.519     3.08    82.22
         + ID2= 2 (6312):     8.80   2.766     3.00    76.49
           ===============================================
```

```
           ID = 3 (0149):    11.40   3.220     3.00    77.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0632) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 924.2) ------>
              Distance      Elevation       Manning
                   0.00         82.50        0.1100
                   6.00         82.00        0.1100
                  11.00         81.00        0.1100
                  12.00         80.00        0.1100
                  13.50         79.50    0.1100 /0.0700  Main
Channel
                  14.50         79.50        0.0700      Main
Channel
                  16.00         80.00    0.0700 /0.1100  Main
Channel
                  18.00         80.00        0.1100
                  29.70         80.00        0.1100
                  37.00         80.50        0.1100

       <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.05    79.55   .330E+02      0.0          0.17
52.00
        0.11    79.61   .749E+02      0.0          0.26
35.21
        0.16    79.66   .126E+03      0.1          0.32
28.45
        0.21    79.71   .186E+03      0.1          0.37
24.60
        0.26    79.76   .255E+03      0.2          0.41
22.04
        0.32    79.82   .333E+03      0.3          0.45
20.16
        0.37    79.87   .420E+03      0.4          0.48
18.69
        0.42    79.92   .515E+03      0.5          0.51
17.51
        0.47    79.97   .620E+03      0.6          0.55
16.53
        0.53    80.03   .931E+03      0.8          0.48
18.86
        0.58    80.08   .146E+04      1.2          0.43
20.73
        0.63    80.13   .201E+04      1.6          0.44
20.51
        0.68    80.18   .258E+04      2.2          0.46
19.66
        0.74    80.24   .318E+04      2.8          0.48
18.66
        0.79    80.29   .380E+04      3.6          0.51
17.70
        0.84    80.34   .445E+04      4.4          0.54
16.82
        0.89    80.39   .511E+04      5.3          0.56
16.03
        0.95    80.45   .580E+04      6.3          0.59
15.32
        1.00    80.50   .652E+04      7.4          0.61
14.69

                                    <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0149)   11.40     3.22    3.00  77.80
0.76      0.50
     OUTFLOW: ID= 1 (0632)   11.40     1.86    3.08  77.77
0.65      0.45

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-------------------
| CALIB            |
| STANDHYD  (6322) |   Area    (ha)=   5.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.65         2.65
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     187.97        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       120.33
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.09 (ii)   11.16 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.09

*TOTALS*
     PEAK FLOW       (cms)=       0.81         0.55
1.276 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        46.47
63.67
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.46
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  66.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0174) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
           ID1= 1 (0632):    11.40   1.856     3.08    77.77
         + ID2= 2 (6322):     5.30   1.276     3.00    63.67
           ===============================================
           ID = 3 (0174):    16.70   2.956     3.00    73.30

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (6402) |   Area    (ha)=  16.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=
66.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      12.60         4.20
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     334.66        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       170.95
                over (min)        5.00        10.00
     Storage Coeff.  (min)=       4.37 (ii)    9.26 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.23         0.12

*TOTALS*
     PEAK FLOW       (cms)=       4.74         1.45
6.191 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=      95.62        64.35
84.99
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.63
0.84

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  80.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0641) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 910.0) ------>
              Distance      Elevation       Manning
                   0.00         83.92        0.1100
                   1.93         83.93        0.1100
                   3.02         83.94        0.1100
                   5.01         83.96        0.1100
                   6.81         83.80        0.1100
                   7.33         83.77        0.1100
                   8.42         83.41    0.1100 /0.0700  Main
Channel
                  10.42         82.41        0.0700      Main
Channel
                  11.17         82.41        0.0700      Main
Channel
                  11.92         82.41        0.0700      Main
Channel
                  13.92         83.41    0.0700 /0.1100  Main
Channel
                  21.33         84.40        0.1100
                  23.85         84.09        0.1100

       <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.10    82.51   .768E+02      0.0          0.24
32.02
        0.20    82.61   .172E+03      0.1          0.35
21.50
        0.30    82.71   .285E+03      0.3          0.44
17.20
        0.40    82.81   .416E+03      0.5          0.51
14.73
        0.50    82.91   .565E+03      0.7          0.58
13.08
        0.60    83.01   .732E+03      1.0          0.64
11.86
        0.70    83.11   .918E+03      1.4          0.69
10.92
        0.80    83.21   .112E+04      1.8          0.74
10.16
        0.90    83.31   .134E+04      2.3          0.79
9.53
        1.00    83.41   .158E+04      2.9          0.84
9.00
        1.11    83.52   .188E+04      3.8          0.92
8.20
        1.22    83.63   .224E+04      4.8          0.98
7.72
        1.33    83.74   .266E+04      6.0          1.02
7.39
        1.44    83.85   .315E+04      7.3          1.05
7.20
        1.55    83.96   .379E+04      8.7          1.04
7.24
        1.66    84.07   .471E+04     10.6          1.02
7.41
        1.77    84.18   .567E+04     12.7          1.01
7.46
        1.88    84.29   .673E+04     15.1          1.01
7.43
        1.99    84.40   .787E+04     17.8          1.02
7.36

                                    <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (6402)   16.80     6.19    3.00  84.99
1.35      1.02
     OUTFLOW: ID= 1 (0641)   16.80     5.07    3.00  84.98
1.24      0.98

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-------------------
| CALIB            |
| STANDHYD  (6412) |   Area    (ha)=  13.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
67.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      10.47         3.13
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     301.11        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59      ********
                over (min)        5.00        10.00
     Storage Coeff.  (min)=       4.11 (ii)    8.80 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.24         0.12

*TOTALS*
     PEAK FLOW       (cms)=       3.92         1.00
4.917 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.00
3.00
     RUNOFF VOLUME    (mm)=      95.62        55.94
82.53
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.55
0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  72.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0184) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
           ID1= 1 (0641):    16.80   5.070     3.00    84.98
         + ID2= 2 (6412):    13.60   4.917     3.00    82.53
           ===============================================
           ID = 3 (0184):    30.40   9.987     3.00    83.88

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0642) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (1099.5) ------>
              Distance      Elevation       Manning
                   0.00         85.00        0.1100
                  14.50         80.00        0.1100
                  15.30         80.00        0.1100
                  16.80         79.50    0.1100 /0.0700  Main
Channel
                  17.80         79.50        0.0700      Main
Channel
                  19.30         80.00    0.0700 /0.1100  Main
Channel
                  20.30         80.00        0.1100
                  27.30         81.00        0.1100

       <-------------------- TRAVEL TIME TABLE -----------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
         (m)     (m)     (cu.m.)      (cms)        (m/s)
(min)
        0.08    79.58   .520E+02      0.0          0.24
36.74
        0.16    79.66   .124E+03      0.1          0.35
25.35
        0.24    79.74   .216E+03      0.2          0.43
20.68
        0.32    79.82   .328E+03      0.3          0.49
17.96
        0.39    79.89   .460E+03      0.5          0.55
16.11
        0.47    79.97   .611E+03      0.7          0.60
14.73
        0.55    80.05   .836E+03      1.0          0.62
14.31
        0.63    80.13   .112E+04      1.4          0.66
13.40
        0.71    80.21   .143E+04      1.9          0.70
12.62
        0.79    80.29   .178E+04      2.5          0.74
11.97
        0.87    80.37   .216E+04      3.2          0.78
11.42
        0.95    80.45   .258E+04      3.9          0.81
10.93
        1.03    80.53   .302E+04      4.8          0.85
10.51
        1.11    80.61   .350E+04      5.8          0.88
10.14
        1.18    80.68   .402E+04      6.8          0.91
9.80
        1.26    80.76   .456E+04      8.0          0.94
9.49
        1.34    80.84   .514E+04      9.3          0.96
9.21
        1.42    80.92   .575E+04     10.7          0.99
8.96
        1.50    81.00   .640E+04     12.2          1.02
8.72

                                    <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0184)   30.40     9.99    3.00  83.88
1.38      0.98
     OUTFLOW: ID= 1 (0642)   30.40     7.77    3.08  83.87
1.25      0.93

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| CALIB            |
| STANDHYD  (6422) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.75         8.75
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     341.57        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       137.17
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.43 (ii)   12.09 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.09

*TOTALS*
     PEAK FLOW       (cms)=       2.62         2.03
4.345 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.08
3.00
     RUNOFF VOLUME    (mm)=      95.62        53.16
68.02
     TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
     RUNOFF COEFFICIENT   =       0.94         0.52
0.67

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  72.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0187) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
           ID1= 1 (0642):    30.40   7.773     3.08    83.87
         + ID2= 2 (6422):    17.50   4.345     3.00    68.02
           ===============================================
           ID = 3 (0187):    47.90  11.464     3.00    78.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (6502) |   Area    (ha)=   9.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.55         4.55
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     246.31        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       120.33
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.64 (ii)   11.71 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.25         0.09

*TOTALS*
     PEAK FLOW       (cms)=       1.38         0.92
2.162 (iii)
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    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62        46.47
63.67
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.46
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (6602) |   Area    (ha)=  13.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.85         6.85
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     302.21        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       157.97
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.11 (ii)   11.35 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.09

*TOTALS*
    PEAK FLOW       (cms)=       2.06         1.91
3.720 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62        61.83
73.66
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.61
0.72

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  79.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7302) |   Area    (ha)=   3.40
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.70         1.70
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     150.55        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       120.33
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.71 (ii)   10.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.09

*TOTALS*
    PEAK FLOW       (cms)=       0.52         0.36
0.825 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62        46.47
63.67
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.46
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7402) |   Area    (ha)=   3.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.85         1.85
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     157.06        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       120.33
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.78 (ii)   10.85 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.09

*TOTALS*
    PEAK FLOW       (cms)=       0.57         0.39
0.897 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62        46.47
63.67
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.46
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| NASHYD    (7101) |   Area    (ha)=  70.70   Curve Number
(CN)= 52.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.78

     Unit Hyd Qpeak  (cms)=   3.471

     PEAK FLOW       (cms)=   2.451 (i)
     TIME TO PEAK    (hrs)=   3.750
     RUNOFF VOLUME    (mm)=  26.715
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.263

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7102) |   Area    (ha)=  17.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=
33.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.88         9.62
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     341.57        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59        76.29
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.43 (ii)   14.11 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08

*TOTALS*
    PEAK FLOW       (cms)=       2.47         1.11
3.376 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62        31.42
52.61
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.31
0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  52.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0218) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7101):    70.70   2.451     3.75    26.71
        + ID2= 2 (7102):    17.50   3.376     3.00    52.61
          ===============================================
          ID = 3 (0218):    88.20   4.012     3.00    31.85

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0711) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1487.9) ------>
               Distance      Elevation       Manning
                   0.00          95.00        0.1100
                  89.00          94.00        0.1100
                 135.70          94.00    0.1100 /0.0700  Main
Channel
                 137.20          93.50        0.0700      Main
Channel
                 138.20          93.50        0.0700      Main
Channel
                 139.70          94.00    0.0700 /0.1100  Main
Channel
                 211.60          94.00        0.1100
                 249.00          95.00        0.1100

       <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME     FLOW RATE    VELOCITY
TRAV.TIME
       (m)     (m)      (cu.m.)       (cms)        (m/s)
(min)
      0.07    93.57     .969E+02       0.0          0.20
95.33
      0.14    93.64     .228E+03       0.1          0.29
64.56
      0.21    93.71     .393E+03       0.1          0.36
51.73
      0.29    93.79     .593E+03       0.2          0.42
44.23
      0.36    93.86     .826E+03       0.4          0.48
39.15
      0.43    93.93     .109E+04       0.5          0.53
35.40
      0.50    94.00     .140E+04       0.7          0.57
32.52
      0.58    94.08     .133E+05       2.6          0.22
84.59
      0.67    94.17     .262E+05       6.5          0.28
67.17
      0.75    94.25     .400E+05      12.0          0.33
55.64
      0.83    94.33     .549E+05      19.0          0.39
48.10
      0.92    94.42     .707E+05      27.5          0.43
42.81
      1.00    94.50     .875E+05      37.5          0.48
38.86
      1.08    94.58     .105E+06      49.0          0.52
35.80
      1.17    94.67     .124E+06      62.0          0.56
33.34
      1.25    94.75     .144E+06      76.6          0.59
31.30
      1.33    94.83     .165E+06      92.7          0.63
29.59
      1.42    94.92     .186E+06     110.4          0.66
28.12
      1.50    95.00     .209E+06     129.7          0.69
26.84

                                     <---- hydrograph ---->   <-
pipe / channel->
                             AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                             (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
     INFLOW : ID= 2 (0218)   88.20     4.01     3.00  31.85
0.61     0.24
     OUTFLOW: ID= 1 (0711)   88.20     2.21     4.75  31.85
0.57     0.25


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| CALIB             |
| NASHYD    (7111) |   Area    (ha)=  48.10   Curve Number
(CN)= 70.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.43

     Unit Hyd Qpeak  (cms)=   1.285

     PEAK FLOW       (cms)=   1.737 (i)
     TIME TO PEAK    (hrs)=   4.583
     RUNOFF VOLUME    (mm)=  43.287
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.426

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB             |
| STANDHYD  (7112) |   Area    (ha)=  12.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  39.00   Dir. Conn.(%)=
27.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       4.76         7.44
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     285.19        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59       115.88
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.97 (ii)   12.17 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.24         0.09

*TOTALS*
    PEAK FLOW       (cms)=       1.42         1.44
2.633 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62        48.48
61.21
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.48
0.60

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  70.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0222) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7111):    48.10   1.737     4.58    43.29
        + ID2= 2 (7112):    12.20   2.633     3.00    61.21
          ===============================================
          ID = 3 (0222):    60.30   2.835     3.00    46.91

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0223) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0222):    60.30   2.835     3.00    46.91
        + ID2= 2 (0711):    88.20   2.205     4.75    31.85
          ===============================================
          ID = 3 (0223):   148.50   4.131     4.67    37.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB             |
| NASHYD    (7011) |   Area    (ha)=  90.40   Curve Number
(CN)= 59.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.77

     Unit Hyd Qpeak  (cms)=   4.467

     PEAK FLOW       (cms)=   3.862 (i)
     TIME TO PEAK    (hrs)=   3.750
     RUNOFF VOLUME    (mm)=  32.446
     TOTAL RAINFALL   (mm)= 101.620
     RUNOFF COEFFICIENT   =   0.319

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7012) |   Area    (ha)=  25.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=
25.00
-------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       9.54        15.56
     Dep. Storage     (mm)=       6.00         8.00
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     409.06        40.00
     Mannings n          =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     159.59        90.54
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       4.93 (ii)   13.98 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
    PEAK FLOW       (cms)=       2.65         2.17
4.436 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62        37.47
52.00
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.37
0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  59.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0205) |
|  1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (7011):    90.40   3.862     3.75    32.45
        + ID2= 2 (7012):    25.10   4.436     3.00    52.00
          ===============================================
          ID = 3 (0205):   115.50   5.475     3.00    36.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0702) |
| IN= 2---> OUT= 1 |      Routing time step (min)'=  5.00
-------------------
              <------ DATA FOR SECTION (1184.6) ------>
               Distance      Elevation       Manning
                   0.00          93.00        0.1100
                  56.00          92.00        0.1100
                  65.40          92.00        0.1100
                  74.80          91.50    0.1100 /0.0700  Main
Channel
                  75.80          91.50        0.0700      Main
Channel
                  77.30          92.00    0.0700 /0.1100  Main
Channel
```

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               144.00          92.00          0.1100
               186.00          93.00          0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.08    91.58    .236E+03       0.0          0.13
200.27
     0.16    91.66    .689E+03       0.1          0.18
146.52
     0.24    91.74    .136E+04       0.2          0.22
121.67
     0.32    91.82    .225E+04       0.4          0.25
105.99
     0.39    91.89    .336E+04       0.6          0.28
94.79
     0.47    91.97    .468E+04       0.9          0.31
86.24
     0.55    92.05    .128E+05       1.5          0.19
142.36
     0.63    92.13    .251E+05       3.4          0.22
123.43
     0.71    92.21    .384E+05       6.1          0.26
104.46
     0.79    92.29    .526E+05       9.6          0.29
90.95
     0.87    92.37    .678E+05      13.9          0.33
81.16
     0.95    92.45    .840E+05      19.0          0.36
73.76
     1.03    92.53    .101E+06      24.8          0.39
67.97
     1.11    92.61    .119E+06      31.4          0.42
63.30
     1.18    92.68    .139E+06      38.8          0.45
59.44
     1.26    92.76    .159E+06      47.1          0.48
56.18
     1.34    92.84    .180E+06      56.1          0.50
53.38
     1.42    92.92    .202E+06      66.0          0.52
50.95
     1.50    93.00    .225E+06      76.8          0.55
48.81

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0205)  115.50     5.47    3.00  36.70
0.69     0.25
    OUTFLOW: ID= 1 (0702)  115.50     2.44    4.67  36.69
0.59     0.20


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-------------------
| CALIB             |
| NASHYD   (7021) |   Area    (ha)=   7.30   Curve Number
(CN)= 64.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # of Linear
Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.72

    Unit Hyd Qpeak  (cms)=   0.162

    PEAK FLOW       (cms)=   0.195 (i)
    TIME TO PEAK    (hrs)=   4.917
    RUNOFF VOLUME    (mm)=  37.060
    TOTAL RAINFALL   (mm)= 101.620
    RUNOFF COEFFICIENT   =   0.365

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| CALIB             |
| STANDHYD  (7022) |   Area    (ha)=  21.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      10.55        10.55
    Dep. Storage     (mm)=       1.50         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     375.06        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=     159.59       114.97
               over (min)        5.00        15.00
    Storage Coeff.  (min)=       4.68 (ii)   12.90 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.22         0.08

*TOTALS*
    PEAK FLOW       (cms)=       3.14         1.96
4.778 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=     100.12        44.38
63.89
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.99         0.44
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  64.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| RESERVOIR (0005) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |      OUTFLOW    STORAGE   |  OUTFLOW
STORAGE
-------------------       (cms)      (ha.m.)   |   (cms)
(ha.m.)
                          0.0000     0.0000   |   0.0840
0.3140
                          0.0130     0.2200   |   0.5640
0.9330

                                    AREA      QPEAK      TPEAK
R.V.
                                    (ha)      (cms)      (hrs)
(mm)
    INFLOW : ID= 2 (7022)      21.100       4.778       3.00
63.89
    OUTFLOW: ID= 1 (0005)      21.100       0.564       4.00
63.44

                 PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.81
                 TIME SHIFT OF PEAK FLOW          (min)= 60.00
                 MAXIMUM  STORAGE   USED       (ha.m.)=  0.9334

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| ADD HYD   (0209) |
|   1 +  2 =  3    |           AREA    QPEAK    TPEAK     R.V.
-------------------            (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0005):    21.10   0.564     4.00    63.44
        + ID2= 2 (7021):     7.30   0.195     4.92    37.06
          ==================================================
          ID = 3 (0209):    28.40   0.734     4.50    56.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0210) |
|   1 +  2 =  3    |           AREA    QPEAK    TPEAK     R.V.
-------------------            (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0209):    28.40   0.734     4.50    56.66
        + ID2= 2 (0702):   115.50   2.443     4.67    36.69
          ==================================================
          ID = 3 (0210):   143.90   3.176     4.58    40.63

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD   (0224) |
|   1 +  2 =  3    |           AREA    QPEAK    TPEAK     R.V.
-------------------            (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0210):   143.90   3.176     4.58    40.63
        + ID2= 2 (0223):   148.50   4.131     4.67    37.96
          ==================================================
          ID = 3 (0224):   292.40   7.305     4.67    39.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ROUTE CHN (0703) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (2329.2) ------>
               Distance      Elevation       Manning
                  0.00          88.00         0.1100
                 37.50          87.00         0.1100
                 51.30          86.00         0.1100
                 82.80          86.00         0.1100
                107.50          87.00         0.1100
                117.30          86.00         0.1100
                125.90          86.00     0.1100 /0.0700  Main
Channel
                127.40          85.50         0.0700      Main
Channel
                128.40          85.50         0.0700      Main
Channel
                129.90          86.00     0.0700 /0.1100  Main
Channel
                133.00          86.00         0.1100
                149.00          87.00         0.1100
                193.00          88.00         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.12    85.62    .787E+02       0.0          0.19
40.30
     0.25    85.75    .200E+03       0.1          0.28
27.58
     0.37    85.88    .365E+03       0.3          0.35
22.10
     0.50    86.00    .572E+03       0.5          0.41
18.84
     0.63    86.13    .372E+04       1.8          0.22
34.16
     0.77    86.27    .738E+04       4.4          0.27
28.02
     0.90    86.40    .116E+05       8.1          0.32
23.77
     1.03    86.53    .163E+05      13.0          0.37
20.89
     1.17    86.67    .215E+05      19.1          0.41
18.82
     1.30    86.80    .273E+05      26.4          0.44
17.24
     1.43    86.93    .336E+05      35.0          0.48
15.99
     1.57    87.07    .404E+05      44.9          0.51
15.00
     1.70    87.20    .479E+05      56.3          0.54
14.18
     1.83    87.33    .560E+05      69.3          0.57
13.47
     1.97    87.47    .648E+05      84.0          0.59
12.85
     2.10    87.60    .743E+05     100.6          0.62
12.31
     2.23    87.73    .844E+05     119.0          0.65
11.82
     2.37    87.87    .952E+05     139.3          0.67
11.39
     2.50    88.00    .107E+06     161.7          0.69
11.00

                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0224)  292.40     7.31    4.67  39.28
0.87     0.31
    OUTFLOW: ID= 1 (0703)  292.40     7.09    5.00  39.27
0.86     0.31


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| CALIB             |
| STANDHYD  (7032) |   Area    (ha)=  23.30
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      17.94         5.36
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     394.12        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=     159.59       125.14
               over (min)        5.00        10.00
    Storage Coeff.  (min)=       4.83 (ii)    9.50 (ii)
    Unit Hyd. Tpeak (min)=       5.00        10.00
    Unit Hyd. peak  (cms)=       0.22         0.12

*TOTALS*
    PEAK FLOW       (cms)=       6.71         1.28
7.995 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.00
3.00
    RUNOFF VOLUME    (mm)=      95.62        45.26
79.50
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.45
0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  63.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0215) |
|   1 +  2 =  3    |           AREA    QPEAK    TPEAK     R.V.
-------------------            (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0703):   292.40   7.089     5.00    39.27
        + ID2= 2 (7032):    23.30   7.995     3.00    79.50
          ==================================================
          ID = 3 (0215):   315.70   9.675     3.00    42.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0704) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (2755.4) ------>
               Distance      Elevation       Manning
                  0.00          85.00         0.1100
                 25.00          84.00         0.1100
                 32.00          84.00     0.1100 /0.0700  Main
Channel
                 33.50          83.50         0.0700      Main
Channel
                 34.50          83.50         0.0700      Main
Channel
                 36.00          84.00     0.0700 /0.1100  Main
Channel
                 65.00          84.00         0.1100

      <-------------------- TRAVEL TIME TABLE -----------------
---->
     DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
      (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
     0.03    83.53    .121E+02       0.0          0.12
61.52
     0.05    83.55    .259E+02       0.0          0.19
40.35
     0.08    83.58    .414E+02       0.0          0.24
31.84
     0.10    83.60    .585E+02       0.0          0.28
27.04
     0.13    83.63    .774E+02       0.1          0.31
23.87
     0.15    83.65    .979E+02       0.1          0.35
21.59
     0.18    83.68    .120E+03       0.1          0.38
19.84
     0.20    83.70    .144E+03       0.1          0.41
18.45
     0.23    83.73    .170E+03       0.2          0.43
17.31
     0.25    83.75    .197E+03       0.2          0.46
16.34
     0.28    83.78    .226E+03       0.2          0.48
15.52
     0.30    83.80    .257E+03       0.3          0.51
14.80
     0.33    83.83    .289E+03       0.3          0.53
14.16
     0.35    83.85    .323E+03       0.4          0.55
13.60
     0.38    83.88    .359E+03       0.5          0.57
13.09
     0.40    83.90    .396E+03       0.5          0.59
12.64
     0.43    83.93    .435E+03       0.6          0.61
12.22
     0.45    83.95    .476E+03       0.7          0.63
11.84
     0.48    83.98    .518E+03       0.8          0.65
11.49

     **** WARNING:  TRAVEL TIME TABLE EXCEEDED
                                      <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0215)  315.70     9.67    3.00  42.24
0.47     0.65
    OUTFLOW: ID= 1 (0704)  315.70     7.39    5.08  42.24
0.48     0.65


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| CALIB             |
| STANDHYD  (7042) |   Area    (ha)=  23.70
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      18.25         5.45
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     397.49        40.00
    Mannings n          =       0.013        0.250

    Max.Eff.Inten.(mm/hr)=     159.59       119.60
               over (min)        5.00        10.00
    Storage Coeff.  (min)=       4.85 (ii)    9.52 (ii)
    Unit Hyd. Tpeak (min)=       5.00        10.00
    Unit Hyd. peak  (cms)=       0.22         0.12

*TOTALS*
    PEAK FLOW       (cms)=       6.82         1.24
8.064 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62        43.23
78.86
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.43
0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  61.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| ADD HYD   (0229) |
|   1 +  2 =  3    |           AREA    QPEAK    TPEAK     R.V.
-------------------            (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0704):   315.70   7.386     5.08    42.24
        + ID2= 2 (7042):    23.70   8.064     3.00    78.86
          ==================================================
          ID = 3 (0229):   339.40  14.290     3.00    44.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| STANDHYD  (7202) |   Area    (ha)=  22.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      17.33         5.18
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     387.30        40.00
```

```
    Mannings n          =      0.013        0.250

    Max.Eff.Inten.(mm/hr)=     159.59       133.68
               over (min)        5.00        10.00
    Storage Coeff.  (min)=       4.77 (ii)    9.45 (ii)
    Unit Hyd. Tpeak (min)=       5.00        10.00
    Unit Hyd. peak  (cms)=       0.22         0.12

*TOTALS*
    PEAK FLOW       (cms)=       6.49         1.33
7.824 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.00
3.00
    RUNOFF VOLUME    (mm)=      95.62        48.40
80.51
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.48
0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ROUTE CHN (0721) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION ( 920.0) ------>
               Distance      Elevation       Manning
                  0.00         82.00         0.1100
                 41.00         82.00         0.1100
                 50.70         82.00         0.1100
                 57.80         81.00     0.1100 /0.0700  Main
Channel
                 59.30         79.84         0.0700      Main
Channel
                 60.30         79.84         0.0700      Main
Channel
                 61.80         81.00     0.0700 /0.1100  Main
Channel
                 63.30         81.00         0.1100
                 85.90         81.00         0.1100
                100.00         82.00         0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.11    79.95    .515E+02       0.0          0.20
35.58
       0.21    80.05    .115E+03       0.1          0.30
24.20
       0.32    80.16    .192E+03       0.2          0.37
19.53
       0.42    80.26    .280E+03       0.3          0.43
16.82
       0.53    80.37    .381E+03       0.4          0.48
15.00
       0.63    80.47    .494E+03       0.6          0.53
13.65
       0.74    80.58    .620E+03       0.8          0.57
12.60
       0.84    80.68    .758E+03       1.1          0.61
11.75
       0.95    80.79    .908E+03       1.4          0.65
11.04
       1.05    80.89    .107E+04       1.7          0.69
10.44
       1.16    81.00    .125E+04       2.1          0.72
9.92
       1.28    81.12    .283E+04       3.2          0.49
14.61
       1.41    81.25    .455E+04       5.0          0.48
15.04
       1.53    81.37    .642E+04       7.4          0.50
14.36
       1.66    81.50    .843E+04      10.4          0.53
13.50
       1.78    81.62    .106E+05      13.9          0.57
12.67
       1.91    81.75    .129E+05      18.0          0.60
11.93
       2.03    81.87    .153E+05      22.6          0.63
11.29
       2.16    82.00    .179E+05      27.8          0.67
10.73

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (7202)    22.50     7.82    3.00  80.51
1.55      0.50
    OUTFLOW: ID= 1 (0721)    22.50     4.90    3.08  80.50
1.40      0.48


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| CALIB            |
| STANDHYD  (7212) |   Area    (ha)=  18.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  77.00   Dir. Conn.(%)=
68.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      13.94         4.16
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     347.37        40.00
    Mannings n          =      0.013        0.250

    Max.Eff.Inten.(mm/hr)=     159.59       133.68
               over (min)        5.00        10.00
    Storage Coeff.  (min)=       4.47 (ii)    9.14 (ii)
    Unit Hyd. Tpeak (min)=       5.00        10.00
    Unit Hyd. peak  (cms)=       0.23         0.12

*TOTALS*
    PEAK FLOW       (cms)=       5.26         1.09
6.342 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.00
3.00
    RUNOFF VOLUME    (mm)=      95.62        48.39
80.51
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.48
0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0237) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0721):    22.50   4.897     3.08    80.50
        + ID2= 2 (7212):    18.10   6.342     3.00    80.51
          ==================================================
          ID = 3 (0237):    40.60  10.986     3.00    80.50

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0238) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0229):   339.40  14.290     3.00    44.80
        + ID2= 2 (0237):    40.60  10.986     3.00    80.50
          ==================================================
          ID = 3 (0238):   380.00  25.276     3.00    48.61

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN (0705) |
| IN= 2---> OUT= 1 |     Routing time step (min)'=  5.00
-------------------
               <------ DATA FOR SECTION (3276.8) ------>
               Distance      Elevation       Manning
                  0.00         80.50         0.1100
                  5.70         80.00         0.1100
                 14.00         79.00         0.1100
                 22.00         79.00     0.1100 /0.0700  Main
Channel
                 23.50         78.50         0.0700      Main
Channel
                 24.50         78.50         0.0700      Main
Channel
                 26.00         79.00     0.0700 /0.1100  Main
Channel
                 28.00         79.00         0.1100
                 41.00         80.00         0.1100

      <-------------------- TRAVEL TIME TABLE ------------------
---->
       DEPTH    ELEV      VOLUME    FLOW RATE    VELOCITY
TRAV.TIME
        (m)      (m)     (cu.m.)      (cms)        (m/s)
(min)
       0.07    78.57    .248E+02       0.0          0.26
18.45
       0.14    78.64    .584E+02       0.1          0.38
12.49
       0.21    78.71    .101E+03       0.2          0.48
10.01
       0.29    78.79    .152E+03       0.3          0.56
8.56
       0.36    78.86    .212E+03       0.5          0.63
7.58
       0.43    78.93    .280E+03       0.7          0.70
6.85
       0.50    79.00    .358E+03       0.9          0.76
6.29
       0.58    79.08    .712E+03       1.6          0.64
7.50
       0.67    79.17    .111E+04       2.5          0.65
7.35
       0.75    79.25    .155E+04       3.7          0.69
6.94
       0.83    79.33    .203E+04       5.2          0.73
6.52
       0.92    79.42    .255E+04       6.9          0.78
6.14
       1.00    79.50    .312E+04       9.0          0.82
5.81
       1.08    79.58    .373E+04      11.3          0.86
5.52
       1.17    79.67    .438E+04      13.9          0.90
5.27
       1.25    79.75    .507E+04      16.7          0.94
5.05
       1.33    79.83    .581E+04      20.0          0.98
4.85
       1.42    79.92    .659E+04      23.5          1.02
4.68
       1.50    80.00    .741E+04      27.3          1.06
4.52

                                     <---- hydrograph ---->   <-
pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.    MAX
DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)
(m)      (m/s)
    INFLOW : ID= 2 (0238)   380.00    25.28    3.00  48.61
1.46      1.04
    OUTFLOW: ID= 1 (0705)   380.00    22.21    3.08  48.61
1.39      1.01


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| CALIB            |
| STANDHYD  (7052) |   Area    (ha)=   6.80
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       3.40         3.40
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     212.92        40.00
    Mannings n          =      0.013        0.250

    Max.Eff.Inten.(mm/hr)=     159.59        83.23
               over (min)        5.00        15.00
    Storage Coeff.  (min)=       3.33 (ii)   12.69 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.26         0.08

*TOTALS*
    PEAK FLOW       (cms)=       1.04         0.45
1.409 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62        32.18
54.38
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.32
0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  51.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0243) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0705):   380.00  22.205     3.08    48.61
        + ID2= 2 (7052):     6.80   1.409     3.00    54.38
          ==================================================
          ID = 3 (0243):   386.80  23.337     3.00    48.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (7502) |   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=
35.00
-------------------
                              IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       2.75         2.75
    Dep. Storage     (mm)=       6.00         8.00
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     191.49        40.00
    Mannings n          =      0.013        0.250

    Max.Eff.Inten.(mm/hr)=     159.59       120.33
               over (min)        5.00        15.00
    Storage Coeff.  (min)=       3.13 (ii)   11.20 (ii)
    Unit Hyd. Tpeak (min)=       5.00        15.00
    Unit Hyd. peak  (cms)=       0.27         0.09

*TOTALS*
    PEAK FLOW       (cms)=       0.84         0.57
1.323 (iii)
    TIME TO PEAK    (hrs)=       3.00         3.08
3.00
    RUNOFF VOLUME    (mm)=      95.62        46.47
63.67
    TOTAL RAINFALL   (mm)=     101.62       101.62
101.62
    RUNOFF COEFFICIENT   =       0.94         0.46
0.63

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  66.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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APPENDIX B:

Watercourse 5 & 6 Class Environmental Assessment Study Draft Report, Dillon Consulting, November 2007

Appendix D: Existing Condition – Fluvial Geomorphology Detailed Assessment

APPENDIX D
Existing Conditions
Fluvial Geomorphology Detailed Assessment

Fluvial Geomorphology – Existing Conditions

Introduction

Watercourses within the area of interest were observed in the field and characterized as to their geomorphic attributes. The watercourses were examined on a reach basis and characterized as being either “in regime”, in transition or in adjustment, hereafter referred to as stable or unstable. Further, typical channel indicators were used to confirm this classification and allowed for identification of the dominant geomorphic processes (widening, incising, planimetric adjustment, etc.). Identification of the nature and degree of geomorphic processes aids in the prediction of future behaviour of a particular reach. This is due principles of geomorphology which state that a watercourse will react, by adjusting its form (observable instability), to changes in flow or geometry. Typically, changes in flow may result from an alteration in watershed conditions, while changes in channel geometry may occur as a result of straightening.

Though the intricacies of channel adjustment are not easily predicted, the river continuum concept predicts that changes in channel form occur in an evolutionary manner, assuming conditions contributing to the instability remain relatively constant. This principle can account for past watercourse behaviour, and can aid in the prediction of future behaviour by identifying where a particular reach (or series of reaches) falls within this continuum.

Information derived from the geomorphic assessment will be incorporated into the development of drainage improvement alternatives. This information will provide insight to, ideally, which watercourses may be better equipped, from a geomorphological perspective, to handle anticipated changes in flow. A determination of stability (stable or unstable) has been made of each reach, as well as the nature of the reach’s “sensitivity to erosion”. Erosion sensitivity descriptors include “low”, “moderate” and “high”, and refer to the reaches’ likely tolerance for accommodating an increase in flow regime, without initiating significant or catastrophic sediment transport. A classification of “low” indicates that the reach would likely accommodate increased flow without initiating major erosion beyond that observed in the field.

Further to the empirical evidence for channel processes, a Rapid Geomorphic Assessment (RGA) Classification was completed for the four watercourse reaches having the most significant geomorphic form and function. A RGA employs a series of indicators (similar to those described above), and a presence/absence formula to derive an overall stability index (SI) value. The SI value provides additional evidence, supporting the initial classification of “stable” or “unstable”. Reaches with an aggregate SI of equal to or less than 0.2 are classified as in regime (dynamically stable). Reaches with SI score of 0.21 – 0.4 are transitional or stressed, and a score of greater than 0.4 is classified as “in adjustment”, or unstable.

The findings presented below periodically reference a geomorphic photo record, following the observations.

Observations

Watercourse 5.0

Downstream of QEW
This portion of Watercourse 5.0 can be classified as a highly altered reach; having little to no naturally defined morphology. The watercourse, shown in the photo record in planview (Plate 1), consists of a straightened low flow channel set within a concrete block lined valley. Some cattails persist, however there is no opportunity for natural development of a pattern or profile within this hardened setting. Some sand and gravel substrates were observed within the concrete block crevices. Plates 2 and 3 provide an overhead view of the valley. A connection should be noted (visible in Plate 1), entering from the east and transferring flow from Watercourse 6.0 to 5.0.

Downstream of North Service Road, Watercourse 5.0 empties into a backwater area, set between two culverts, having water levels governed by Lake Ontario. This pool flows through a multi-celled culvert and into a private marina. Due to its segregation by the culverts, this pooled area has little to no geomorphic significance from either a riverine or coastal perspective.

Generally, the reach of Watercourse 5.0 downstream (north) of the QEW can be classified as artificially stable, having a low sensitivity to erosion due to significant hardening of the watercourse and valley.

Between South Service Road (SSR) and QEW – Upstream of QEW
Watercourse 5.0 between south service road and the QEW takes on a significantly different form than the hardened reach downstream of the QEW. Here the channel remains altered, with the historic alteration likely consisting of straightening to accommodate adjacent development. The dominant characteristic through this portion of Watercourse 5.0 appears to be reach-wide channel widening. This instability is not uniform; but rather, is manifesting through varying geomorphological processes. Plate 4 provides an aerial perspective of this reach. A junk yard is visible immediately west of the watercourse and is likely the reason for historic straightening.

This reach of Watercourse 5.0, from SSR downstream for approximately 190m (extending to the end of the confining junkyard fence) is significantly unstable, dominated by active channel widening. Identification of a true bankfull level is made difficult by the altered nature of the reach, though high water marks indicate that the channel cross section is entrenched. Due to a combination of historic channelization and changes in flow regime, floodwaters are denied access to the floodplain, confined instead within the active channel. The resulting increased depth places additional erosive stress on the channel boundary and, as the boundary adjusts, erosion occurs. Bank widening, as indicated by basal scour, leaning vegetation, exposed roots, top-of-bank fractures, etc., is the dominant process, and typically precedes a natural development of a new thalweg meander. The channel attempts to self correct altered conditions, ultimately resulting in natural channel hydraulics and geometry similar to those found in unaltered reaches.

Bank angles along much of this reach are near-vertical, typical of channel widening and increasing the susceptibility to erosion. Woody riparian vegetation was found leaning, with roots exposed in many instances. Plates 5-8 provide representative images of the observed channel widening within this sub-reach.

Mid channel bars were observed throughout and are further indicators of reach, and possibly system wide, instability. Mid channel, poorly sorted bar features are typically found in unstable reaches and are a symptom of the system's inability to efficiently transport sediment. Instead of migrating through Watercourse 5.0, increased stream power is blasting bed and suspended loads throughout, depositing material haphazardly as flood waters recede.

Some pools were noted, located between mini cascades caused by fallen vegetation and collected debris. These pools were free of fines, again an indicator or instability. Hard clay was exposed in some pool; its presence likely accelerating the local bank widening process. In locations where the most significant widening has already occurred, the thalweg continues to form its new planform, with cut-off channels and multiple threads observed.

Downstream of the junkyard fence the channel form changes. Here, the degree of entrenchment is less severe and better developed geomorphic features exist. For a distance of approximately 50m banks are more stable and some pools contain finer grains. Some point bar features were noted. Plate 9 depicts a typical section of channel through this sub-reach. Instability in the form of channel widening persists, but at a reduced rate as compared to immediately upstream (adjacent to the junkyard).

As Watercourse 5.0 approached the QEW culvert a large nick point (Plate 11) cuts into the underlying clay. This nick point, located approximately 30m upstream of the QEW culvert, is approximately 1.0 in height and can be considered a major geomorphic feature and indicator of instability. Nick points are upstream migrating, channel degradation features that are manifestations of the channel's self adjustment, usually (in urban settings), in response to changes in flow or geometry. The adjustment will ultimately result in a new channel gradient; one more hydraulically accommodating to the new flow regime. Plate 12 provides a view of the short reach between the nick point and the QEW culvert.

The finding of such a large incision point is somewhat out of synch with the observed upstream widening processes, as channel downcutting typically precedes widening as a reach wide evolutionary process. This finding indicates that the entrenched portion of channel adjacent to the junkyard likely acts independently with respect to active geomorphic processes. Regardless of the reach breakdown, the evidence strongly suggests major, overlapping instabilities along the subject reach of Watercourse 5.0. Consequently, this reach of Watercourse 5.0 can be classified as unstable, and likely carries with it a high sensitivity to erosion. A Rapid Geomorphic Assessment (RGA) was completed for this reach, producing a score of 0.65, indicating an unstable system in deep geomorphic transition.

Upstream of South Service Road

Upstream of SSR Watercourse 5.0 continues in its highly altered form, with straightening even more pronounced as the channel (looking upstream from SSR) follows the west boundary of an industrial property, then turns to follow the CN tracks, and again along the western margin of more industrial lands. Plate 13 provides an aerial view of Watercourse 5.0 between SSR and

Arvin Avenue. Within these straightened reaches, channel instabilities persist, with channel widening (Plates 14-16) acting as the dominant process.

The watercourse is significantly entrenched along this entire reach, with entrenchment being even more pronounced upstream of the CN tracks where the channel lies within a deeply incised ravine-type feature (Plate 17-18). Riparian vegetation is consistently exposed at the roots and many medium to larger trees are leaning or have fallen. In some instances, major bank failures were observed where fallen vegetation had collected sediment and debris, deflecting major storm flows at the adjacent banks.

Anecdotal evidence, provided by maintenance workers at the adjacent industrial property, indicates that this watercourse recently flowed up to 5 feet in depth, described as the deepest depth ever seen by area workers. Even at this depth, the flood waters are constrained within the active channel, allowing for no flood relief within the floodplain. Shear stress, under even moderate flood events, given the steep channel banks and lack of cross section relief would likely result in significant erosion as evident by the scoured banks along the length of this reach.

Upstream of the approximately 75m of channel and ravine which parallels the CN tracks, Watercourse 5.0 is situated adjacent to another industrial yard. Here the banks are frequently hardened, upstream to (and beyond) the Arvin Ave. crossing (Plate 19). Primarily a conveyance channel, the watercourse along this reach exhibits little defined morphology. Channel widening persists and a continued lack of fines indicates that these heavily urbanized, channelized reaches are subject to flashy, erosive flows.

Upstream of the Arvin Ave. crossing, channel alteration, in the form of bank hardening (Plates 20-21) and a confined channel, continues to result in bank undermining and unstable conditions. The observable effects, however, such as the severity predicted rate of erosion, lessen as the reach nears its upstream, undeveloped headwaters. Reduced watershed stressors, and lessened stream power (due to reduced drainage area in these upper reaches) result in an overall reduction in the degree of erosion. Though attenuated, the dominant process remains channel widening, as evident by basal scour, fallen vegetation, and top of bank fracture lines.

Upstream of Barton Street, Watercourse 5.0 exhibits a more natural form, though access was largely restricted due to property issues. Here, as seen on the left side of Plate 22, the channel appears to have ready access to its floodplain. Consequently, entrenchment appears reduced. Instances of leaning vegetation and severe bank instability are reduced.

Generally, upstream of South Service Road, Watercourse 5.0 can be considered unstable, with entrenched conditions and active widening dominating the geomorphic processes. Stream power diminishes further upstream and the effects of urbanization are lessened, resulting in less frequent instances of major bank and bed instability. Minor bank erosion persists throughout the entire subject area. The overall sensitivity to erosion has been classified as high (between SSR and the CN track) and moderate (upstream of the CN tracks) respectively. A stability index scored was calculated to be 0.40 for this reach, indicating and unstable channel on the cusp of transition and active adjustment.

Upstream of Barton Street, conditions appear much more stable. Aerial photography indicates that intense urbanization of the watershed ceases at this point.

Watercourse 6.0

Downstream of NSR to Lake Ontario
Watercourse 6.0 is an altered watercourse, previously straightened, located within a woodlot area set between an residential development (to the west) and a development under construction (to the east). Plate 23 provides an aerial view of Watercourse 6.0 downstream of the QEW.

The reach downstream of QEW represents a low energy system due to the shallow channel gradient. The system is unstable; however the dominant erosion process (channel widening) is retarded due to the lack of energy. With the exception of a few localized instances, the reach of Watercourse 6.0 between NSR and the new crossing (not yet complete) of Lakeshore Drive, is uniform in its geomorphic characteristics. Plates 24-30 illustrate this portion of channel.

As seen in Plate 24-30 channel banks are typically well vegetated and are relatively stable, sitting at bank angles between 1.5:1 and 2.1. Some leaning vegetation is evident, however the degree of lean and amount of exposed root is significantly less than that observed in other, more actively eroding reaches. Verification of presence/absence of basal scour was not entirely possible due to ice and snow cover.

Several pools and long glides exist, mostly separated by small debris jams that create mini cascades. Pools appear to retain a healthy quantity of fine grained material, suggestive of the low energy nature of flood discharge passing through this reach.

There is little to no sinuosity along this reach of Watercourse 6.0. Channel top widths range between 5-8m wide. The active channel, as defined by water marks, measured approximately 3m wide and 1m deep. Identification of naturally formed bankfull indicators is made difficult by the altered nature of the reach. The channel cross section can be described as a moderately entrenched. While there appears to be no evidence of flood flows gaining access to the adjacent floodplain, the wider cross section and shallow bank angles result in a reduction of depth of flow under flood conditions. This factor, combined with the low energy component, likely results in reduced bed and bank shear stress.

Erosive forces are, however, sufficient enough to cause significant bank erosion at localized channel constrictions, as seen in Plate 26. Here, fallen vegetation has resulted in a deflection of flows and severe bank erosion. This occurrence, however; is not symptomatic of Watercourse 6.0 downstream of QEW.

Downstream of a new (currently under construction) crossing of Lakeshore Drive, shown as a dashed yellow line on Plate 23; Watercourse 6.0 takes on a more entrenched cross section. Here (Plate 31-32), basal scour and other channel widening process dominate. This condition extends downstream to the enclosure of Watercourse 6.0 at Cope’s Lane.

Generally, the reach of Watercourse 6.0 downstream of QEW can be classified as unstable. Approximately 350m of channel (upstream of the new Lakeshore Drive crossing) may be considered moderately sensitive to erosion, lacking the specific energy necessary to cause accelerated bank erosion. A RGA was completed for this reach, producing a score of 0.24, indicating a system on the cusp of stable but still in transition or stressed. The reach downstream of the Lakeshore Drive crossing is considered unstable and highly sensitive to erosion, due, in part, to it's constricted cross section and exposed banks.

Between QEW and South Service Road (Plate 34)
Watercourse 6.0 between QEW, upstream to SSR, consists of a loosely defined, hummocky channel, set within a shallow valley feature. Channel banks have slumped in many locations, but exhibit not signs of mass failure (cracking) or scour. This reach is a low energy environment, not suffering from an entrenched cross section. The reach can be classified as unstable, due primarily to the frequently slumping banks; however, channel widening is not the active process.

The channel form within this reach is more indicative of retarded planimetric adjustment. The channel thalweg varies between well-defined and undefined, and alternates between a single and multi-threaded channel. The slumping banks are likely the remnants of historical, more active erosion. At present, the low flow channel is establishing its alignment, rearranging and reforming the low profile, hummocky banks. This reach of Watercourse 6.0 can be considered unstable and of moderate sensitivity to erosion.

Upstream of South Service Road (Plate 35)
Property access was hindered at this reach, but observations made from South Service Road indicate that this reach is suffering from instability in the form of channel widening. Heavily eroding banks are visible in the vicinity of SSR, and tall riparian vegetation can be seen leaning for some distance from the road. A specific determination of overall stability was not rendered due to the lack of property access.

Upstream and Downstream of Barton Street
Watercourse 6.0 in the vicinity of Barton Street is a highly altered, unstable reach where channel widening in the form of bank erosion dominates the geomorphic regime. Indicators of channel widening are evident in Plates 36-38. Streambank vegetation is exposed at the roots and leaning heavily. Bank undermining was observed throughout the reach. The longitudinal morphology of this reach consists of long pools, separated by fallen or accumulated debris. Few fines were observed in the pools. Channel entrenchment does not appear to be a major contributor to erosion within this reach; rather, urbanized flows and historical channel straightening are likely the root causes of the observe instability. This reach, immediately downstream of Barton Street, can be classified as unstable, having a moderate sensitivity to erosion.

Upstream of Barton Street (Plate 39) Watercourse 6.0 is incised, with some bank hardening evident. Property access was restricted to the reach immediately upstream of the Barton Street culvert. Here the channel exhibits same instabilities, as seen downstream, with widening being the dominant process.

<u>Watercourse 6.1</u>

Downstream of QEW (Plate 43)
Watercourse 6.1 downstream of the NSR culvert has been realigned in a natural valley configuration. This work was recently completed, in that the erosion control blanket has obviously recently been laid. As such, the reach was not examined for geomorphic conditions.

Upstream of QEW
Watercourse 6.1 at South Service Road (Plate 44) consisted of primarily cattail lined ditch drainage. No morphological features were detected. Channel banks are grassed and low in profile. Property access was restricted in the industrials lands between SSR and Barton Street. No instabilities were observed. Channel definition at Barton Street is further marginalized, with the grassed ditches here having little to no riparian vegetation. Some drainage was noted at the terminus of Arvin Ave. This reach also contained no channel of geomorphic significance, and can be better classified as a pooled backwater area. Watercourse 6.1 upstream of QEW can therefore generally be classified as stable and of low sensitivity to erosion.

<u>Watercourse 6.2 and 6.3</u>

Downstream of QEW
Watercourse 6.2 downstream of the QEW consists of a low energy system, a 125m portion of which is well vegetated with woody riparian species (Plate 46). Banks are relatively low in profile and appear stable. Finer, mucky substrates dominate this reach. Downstream of these wooded channel, Watercourse 6.2 flows into a rip rap, engineered channel (Plate 47); it's location shown on Plate 45 between the two yellow lines. Further downstream the watercourse flows through an open meadow, devoid of significant riparian vegetation, but similar in morphology to the wooded reach. Both portions of channel suffer from a lack of morphological features, dominated by stagnant water or long pools having muck bottoms. The entire reach can be classified as stable and of low sensitivity to erosion, due primarily to the lack of available erosive energy (stream power) and the controlling rip rap channel. A RGA was completed for this reach, producing a score of 0.12, indicating a stable reach.

Watercourse 6.3 downstream of the QEW flows for only a short distance of open channel, before entering a small stormwater management facility. This channel can be characterized as cattail lined, ditch drainage having no morphological significance. The watercourse is enclosed downstream of this SWM pond to its outlet to Lake Ontario.

Upstream of QEW
Watercourse 6.2 upstream of the QEW flows only as grassed ditch drainage, following the alignment of Constellation Drive.

Watercourse 6.3 was not located upstream of the QEW.

Conclusions

The observed reaches appear to have commonalities, in that all are either partially or fully classified as geomorphically adjusting systems. These findings are typical of fluvial systems set within highly urbanized watersheds, in particular those lacking significant stormwater management, as is the case in this block of land.

The existing conditions findings will be employed as input into the decision matrix, aiding in the development and evaluation of storm water improvement alternatives.

Geomorphic Assessment Photo Record

Plate 1 – Aerial Photo: date unknown

Plate 2 – Nov 30, 2006

Plate 3 – Nov 30, 2006

Plate 4 – Aerial Photo: date unknown


Plate 5 – Dec 5, 2006


Plate 6 – Dec 5, 2006


Plate 7 – Dec 5, 2006


Plate 8 – Dec 5, 2006

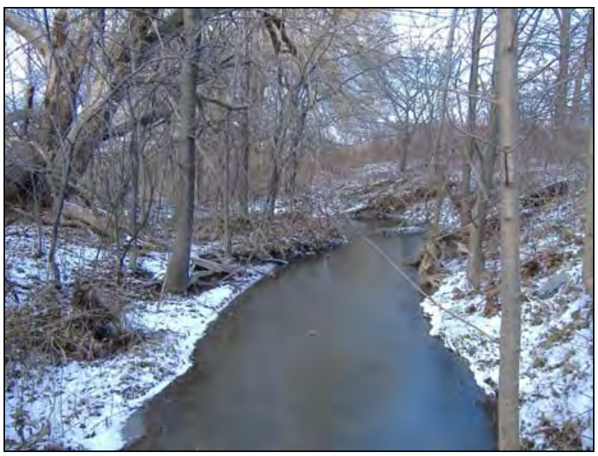


Plate 9 – Dec 5, 2006


Plate 10 – Dec 5, 2006


Plate 11 – Dec 5, 2006


Plate 12 – Dec 5, 2006

Plate 13 – Aerial Photo: date unknown

Plate 14 – Dec 5, 2006

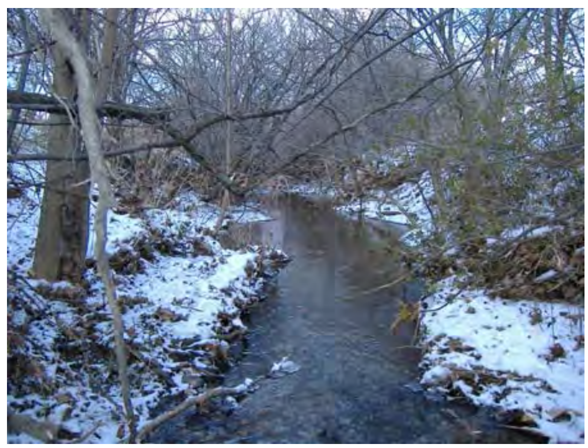


Plate 15 – Dec 5, 2006

Plate 16 – Dec 5, 2006


Plate 17 – Dec 5, 2006


Plate 18 – Dec 5, 2006


Plate 19 – Dec 5, 2006


Plate 20 – Dec 5, 2006


Plate 21 – Dec 5, 2006


Plate 22 – Dec 5, 2006

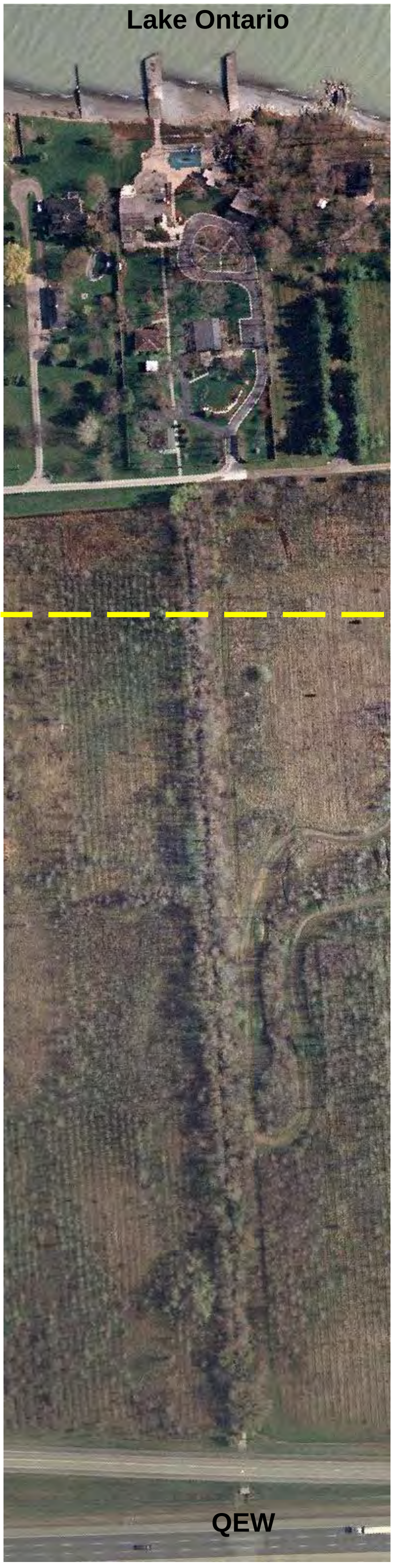


Plate 23 – Aerial Photo: date unknown

Plate 24 – Dec 5, 2006

Plate 25 – Dec 5, 2006

Plate 26 – Dec 5, 2006

Plate 27 – Dec 5, 2006

Plate 28 – Dec 5, 2006

Plate 29 – Dec 5, 2006

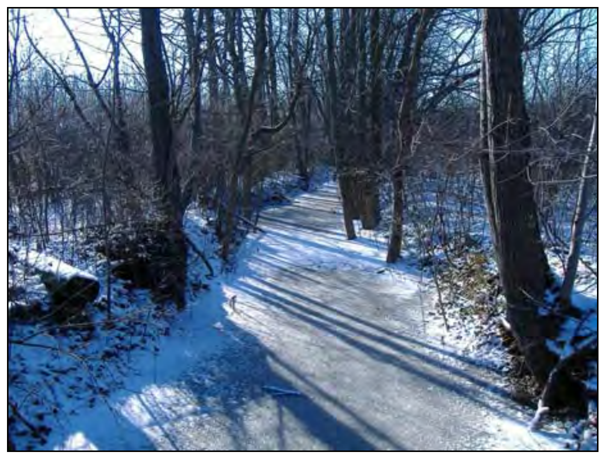


Plate 30 – Dec 5, 2006

Plate 31 – Dec 5, 2006

Plate 32 – Dec 5, 2006

Plate 33 – Aerial Photo: date unknown

Plate 34 – Dec 5, 2006

Plate 35 – Dec 5, 2006

Plate 36 – Dec 5, 2006

Plate 37 – Dec 5, 2006

Plate 38 – Dec 5, 2006

Plate 39 – Dec 5, 2006

Plate 40 – Dec 5, 2006

Plate 41 – Dec 5, 2006

Plate 42 – Dec 5, 2006

Plate 43 – Dec 5, 2006

Plate 44 – Dec 5, 2006

Plate 45 – Aerial View, Date Unknown

Plate 46 – Dec 5, 2006

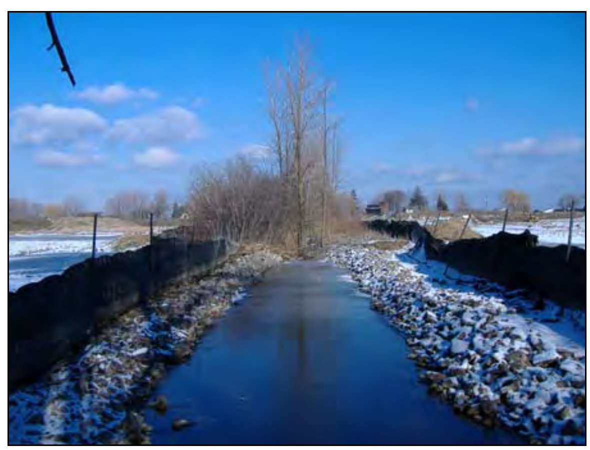


Plate 47 – Dec 5, 2006

APPENDIX C:

Natural Heritage Assessment of Lands Bounded by Fruitland Road, Glover Road, Barton Street and Highway 8, City of Hamilton, Dillon Consulting Limited, October 2009

Natural Heritage Assessment of Lands Bounded by Fruitland Road, Glover Road, Barton Street and Highway 8, City of Hamilton - DRAFT

October 2009

City of Hamilton

09-1881

Submitted by

Dillon Consulting Limited

October 7, 2009

[redacted]

Mark Brobbel, M.Sc.

[redacted]

The assessment was used in conjunction with historical rare bird species accounts from the NHIC and Ontario Breeding Bird Atlas data to determine which species are likely to occur in the Study Area that are listed under the federal *Species at Risk Act*, provincial *Endangered Species Act*, or that may otherwise be of management concern.

Wildlife species including mammals, lepidopterans and odonata, were recorded through incidental observations during all phases of field work in the Study Area and are reported herein.

2.6 Fisheries Survey

Fisheries field work was conducted on May 25, 2009. Due to site access issues and the overall length of Watercourse #5, three (3) representative reaches were selected and investigated in detail. They are known herein as the "Downstream Section", "Middlestream Section", and "Upstream Section." For these sections, watercourse field record forms and habitat map forms were used to record detailed information, and photographs were taken to show existing conditions. General notes and photographs were taken at key points along Watercourse #6 and #7 to document their features and functions within the Study Area.

Fish community surveys were conducted in the Watercourse #5 system, where conditions permitted, using a Model HT 2000B backpack electrofishing unit.

The results of the review of background information and field investigations were compared and used to summarize existing fish habitat conditions and to confirm the status of the fishery in each system (i.e., direct, indirect, or not fish habitat). In addition, this information was used to identify constraints to development, potential impacts from surrounding development, and appropriate mitigation measures necessary to protect the watercourses.

2.7 Species at Risk

Several sources, including: the NHIC database; the Atlas of Mammals of Ontario (Dobbyn, 1994); the Ontario Herpetofaunal Atlas (Oldham and Weller, 2000); the Ontario Breeding Bird Atlas (2001-2005); the federal *Species at Risk Act* (SARA) Public Registry (http://www.sararegistry.gc.ca/default_e.cfm); and the provincial species at risk (SAR) list (http://www.mnr.gov.on.ca/MNR/speciesatrisk/status.html) formed the basis to establish the possible presence of species at risk in or immediately adjacent to the Study Area. Consultation with the Hamilton Conservation Authority also occurred. The MNR was contacted for this study but no response was received at the time of writing this report.

3. RESULTS

3.1 Natural Heritage Features and Designations

Through consultation with Hamilton Conservation Authority and a search of the NHIC database, no designated Natural Areas (i.e. ANSI, ESA, Conservation Areas, etc.) were found within or directly adjacent to the Study Area. According to the Hamilton Conservation Authority, they do not have species or habitat information for the Study Area.

Review of the City of Hamilton Watercourse 5 & 6 Class Environmental Assessment Study Draft Report (Dillon 2007) found correspondence records outlining aquatic and terrestrial features within the Study Area. It is noted that, DFO and OMNR have identified Watercourses #5, 6 and 6.1 as fish habitat. However, the Hamilton Conservation Authority also states that due to perched culverts at the watercourse outlets to Lake Ontario, it is unlikely that they directly support a fish population, but they contribute as indirect fish habitat. In addition, communication with MNR for the aforementioned study revealed that no fisheries information exists for these particular watercourses (#5, 6 and 6.1).

Dillon (2007) confirmed with the MNR that *no provincially significant wildlife usage, woodlots, wetlands, or species at risk currently exist within the* watercourse #5 & #6 Study Area which overlaps partially with the current Study Area. Further information specifically relating to these watercourses and their associated aquatic habitat can be found in Section 3.6 of this report.

Review of the Urban Hamilton Official Plan found that the Study Area is included entirely within the urban boundary. Schedule B – Natural Heritage System of the Urban Official Plan identifies *Core Areas*. Core Areas include key natural heritage features and key hydrologic features of the Greenbelt Plan as well as other locally and provincially significant natural areas that have been identified within and outside the Greenbelt Plan

Area. Local natural areas to be included as core areas are specifically identified by Schedules B1-8 - Detailed Natural Heritage Features. See **Appendix A** for all Urban Hamilton Official Plan Schedules referred to in this report.

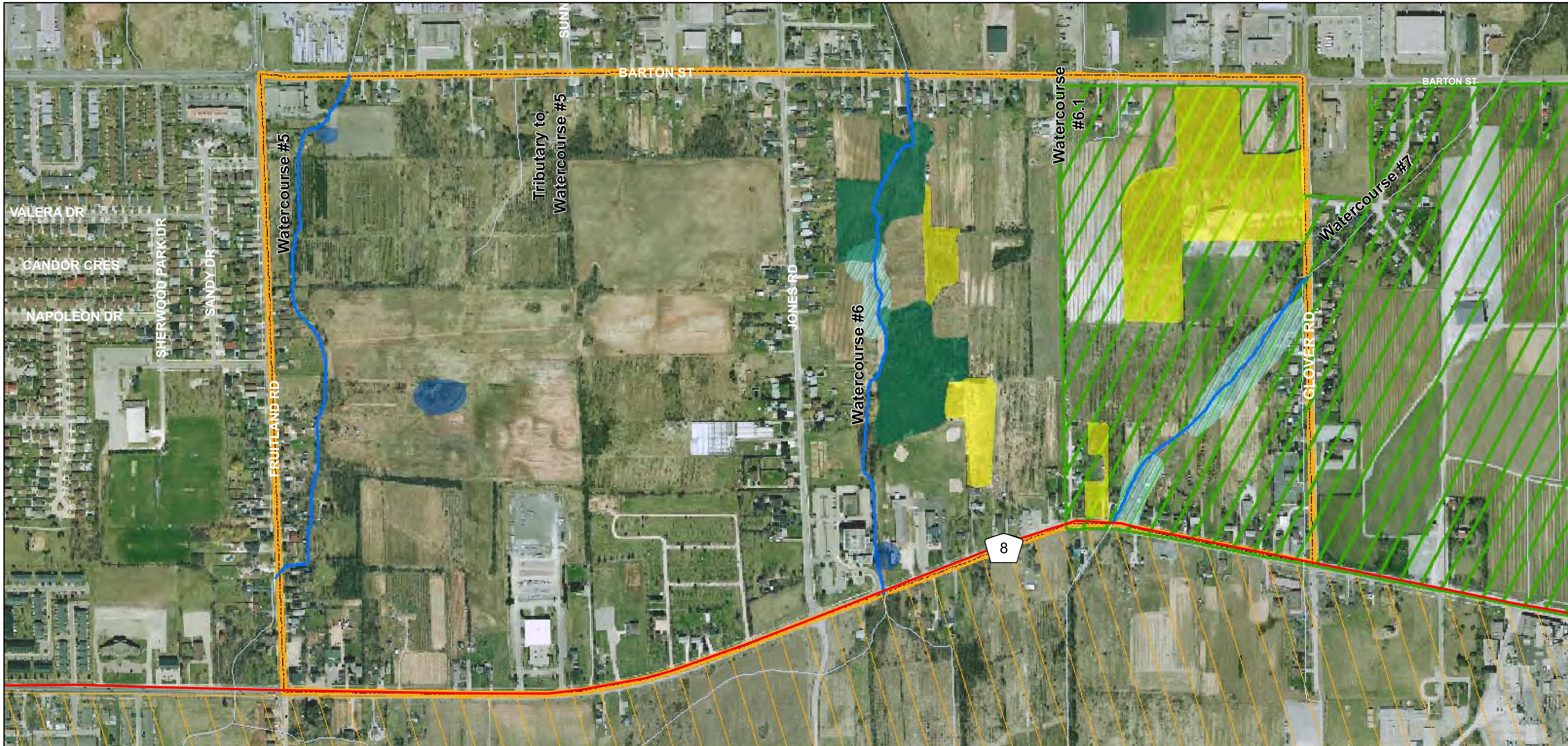
Two *Core Areas* are located along Watercourse #6 and four *Linkage* areas are scattered within the eastern block of the Study Area (see **Figure 3.1**). The two *Core Areas* are further defined on Schedules B-2 and B-4, comprised of two significant woodlands and one wetland. Additionally, Schedules B2 and B4 show a little woodland and two smaller wetlands located along Watercourse #7. Schedules B-5 and B-8 identify *Key Littoral Zones* and *Key Stream Features*, respectively. Within the Study Area, there are three small *Littoral Zone Features* within the western block and Watercourses #5, 6 and 7 are designated as *Key Stream Features* (see **Figure 3.1**).

A portion of the Study Area is also included in the Greenbelt Plan area. The property known as Concession 2, Lot 11 is designated as *Protected Countryside* under the Greenbelt Plan (see **Figure 3.1**). The Greenbelt designated area within this property is bounded by Barton Street to the north, Glover Road to the east, Highway 8 to the south and Concession 2, Lot 13 to the west. Section 4.0 of the Greenbelt Plan (MMAH 2005) outlines the general policies relating land uses for *Protected Countryside* areas.

Immediately adjacent to the Study Area, south of Highway 8, the Niagara Escarpment Planning Area occurs (see **Figure 3.1**). This section of the Niagara Escarpment Planning Area is designated as Protection Area (Schedule A – Rural Hamilton Official Plan). Land use for this area is designated as Specialty Crop (Schedule D – Rural Hamilton Official Plan).

3.2 Ecological Land Classification

The Study Area is comprised of a mixture of natural and cultural vegetation communities, ranging from deciduous forest/swamps to agricultural fields. With information gathered during field studies, vegetation communities were mapped on aerial photography according to ELC nomenclature to graphically represent the specific spatial pattern in the vegetation cover according to species composition, physiognomy, and physical site characteristics (see **Figure 3.2**).



Natural Heritage Assessment of Lands Bounded by Fruitland Road, Glover Road, Barton Street and Highway 8, City of Hamilton
Figure 3.1: Natural Features Background Information

Legend

Key Natural Heritage Feature
- Core Areas/Significant Woodlands
- Linkage

Key Hydrologic Feature
- Wetland
- Lakes & Littoral Zones
- Streams

- Highway
- Watercourse
- Protected Countryside
- Niagara Escarpment Plan Area
- Study Area

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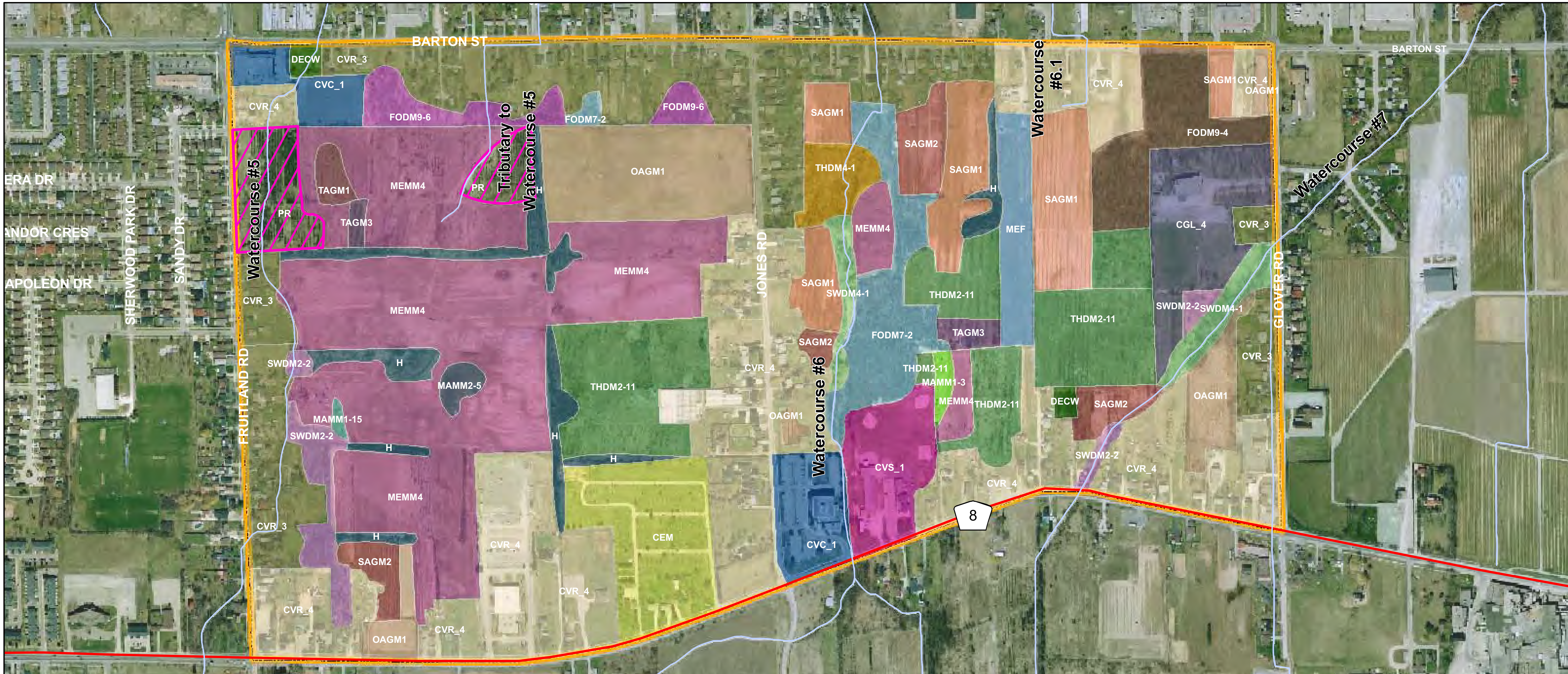

Natural Heritage Assessment of Lands Bounded by Fruitland Road, Glover Road, Barton Street and Highway 8, City of Hamilton
Figure 3.2 Ecological Land Classification

Legend

- CEM: Cemetery
- CGL_4: Recreational
- CVC_1: Business Sector
- CVR_3: Single Family Residential
- CVR_4: Rural Property
- CVS_1: Education
- DECW: Deciduous Woodlot
- FODM7-2: Green Ash Hardwood Lowland Deciduous Forest
- FODM9-4: Fresh Moist Shagbark Hickory Deciduous Forest
- FODM9-6: Fresh Moist Oak-Hardwood Deciduous Forest
- H: Hedgerow
- MAMM1-15: Bulrush Graminoid Mineral Meadow Marsh
- MAMM1-3: Reed Canary Grass Graminoid Mineral Meadow Marsh
- MAMM2-5: Purple Loosestrife Forb Meadow Marsh
- MEF: Forb Meadow
- MEMM4: Fresh-Moist Mixed Meadow
- OAGM1: Annual Row Crops
- PR: Plantation Removed
- SAGM1: Vineyard
- SAGM2: Orchard
- SWDM2-2: Green Ash Mineral Deciduous Swamp
- SWDM4-1: Willow Mineral Deciduous Swamp
- TAGM1: Coniferous Plantation
- TAGM3: Deciduous Plantation
- THDM2-11: Hawthorn(dogwood/ buckthorn) Deciduous Shrub Thicket
- THDM4-1: Native Deciduous Regeneration Thicket
- Highway
- Watercourse
- Study Area

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Eleven distinct ELC communities within the Study Area limits were identified to the vegetation level. These include:

- Fresh-Moist Green Ash Hardwood-Lowland Deciduous Forest (FODM7-2);
- Fresh-Moist Shagbark Hickory Deciduous Forest (FODM9-4);
- Fresh-Moist Oak – Hardwood Deciduous Forest (FODM9-6);
- Fresh-Moist Mixed Meadow (MEMM4);
- Bulrush Gaminoid Mineral Meadow Marsh (MAMM1-15);
- Purple Loosestrife Forb Mineral Meadow Marsh (MAMM2-5);
- Reed Canary Grass Graminoid Mineral Meadow Marsh (MAMM1-3);
- Green Ash Mineral Deciduous Swamp (SWDM2-2);
- Willow Mineral Deciduous Swamp (SWDM4-1);
- Hawthorn (Dogwood/Buckthorn) Deciduous Shrub Thicket (THDM2-11);
- Native Deciduous Regeneration Thicket (THDM4-1);

Areas classified to the ELC community level documented in the Study Area include:

- Deciduous Woodlot (DECW)
- Forb Meadow (MEF);

Cultural areas documented in the Study Area include:

- Annual Row Crop (OAGM1);
- Vineyard (SAGM1);
- Orchard (SAGM2);
- Coniferous Plantation (TAGM1);
- Deciduous Plantation (TAGM3); and
- Hedgerow (H).

According to the NHIC, vegetation units surveyed in the Study Area are considered Secure in the province of Ontario (S5). For a couple of naturally occurring vegetation classifications, no provincial status was available. From our experience, these un-rated vegetation units are common in Ontario. See **Table 1** for detailed descriptions of each ELC community documented within the Study Area.

It should be noted that two tree plantation areas (2.50 ha and 1.08 ha) have been harvested in the recent past (See **Figure 3.2**). These plantation areas appear to have been removed within the last year as the land is denude of successional vegetation. Also, one 1.44 ha forested area in the floodplain of Watercourse #6 that had been harvested approximately five to ten years ago and has regenerated into a native deciduous thicket community.

Table 1 – Description of ELC Communities

ELC Code	Classification	Soils/Hydrology	Vegetation	Comments
DECW	Deciduous woodlot	-	This small woodlot consists of common buckthorn, red ash, domestic apple, Norway maple, hawthorn and gray dogwood.	This community is present alongside the hawthorn deciduous thicket and orchard in the eastern portion of the Study Area.
FODM7-2	Fresh-Moist Green Ash Hardwood-Lowland Deciduous Forest	Silty Clay; 3-4 moisture regime **Photo 20** in **Appendix C** (typical soil profile)	This mid-aged community's canopy and sub-canopy is dominated by red ash with rare occurrences of shagbark hickory, red oak and maple. Understory consists of bur oak, buckthorn and red ash. Jack'n pulpit, garlic mustard, enchanter's nightshade and spotted jewelweed are all present in groundcover.	This community is located along parts of the riparian corridor of Watercourse #6.
FODM9-4	Fresh-Moist Shagbark Hickory Deciduous Forest	Clay; 6 moisture regime	This mature community evenly contains shagbark hickory, bur oak and red oak. The understory contains red ash, red oak and white elm. Ground cover included Spotted Crane's Bill, jack'n pulpit, and Virginia creeper.	This community is located within the rural properties and vineyards in the northeastern portion of the Study Area.
FODM9-6	Fresh-Moist Oak – Hardwood Deciduous Forest	Silty clay loam; 5 moisture regime	The canopy of this naturally treed community's canopy is characterized by mature bur oak, white oak, red oak and shagbark hickory with a sub-canopy of red ask, trembling aspen and white elm. The understory is dominated by buckthorn with gray dogwood and pasture rose found occasionally.	This remnant mature forest community is a transition area between residential properties and agricultural fields in the northeastern section of the Study Area. A small green ash lowland forest (FODM7-2) was documented just east of

ELC Code	Classification	Soils/Hydrology	Vegetation	Comments
			The ground layer contains herbaceous species such as jack'n pulpit.	this community.
MEF	Forb Meadow	-	This forb meadow community consisted of common forb species such as wild carrot, red clover and goldenrods.	This community has a significantly lower percent composition of graminoid species than the mixed meadow community.
MEMM4 Inclusions: 1.MAMM1-15 2.MAMM2-5 & 3.MAMM1-3 **Photo 15** in **Appendix C**	Fresh-Moist Mixed Meadow Inclusions: 1. Bulrush Gaminoid Mineral Meadow Marsh 2. Purple loosestrife Forb Mineral Meadow Marsh & 3. Reed Canary Grass Graminoid Mineral Meadow Marsh	Clay; 6 moisture regime	The sparse canopy in this young community contains crabapple. The dominant understory consists of hawthorn, gray dogwood and rose species, while the ground layer is characterized by blue grass, barn grass, red top grass, wild carrot, red clover and timothy. <u>Inclusion #1</u>. This small bulrush meadow marsh has a dominant presence of hardstem bulrush. Other species present include purple loosestrife, barnyard grass, water plantain, curly dock, goldenrod and common cattail. <u>Inclusion #2</u>. Purple loosestrife dominates the area with common occurrences of common cattail. Other species include common reed, black bulrush, wild carrot, red osier dogwood. <u>Inclusion #3</u>. Monoculture of reed canary grass.	This large open community dominates large portions of the northwestern section of the Study Area. <u>Inclusion #1</u>. Evidence of standing water in the bulrush meadow marsh was present during September field work. <u>Inclusion #2</u>. This small purple loosestrife meadow marsh has a high presence of alien species No standing water was evident within the marsh in September. <u>Inclusion #3</u>. This meadow marsh vegetation community is a wet depression in the topography. .

ELC Code	Classification	Soils/Hydrology	Vegetation	Comments
OAGM1	Annual Row Crop	-	Cropland (e.g. soy, lettuce, etc.)	Active agricultural areas.
SAGM1 **Photo 16** in **Appendix C**	Vineyard	-	Vineland crop (e.g. grape)	Active agricultural areas.
SAGM2	Orchard	-	Orchard crop (e.g. apple, pear, etc.)	Active agricultural areas.
SWDM2-2 Inclusion: 1.SWDM4-1 **Photo 18** in **Appendix C**	Green Ash Mineral Deciduous Swamp Inclusion: 1. Willow Mineral Deciduous Swamp	Clay; 6 moisture regime	This natural wetland system's canopy is dominated by red ash with occasional presence of bur oak, white willow and Manitoba maple. The understory contains buckthorn, red ash and gray dogwood. The ground layer includes buckthorn, spotted jewelweed and common strawberry. 1. This is a willow swamp riparian community which occupies the banks of watercourse #6 and 7.	The green ash and willow mineral deciduous swamp vegetation types are the most common riparian vegetation communities in the Study Area.
TAGM1	Coniferous Plantation	-	This cultural area is located in the north-west portion of the site. Typical stands include Scotts pine, red pine, white pine, white spruce, etc.	Note: Plantation areas have been removed (labeled PR on the ELC figure). A small plantation area remains.
TAGM3	Deciduous Plantation	-	This cultural area is located in the north-west portion of the site. Typical stands include maple and oak species.	Note: Plantation areas have been removed (labeled PR on the ELC figure). A small plantation area remains.
THDM2-11	Hawthorn	Silty clay loam; 1 moisture	This young thicket consists of an	Extensive gaps were found

ELC Code	Classification	Soils/Hydrology	Vegetation	Comments
Photo 17 in **Appendix C**	(Dogwood/Buckthorn) Deciduous Shrub Thicket	regime	canopy of a variety of deciduous species including crabapple, red ash and bur oak. Buckthorn, gray dogwood and hawthorn species dominate the understory. Wild carrot, red clover, timothy and buckthorn are common groundcover.	within the canopy. This small thicket is a transition area between lowland deciduous forest and graminoid mineral meadow marsh.
THDM4-1 **Photo 19** in **Appendix C**	Native Deciduous Regeneration Thicket	Silty clay; 2 moisture regime.	This native thicket community is dominated by a canopy of shagbark hickory, red ash and bur oak under 2m in height. The understory consists of buckthorn, red oak, shagbark hickory and red ask. Aster species, wild carrot and goldenrod are common amongst the groundcover.	This area has been extensively logged within the last 5 to 10 years and has been allowed to regenerate.
Other ELC Codes				
CEM	Cemetery	-	-	Graveyard and associated buildings.
CGL_4	Recreational	-	-	Recreation Centres.
CVR_3	Single Family Residential	-	-	Large single family dwellings lots that occasionally have small agricultural cropland/vineland areas.
CVR_4	Rural Property	-	-	Small single family dwellings lots
CVS_1	Education	-	-	School facility
H	Hedgerow	-	Mainly consist of deciduous trees and shrubs. High composition of non-native species (e.g. crab apple,	Hedgerows that divide agricultural fields.

ELC Code	Classification	Soils/Hydrology	Vegetation	Comments
			buckthorn)	
PR	Plantation Removed	-	-	Denotes harvested area. Land is currently denude of vegetation.

3.3 Botanical Survey

In total, 194 flora species were identified within the Study Area during the spring and early summer of 2009. A full list of plant species encountered during field surveys, including the status of individual species, is presented in **Table B.1** in **Appendix B.** Of these, 80 (41.2%) are listed as exotic or non-native species. No plants observed are listed species under the federal *Species at Risk Act* or the provincial *Endangered Species Act*. A total of 17 (8.8%) of the species encountered have a coefficient of conservatism of 6 or greater. To put that into context, the coefficients of conservatism (CC) ranges from 0 to 10 and represents an estimated probability that a plant is likely to occur in a landscape relatively unaltered from what is believed to be a pre-settlement condition. For example, a CC of 0 is given to plants such as Manitoba maple (*Acer negundo*), which have demonstrated little fidelity to undisturbed sites (i.e. may be found almost anywhere). Similarly, a CC of 10 is applied to plants like shrubby cinquefoil that are almost always restricted to a pre-settlement remnant (i.e. a high quality natural area). Introduced plants were not part of the pre-settlement flora, so no CC value is applied to these. The 17 species with a coefficient of conservatism of 6 or greater found within the Study Area include:

- Arrow-leaved aster (*Aster urophyllus*);
- Water arum (*Calla palustris*);
- Blue beech (*Carpinus caroliniana*);
- Shagbark hickory (*Carya ovata*);
- Blue bead lily (*Clintonia borealis*);
- Northern willow-herb (*Epilobium ciliatum ssp. glandulosum*);
- American beech (*Fagus grandifolia*);
- Spotted crane’s-bill (*Geranium maculatum*);
- Small forget-me-not (*Myosotis laxa*);
- Virginia creeper (*Parthenocissus quinquefolia*);
- White spruce (*Picea glauca*);
- White lettuce (*Prenanthes alba*);
- White oak (*Quercus alba*);
- Red oak (*Quercus rubra*);
- Pasture rose (*Rosa carolina*);
- Hardstem bulrush (*Scirpus acutus*); and

- Rose twisted stalk (*Streptopus roseus*).

3.4 Amphibians

Amphibians were monitored at five sites during the first of three surveys (April 17, 2009) conducted during the spring of 2009 (see Amphibian Monitoring Stations 1 to 5 on **Figure 2.1**). After the Study Area was expanded, seven more monitoring stations were added to accommodate the larger Study Area, resulting in twelve stations in total that were monitored for the final two survey dates on May 13 and June 9, 2009.

Survey point counts were located along public roads adjacent to areas where potential habitat could or did exist, as access to the interior portions of Study Area had not yet been attained.

Field work documented two amphibian species during the breeding season, which include the western chorus frog (*Psudacris triseriata*) and the tetraploid gray treefrog (*Hyla versicolor*). **Table 2** shows dates observed, calling codes and numbers of individuals observed, where possible. Two additional species were recorded through incidental observations during other field studies including Northern leopard frog (*Rana pipiens*) and green frog (*Rana clamitans*). All amphibian species observed are considered common to very common in the Province of Ontario and not evaluated as at risk by COSEWIC or COSSARO. Locally, all species are considered as either C*ommon* or A*bundant* according to the Hamilton Natural Areas Inventory (Dwyer, 2003).

During field work, salamanders were actively searched for in areas where appropriate habitat existed; none were found. Appropriate habitat is considered to be deciduous forests with moist, loose soils, under logs/deadfall or in leaf litter and ephemeral pools. There are areas of deciduous forests within the Study Area, as described in the ELC; however, no ephemeral pools were observed during field studies when the study team had full access to the entire Study Area.

Table 2: Amphibian Survey Results

Species (L Rank)	**Survey Stations**											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
	Code-Ind.	Code-Ind.	Code-Ind.	Code-Ind.	Code-Ind.	Code-Ind.	Code-Ind.	Code-Ind.	Code-Ind.	Code-Ind.	Code-Ind.	Code-Ind.
Western Chorus Frog												
April 17, 2009	nc	2-1	nc	1-3, 2-5	2-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
May 13, 2009	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	Nc	nc
June 9, 2009	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	Nc	nc
Gray Treefrog												
April 17, 2009	nc	nc	nc	nc	nc	N/A	N/A	N/A	N/A	N/A	N/A	N/A
May 13, 2009	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
June 9, 2009	nc	nc	nc	nc	nc	nc	1-2	nc	nc	1-1*	nc	nc

N/A – Not Applicable, No surveys were conducted at these locations on this date.
nc – No Calling
* - Calls were heard outside of the survey count circle

3.5 Wildlife Surveys

Avian Community

Breeding bird surveys identified 52 species, with 6 additional species observed during other phases of field work, for a total of 58 bird species observed in the Study Area. Data from the 2nd Ontario Breeding Bird Atlas (BBA) indicates that a total of 103 bird species were found as possible, probable or confirmed breeders in atlas square 17PH08, which encompasses the Study Area.

The BBA data indicates that a total of 5 species at risk were found with breeding evidence in square 17PH08 during the second atlas project including short-eared owl (*Asio flammeus*), common nighthawk (*Chordeiles minor*), chimney swift (*Chaetura pelagica*), redheaded woodpecker (*Melanerpes erythrocephalus*) and Canada warbler (*Wilsonia canadensis*). Two individuals of chimney swift (*Chaetura pelagica*), which is federally and provincially listed as Threatened, were observed during field work. These birds were observed foraging in the air over the John Knox Christian school grounds near the Highway 8-Jones Road intersection. Species at risk are discussed in detail in Section 3.7.

Conservation Priority Species

The Conservation Priority for Birds of Southern Ontario report (Couturier, 1999) aims to help planning authorities set priorities for conservation efforts by targeting bird species (and their associated habitats) that are significant within their region. Specifically, this report advocates the use of prioritized lists of birds as tools that planning authorities might use when developing Official Plans (e.g., identifying significant wildlife habitat, Environmentally Sensitive Areas, etc.) and when evaluating development proposals.

Three distinct approaches have been used in establishing conservation priorities at the municipal level including Jurisdictional Responsibility, Preservation Responsibility, and Area Sensitivity. Each species breeding within each southern Ontario municipality is assigned a score for each of the three components. A species is added to the municipal priority list if it scores highly on at least one of the three individual components. A composite score is derived by summing the three individual scores and is used to rank species by conservation priority for planning purposes at the local level.

The list is designed to identify a broad group of species that represent a priority for conservation, based on the three components that make up the approach. Thus, the list is not intended to identify only rare species or species under immediate threat or in need of population restoration. Further, the approach is not designed to identify species that are indicators of ecosystem health or integrity. While many such species will undoubtedly be on the list, municipalities and others will be left with the job of deciding how to apply this information (Couturier, 1999).

Based on Appendix G – Master Priority Table for Southern Ontario (Couturier, 1999) we have determined that a total of 23 conservation priority species from the former Hamilton-Wentworth Region (which encompasses the Study Area) were observed during field surveys, including:

- Common loon (*Gavia immer*);
- American woodcock (*Scolopax minor*);
- Sora (*Porzana carolina*)/Virginia Rail (*Rallus limicola*);
- American goldfinch (*Carduelis tristis*);
- Barn swallow (*Hirundo rustica*);
- Northern rough-winged swallow (*Stelgidopteryx serripennis*);
- Black-capped chickadee (*Poecile atricapillus*);
- Bobolink (*Dolichonyx oryzivorus*);
- Eastern meadowlark (*Sturnella magna*);
- Orchard Oriole (*Icterus spurious*);
- Eastern kingbird (*Tyrannus tyrannus*);
- Horned lark (*Eremophila alpestris*);
- Northern mockingbird (*Mimus polyglottos*);
- Field sparrow (*Spizella pusilla*);
- Savannah sparrow (*Passerculus sandwichensis*);
- Swamp sparrow (*Melospiza georgiana*);
- Clay-coloured sparrow (*Spizella pallida*);
- White-throated sparrow (*Zonotrichia albicollis*);
- Mourning warbler (*Oporornis philadelphia*);
- American redstart (*Setophaga ruticilla*);
- Ovenbird (*Seiurus aurocapilla*);

- Yellow-rumped warbler (*Dendroica coronata*); and
- Blue-grey gnatcatcher (*Polioptila caerulea*).

Area Sensitive Species

Area sensitivity is based on the concept that certain species of birds will require a larger amount of preferred habitat to consistently breed within a region. Conversely, species not considered as area sensitive can be found breeding throughout a region, regardless of the amount of a particular preferred habitat type (Couturier 1999). During breeding bird surveys, 12 species considered area sensitive open country birds were observed, including:

- Northern mockingbird (*Mimus polyglottos*);
- Barn swallow (*Hirundo rustica*);
- Northern rough-winged swallow (*Stelgidopteryx serripennis*);
- Clay-coloured sparrow (*Spizella pallida*);
- Savannah sparrow (*Passerculus sandwichensis*);
- Field sparrow (*Spizella pusilla*);
- American goldfinch (*Carduelis tristis*);
- Brown-headed cowbird (*Molothrus ater*);
- Eastern meadowlark (*Sturnella magna*);
- Bobolink (*Dolichonyx oryzivorus*);
- Eastern kingbird (*Tyrannus tyrannus*); and
- Horned lark (*Eremophila alpestris*).

Three area sensitive marsh species were observed during breeding surveys, including swamp sparrow, common loon (observed flying over the Study Area) and a small rail not identified to species (sora or Virginia rail, both of which are considered area sensitive).

One area sensitive forest species was observed during breeding surveys, including mourning warbler (*Oporornis philadelphia*).

A table of bird species observed during field work along with conservation status is presented in **Table B.2** in **Appendix B**.

Other Wildlife Observations

Mammals

Information from the Atlas of the Mammals of Ontario (Dobbyn 1994) indicates that 22 mammal species have been observed in the vicinity of the Study Area, all of which are considered secure in Ontario (see **Table B.3** in **Appendix B**). Of these, 6 species of mammals were observed during field work including: white–tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), eastern cottontail (*Sylvilagus floridanus*), grey squirrel (*Sciurus carolinensis*), meadow vole (*Microtus pennsylvanicus*) and northern short-tailed shrew (*Blarina brevicauda*).

Herptiles

Ontario Herptofaunal Atlas information (Oldham and Weller 2000) indicates that 15 species of amphibian and 13 reptile species have been observed in the vicinity of the Study Area, including 7 species at risk: Jefferson salamander (*Ambystoma jeffersonianum*), common snapping turtle (Chelydra serpentina), Blanding's turtle (*Emydoidea blandingi*), wood turtle (*Clemmys insculpta*), eastern spiny softshell (*Apalone spinifera spinifera*), northern ribbon snake (*Thamnophis sauritus septentrionalis*), and eastern milk snake (*Lampropeltis triangulum*). Species at risk are discussed in detail in Section 3.7.

One species of reptile was observed during field work, the eastern garter snake (*Thamnophis sirtalis sirtalis*), which is a common species and considered secure in Ontario. Two individuals were observed between avian point counts 1 and 2 in oldfield habitat, between Jones Road and Glover Road.

Tables listing mammal and herptile species observed during fieldwork or having the potential to occur in the Study Area, along with conservation status are presented in **Table B.3** in **Appendix B**.

Invertebrates

No records for rare invertebrate species in or near the Study Area were indicated by NHIC Database information. A total of 7 species of lepidopterans were observed during field work including:

- Monarch (*Danaus plexippus*) (S2N, S4B);
- Question mark (*Polygonia interrogationis*) (S5);

- Cabbage white (*Pieris rapae*) (SNA - exotic);
- Sulphur sp. (*Colias* sp.);
- Eastern tailed blue (*Everes comyntas*) (S5);
- Virginian tiger moth caterpillar (*Spilosoma virginica*) (S5); and
- Northern crescent (*Phyciodes cocyta*) (S5).

In addition, two species of odonates were observed during field work:

- Green darner (*Anax junius*) (S5); and
- Black saddlebags (*Tramea lacerata*) (S4)

All of the invertebrates observed are considered secure in Ontario with the exception of the monarch butterfly, which is listed federally and provincially as Special Concern. Species at risk are discussed in detail in Section 3.7.

3.6 Fisheries Survey

The results of recent field work undertaken on May 25, 2009 are provided in this section, with references to photographs provided in **Appendix C** and corresponding locations on **Figure 2.1**.

Watercourse #5

This system drains northerly towards Lake Ontario adjacent to Fruitland Road and has been significantly altered to accommodate surrounding land uses. In the Study Area, Watercourse #5 is a permanently flowing system with habitat conditions indicative of degraded, warmwater systems. The channel generally conveys flow from south to north, emptying into a private boat harbour at Lake Ontario approximately 1.3km downstream. Major crossings of Watercourse #5 include the Queen Elizabeth Way (QEW), a railway, South Service Road, and Arvin Avenue. As previously stated, 3 representative sections (approx. 100m each in length) were selected to assess Watercourse #5 and are described in detail below (**Figure 2.1** shows the locations of all three sections).

Downstream Section

Dillon (November 2007) previously assessed this section in the Study Area, in addition to the May 2009 field work.

This reach has been realigned to accommodate surrounding land use and has a bankfull width of approximately 4 – 5m and an average wetted width of 1.0 - 2.0m (at the time of survey). Average water depths were between 0.10 and 0.15m, which flowed along a straightened channel over a clay-based substrate comprised of a mixture of sand, gravel, cobble, and a little rock. Available in-stream cover throughout this reach is low to moderate, consisting primarily of coarse woody debris and boulders. No significant refuge areas or sensitive habitat were noted along this reach.

The riparian community was characterized by poor to moderate tree and shrub cover. This includes open, partly open and dense canopy areas providing varying degrees of shading to the watercourse. This reach appears to have the potential to function as direct fish habitat; however, due to constraints to fish movement further downstream, lack of decent refuge pools, and the distance from the lake to this reach, it is likely that this reach only provides an indirect value to fisheries downstream.

The channel was observed to be predominantly flat habitat with very slow current (appeared stagnant) through slightly unstable banks and abundant in-stream debris (**Photo 1**). Previous documentation has indicated that flow within Watercourse #5 is highly variable and sensitive to runoff events. In the upstream portion of this reach, the channel was inundated with thick green algae and organic debris throughout (**Photo 2**).

Middlestream Section

Similar to the downstream section, this section has been historically altered to accommodate surrounding land use and required drainage. The channel has a bankfull width of approximately 2 – 3m and an average wetted width of 1.0 - 1.5m (at the time of survey). Average water depths were between 0.10m and 0.15m, with flow being conveyed along a straightened and deepened channel over a clay-based substrate comprised of a mixture of silt, cobble, boulder and some debris on top. Flow definition along this reach was characterized as being permanent and generally divided as approximately 90% flat, 5% riffle, and 5% run (**Photo 3**).

This Middlestream Section appears to experience significant increases in flow volume and velocity based on obvious scouring and the observed high-water mark. The stream banks were observed to be slightly unstable with abundant tree and shrub root systems visible. This section has decent canopy cover; however, available in-stream cover is low to moderate overall and primarily consisting of in-stream and overhanging coarse woody debris, anthropogenic debris (e.g., garbage, yard waste etc) and cobble (**Photo 4**). This section exhibited very little in-stream vegetation; however, abundant green algae and overhanging bank vegetation was present throughout. No significant refuge areas or sensitive habitat were noted along this reach.

Upstream Section

Similar to the other sections downstream, this section has also been altered to accommodate surrounding land uses and required drainage. The channel has an average bankfull width of approximately 1.2 – 3m and an average wetted width of 0.5 - 1.5m (at the time of survey). Average water depths were between 0.05m and 0.20m, and flow was conveyed through a straightened channel. Substrates were comprised of a mixture of clay, silt, gravel, cobble, with boulder on top. Flow definition along this reach was characterized as being permanent and generally divided as approximately 70% flat, 5% riffle, and 25% run (**Photo 5**).

Similar to downstream reaches, this Upstream Section also appears to experience significant fluctuations in flow volume and velocity based on scour lines and the high-water mark along the banks. The stream banks are generally shallow and do not appear to be able to contain periods of high flow as evident by flow erosion observed beyond the bankfull width. This section has decent canopy cover; however, available in-stream cover is low overall and primarily consists of in-stream and overhanging coarse woody debris, organic debris (e.g., natural and yard waste) and inorganic debris (e.g., tires and metals) (**Photo 6**). This section exhibited little to no in-stream vegetation and numerous seasonal barriers were observed due to the build-up of debris in combination with shallow water conditions present. No significant refuge areas or sensitive habitat were noted along this reach.

Electrofishing was undertaken where possible in places where fish are most likely to reside within the three sections discussed above. After 803 seconds of fishing effort, no fish were captured or seen during sampling. This result was not unexpected considering the previous classification of indirect habitat status within Watercourse #5 (Dillon, 2007). Due to numerous alterations, in-stream barriers present throughout Watercourse #5, and results of recent fish community sampling, it appears that Watercourse #5 does not function as direct fish habitat, but rather has an indirect function.

Tributary to Watercourse #5

This small tributary to Watercourse #5 drains to the north and into a storm sewer at Barton Street. As a result, the reach within the Study Area is orphaned and cannot function as direct fish habitat. The online storm sewer also significantly limits the potential for this watercourse to function as indirect habitat due to the physical and hydraulic separation of reaches. At the time of investigation, the channel was completely dry and functions as ephemeral overland drainage only. The channel itself is narrow and shallow with terrestrial vegetation growing throughout (**Photo 7**).

Electrofishing was not undertaken due to the absence of water at the time of investigation and inability of fish to access the Study Area via this channel.

Watercourse #6

Similar to Watercourse #5, this system drains northerly towards Lake Ontario and has been significantly altered and rerouted to accommodate surrounding land uses. In the Study Area, Watercourse #6 appeared to be a permanently flowing system with habitat conditions indicative of degraded, warmwater systems. The channel generally conveys flow from south to north, emptying into Lake Ontario, approximately 1.8km downstream. Major crossings of Watercourse #6 also include the QEW, a railway, and South Service Road.

Dillon (November 2007) previously assessed habitat conditions of Watercourse #6 near Barton Street within the Study Area. The following description is based on previous work and the May 2009 field work for the current investigation.

This reach has been straightened to accommodate the surrounding residential properties. This reach exhibits an average bankfull width of approximately 5 – 6 m and an average wetted width between 0.5 – 1.5 m (at the time of survey). Average water depths were typically less than 10 cm, which flowed along a straightened channel over a diverse substrate comprised of a mixture of gravel, cobble, rock, and boulder. Flow definition along this reach appeared permanent and flashy, with a morphology consisting of approximately 70% run and 30% riffle.

This portion of the watercourse appears to be in a fairly good condition with clear water, stable banks, decent canopy cover, good riffle/run definition and lack of visible in-stream barriers. Available in-stream cover throughout this reach is low consisting of only a limited amount of coarse woody debris and in-stream rock. No significant refuge pools or sensitive habitat were noted along this reach.

There is limited to no vegetation beyond the top-of-bank as the watercourse travels between residential homes. Conditions further upstream and towards the south end of the Study Area were predominantly flat with very slow current (appeared stagnant at times) and abundant algae (**Photo 8**). The wetted width in this area was approximately 1 - 2m with depths ranging between 0.10m and 0.25m. In-stream cover was abundant and provided in the form of coarse woody debris and algal mats (**Photo 9**). The substrate in many areas, especially through the wooded reaches, consisted mainly of cobble and boulder on consolidated clay. In addition, the banks were slightly eroding with an abundance of low-flow barriers (i.e., debris piles) and exposed tree and shrub root systems (**Photo 10**). This main differences in habitat between upstream and downstream reaches can be attributed to the general topography of the area (i.e., flat and thus more depositional upstream) and increased exposure to sunlight. Channel morphology towards Barton Street was more riffle/run in nature due to sloping topography and significant constriction of the channel to fit between adjacent residential properties. This modification has increased flow considerably through this section (**Photo 11**).

Based on recent field investigations, habitat conditions observed in the Study Area have the potential to sustain fish populations; however due to documented permanent barriers and obstructions/diversions further downstream and the lack of decent refuge habitat and consistent depth within the Study Area, Watercourse #6 appears to function primarily as indirect habitat to downstream aquatic resources at the shoreline of Lake Ontario.

<u>Watercourse #6.1</u>
This intermittent reach has been channelized and has a bankfull width ranging from approximately 2 - 4 m. The average wetted width was between 0 – 0.3 m (at the time of survey) and water depth ranged from 0-10 cm. The substrate included primarily manicured lawn and leaf litter from the adjacent residential yard. There is essentially no in-stream cover or overhead (riparian) cover along this portion of Watercourse 6.1. Stream banks are primarily covered with mowed lawn grasses.

Based on the 2009 field work, the watercourse within the Study Area functions as overland drainage only and does not function as direct fish habitat (**Photo 12**).

Watercourse #7

This watercourse drains northeasterly towards Lake Ontario and similar to the other watercourses described above, having been altered/rerouted to accommodate surrounding land uses. At the time of investigation, flow was apparent downstream of Highway 8 and contains habitat conditions indicative of degraded, warmwater systems. This creek generally conveys flow from southwest to north-northeast, discharging into Lake Ontario approximately 2km downstream.

At time of investigation, this watercourse contained water downstream of Highway 8 but was dry upstream of the highway. North of Highway 8, flow was primarily flat and was observed to have a wetted width ranging from 1 to 2m and an average water depth of approximately 0.1 – 0.20m. Water was stagnant within moderately unstable banks with a poorly defined low-flow channel, which appears to dry up during the summer months. Substrates primarily consisted of silt, sand, and boulder on a consolidated clay base. In-stream cover for fish was abundant and provided mainly in the form of overhanging vascular plants, boulders, and large woody debris (**Photo 13**). Towards the Glover Road crossing, the watercourse exhibited greater flow and generally contains run-type habitat over a cobble/gravel substrate on a clay base. This section closer to Glover Road is well shaded; however, available in-stream cover is less and the channel is more narrow (**Photo 14**). The watercourse accepts additional baseflow from the adjacent western ditchline of Glover Road and was flowing considerably at the time of investigation.

As previously stated, white sucker populations are known to occur between Barton Street and Lake Ontario (Philips, 2003). As such, it is possible that they occur within the Study Area also; however, only likely during the spring months as this branch is known to flow intermittently and may dry up later during the year (Philips 2003). Results of recent habitat investigations indicate that the potential for direct habitat exists provided access into the Study Area is possible.

3.7 Species at Risk & Species of Management Concern

3.7.1 Plants

No plant species at risk or species of possible management concern were observed in the Study Area.

3.7.2 Herptiles

Background review suggests the potential presence of herptile species at risk in the Study Area. None of these species were observed during field work, and the preferred habitat for several of these species is not found within the Study Area. Based on the NHIC database, Ontario Herptofaunal Atlas and field work, our evaluation suggests that three species may possibly use portions of the Study Area as primary habitat or as a travel corridor including: Blanding's turtle, Jefferson salamander and the eastern milksnake. Details regarding these species are provided below.

- Blanding's turtle (*Emydoidea blandingii*) (S3)
    - The Blanding's turtle is listed as *Threatened* both provincially and federally. The COSEWIC Assessment and Status Report indicates that "*Subpopulations are increasingly fragmented by the extensive road network that criss-crosses all of this turtle's habitat. Having delayed age at maturity, low reproductive output and extreme longevity makes this turtle highly vulnerable to increased rates of mortality of adults. Nesting females are especially susceptible to road kill because they often attempt to nest on gravel roads or on shoulders of paved roads. Loss of mature females in such a long-lived species greatly reduces recruitment and long-term viability of subpopulations. Another threat is degradation of habitat from development and alteration of wetlands. The pet trade is another serious ongoing threat because nesting females are most vulnerable to collection"* (COSEWIC, 2005).
    - Preferred habitats for this species are shallows, ponds and marshes with soft bottoms and abundant aquatic vegetation. An individual turtle may use several connected lakes, rivers, streams, marshes, or ponds and travel upwards of 6,760m in a season (COSEWIC, 2005). The Blanding's turtle nests in a variety of loose substrates including sand, organic soil, gravel

and cobblestone. Overwintering occurs in permanent pools that average about one metre in depth, or in slow flowing streams (COSEWIC, 2005).

- There are no shallow bodies of water within the Study Area; however, watercourses flowing through the Study Area could potentially provide a corridor for dispersal during nesting activity.

- Jefferson salamander (*Ambystoma jeffersonianum*) (S2)
  - The Jefferson salamander is listed as *Threatened* both provincially and federally. Threats to this species are largely related to anthropogenic factors. Urbanization, forestry activities, recreation and unauthorized collections are all attributable to their current status. Urban development creates barriers (e.g. roads, neighbourhoods, etc.) that limit the dispersal of the species and fragment their habitat, especially cutting off breeding ponds from late summer and winter habitat. Also, development impacts such as site clearing, reduced topography, storm water management, increased impermeable surface, altered water balance regimes, etc., affect soil moisture and the availability of vernal ponds which are essential to the survivability of the species.
  - Preferred habitat for this species is in moist, loose soil, under logs or in leaf litter within deciduous forests. In the spring, Jefferson salamanders travel to woodland ponds, limestone sinkhole ponds, kettle ponds and other natural basins to breed. These ponds are often ephemeral being fed by temporary water sources.
  - No ephemeral ponds were identified in deciduous forest habitat; however, the study team had very restricted access to the Study Area during spring months and searches were limited. Deciduous woodlands are present within the Study Area and may be potential habitat area.

- Eastern milksnake (*Lampropeltis triangulum*) (S3)
  - Milksnakes are federally and provincially listed as a species of *Special Concern*. Roads are a significant source of mortality for this species at risk. As habitat is lost and they come into increasing contact with people, this snake is often mistaken for a venomous species and deliberately killed.

    - This species of snake is considered *Common* in the Hamilton area, and especially in the rural parts of the City according to the Hamilton Natural Areas Inventory 2003 (Dwyer, 2003).
    - Milksnakes have broad habitat preferences being found in a wide variety of environments from rocky outcrops and hillsides to meadows and pastures. These snakes are usually found around coniferous or deciduous forest edges, but can thrive in a variety of habitat types, such as open woodlands, fields, farm buildings, and in older urban areas.
    - Suitable habitat for eastern milksnake can be found throughout the Study Area.

In addition, the Herpetofaunal Atlas indicates the possible presence of additional species at risk in the vicinity of the Study Area. Based on habitat requirements, suitable habitat is not found within the Study Area. Details regarding this additional species is provided below.

- Wood turtle (*Glyptemys insculpta*) (S2)
    - This species is federally and provincially listed as *Endangered*.
    - Hamilton Natural Areas Inventory 2003 (Dwyer, 2003) has the wood turtle listed as an *Excluded Species* because of historical one-time sightings in 1958; and this species was not sighted previously nor has it been observed since.
    - Preferred habitat for this species is clear rivers, streams or creeks with a slight current and sandy or gravelly bottom, with adjacent woody area providing sufficient cover.
    - As the watercourses present within the Study Area are highly impacted with degraded bottoms, suitable habitat is not found on-site.

- Eastern spiny softshell turtle (*Apalone spinifera spinifera*) (S3)
    - This species is federally and provincially listed as *Threatened*.
    - Preferred habitat for this species is lakes and large rivers. They rarely travel far from the shoreline.
    - This specific habitat is not found within the Study Area.

- Common musk turtle (*Sternotherus odoratus*) (S4)

- This species is federally and provincially listed as *Threatened*.
- Preferred habitat for this species includes a range of shallow water bodies with slow currents including lakes, streams, marshes, ponds and rivers, usually with a high organic substrates.
- The degraded and small marsh and stream habitats located in the Study Area do not contain suitable substrates for this species.

- Northern ribbonsnake (*Thamnophis sauritus septentrionalis*) (S3)
  - This species is federally and provincially listed as *Special Concern*.
  - Preferred habitat for this species is near bodies of water along the shoreline and in marshes.
  - This specific type of habitat is limited within the Study Area and of a lower quality than typically attracts this species.

3.7.3 Mammals

No mammals species at risk or species of possible management concern were observed in the Study Area.

3.7.4 Birds

A search of the Ontario Breeding Bird Atlas (2001-2005) showed potential breeding evidence for 5 avian species at risk within atlas square 17PH08. During fieldwork, two chimney swift (*Chaetura pelagica*) (*Threatened*) individuals were observed:. This species and the four others potentially occurring in the Study Area are discussed below.

- Chimney swift (*Chaetura pelagica*) (S4B SZN)
  - The chimney swift is federally and provincially listed as *Threatened*. COSEWIC stipulates that the primary cause of the recent decline in this species is unknown, but the decline in flying insects and a shift to homes that lack suitable nesting chimney's could be attributable.
  - This species is listed as *Uncommon* in the Hamilton area with observation largely limited to within the city and surrounding towns.
  - Formerly, preferred habitats for this species were tree cavities in old growth forests; however, due to reduced mature forest cover over much of its range this species is now more likely to be found in urban areas where they nest in manmade structures such as chimneys (COSEWIC 2007a).

Thus, potential nesting habitat can be found surrounding the Study Area. Chimney swift would be most likely to be found high above the Study Area, aerially foraging.

- Canada warbler (*Wilsonia Canadensis*) (S4B)
  - This species is listed as *Threatened* federally and listed as a species of *Special Concern* provincially. A reduction of forests with appropriate dense shrub and ground cover can be attributed to their decline. They also face added pressure through widespread deforestation of wintering grounds in South America.
  - This species is listed as *Rare* in the Hamilton area and they appear to be declining according to the Breeding Bird Atlas results.
  - Preferred habitat for the Canada warbler is usually wet mixed forests with a dense shrub layer but it can use a variety of wet wooded sites. They nest on or near the ground on fallen logs along stream banks or on hummocks (COSEWIC 2008a). Though, small watercourses flow through some of the woodlots located in the Study Area, they are generally not wet sites and have few conifers. Breeding habitat suitability in the Study Area for Canada Warbler should be considered low. This species was not observed during breeding bird surveys completed as part of this study.

- Red-headed woodpecker (*Melanerpes erythrocephalus*) (S4B)
  - This species is listed as *Threatened* federally and listed as a species of *Special Concern* provincially. The main threats for the red-headed woodpecker are habitat loss due to forestry and agriculture, and also increased competition from European starlings for nest sites.
  - This species is listed as *Rare* in the Hamilton area and appears to be declining.
  - Preferred habitat for this species is open woodland and woodland edges. They are often found along the forested edges of parks, golf courses, orchards and in riparian forests, especially where there is a higher density of dead trees (COSEWIC 2007b).
  - Potential breeding habitat for red-headed woodpecker, in the form of forest edge and active and abandoned orchards, is present in the Study

Area. This species was not observed during breeding bird surveys completed as part of this study.

- Common nighthawk (*Chordeiles minor*) (S4B)
  - This species is listed as *Threatened* federally and listed as a species of *Special Concern* provincially. The use of pesticides is a large threat to the nighthawk population as insects are their primary food source.
  - This species is listed as *Rare* in the Hamilton area represented by only one or two breeding pairs in the Hamilton area (Dwyer, 2003).
  - Preferred habitat for the common nighthawk includes a variety of open areas with little to no ground cover. Logged areas, burn-over areas, forest clearings, lakeshores, cultivated field and orchards can be used (COSEWIC 2007c).
  - Suitable open breeding habitats for common nighthawk can be found throughout the Study Area. This species was not observed during breeding bird surveys completed as part of this study.

- Short-eared owl (*Asio flammeus*) (S2N S4B)
  - The short-eared owl is listed as *Special Concern* both provincially and federally. Increased urbanization and intensive agricultural practices have led to decreases in suitable habitat and has been responsible for its current status.
  - This species is listed as *Rare* in the Hamilton area with the latest breeding observations in the Atlas being the only modern observation of this particular species.
  - Preferred breeding habitats for this species include a variety of open areas including grasslands, old pastures and marshes. Potential breeding habitat for short-eared owl can be found throughout the Study Area in the form of large oldfields and areas of marsh. This species was not observed during breeding bird surveys completed as part of this study.

3.7.5 Invertebrates

The monarch (*Danaus plexippus*) was the only invertebrate species at risk observed during field surveys. The monarch is listed as *Special Concern* both federally and provincially. This species is a migratory butterfly that spends summers in North

America, including southern Canada, and winters in Mexico. Threats to this species include pesticide use, general habitat loss and degradation throughout its range and specific threats to restricted wintering habitats in Mexico and California. Monarch can be found in a variety of habitats provided that milkweed is present, as this plant species is required by monarch caterpillars (SARA Public Registry 2009). Milkweed was observed in the Study Area and the presence of monarch individuals confirms that suitable habitat for this species is present.

4. NATURAL ENVIRONMENT CONSTRAINTS

4.1 Basis for Determining Constraints

The evaluation of constraints was completed using a natural heritage system (NHS) based approach and relied on provincial as well as municipal policy and legislation to direct protection for the long-term. A NHS is defined in the Provincial Policy Statement (2005) as a system made up of natural heritage features and areas, linked by natural corridors necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species and ecosystems. These systems can include lands that have been restored and areas with the potential to be restored to a natural state.

The local NHS is anchored by the Niagara Escarpment, Lake Ontario, Hamilton Harbour and Cootes Paradise, which connects the many wetlands, woodlands, streams and meadows found throughout the City's rural and open space areas. The east portion of the Study Area has been identified as part of the Protected Countryside in the Greenbelt Plan. The Study Area is also connected to lands within the Niagara Escarpment Plan Area located south of Highway 8.

Terrestrial
For terrestrial resources, constraint ratings of high, medium and low were assigned to the outer edge of an individual feature in a manner that reflected the protection provided or implied by the Provincial Policy Statement, Greenbelt Plan and/or the City of Hamilton Urban/Rural Official Plan.

High Constraint areas are considered to be natural features with the highest quality habitat in the Study Area and have specific attributes, which meet long-term protection requirements recommended by provincial or municipal policies/legislation (e.g. PPS, Official Plan, etc). Natural Features in this constraint level generally correspond to Core Natural Areas as defined in the City of Hamilton Discussion Papers 1, 1b, 3, 4a and 4b.

Medium Constraint areas are considered to be important natural features which should receive long-term protection to protect the diversity, connectivity and biodiversity of the natural heritage system. This designation recognizes the important function of maintaining linkages between and among natural heritage and surface water features to ensure the long-term ecological function of the natural system. Natural features in this constraint level are typically isolated remnant natural features that provide important habitat but do not meet the criteria for Core Areas or are smaller patches of various habitat types and quality that do to their proximity to Core Areas, provide valuable linkage opportunity and improve overall function of Cores Areas (e.g. size, shape, etc.). The function of these linkage areas may be significantly increased over time through restoration.

Low Constraint areas are considered to be of less importance to the long-term function of the natural heritage system and are not specifically protected by provincial or municipal policies or legislation.

Aquatic

According to OP *Section 2.5.7*, Streams are mapped in Schedule B - Natural Heritage System and have been separated into two classes: Coldwater Watercourse/Critical Habitat and Warmwater Watercourse/Important/Marginal Habitat. For the purposes of this general assessment of aquatic and fisheries resources within the Study Area, the guidance document developed by Credit Valley Conservation (CVC) and Toronto and Region Conservation Authority (TRCA) entitled, “Evaluation, Classification and Management of Headwater Drainage Features – Interim Guidelines” (CVC and TRCA, 2009) was also applied to the subject watercourses in the Study Area in order to recommend specific management objectives and help protect and delineate suitable constraints for development.

It is noteworthy that these guidelines would normally be applied following site-specific detailed fieldwork that also include hydraulic and fluvial geomorphic assessments; however, they were applied in this general context as a tool to provide an indication of potential protection requirements regarding aquatic habitat in the Study Area.

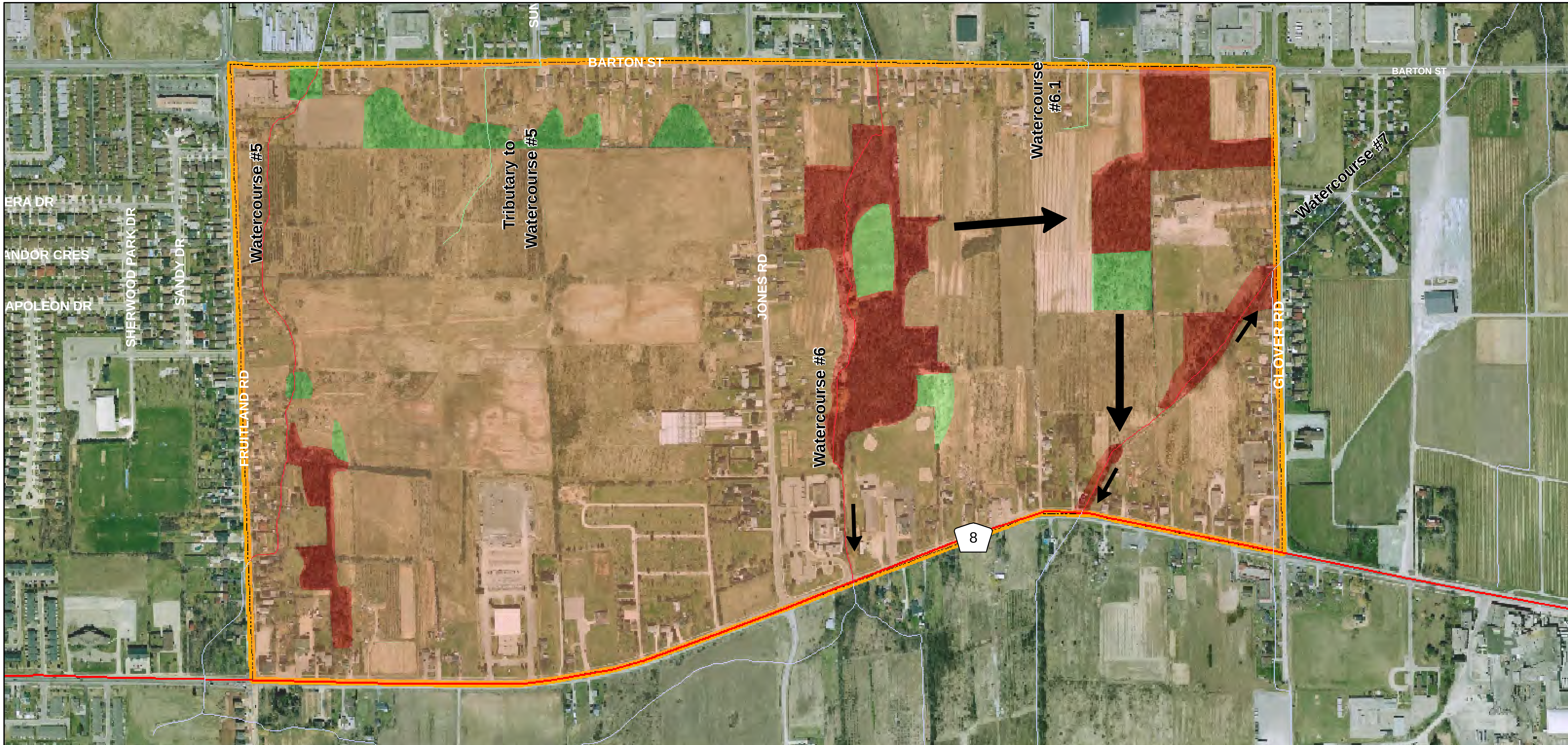
4.2 Constraint Designations

Terrestrial

Table 3 below provides a category of the feature requiring protection, specific features to be protected, recommended constraint level and overall rationale for assigning constraints. Proposed constraints and linkages are identified on Figure 4.1.

Table 3 - Natural Environment Constraint Analysis for the Fruitland Road Study Area.

Category	Features	Constraint Level	Rationale
Provincial Policy Areas	• Greenbelt – Protected Countryside **Key Natural Heritage Feature** • Fish Habitat; and • Significant Woodlands; **Key Hydrologic Feature** • Permanent and Intermittent Streams; and • Wetlands	High	Provides a continuous and permanent land base necessary to support human and ecological health in the Greenbelt.
	• Greenbelt – Protected Countryside (Outside KNHF or KHF)	Low	Culturally influenced features (e.g. agricultural lands, hedgerows, cultural thickets/meadows, etc.) in the Greenbelt.
Core Areas - Official Plan (based on Provincial Policy Statement)	• Wetlands (evaluated and unevaluated); • Fish Habitat; • Significant Woodlands; • Hazard Lands (e.g. floodplain)	High	Municipally protected areas that are recognized for their ecological value, fish habitat and hazard mitigation function.
Linkage Area - Official Plan (contiguous to natural features)	• Natural Vegetation Linkages: o Woodlands; o Meadows; o Thickets; and o Riparian Areas (i.e. streams)	Medium	Provide important ecological functions and services as well as function as ecological connections between Core Areas and other natural features, especially given their proximity to the urban environment.
Other Natural Vegetation Resources	• Other Natural Vegetation: o Woodlands (>0.5 ha).	Medium	Provide supportive ecological functions and services, especially given their proximity to the urban environment.
Rural/Urban Land-use (non-naturalized)	• Agricultural Lands • Hedgerows • Other cultural/developed land uses (e.g. cultural thickets/meadows, plantations, etc.)	Low	Recently modified communities with altered physiognomy, having lower biodiversity value than intact natural communities



Natural Heritage Assessment of Lands Bounded by Fruitland Road, Glover Road, Barton Street and Highway 8, City of Hamilton

Figure 4.1 - Constraints and Proposed Linkages

Legend

- High Constraint
- Medium Constraint
- Low Constraint
- Potential Linkages
- "Protection 2" Watercourse
- "Mitigation 2" Watercourse
- Highway
- Watercourse
- Study Area

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Key Natural Heritage and Key Hydrologic Features

As directed by the 2005 PPS, local planning objectives for the Natural Heritage System focus on protecting and restoring key natural features and functions as a permanent environmental resource for the community. Through conformity with provincial plan objectives, the City has identified key natural features (e.g. Core Areas and Linkages) in the Study Area that warrant similar consideration. Dillon has also evaluated the Study Area for the presence of Key Natural Heritage Features (KNHF) and Key Hydrologic Features (KHF).

Through field investigation and examination of the City's Natural Heritage System, identified on City's Official Plan (OP) Schedule B, it was determined that the Study Area contains lands provincially classified as KNHF (e.g. Significant Woodlands and Fish Habitat) and KHF (e.g. Wetlands and Streams). KNHF and KHF are provincially significant, and as a result, are a high constraint to development.

Core Areas

Core Areas in the Study Area are the KNHF and KHF that have been identified within and outside the Greenbelt using provincial evaluation criteria and secondary source information (e.g. Schedules B1-8 - Detailed Natural Heritage Features). These significant natural features in the Study Area include: Significant Woodlands, Wetlands, Fish Habitat and Hazard Lands. Core Areas are the most important components in terms of biodiversity, productivity, and ecological and hydrological functions. According to OP *Section 2.3.3, the natural features and ecological functions of Core Areas shall be protected and enhanced. To accomplish this protection and enhancement, vegetation removal and encroachment into Core Areas shall generally not be permitted, and appropriate vegetation protection zones shall be applied to all Core Areas.* As such, Core Areas are a high development constraint (Figure 4.1).

Significant Woodlands

Significant Woodlands are areas which have ecologically important in terms of:

a) Features such as species composition, age of trees, stand history;
b) Functionally important due to its contribution to the broader landscape because of its location, size, or due to the amount of forest cover in the planning area; and
c) Economically important due to site quality, species composition or past management history (PPS, 2005).

The criteria for Significant Woodlands uses size, interior forest, proximity/connectivy to significant natural areas (e.g. wetlands >0.5 ha, ESAs, PSWs, and Life Science ANSIs), proximity to hydrologic features, tree stand age and presence of rare species. Based on an estimated 6% to 8% forest cover within the Stoney Creek Planning Unit (Hamilton Urban OP 2009), the minimum patch size for woodland significance is 2 ha. Beyond provincial policy, Significant Woodlands, including treed areas, woodlots or forested areas, are protected under the City's Woodland Conservation Bylaw. Accordingly, they are a high constraint to development.

Wetlands

A wetland is a swamp, marsh, bog, or fen (not including land that is being used for agricultural purposes and no longer exhibits wetland characteristics) that:

a) is seasonally or permanently covered with shallow water or has the water table close to or at the surface;
b) has hydric soils and vegetation dominated by water-tolerant plants;
c) has been further identified according to evaluation procedures established by the Ministry of Natural Resources, as amended from time to time; and
d) includes provincially and locally significant wetlands.

All wetlands, regardless of provincial significance, are a high development constraint.

Hazard Lands

Hazardous lands are property or lands that could be unsafe for development due to naturally occurring processes. Along stream systems, this means the land, including that covered by water, to the furthest landward limit of the flooding hazard or erosion hazard limits (PPS, 2005). In general, the land area designated as the natural heritage system extends beyond the limits of hazard lands. Hydrologic features in the Study Area that could present a flooding hazard to person or property are a high constraint to development.

Linkages

Linkages are remnant natural areas within the landscape that connect Core Areas to the NHS. Connections between natural areas provide opportunities for plant and animal movement, hydrological and nutrient cycling, and maintain ecological health and integrity of the overall Natural Heritage System. Linkages in the Study Area were identified through field assessments and examination of secondary source information (e.g. Schedule B1-8 - Detailed Natural Heritage Features).

Linkages in the Study Area include:

- woodland linkages (natural or planted wooded area of any size or composition of 0.5 hectares or more in size that either connects or lies within 100 metres of a Core Area);
- other natural vegetation types (e.g. meadows, old field, thickets); and
- streams and watercourses that connect Core Areas.

Due to their value in the NHS, Linkages are a medium constraint to development.

Other Natural Vegetation Resources

Other Woodlands (>0.5 ha)

Other Woodlands include treed areas, woodlots or forested areas and significant hedgerows within urban and rural settlement areas that provide potential environmental and economic benefits to both the private landowners and the general public. These potential benefits include: erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Due to these benefits woodland greater than 0.5 ha are a medium development constraint.

Rural/Urban Land-use (non-naturalized)

With the exception of certain lands that have an ecological linkage function within the Greenbelt and adjacent to Core Areas, culturally altered vegetation communities such as cultural meadows, cultural thickets, agricultural lands and hedgerows are marginal, non-essential components of the natural heritage system. As a result, these rural/urban landuses are a low constraint to development.

Aquatic Constraints

The streams in the Study Area have been field verified and identified as warmwater. A warmwater watercourse is defined as a watercourse, whether permanent, intermittent, or ephemeral, which supports or contributes to the support of fish habitat or species associated with warmwater such as carp, bass, warmwater benthic invertebrates, or have thermal characteristics of a warmwater stream such as designated by the Ministry of Natural Resources. Warmwater species that are best adapted to prefer or usually occur at water temperatures greater than 25 degrees Celsius (Hamilton Urban OP, 2009).

The classification of warmwater watercourses in the Study Area have been further divided into permanent streams that provide direct fish habitat and intermittent streams that provide complex contributing fish habitat. Permanent and intermittent streams are a high and medium constraint to development, respectively.

Using Table 4 of the Interim Guidelines (CVC and TRCA, 2009), and the results from this study, environmental management recommendations can be determined for each drainage feature when applying the appropriate evaluation criteria. As such, the following habitat classifications and associated Management Recommendations were given to each of the watercourses in the Study Area:

<u>Watercourse #5</u>
Based on the habitat classification descriptions (as per the Interim Guidelines), Watercourse #5 is classified as permanent fish habitat in the Study Area. Based on a review of the Interim Guidelines combined with the findings of this study, it is recommended that this feature be given a **Protection 2** Management Recommendation. Although numerous barriers and obstructions exist on the system (e.g., downstream of Barton Street), the potential for direct habitat exists (should they be removed) and thus, it is believed that this level of protection is warranted.

According to the Interim Guidelines (CVC and TRCA, 2009), the Protection 2 Management Recommendation indicates the following general requirements for treatment of the watercourse:

Protection 2

- Preference is to maintain existing surface water source;
- Maintain external drainage or if catchment drainage has been previously removed due to diversion of SWM flows, restore lost functions through enhanced lot level controls (i.e. restore original catchment using clean roof drainage) as necessary;

- Replicate on-site surface water sources including wetland creation and incorporating extended detention outlets, if necessary;
- Use natural channel design techniques to replace and enhance existing habitat features only if features are easily replicated;
- Drainage feature must connect to downstream watercourse/habitat;
- Examine need to incorporate groundwater flows through infiltration measures (i.e. third pipes, etc.) to ensure no net loss and potential gain.

Tributary to Watercourse #5

Based on the habitat classification descriptions (as per the Interim Guidelines), this watercourse is classified as complex contributing fish habitat. However, as this tributary flows into a storm sewer and is isolated from downstream aquatic resources, it is recommended that this watercourse receive a **Mitigation 2** Management Recommendation.

According to the Interim Guidelines (CVC and TRCA, 2009), the Mitigation 2 Management Recommendation indicates the following general requirements for treatment of the watercourse:

Mitigation 2

- Replicate functions by lot-level conveyance measures (e.g., vegetated swales) connected to the natural heritage system, as feasible and/or Low Impact Development (LID) stormwater options;
- Replicate on-site flows and outlet flows at the top end of vegetated swales, bioswales, etc. to maintain feature functions.

Watercourse #6

Similar to Watercourse #5, this system is classified as permanent fish habitat (with in-stream barriers present downstream of the Study Area). It is therefore recommended that Watercourse #6 also be given a **Protection 2** Management Recommendation.

Watercourse #6.1

Based on the habitat classification descriptions (as per the Interim Guidelines), Watercourse #6.1 is classified in the Study Area as simple contributing fish habitat. As such, Table 4 of the Interim Guidelines indicates that this feature should be given a

Mitigation 2 Management Recommendation. This is primarily due to its ephemeral flow, defined channel with manicured grasses throughout.

Watercourse #7

Based on the habitat classification descriptions (as per the Interim Guidelines), Watercourse #7 is classified as permanent fish habitat in the Study Area. Based on a review of the Interim Guidelines combined with the findings of this study, it is recommended that this feature be given a **Protection 2** Management Recommendation. The potential for direct habitat exists within the Study Area and thus, it is believed that this level of protection is warranted.

Taken together, existing conditions at watercourses within the Study Area suggest that:

- Watercourses #5, 6 and 7 should be retained and protected;
- The function of the Tributary to Watercourse 5 should be maintained, but the watercourse may not need to be retained in its existing form;
- The function of Watercourse 6.1 should be maintained, but the watercourse may not need to be retained in its existing form.

5. FRUITLAND ROAD CLASS EA STUDY AREA

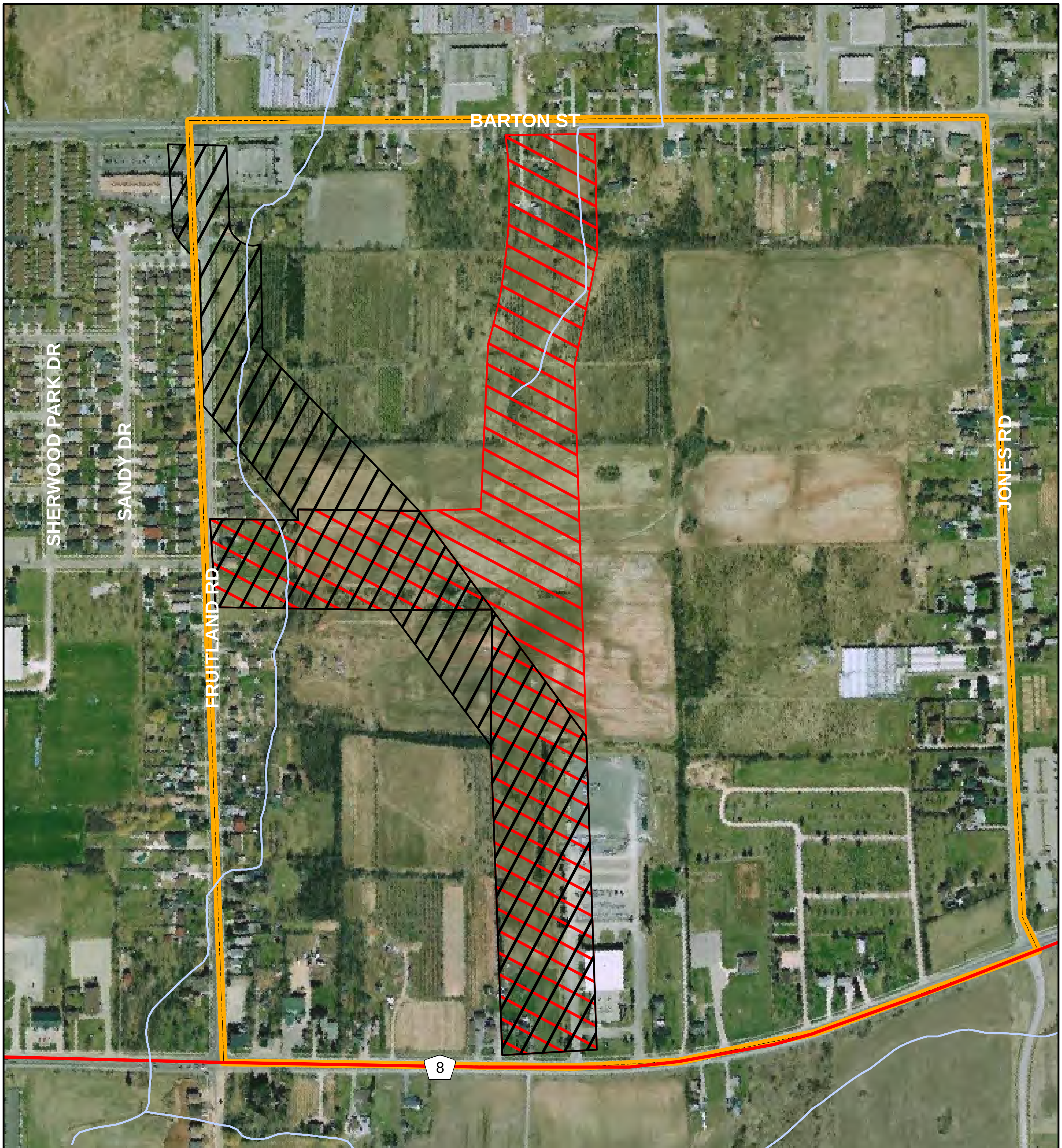
A Class EA is underway for improvements to Fruitland Road between Highway 8 and Barton Street. The purpose of this section is to present natural heritage information, potential impacts and mitigation considerations associated with the Fruitland Road proposed alternative corridors (**Figure 5.1**) for the purposes of the Fruitland Road Class EA. Survey locations are shown on Figure 5.2.

5.1 Natural Features Existing Conditions

5.1.1 Natural Features and Designations

Methods

Consultation with the Ontario Ministry of Natural Resources (MNR) (Art Timmerman – Guelph District Fish and Wildlife Biologist, Anne Yagi – Niagara Area Fish and Wildlife Biologist, Joad Durst – Niagara Area Office) and the Hamilton Conservation Authority (Shari Faulkenham – Ecologist, Tawnia Martel – Assistant Ecologist) was conducted as part of the initial background review. Information regarding Study Area natural features,



Fruitland Road Class Environmental Assessment
Figure 5.1 Corridors Associated with Road Alternatives

Legend

- Highway
- Watercourse
- Study Area

Fruitland Road Alternatives

- Approximate Corridor Associated with Alternative 2 & 4
- Approximate Corridor Associated with Alternative 5

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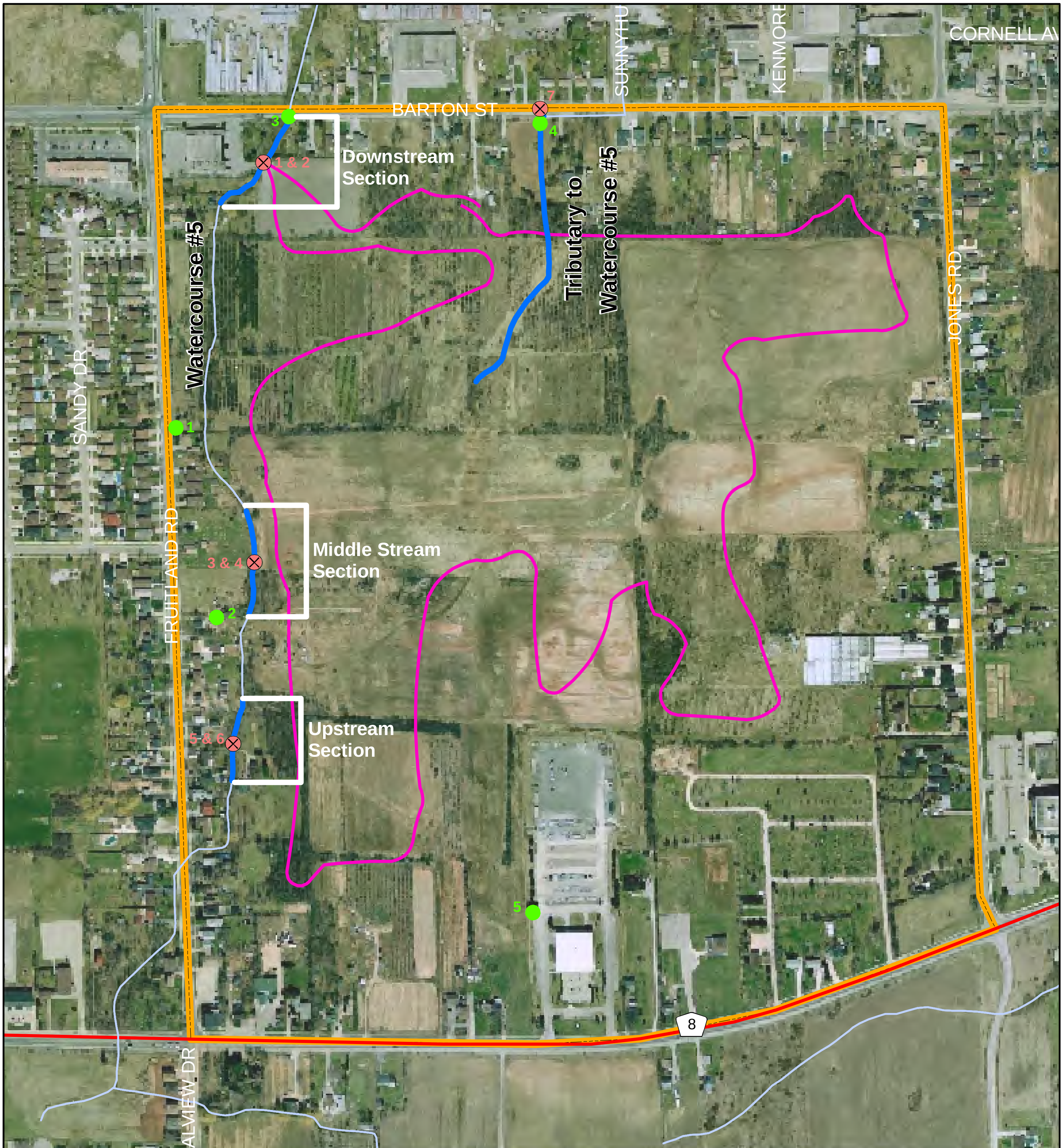

Fruitland Road Class Environmental Assessment
Figure 5.2 Terrestrial and Fisheries Survey Locations

Legend

- Bird Point Count Locations
- Bird Area Search Routes
- Amphibian Survey Locations
- Aquatic Locations (Photo Number)
- Reaches Investigated
- Highway
- Watercourse
- Study Area

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relevant reports and digital mapping was requested and received from the Hamilton Conservation Authority. Response from the MNR was not received at the time of writing. A search of the Natural Heritage Information Centre (NHIC) database was conducted to confirm the presence or absence of designated Natural Areas (i.e. ANSI, ESA, Conservation Areas, etc.) within the Study Area. In addition, mapping showing the distribution of fish species at risk, as provided by Fisheries and Oceans Canada (DFO), were reviewed.

Relevant background reports reviewed included:

- City of Hamilton Watercourse 5 & 6 Class Environmental Assessment Study Draft Report (Dillon, 2007);
- Urban Hamilton Official Plan (City of Hamilton, 2009);
- Aquatic Habitat and Fisheries Impact Assessment – Watercourses 5, 6, 7, and 9 prepared for the City of Stoney Creek (SNC Lavalin, December 1991);
- The Ontario Greenbelt Plan (MMAH, 2005); and
- Nature Counts Project – Hamilton Natural Areas Inventory 2003 (Dwyer, 2003).

Results

Through consultation with Hamilton Conservation Authority and a search of the NHIC database, no designated Natural Areas (i.e. ANSI, ESA, Conservation Areas, etc.) were found within or directly adjacent to the Study Area. According to the Hamilton Conservation Authority, they do not have species or habitat information for the Study Area.

Review of the City of Hamilton Watercourse 5 & 6 Class Environmental Assessment Study Draft Report (Dillon 2007) found correspondence records outlining aquatic and terrestrial features within the Study Area. It is noted that, DFO and OMNR have identified Watercourses #5 as fish habitat. The Hamilton Conservation Authority also states that due to perched culverts and it is unlikely that they directly support a fish population, but they contribute as indirect fish habitat. In addition, communication with MNR for the aforementioned study revealed that no fisheries information exists for Watercourse #5.

Dillon (2007) confirmed with the MNR that *no provincially significant wildlife usage, woodlots, wetlands, or species at risk currently exist within the* watercourse 5 & 6 Study Area, which partially overlaps with the current Study Area. Further information specifically relating to watercourse 5 and associated aquatic habitat can be found in Section 5.1.6 of this report.

Review of the Urban Hamilton Official Plan found that the Study Area does not contain *Core Areas or Linkages*. Schedules B-5 and B-8 identify *Key Littoral Zones* and *Key Stream Features*, respectively. Within the Study Area, there are three small *Littoral Zone Features* and Watercourses #5 is designated as a *Key Stream Features*.

Immediately adjacent to the Study Area, south of Highway 8, the Niagara Escarpment Planning Area occurs (Schedule B – Rural Hamilton Official Plan). This section of the Niagara Escarpment Planning Area is designated as Protection Area (Schedule A – Rural Hamilton Official Plan). Land use for this area is designated as Specialty Crop (Schedule D – Rural Hamilton Official Plan).

5.1.2 Ecological Land Classification

Methods

During field investigations, which took place on August 6-7, 2009, vegetation communities were characterized using the MNR's Ecological Land Classification System for Southern Ontario (Lee *et al.* 1998). MNR vegetation type classification codes encompass the range of natural and cultural communities across southern Ontario as defined by their updated classification list as of December 2008. Natural and cultural vegetation community boundaries were determined through the review of aerial photography, and then further refined through on-site soil and vegetation studies.

Field data collection was undertaken in order to classify and map ecological communities to the vegetation level. The ELC system recommends that a vegetation community be a minimum of 0.5 ha in size before it is defined. Patches of vegetation less than 0.5 ha or disturbed/planted vegetation were occasionally described to the community level. In some instances, where vegetation is less than 0.5 ha, but appeared relatively undisturbed and clearly fits within an ELC vegetation type, the more refined classification was used. Where appropriate, a cultural classification was provided for dominant land uses in the Study Area, which help describe the natural environment. These cultural classifications are not meant to be consistent with or describe Official Plan Land Use or Zoning by-law designations.

Vegetation surveys involved identifying the dominant species in each vegetation community type based on visual estimates of species abundances, or, in the case of accessible forest stands, by quantitative sampling using a factor 2-wedge prism. Soil studies involved the examination of a 120 cm soil profile using a hand auger. Soil texture and moisture regime characteristics were documented. Other physical traits such as topography and slope were also noted, where relevant, within each community.

Results
The Study Area is comprised of a mixture of natural and cultural vegetation communities, ranging from deciduous forest/swamps to agricultural fields. With information gathered during field studies, vegetation communities were mapped on aerial photography according to ELC nomenclature to graphically represent the specific spatial pattern in the vegetation cover according to species composition, physiognomy, and physical site characteristics (see **Figure 5.3**).

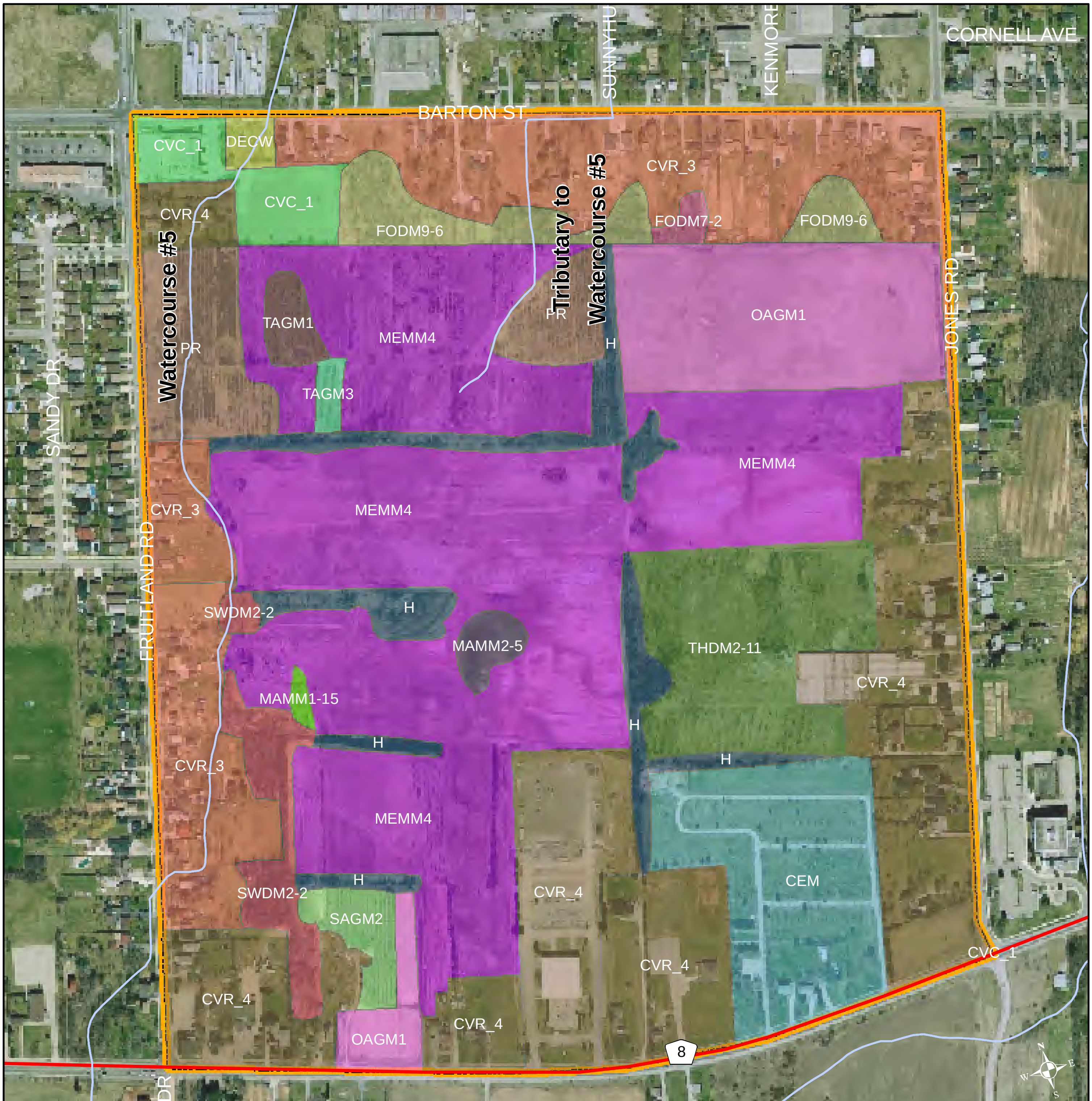
Seven distinct ELC communities within the Study Area limits were identified to the vegetation level. These include:

- Fresh-Moist Green Ash Hardwood-Lowland Deciduous Forest (FODM7-2);
- Fresh-Moist Oak – Hardwood Deciduous Forest (FODM9-6);
- Fresh-Moist Mixed Meadow (MEMM4);
- Bulrush Gaminoid Mineral Meadow Marsh (MAMM1-15);
- Purple Loosestrife Forb Mineral Meadow Marsh (MAMM2-5);
- Green Ash Mineral Deciduous Swamp (SWDM2-2);
- Hawthorn (Dogwood/Buckthorn) Deciduous Shrub Thicket (THDM2-11);

Areas classified to the ELC community level documented in the Study Area include:

- Deciduous Woodlot (DECW)

Cultural areas documented in the Study Area include:



Fuitland Road Class Environmental Assessment
Figure 5.3 Ecological Land Classification

Legend

- CEM: Cemetary
- CVC_1: Business Sector
- CVR_3: Single Family Residential
- CVR_4: Rural Property
- DECW: Deciduous Woodlot
- FODM7-2: Green Ash Hardwood Lowland Deciduous Forest
- FODM9-6: Fresh Moist Oak-Hardwood Deciduous Forest
- H: Hedgerow
- MAMM1-15, Bulrush Graminoid Mineral Meadow Marsh
- MAMM2-5, Purple Loosestrife Forb Meadow Marsh
- MEMM4, Fresh-Moise Mixed Meadow
- OAGM1, Annual Row Crops
- PR, Plantation Remove
- SAGM2, Orchard
- SWDM2-2, Green Ash Mineral Deciduous Swamp
- TAGM1, Coniferous Plantation
- TAGM3, Deciduous Plantation
- THDM2-11, Hawthorn(dogwood/ buckthorn) Deciduous Shrub Thicket
- Highway
- Watercourse
- Study Area

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- Annual Row Crop (OAGM1);
- Orchard (SAGM2);
- Coniferous Plantation (TAGM1);
- Deciduous Plantation (TAGM3); and
- Hedgerow (H).

According to the NHIC, vegetation units surveyed in the Study Area are considered Secure in the province of Ontario (S5). For a couple of naturally occurring vegetation classifications, no provincial status was available. From our experience, these un-rated vegetation units are common in Ontario. See **Table D.1** in **Appendix D** for detailed descriptions of each ELC community documented within the Study Area.

5.1.3 Botanical Survey

Methods

Botanical resources were assessed during the spring, summer and fall seasons, with surveys conducted on May 14 and 15, August 6 and 7 and September 10 and 11, 2009. Botanical surveys consisted of wandering transects through all available habitats to determine species presence within the Study Area. Plant species were documented by ELC communities and a complete list, including the status of individual species, is presented. Species nomenclature is based on the Ontario Plant List (Newmaster *et al.* 1998).

Results

In total, 146 flora species were identified within the Study Area during the spring and early summer of 2009. A full list of plant species encountered during field surveys, including the status of individual species, is presented in **Table D.2** in **Appendix D.** Of these, 64 (43.8%) are listed as exotic or non-native species. No plants observed are listed species under the federal *Species at Risk Act* or the provincial *Endangered Species Act*. A total of 6 (0.04%) of the species encountered have a coefficient of conservatism of 6 or greater. To put that into context, the coefficients of conservatism (CC) ranges from 0 to 10 and represents an estimated probability that a plant is likely to occur in a landscape relatively unaltered from what is believed to be a pre-settlement condition. For example, a CC of 0 is given to plants such as Manitoba maple (*Acer negundo*), which have demonstrated little fidelity to undisturbed sites (i.e. may be found almost anywhere). Similarly, a CC of 10 is applied to plants like shrubby cinquefoil that are almost always restricted to a pre-settlement remnant (i.e. a high quality natural area). Introduced plants were not part of the pre-settlement flora, so no CC value is applied to these. The 6 species with a coefficient of conservatism of 6 or greater found within the Study Area include:

- Shagbark hickory (*Carya ovata*);
- Spotted crane's-bill (*Geranium maculatum*);
- White spruce (*Picea glauca*);
- Red oak (*Quercus rubra*);
- Pasture rose (*Rosa carolina*); and
- Hardstem bulrush (*Scirpus acutus*);

5.1.4 Amphibians and Wildlife

Methods

Amphibian monitoring followed the Marsh Monitoring Program protocol (Bird Studies Canada, 1994). Monitoring was conducted on three different occasions during the spring breeding season according to calendar date and environmental conditions (i.e. temperature). Surveys involved standing at a station for 3 minutes and listening for frog calls. The calling activity of individuals estimated to be within 100m of the observation point were documented. All individuals beyond 100m were recorded as outside of the count circle and calling activity was not recorded. Calling activity was ranked using one of the following three abundance code categories:

Code 1: Calls not simultaneous, number of individuals can be accurately counted;
Code 2: Some calls simultaneous, number of individuals can reliably be estimated;
Code 3: Calls continuous and overlapping, number of individuals cannot be estimated.

In areas where appropriate habitat existed vernal pools were examined for egg masses and amphibian larvae, and if necessary, sampled with a dip net.

Five amphibian monitoring stations were surveyed during three survey events during the spring, see Amphibian Monitoring Stations 1 to 5 on **Figure 5.2**.

Results

Amphibians were monitored at five sites on April 17, May 13 and June 9, 2009. Survey point counts were located along public roads adjacent to areas where potential habitat could or did exist, as access to the interior portions of Study Area had not yet been attained.

Field work documented the presence of the western chorus frog (*Psudacris triseriata*) at three stations during the April 17 2009 site visit. **Table 4** shows dates observed, calling codes and numbers of individuals observed, where possible. Two additional species were recorded through incidental observations during other field studies including Northern leopard frog (*Rana pipiens*) and green frog (*Rana clamitans*). All amphibian species observed are considered common to very common in the Province of Ontario and not evaluated as at risk by COSEWIC or COSSARO. Locally, all species are considered as either C*ommon* or A*bundant* according to the Hamilton Natural Areas Inventory (Dwyer, 2003).

During field work, salamanders were actively searched for in areas where appropriate habitat existed; none were found. Appropriate habitat is considered to be deciduous forests with moist, loose soils, under logs/deadfall or in leaf litter and ephemeral pools. There are areas of deciduous forests within the Study Area, as described in the ELC; however, no ephemeral pools were observed during field studies when the study team had full access to the entire Study Area.

Table 4: Amphibian Survey Results

Species (L Rank)	**Survey Stations**				
	1	**2**	**3**	**4**	**5**
	Code-Ind.	Code-Ind.	Code-Ind.	Code-Ind.	Code-Ind.
Western Chorus Frog					
April 17, 2009	nc	2-1	nc	1-3, 2-5	2-1
May 13, 2009	nc	nc	nc	nc	nc
June 9, 2009	nc	nc	nc	nc	nc

nc – No Calling

5.1.5 Wildlife

Methods

Breeding bird surveys were conducted in the Study Area on May 26th and 27th, and June 22nd and 23rd, 2009, with a total of 16 person-hours spent documenting the breeding bird community.

Surveys combined point count with area search methodology, which followed the Ontario Breeding Bird Atlas Guide for Participants (2001), to develop an overall species list for the Study Area. Five ten-minute fixed/non-fixed radius point counts were used to establish quantitative estimates of bird abundance in major habitat types of the Study Area. Point counts were sufficiently spaced (i.e. 100m from the edge of a habitat, spaced 250m apart in forested habitats and 500 m apart in open habitats so they did not overlap). For all point count locations, a GPS coordinate in NAD 83 was documented. Area searches were conducted by visiting each major habitat type during the breeding season, primarily between dawn and 5hrs after sunrise. Locations of point counts and area search routes are indicated on **Figure 5.2**. A summary list of all bird species encountered has been compiled and is presented.

Avian Community Results

Breeding bird surveys identified 52 species in the Study Area. Data from the 2nd Ontario Breeding Bird Atlas (BBA) indicates that a total of 103 bird species were found as possible, probable or confirmed breeders in atlas square 17PH08, which encompasses the Study Area.

The BBA data indicates that a total of 5 species at risk were found with breeding evidence in square 17PH08 during the second atlas project including short-eared owl (*Asio flammeus*), common nighthawk (*Chordeiles minor*), chimney swift (*Chaetura pelagica*), redheaded woodpecker (*Melanerpes erythrocephalus*) and Canada warbler (*Wilsonia canadensis*). Two individuals of chimney swift (*Chaetura pelagica*), which is federally and provincially listed as *Threatened*, were observed during field work. These birds were observed foraging in the air over the John Knox Christian school grounds near the Highway 8-Jones Road intersection. Species at risk are discussed in detail in Section 5.1.7.

Conservation Priority Species

The Conservation Priority for Birds of Southern Ontario report (Couturier, 1999) aims to help planning authorities set priorities for conservation efforts by targeting bird species (and their associated habitats) that are significant within their region. Specifically, this report advocates the use of prioritized lists of birds as tools that planning authorities might use when developing Official Plans (e.g., identifying significant wildlife habitat, Environmentally Sensitive Areas, etc.) and when evaluating development proposals.

Three distinct approaches have been used in establishing conservation priorities at the municipal level including Jurisdictional Responsibility, Preservation Responsibility, and Area Sensitivity. Each species breeding within each southern Ontario municipality is assigned a score for each of the three components. A species is added to the municipal priority list if it scores highly on at least one of the three individual components. A composite score is derived by summing the three individual scores and is used to rank species by conservation priority for planning purposes at the local level.

The list is designed to identify a broad group of species that represent a priority for conservation, based on the three components that make up the approach. Thus, the list is not intended to identify only rare species or species under immediate threat or in need of population restoration. Further, the approach is not designed to identify species that are indicators of ecosystem health or integrity. While many such species will undoubtedly be on the list, municipalities and others will be left with the job of deciding how to apply this information (Couturier, 1999).

Based on Appendix G – Master Priority Table for Southern Ontario (Couturier, 1999) we have determined that a total of 19 conservation priority species from the former Hamilton-Wentworth Region (which encompasses the Study Area) were observed during field surveys, including:

- Common loon (*Gavia immer*);
- American woodcock (*Scolopax minor*);
- American goldfinch (*Carduelis tristis*);
- Barn swallow (*Hirundo rustica*);
- Northern rough-winged swallow (*Stelgidopteryx serripennis*);
- Black-capped chickadee (*Poecile atricapillus*);

- Bobolink (*Dolichonyx oryzivorus*);
- Eastern meadowlark (*Sturnella magna*);
- Orchard Oriole (*Icterus spurious*);
- Eastern kingbird (*Tyrannus tyrannus*);
- Horned lark (*Eremophila alpestris*);
- Northern mockingbird (*Mimus polyglottos*);
- Field sparrow (*Spizella pusilla*);
- Savannah sparrow (*Passerculus sandwichensis*);
- Swamp sparrow (*Melospiza georgiana*);
- Clay-coloured sparrow (*Spizella pallida*);
- Mourning warbler (*Oporornis philadelphia*);
- American redstart (*Setophaga ruticilla*); and
- Yellow-rumped warbler (*Dendroica coronata*).

Area Sensitive Species

Area sensitivity is based on the concept that certain species of birds will require a larger amount of preferred habitat to consistently breed within a region. Conversely, species not considered as area sensitive can be found breeding throughout a region, regardless of the amount of a particular preferred habitat type (Couturier 1999). During breeding bird surveys, 12 species considered area sensitive open country birds were observed, including:

- Northern mockingbird (*Mimus polyglottos*);
- Barn swallow (*Hirundo rustica*);
- Northern rough-winged swallow (*Stelgidopteryx serripennis*);
- Clay-coloured sparrow (*Spizella pallida*);
- Savannah sparrow (*Passerculus sandwichensis*);
- Field sparrow (*Spizella pusilla*);
- American goldfinch (*Carduelis tristis*);
- Brown-headed cowbird (*Molothrus ater*);
- Eastern meadowlark (*Sturnella magna*);
- Bobolink (*Dolichonyx oryzivorus*);
- Eastern kingbird (*Tyrannus tyrannus*); and
- Horned lark (*Eremophila alpestris*).

Three area sensitive marsh species were observed during breeding surveys, including swamp sparrow, common loon (observed flying over the Study Area) and a small rail not identified to species (sora or Virginia rail, both of which are considered area sensitive).

One area sensitive forest species was observed during breeding surveys, including mourning warbler (*Oporornis philadelphia*).

A table of bird species observed during fieldwork along with conservation status is presented in **Table D.5** in **Appendix D**.

Other Wildlife Results

Mammals

Information from the Atlas of the Mammals of Ontario (Dobbyn 1994) indicates that 22 mammal species have been observed in the vicinity of the Study Area, all of which are considered secure in Ontario (see **Table D.3** in **Appendix D**). Of these, 6 species of mammals were observed during field work including: white–tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), eastern cottontail (*Sylvilagus floridanus*), grey squirrel (*Sciurus carolinensis*), meadow vole (*Microtus pennsylvanicus*) and northern short-tailed shrew (*Blarina brevicauda*).

Herptiles

Ontario Herptofaunal Atlas information (Oldham and Weller 2000) indicates that 15 species of amphibian and 13 reptile species have been observed in the vicinity of the Study Area, including 7 species at risk: Jefferson salamander (*Ambystoma jeffersonianum*), common snapping turtle (Chelydra serpentina), Blanding's turtle (*Emydoidea blandingi*), wood turtle (*Clemmys insculpta*), eastern spiny softshell (*Apalone spinifera spinifera*), northern ribbon snake (*Thamnophis sauritus septentrionalis*), and eastern milk snake (*Lampropeltis triangulum*). Species at risk are discussed in detail in Section 5.1.7.

One species of reptile was observed during field work, the eastern garter snake (*Thamnophis sirtalis sirtalis*), which is a common species and considered secure in Ontario. Two individuals were observed between avian point counts 1 and 2 in oldfield habitat, between Jones Road and Glover Road.

Tables listing mammal and herptile species observed during fieldwork or having the potential to occur in the Study Area, along with conservation status are presented in **Table D.4** in **Appendix D**.

Invertebrates

No records for rare invertebrate species in or near the Study Area were indicated by NHIC Database information. A total of 7 species of lepidopterans were observed during field work including:

- Monarch (*Danaus plexippus*) (S2N, S4B);
- Question mark (*Polygonia interrogationis*) (S5);
- Cabbage white (*Pieris rapae*) (SNA - exotic);
- Sulphur sp. (*Colias* sp.);
- Eastern tailed blue (*Everes comyntas*) (S5);
- Virginian tiger moth caterpillar (*Spilosoma virginica*) (S5); and
- Northern crescent (*Phyciodes cocyta*) (S5).

In addition, two species of odonates were observed during field work:

- Green darner (*Anax junius*) (S5); and
- Black saddlebags (*Tramea lacerata*) (S4)

All of the invertebrates observed are considered secure in Ontario with the exception of the monarch butterfly, which is listed federally and provincially as Special Concern. Species at risk are discussed in detail in Section 5.1.7.

5.1.6 Fisheries Study

Fisheries field work was conducted on May 25, 2009. Due to site access issues and the overall length of Watercourse #5, three (3) representative reaches were selected and investigated in detail. They are known herein as the “Downstream Section”, “Middlestream Section”, and “Upstream Section.” For these sections, watercourse field record forms and habitat map forms were used to record detailed information, and photographs were taken to show existing conditions. Fish community surveys were conducted in the Watercourse #5 system, where conditions permitted, using a Model HT 2000B backpack electrofishing unit.

The results of the review of background information and field investigations were compared and used to summarize existing fish habitat conditions and to confirm the status of the fishery in each system (i.e., direct, indirect, or not fish habitat). In addition, this information was used to identify potential impact and mitigation considerations associated with Fruitland Road alternatives.

The results of recent field work undertaken on May 25, 2009 are provided in this section, with references to photographs provided in **Appendix C** and corresponding locations on **Figure 5.2**.

<u>Watercourse #5</u>
This system drains northerly towards Lake Ontario adjacent to Fruitland Road and has been significantly altered to accommodate surrounding land uses. In the Study Area, Watercourse #5 is a permanently flowing system with habitat conditions indicative of degraded, warmwater systems. The channel generally conveys flow from south to north, emptying into a private boat harbour at Lake Ontario approximately 1.3km downstream. Major crossings of Watercourse #5 include the Queen Elizabeth Way (QEW), a railway, South Service Road, and Arvin Avenue. As previously stated, 3 representative sections (approx. 100m each in length) were selected to assess Watercourse #5 and are described in detail below (**Figure 2.1** shows the locations of all three sections).

Downstream Section
Dillon (November 2007) previously assessed this section in the Study Area, in addition to the May 2009 field work.

This reach has been realigned to accommodate surrounding land use and has a bankfull width of approximately 4 – 5m and an average wetted width of 1.0 - 2.0m (at the time of survey). Average water depths were between 0.10 and 0.15m, which flowed along a straightened channel over a clay-based substrate comprised of a mixture of sand, gravel, cobble, and a little rock. Available in-stream cover throughout this reach is low to moderate, consisting primarily of coarse woody debris and boulders. No significant refuge areas or sensitive habitat were noted along this reach.

The riparian community was characterized by poor to moderate tree and shrub cover. This includes open, partly open and dense canopy areas providing varying degrees of shading to the watercourse. This reach appears to have the potential to function as direct fish habitat; however, due to constraints to fish movement further downstream, lack of decent refuge pools, and the distance from the lake to this reach, it is likely that this reach only provides an indirect value to fisheries downstream.

The channel was observed to be predominantly flat habitat with very slow current (appeared stagnant) through slightly unstable banks and abundant in-stream debris (**Photo 1**). Previous documentation has indicated that flow within Watercourse #5 is highly variable and sensitive to runoff events. In the upstream portion of this reach, the channel was inundated with thick green algae and organic debris throughout (**Photo 2**).

Middlestream Section

Similar to the downstream section, this section has been historically altered to accommodate surrounding land use and required drainage. The channel has a bankfull width of approximately 2 – 3m and an average wetted width of 1.0 - 1.5m (at the time of survey). Average water depths were between 0.10m and 0.15m, with flow being conveyed along a straightened and deepened channel over a clay-based substrate comprised of a mixture of silt, cobble, boulder and some debris on top. Flow definition along this reach was characterized as being permanent and generally divided as approximately 90% flat, 5% riffle, and 5% run (**Photo 3**).

This Middlestream Section appears to experience significant increases in flow volume and velocity based on obvious scouring and the observed high-water mark. The stream banks were observed to be slightly unstable with abundant tree and shrub root systems visible. This section has decent canopy cover; however, available in-stream cover is low to moderate overall and primarily consisting of in-stream and overhanging coarse woody debris, anthropogenic debris (e.g., garbage, yard waste etc) and cobble (**Photo 4**). This section exhibited very little in-stream vegetation; however, abundant green algae and overhanging bank vegetation was present throughout. No significant refuge areas or sensitive habitat were noted along this reach.

Upstream Section

Similar to the other sections downstream, this section has also been altered to accommodate surrounding land uses and required drainage. The channel has an average bankfull width of approximately 1.2 – 3m and an average wetted width of 0.5 - 1.5m (at the time of survey). Average water depths were between 0.05m and 0.20m, and flow was conveyed through a straightened channel. Substrates were comprised of a mixture of clay, silt, gravel, cobble, with boulder on top. Flow definition along this reach was characterized as being permanent and generally divided as approximately 70% flat, 5% riffle, and 25% run (**Photo 5**).

Similar to downstream reaches, this Upstream Section also appears to experience significant fluctuations in flow volume and velocity based on scour lines and the high-water mark along the banks. The stream banks are generally shallow and do not appear to be able to contain periods of high flow as evident by flow erosion observed beyond the bankfull width. This section has decent canopy cover; however, available in-stream cover is low overall and primarily consists of in-stream and overhanging coarse woody debris, organic debris (e.g., natural and yard waste) and inorganic debris (e.g., tires and metals) (**Photo 6**). This section exhibited little to no in-stream vegetation and numerous seasonal barriers were observed due to the build-up of debris in combination with shallow water conditions present. No significant refuge areas or sensitive habitat were noted along this reach.

Electrofishing was undertaken where possible in places where fish are most likely to reside within the three sections discussed above. After 803 seconds of fishing effort, no fish were captured or seen during sampling. This result was not unexpected considering the previous classification of indirect habitat status within Watercourse #5 (Dillon, November 2007). Due to numerous alterations, in-stream barriers present throughout Watercourse #5, and results of recent fish community sampling, it appears that Watercourse #5 does not function as direct fish habitat, but rather has an indirect function.

Tributary to Watercourse #5

This small tributary to Watercourse #5 drains to the north and into a storm sewer at Barton Street. As a result, the reach within the Study Area is orphaned and cannot function as direct fish habitat. The online storm sewer also significantly limits the potential for this watercourse to function as indirect habitat due to the physical and hydraulic separation of reaches. At the time of investigation, the channel was completely dry and functions as ephemeral overland drainage only. The channel itself is narrow and shallow with terrestrial vegetation growing throughout (**Photo 7**).

Electrofishing was not undertaken due to the absence of water at the time of investigation and inability of fish to access the Study Area via this channel.

5.1.7 Species at Risk

5.1.7.1 Plants

No plants species at risk or species of possible management concern were observed in the Study Area.

5.1.7.2 Herptiles

Background review suggests the potential presence of herptile species at risk in the Study Area. None of these species were observed during field work, and the preferred habitat for several of these species is not found within the Study Area. Based on the NHIC database, Ontario Herptofaunal Atlas and field work, our evaluation suggests that three species may possibly use portions of the Study Area as primary habitat or as a travel corridor including: Blanding's turtle, Jefferson salamander and the eastern milksnake. Details regarding these species are provided below.

- Blanding's turtle (*Emydoidea blandingii*) (S3)
    - The Blanding's turtle is listed as *Threatened* both provincially and federally. The COSEWIC Assessment and Status Report indicates that "*Subpopulations are increasingly fragmented by the extensive road network that criss-crosses all of this turtle's habitat. Having delayed age at maturity, low reproductive output and extreme longevity makes this turtle highly vulnerable to increased rates of mortality of adults. Nesting females are especially susceptible to road kill because they often attempt to nest on gravel roads or on shoulders of paved roads. Loss of mature females in such a long-lived species greatly reduces recruitment and long-term viability of subpopulations. Another threat is degradation of habitat from development and alteration of wetlands. The pet trade is another serious ongoing threat because nesting females are most vulnerable to collection*" (COSEWIC, 2005).
    - Preferred habitats for this species are shallows, ponds and marshes with soft bottoms and abundant aquatic vegetation. An individual turtle may use several connected lakes, rivers, streams, marshes, or ponds and travel

upwards of 6,760m in a season (COSEWIC, 2005). The Blanding's turtle nests in a variety of loose substrates including sand, organic soil, gravel and cobblestone. Overwintering occurs in permanent pools that average about one metre in depth, or in slow flowing streams (COSEWIC, 2005).

  - There are no shallow bodies of water within the Study Area; however, watercourses flowing through the Study Area could potentially provide a corridor for dispersal during nesting activity.

- Jefferson salamander (*Ambystoma jeffersonianum*) (S2)
  - The Jefferson salamander is listed as *Threatened* both provincially and federally. Threats to this species are largely related to anthropogenic factors. Urbanization, forestry activities, recreation and unauthorized collections are all attributable to their current status. Urban development creates barriers (e.g. roads, neighbourhoods, etc.) that limit the dispersal of the species and fragment their habitat, especially cutting off breeding ponds from late summer and winter habitat. Also, development impacts such as site clearing, reduced topography, storm water management, increased impermeable surface, altered water balance regimes, etc., affect soil moisture and the availability of vernal ponds which are essential to the survivability of the species.
  - Preferred habitat for this species is in moist, loose soil, under logs or in leaf litter within deciduous forests. In the spring, Jefferson salamanders travel to woodland ponds, limestone sinkhole ponds, kettle ponds and other natural basins to breed. These ponds are often ephemeral being fed by temporary water sources.
  - No ephemeral ponds were identified in deciduous forest habitat; however, the study team had very restricted access to the Study Area during spring months and searches were limited. Deciduous woodlands are present within the Study Area and may be potential habitat area.

- Eastern milksnake (*Lampropeltis triangulum*) (S3)
  - Milksnakes are federally and provincially listed as a species of *Special Concern*. Roads are a significant source of mortality for this species at risk. As habitat is lost and they come into increasing contact with people,

this snake is often mistaken for a venomous species and deliberately killed.
    - This species of snake is considered *Common* in the Hamilton area, and especially in the rural parts of the City according to the Hamilton Natural Areas Inventory 2003 (Dwyer, 2003).
    - Milksnakes have broad habitat preferences being found in a wide variety of environments from rocky outcrops and hillsides to meadows and pastures. These snakes are usually found around coniferous or deciduous forest edges, but can thrive in a variety of habitat types, such as open woodlands, fields, farm buildings, and in older urban areas.
    - Suitable habitat for eastern milksnake can be found throughout the Study Area.

In addition, the Herpetofaunal Atlas indicates the possible presence of additional species at risk in the vicinity of the Study Area. Based on habitat requirements, suitable habitat is not not found within the Study Area. Details regarding this additional species is provided below.

- Wood turtle (*Glyptemys insculpta*) (S2)
    - This species is federally and provincially listed as *Endangered*.
    - Hamilton Natural Areas Inventory 2003 (Dwyer, 2003) has the wood turtle listed as an *Excluded Species* because of historical one-time sightings in 1958; and this species was not sighted previously nor has it been observed since.
    - Preferred habitat for this species is clear rivers, streams or creeks with a slight current and sandy or gravelly bottom, with adjacent woody area providing sufficient cover.
    - As the watercourses present within the Study Area are highly impacted with degraded bottoms, suitable habitat is not found on-site.

- Eastern spiny softshell turtle (*Apalone spinifera spinifera*) (S3)
    - This species is federally and provincially listed as *Threatened*.
    - Preferred habitat for this species is lakes and large rivers. They rarely travel far from the shoreline.
    - This specific habitat is not found within the Study Area.

- Common musk turtle (*Sternotherus odoratus*) (S4)
  - This species is federally and provincially listed as *Threatened*.
  - Preferred habitat for this species includes a range of shallow water bodies with slow currents including lakes, streams, marshes, ponds and rivers, usually with a high organic substrates.
  - The degraded and small marsh and stream habitats located in the Study Area do not contain suitable substrates for this species.

- Northern ribbonsnake (*Thamnophis sauritus septentrionalis*) (S3)
  - This species is federally and provincially listed as *Special Concern*.
  - Preferred habitat for this species is near bodies of water along the shoreline and in marshes.
  - This specific type of habitat is limited within the Study Area and of a lower quality than typically attracts this species.

5.1.7.3 Mammals

No mammals species at risk or species of possible management concern were observed in the Study Area.

5.1.7.4 Birds

A search of the Ontario Breeding Bird Atlas (2001-2005) showed potential breeding evidence for 5 avian species at risk within atlas square 17PH08. During fieldwork, two chimney swift (*Chaetura pelagica*) (*Threatened*) individuals were observed:. This species and the four others potentially occurring in the Study Area are discussed below.

- Chimney swift (*Chaetura pelagica*) (S4B SZN)
  - The chimney swift is federally and provincially listed as *Threatened*. COSEWIC stipulates that the primary cause of the recent decline in this species is unknown, but the decline in flying insects and a shift to homes that lack suitable nesting chimney's could be attributable.
  - This species is listed as *Uncommon* in the Hamilton area with observation largely limited to within the city and surrounding towns.
  - Formerly, preferred habitats for this species were tree cavities in old growth forests; however, due to reduced mature forest cover over much of its range this species is now more likely to be found in urban areas where

they nest in manmade structures such as chimneys (COSEWIC 2007a). Thus, potential nesting habitat can be found surrounding the Study Area. Chimney swift would be most likely to be found high above the Study Area, aerially foraging.

- Canada warbler (*Wilsonia Canadensis*) (S4B)
    - This species is listed as *Threatened* federally and listed as a species of *Special Concern* provincially. A reduction of forests with appropriate dense shrub and ground cover can be attributed to their decline. They also face added pressure through widespread deforestation of wintering grounds in South America.
    - This species is listed as *Rare* in the Hamilton area and they appear to be declining according to the Breeding Bird Atlas results.
    - Preferred habitat for the Canada warbler is usually wet mixed forests with a dense shrub layer but it can use a variety of wet wooded sites. They nest on or near the ground on fallen logs along stream banks or on hummocks (COSEWIC 2008a). Though, small watercourses flow through some of the woodlots located in the Study Area, they are generally not wet sites and have few conifers. Breeding habitat suitability in the Study Area for Canada Warbler should be considered low. This species was not observed during breeding bird surveys completed as part of this study.

- Red-headed woodpecker (*Melanerpes erythrocephalus*) (S4B)
    - This species is listed as *Threatened* federally and listed as a species of *Special Concern* provincially. The main threats for the red-headed woodpecker are habitat loss due to forestry and agriculture, and also increased competition from European starlings for nest sites.
    - This species is listed as *Rare* in the Hamilton area and appears to be declining.
    - Preferred habitat for this species is open woodland and woodland edges. They are often found along the forested edges of parks, golf courses, orchards and in riparian forests, especially where there is a higher density of dead trees (COSEWIC 2007b).
    - Potential breeding habitat for red-headed woodpecker, in the form of forest edge and active and abandoned orchards, is present in the Study

Area. This species was not observed during breeding bird surveys completed as part of this study.

- Common nighthawk (*Chordeiles minor*) (S4B)
  - This species is listed as *Threatened* federally and listed as a species of *Special Concern* provincially. The use of pesticides is a large threat to the nighthawk population as insects are their primary food source.
  - This species is listed as *Rare* in the Hamilton area represented by only one or two breeding pairs in the Hamilton area (Dwyer, 2003).
  - Preferred habitat for the common nighthawk includes a variety of open areas with little to no ground cover. Logged areas, burn-over areas, forest clearings, lakeshores, cultivated field and orchards can be used (COSEWIC 2007c).
  - Suitable open breeding habitats for common nighthawk can be found throughout the Study Area. This species was not observed during breeding bird surveys completed as part of this study.

- Short-eared owl (*Asio flammeus*) (S2N S4B)
  - The short-eared owl is listed as *Special Concern* both provincially and federally. Increased urbanization and intensive agricultural practices have led to decreases in suitable habitat and has been responsible for its current status.
  - This species is listed as *Rare* in the Hamilton area with the latest breeding observations in the Atlas being the only modern observation of this particular species.
  - Preferred breeding habitats for this species include a variety of open areas including grasslands, old pastures and marshes. Potential breeding habitat for short-eared owl can be found throughout the Study Area in the form of large oldfields and areas of marsh. This species was not observed during breeding bird surveys completed as part of this study.

5.1.7.5 Invertebrates

The monarch (*Danaus plexippus*) was the only invertebrate species at risk observed during field surveys. The monarch is listed as *Special Concern* both federally and provincially. This species is a migratory butterfly that spends summers in North

America, including southern Canada, and winters in Mexico. Threats to this species include pesticide use, general habitat loss and degradation throughout its range and specific threats to restricted wintering habitats in Mexico and California. Monarch can be found in a variety of habitats provided that milkweed is present, as this plant species is required by monarch caterpillars (SARA Public Registry 2009). Milkweed was observed in the Study Area and the presence of monarch individuals confirms that suitable habitat for this species is present.

5.2 Fruitland Road Alternative Corridors

Approximate alternative corridor footprints for Fruitland Road are indicated on **Figure 5.1**. The corridor associated with Alternatives 2 and 4 involves a north-south corridor 360 m east of the existing Fruitland Road in the bottom half of the Study Area. Extending northerly, this corridor veers to the west and links with existing Fruitland Road to maintain local access. In contrast, the corridor associated with Alternative 5 shares a portion of the same footprint as the previously described corridor, but continues northerly in the northern half of the Study Area, adjacent to the Tributary to Watercourse #5 (**Figure 5.1**). It would be a new north-south collector road with a new Barton Street intersection.

5.3 Potential Impacts and Mitigation Considerations

In the sections below, a general discussion of potential terrestrial and aquatic impacts is provided, in addition to potential mitigation measures to be considered.

Potential Terrestrial Impacts and Mitigation Considerations

The road corridors associated with Alternatives 2 and 4 and Alternative 5 are located in predominantly open country mixed meadow and shrub thicket vegetation communities. These lands are mainly agricultural fields, hedgerows, vineyards or plantations that have been previously disturbed and allowed to regenerate into naturalized vegetation communities. Remnant natural vegetation communities were also documented in the Study Area and could be affected by one or both of the road corridor alternatives.

Road corridor Alternatives 2 and 4 and Alternative 5 have the potential to impact the terrestrial natural environment in the following manner:

- Encroachment/vegetation removal/geographic isolation of a small green ash mineral deciduous swamp that runs parallel to Watercourse #5 (Alternatives 2 & 4 only);
- Encroachment/vegetation removal/ habitat fragmentation in a fresh-moist oak-hardwood deciduous forest (Alternative 5 only);
- Loss of purple loosestrife (non-native) forb meadow marsh;
- Loss of trees in hedgerows and plantations;
- Introduction/colonization of non-native invasive flora in disturbance zones;
- Potential injury or disturbance to migratory birds (and their nests) protected under the *Migratory Birds Convention Act* (1994) and the *Fish and Wildlife Conservation Act* (1997);
- Increase in anthropogenic disturbances to open country habitat, including urban stressors such as noise, light, trampling, and dumping. These human disturbances can result in a loss of biodiversity in natural and cultural areas; and
- Hydrological impacts to wetland and lowland forest communities. Alteration to the hydrology in or immediately adjacent to natural vegetation communities could impact their form and function. Activities that could affect the hydrology of natural features include construction dewatering, alteration to surface water drainage patterns, changes to the water table and excessive pooling/drying along the road embankment.

The following mitigation measures are recommended to avoid or reduce the natural environment impacts of the Laurier Parkway road extension:

- Minimize the amount of area of vegetation removal to the extent possible.
- During the construction phase, establishing vegetation protection zones (VPZ) around natural heritage features identified in the project area is recommended. In order to protect vegetation adjacent to the working area from construction traffic and/or materials storage, tree protection fences/barriers should be utilized.
- To protect birds and comply with relevant federal and provincial legislation, all vegetation removal must be completed outside of the bird-breeding season. As such, vegetation clearing will not be undertaken from April 15th to August 15. Any vegetation removal during this breeding period will require a nest search by a qualified Avian Biologist prior to clearing the area.

- Create an Edge Management Plan (EMP) for the natural areas adjacent to the ROW. In the post-construction-operational phase of the project, vegetative buffers should be established to mitigate disturbance impacts to natural features and linkages. Vegetative buffers should be planted with native, non-invasive vegetation appropriate for the climate and local habitat conditions (e.g. soil type, soil moisture, light exposure, tolerance to urban stressors, etc.).
- Landscape vegetation should be comprised of native, salt-tolerant and non-invasive species.
- Replace trees that are accidentally damaged with similar size (or equivalent basal area) and species following construction.
- A water balance analysis should be conducted to ensure that construction related dewatering activities do not adversely affect the form and function of wetland and lowland forest communities (e.g. vegetation survivorship).
- Identify potential restoration areas (e.g. Core Areas and Linkages) in order to compensate for habitat lost in the ROW. Ecological restoration and enhancement is best achieved through the creation of a Restoration and Enhancement Plan (REP). The objective of the REP should be to increase biodiversity and ecological integrity of the natural heritage system. Some examples of how these objectives can be reached are through planting native vegetation, removal of non-native invasive, natural regeneration and installation of wildlife habitat structures. All mitigation, restoration and enhancement plans should be generated in consultation with the MNR and/or the HCA.

Potential Aquatic Impacts and Mitigation Considerations

The corridor associated with Alternatives 2 and 4 is expected to require a minimum of two crossings of Watercourse #5. It also appears that a potential re-alignment of Watercourse #5 may be required depending on the exact location of the proposed Fruitland Road.

In contrast, the corridor associated with Alternative 5 is expected to involve one crossing of Watercourse #5, and a crossing and/or re-alignment of the Tributary to Watercourse #5.

Potential aquatic impacts of these activities may include:

- Loss of riparian and in-stream vegetation at the crossing;
- Disturbance of existing substrates;
- Disturbance to flow conveyance during construction;
- Potential release of sediment into the watercourse;
- Potential loss of in-stream habitat features; and
- Disturbance of existing banks.

Depending on the requirement for re-alignment, particularly for Watercourse #5, there may be a need to incorporate the use of natural channel design into the planned works to assist in compensating for the loss of fish habitat.

Mitigation considerations for potential in-water activities associated with the Fruitland Road alternatives, including potential new crossings and/or re-alignments of Watercourse #5 and Tributary to Watercourse #5 may include, but are not limited to, the following:

- In-water works should be conducted during the appropriate timing window (e.g., outside of the warm water March 15 – June 30 spring period) and not during high flow conditions;

- Existing flows should be maintained downstream of the work area at all times during construction via an appropriate method such as a dam and pump bypass method or diversion;

- All construction materials and equipment used for the purposes of site preparation and project completion should be operated and stored in a manner that prevents any deleterious substances from entering the watercourses;

- Any stockpiled construction materials should be stored away from the watercourses;

- Vehicular and equipment refueling and maintenance should be conducted away from the watercourses;

- Implementation of sediment and erosion control measures should occur prior to the commencement of construction, and maintained and upgraded as necessary during the construction phase to prevent entry of sediment into the water (e.g., silt fencing, traps, filter bags, check dams etc);

- All disturbed surfaces should be stabilized as soon as possible after construction;

- All sediment and erosion control measures should be left in place and maintained until vegetative cover is established and/or until the construction site has stabilized.

There is potential that a *Fisheries Act* Authorization would be required for potential modifications to Watercourse #5, in addition to approval under the *Conservation Authorities Act*. Permit and approval requirements would need to be confirmed through agency consultation once more information/details are known regarding potential watercourse works.

6. SUMMARY

An assessment of natural heritage features was conducted for lands bounded by Fruitland Road to the west, Glover Road to the east, Highway 8 to the south, and Barton Street to the north, in the City of Hamilton. This assessment was conducted to assist City of Hamilton staff with preparation of the Fruitland-Winona Secondary Plan, and to provide natural heritage information as input for the Class EA that is underway for improvements to Fruitland Road between Highway 8 and Barton Street. Using a variety of survey methods, including an investigation of vegetation, Ecological Land Classification, amphibians, wildlife, fisheries, and species at risk, recommendations were provided with respect to constraints to development and areas to be protected, with consideration for the overall landscape ecology. In addition, primary road corridors associated with Fruitland Road Class EA alternatives were discussed in the context of potential impacts and mitigation considerations for the protection of natural features.

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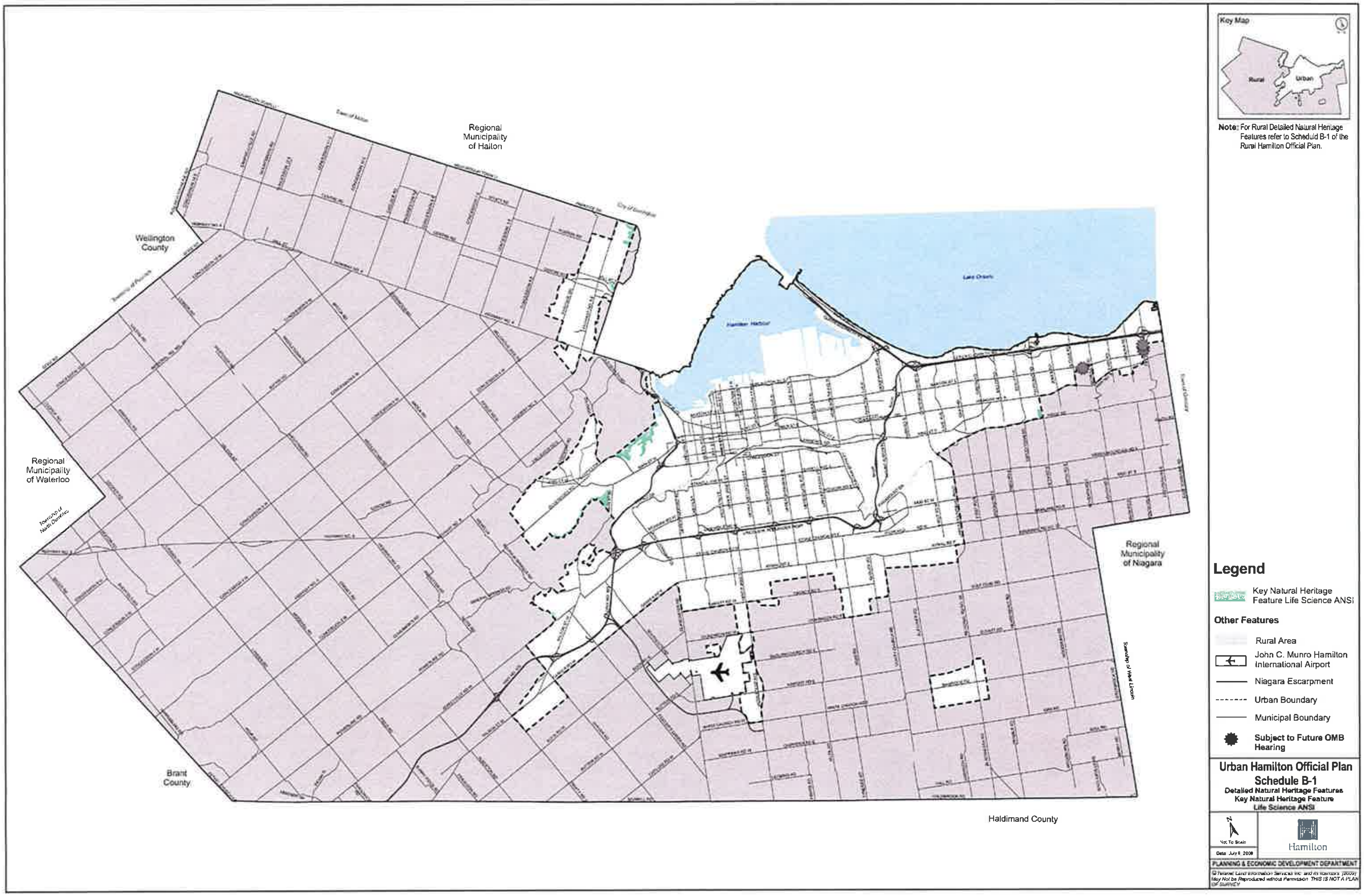
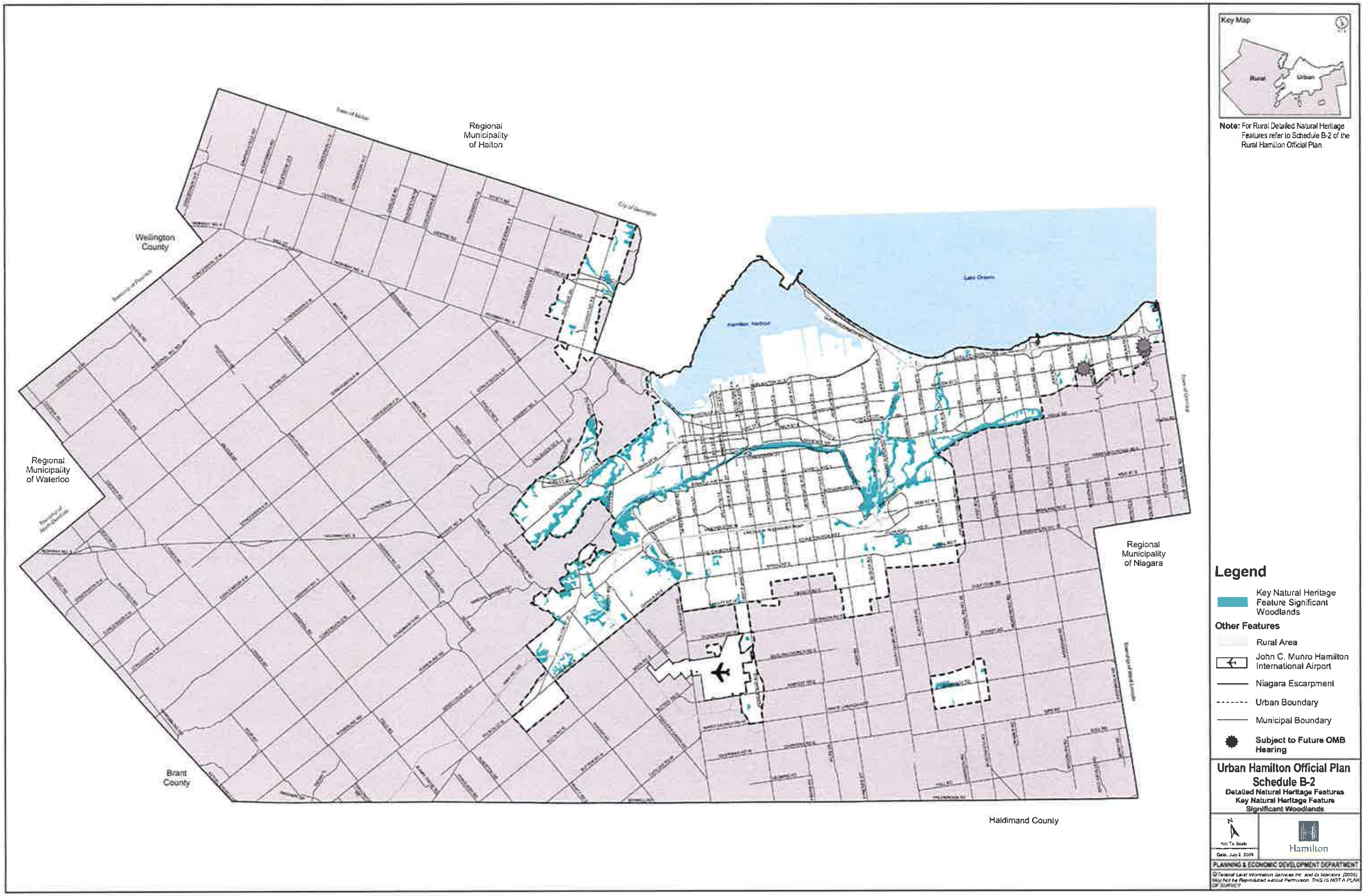
Appendix A

Official Plan Natural Heritage Schedules


Key Map
Rural
Urban
Note: For Rural Natural Heritage Features refer to Schedule B of the Rural Hamilton Official Plan
Lake Ontario
Legend
Core Areas
Area Specific Policy - USC-1 and USC-2 in Volume 3
Linkages
Parks & General Open Space (Excluding Parkettes)
Streams
Other Features
Rural Area
John C. Munro Hamilton International Airport
Niagara Escarpment
Urban Boundary
Municipal Boundary
Subject to Future OMB Hearing
Urban Hamilton Official Plan
Schedule B
Natural Heritage System
Hamilton
PLANNING AND ECONOMIC DEVELOPMENT DEPARTMENT


Key Map
Rural
Urban
Note: For Rural Detailed Natural Heritage Features refer to Schedule B-1 of the Rural Hamilton Official Plan.
Regional Municipality of Halton
Wellington County
Regional Municipality of Waterloo
Brant County
Haldimand County
Regional Municipality of Niagara
Legend
Key Natural Heritage Feature Life Science ANSI
Other Features
Rural Area
John C. Munro Hamilton International Airport
Niagara Escarpment
Urban Boundary
Municipal Boundary
Subject to Future OMB Hearing
Urban Hamilton Official Plan
Schedule B-1
Detailed Natural Heritage Features
Key Natural Heritage Feature
Life Science ANSI
Not To Scale
Hamilton
PLANNING & ECONOMIC DEVELOPMENT DEPARTMENT


Key Map
Rural
Urban
Note: For Rural Detailed Natural Heritage Features refer to Schedule B-2 of the Rural Hamilton Official Plan
Regional Municipality of Halton
Wellington County
Regional Municipality of Waterloo
Brant County
Haldimand County
Regional Municipality of Niagara
Legend
Key Natural Heritage Feature Significant Woodlands
Other Features
Rural Area
John C. Munro Hamilton International Airport
Niagara Escarpment
Urban Boundary
Municipal Boundary
Subject to Future OMB Hearing
Urban Hamilton Official Plan
Schedule B-2
Detailed Natural Heritage Features
Key Natural Heritage Feature
Significant Woodlands
Not To Scale
Date, July 9, 2009
Hamilton
PLANNING & ECONOMIC DEVELOPMENT DEPARTMENT
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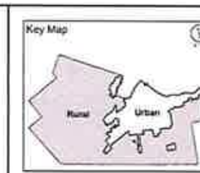
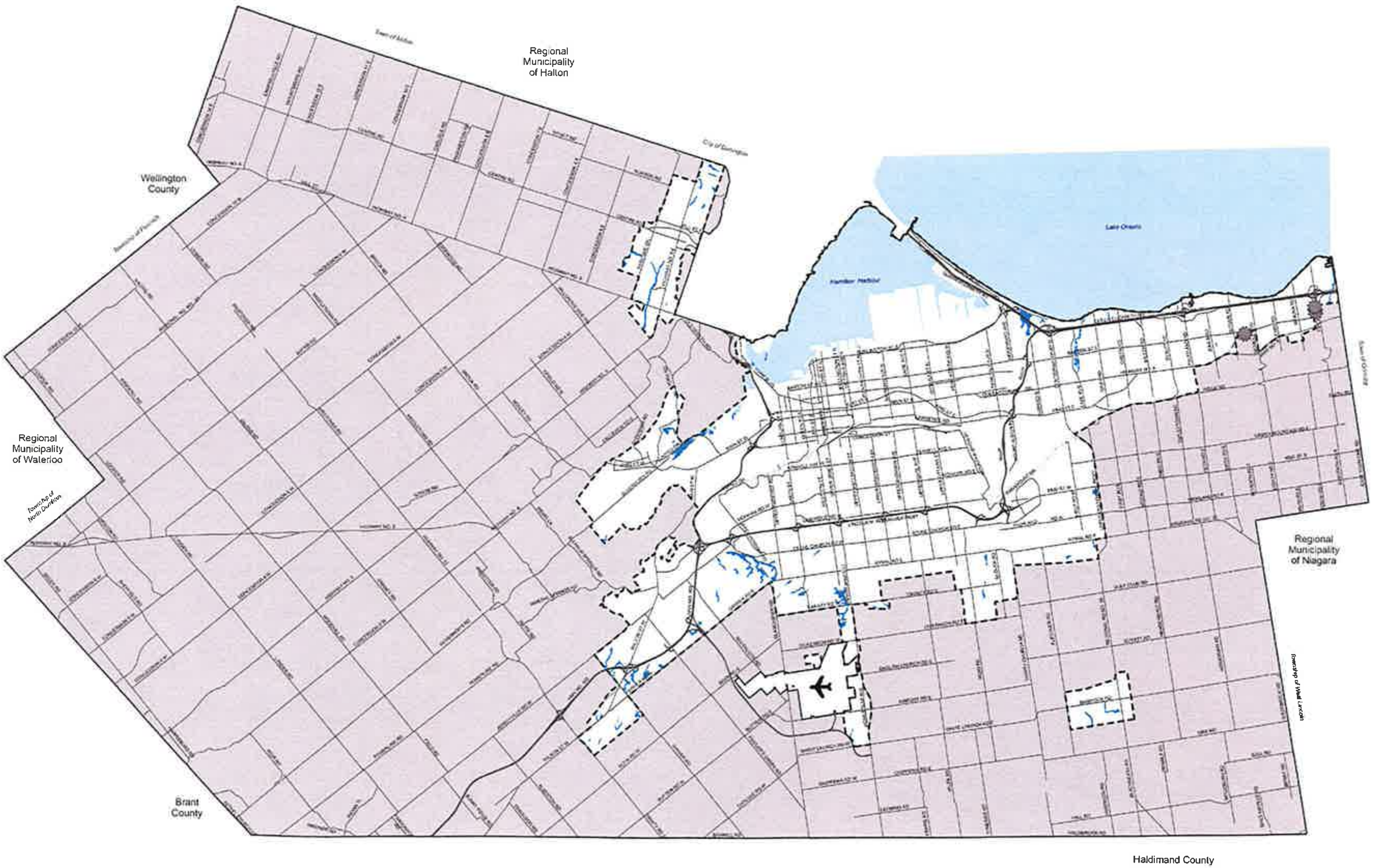


Note: For Rural Detailed Natural Heritage Features refer to Schedule B-4 of the Rural Hamilton Official Plan



Legend

Key Natural Heritage and Key Hydrologic Feature Wetlands

Other Features

Rural Area

John C. Munro Hamilton International Airport

Niagara Escarpment

Urban Boundary

Municipal Boundary

Subject to Future OMB Hearing

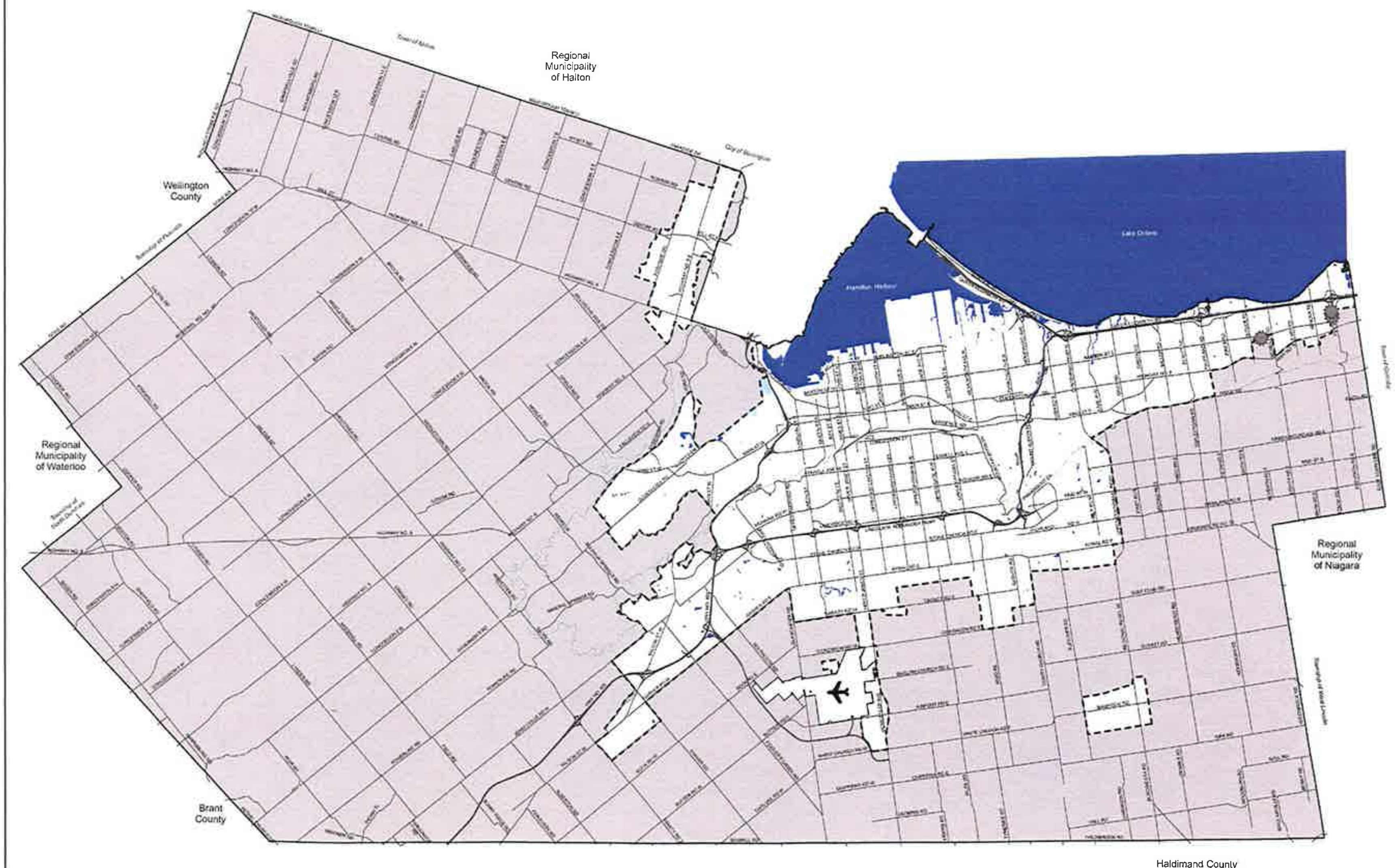
Urban Hamilton Official Plan
Schedule B-4
Detailed Natural Heritage Features
Key Natural Heritage Feature and Key Hydrologic Feature Wetlands

N

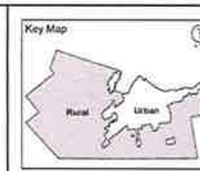
Not To Scale

Hamilton

PLANNING & ECONOMIC DEVELOPMENT DEPARTMENT



Key Map



Note: For Rural Detailed Natural Heritage Features refer to Schedule B-5 of the Rural Hamilton Official Plan

Legend

Key Hydrologic Feature Lakes and Littoral Zones

Other Features

Rural Area

John C. Munro Hamilton International Airport

Niagara Escarpment

Urban Boundary

Municipal Boundary

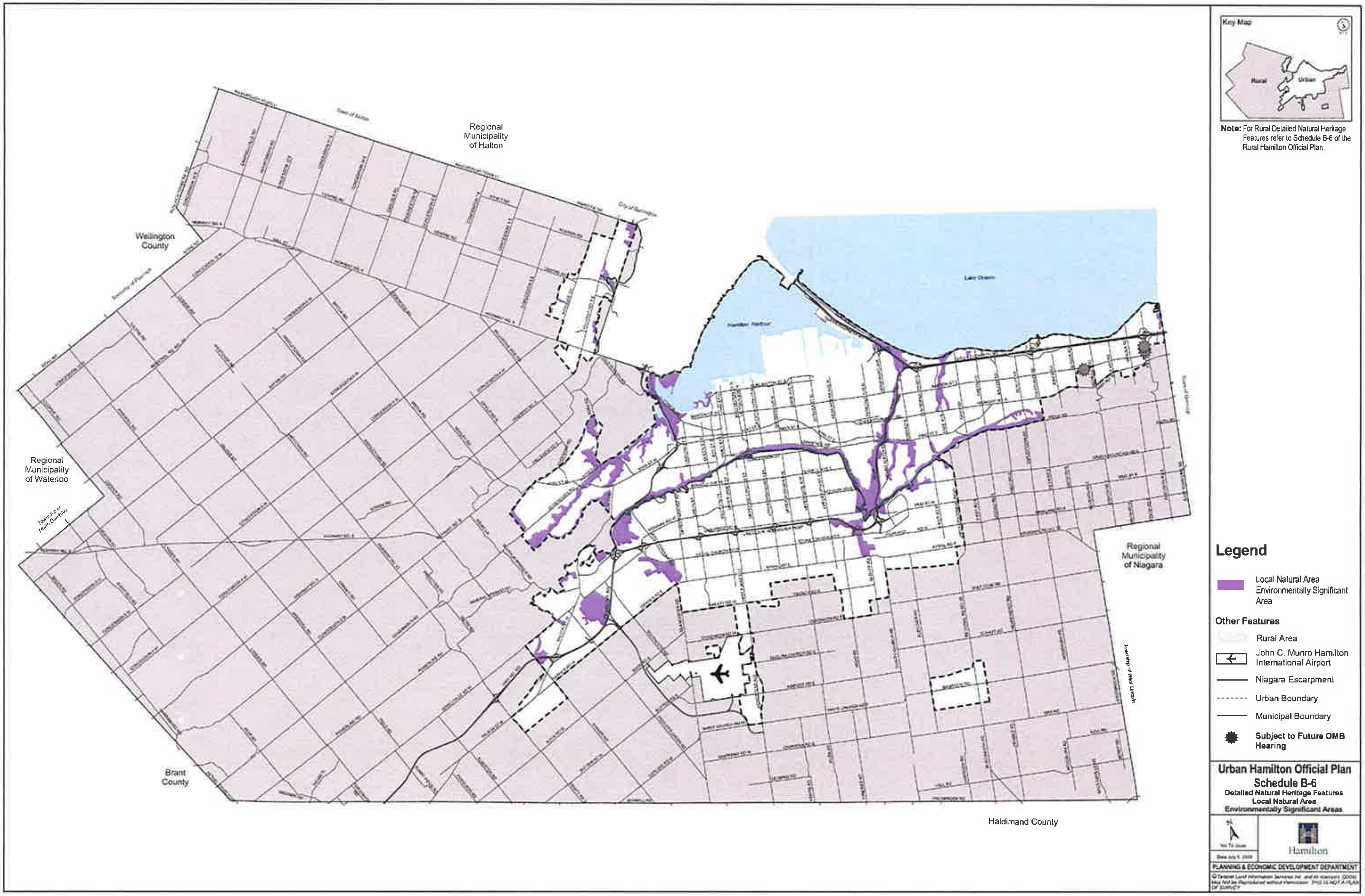
Subject to Future OMB Hearing

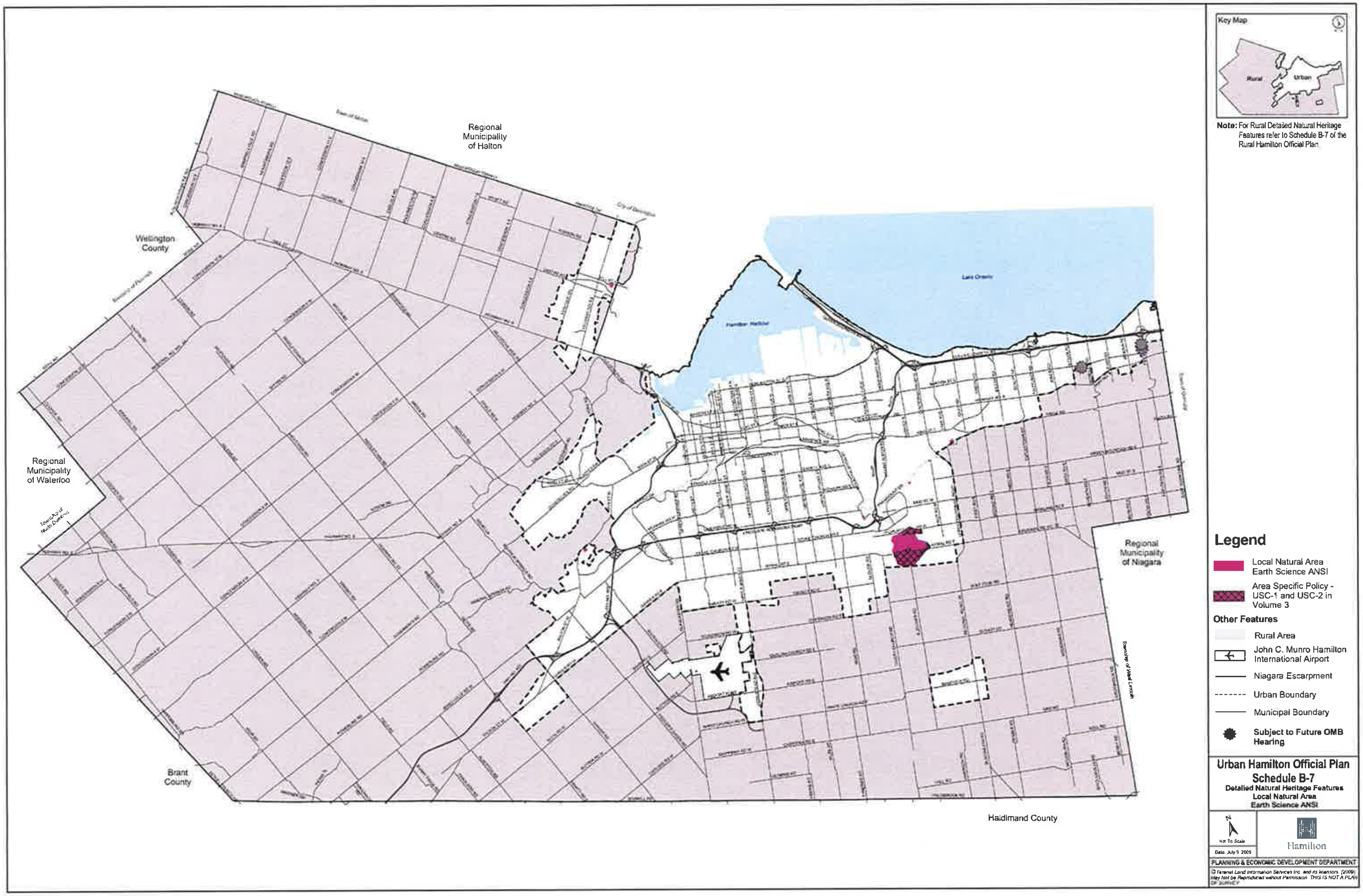
Urban Hamilton Official Plan
Schedule B-5

Detailed Natural Heritage Features
Key Hydrologic Feature
Lakes and Littoral Zones

Hamilton

PLANNING & ECONOMIC DEVELOPMENT DEPARTMENT


Key Map
Rural
Urban
Note: For Rural Detailed Natural Heritage Features refer to Schedule B-6 of the Rural Hamilton Official Plan
Regional Municipality of Halton
Wellington County
Regional Municipality of Waterloo
Brant County
Haldimand County
Regional Municipality of Niagara
Township of West Lincoln
City of Burlington
Hamilton Harbour
Lake Ontario
Legend
Local Natural Area Environmentally Significant Area
Other Features
Rural Area
John C. Munro Hamilton International Airport
Niagara Escarpment
Urban Boundary
Municipal Boundary
Subject to Future OMB Hearing
Urban Hamilton Official Plan
Schedule B-6
Detailed Natural Heritage Features
Local Natural Area
Environmentally Significant Areas
Hamilton
PLANNING & ECONOMIC DEVELOPMENT DEPARTMENT


Key Map
Rural
Urban
Note: For Rural Detailed Natural Heritage Features refer to Schedule B-7 of the Rural Hamilton Official Plan
Regional Municipality of Halton
Wellington County
Regional Municipality of Waterloo
Brant County
Haldimand County
Regional Municipality of Niagara
Lake Ontario
Hamilton Harbour
Legend
Local Natural Area Earth Science ANSI
Area Specific Policy - USC-1 and USC-2 in Volume 3
Other Features
Rural Area
John C. Munro Hamilton International Airport
Niagara Escarpment
Urban Boundary
Municipal Boundary
Subject to Future OMB Hearing
Urban Hamilton Official Plan
Schedule B-7
Detailed Natural Heritage Features
Local Natural Area
Earth Science ANSI
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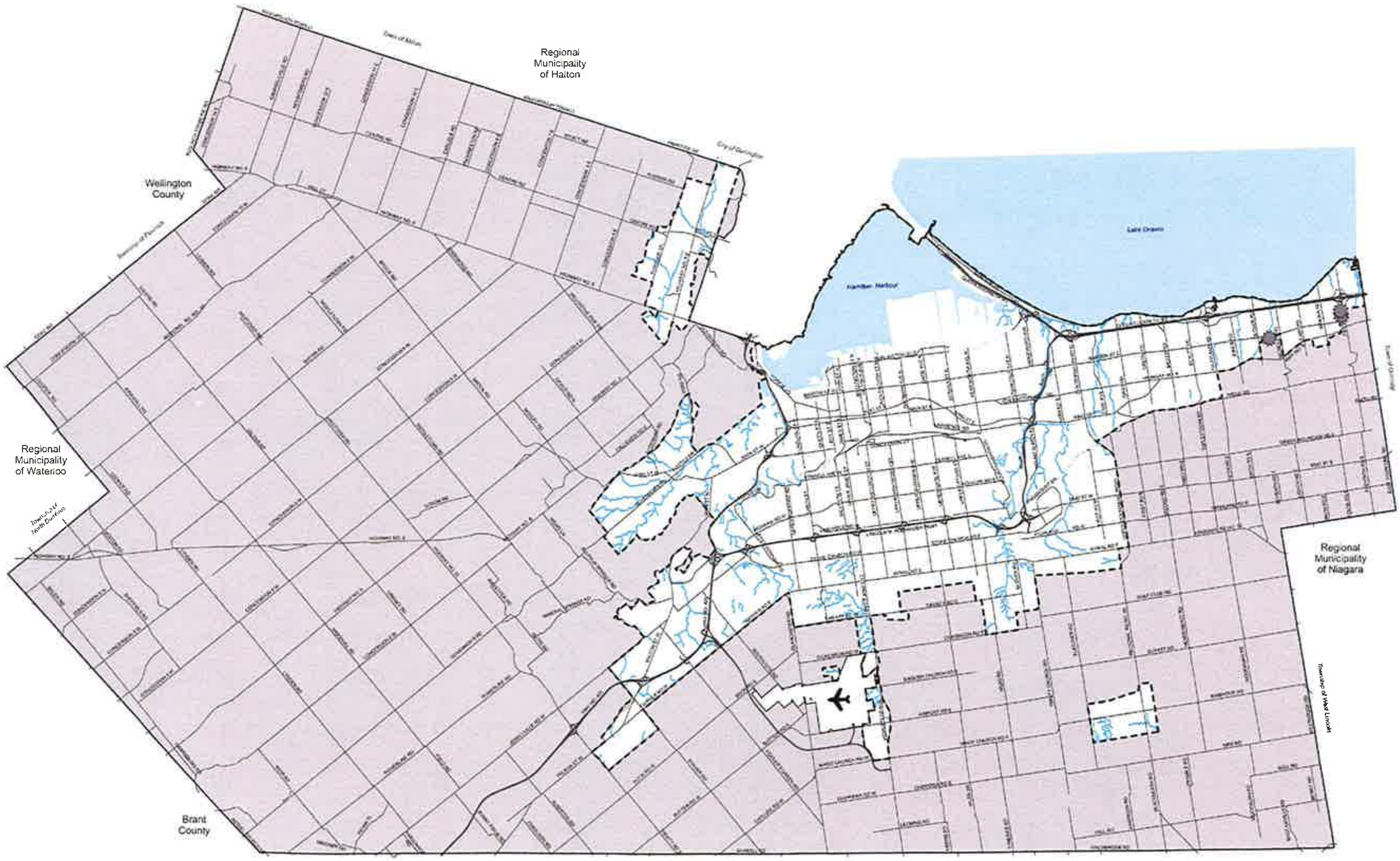
Not To Scale
Date: July 9 2009
Hamilton
PLANNING & ECONOMIC DEVELOPMENT DEPARTMENT



Note: For Rural Detailed Natural Heritage Features refer Schedule B-8 of the Rural Hamilton Official Plan

Legend

Key Hydrologic Feature Streams

Other Features

Rural Area

John C. Munro Hamilton International Airport

Niagara Escarpment

Urban Boundary

Municipal Boundary

Subject to Future OMB Hearing

Urban Hamilton Official Plan
Schedule B-8
Detailed Natural Heritage Features
Key Hydrologic Feature Streams

Not To Scale

Hamilton

PLANNING & ECONOMIC DEVELOPMENT DEPARTMENT

Appendix B

Field Work Result Tables

Table B.1. Plant Species Observed in the Fruitland Road Class EA Study Area

Scientific Name	Common Name	Coefficient Conservation	Global Rank	COSEWIC	COSSARO	SRank	Introduced
Abies sp.	Fir species (non-native)			-	-		
Abutilon theophrasti	Velvetleaf	0	G?	-	-	SE5	I
Acer negundo	Manitoba Maple	0	G5	-	-	S5	
Acer platanoides	Norway Maple	0	G?	-	-	SE5	I
Acer rubrum	Red Maple	4	G5	-	-	S5	
Acer saccharinum	Silver Maple	5	G5	-	-	S5	
Acer saccharum ssp. saccharum	Sugar Maple	4	G5	-	-	S5	
Acer X freemanii	Freeman's Maple		G?	-	-	S5	
Achillea millefolium ssp. millefolium	Common Yarrow	0	G5	-	-	SE	I
Agrimonia gryposepala	Tall Agrimony	2	G5	-	-	S5	
Agrostis gigantea	Redtop Grass	0	G4G5	-	-	SE5	I
Agrostis hyemalis	Tickle Grass	4	G5	-	-	S1	
Alisma plantago-aquatica	Common Water-plantain	3	G5	-	-	S5	
Alliaria petiolata	Garlic Mustard	0	G?	-	-	SE5	I
Allium schoenoprasum var. schoenoprasum	European Chives	0	G5	-	-	SE2	I
Amaranthus retroflexus	Redroot Pigweed	0	G?	-	-	SE5	I
Ambrosia artemisiifolia	Common Ragweed	0	G5	-	-	S5	
Amelanchier arborea	Downy Serviceberry	5	G5	-	-	S5	
Amelanchier laevis	Smooth Serviceberry	5	G4G5Q	-	-	S5	
Antennaria neglecta	Field Pussytoes	3	G5	-	-	S5	
Apocynum androsaemifolium ssp. androsaemifolium	Spreading Dogbane	3	G5	-	-	S5	
Arctium minus ssp. minus	Common Burdock	0	G?	-	-	SE5	I
Arisaema triphyllum ssp. triphyllum	Jack-in-the-pulpit	5	G5	-	-	S5	
Asclepias syriaca	Common Milkweed	0	G5	-	-	S5	

Scientific Name	Common Name	Coefficient Conservation	Global Rank	COSEWIC	COSSARO	SRank	Introduced
Asparagus officinalis	Asparagus	0	G5?	-	-	SE5	I
Aster ericoides var. ericoides	Heath Aster	4	G5	-	-	S5	
Aster lateriflorus var. lateriflorus	One-sided Aster	3	G5	-	-	S5	
Aster macrophyllus	Large-leaved Aster	5	G5	-	-	S5	
Aster novae-angliae	New England Aster	2	G5	-	-	S5	
Aster urophyllus	Arrow-leaved Aster	**6**	G4	-	-	S4	
Atriplex patula	Spearscale	0	G5	-	-	S5	
Barbarea vulgaris	Common Wintercress	0	G?	-	-	SE5	I
Berberis vulgaris	Common Barberry	0	G?	-	-	SE5	I
Bidens frondosa	Devil's Beggar-ticks	3	G5	-	-	S5	
Brassica nigra	Black Mustard	0	G?	-	-	SE5	I
Bromus inermis ssp. inermis	Smooth Brome	0	G4G5	-	-	SE5	I
Calla palustris	Water Arum	**8**	G5	-	-	S5	
Carex bebbii	Bebb's Sedge	3	G5	-	-	S5	
Carex gracillima	Graceful Sedge	4	G5	-	-	S5	
Carex pensylvanica	Pennsylvania Sedge	5	G5	-	-	S5	
Carex stricta	Tussock Sedge	4	G5	-	-	S5	
Carex vulpinoidea	Fox Sedge	3	G5	-	-	S5	
Carpinus caroliniana	Blue Beech	**6**	G5	-	-	S5	
Carya ovata	Shagbark Hickory	**6**	G5	-	-	S5	
Celastrus scandens	Climbing Bittersweet	3	G5	-	-	S5	
Centaurea maculosa	Spotted Knapweed	0	G?	-	-	SE5	I
Cerastium fontanum	Common Mouse-ear Chickweed	0	G?	-	-	SE5	I
Chenopodium album var. album	Lamb's Quarters	0	G5	-	-	SE5	I
Chrysanthemum leucanthemum	Ox-eye Daisy	0	G?	-	-	SE5	I
Cichorium intybus	Chicory	0	G?	-	-	SE5	I

Scientific Name	Common Name	Coefficient Conservation	Global Rank	COSEWIC	COSSARO	SRank	Introduced
Circaea lutetiana ssp. canadensis	Canada Enchanter's Nightshade	3	G5	-	-	S5	
Cirsium arvense	Canada Thistle	0	G?	-	-	SE5	I
Cirsium vulgare	Bull Thistle	0	G5	-	-	SE5	I
Claytonia virginica	Virginia Spring Beauty	5	G5	-	-	S5	
Clintonia borealis	Bluebead Lily	**7**	G5	-	-	S5	
Convolvulus arvensis	Field Bindweed	0	G?	-	-	SE5	I
Convulvulus sepium	Hedge Bindweed			-	-		
Conyza canadensis	Horseweed	0	G5	-	-	S5	
Cornus foemina ssp. racemosa	Grey Dogwood	2	G5	-	-	S5	
Cornus stolonifera	Red-osier Dogwood	2	G5	-	-	S5	
Crataegus monogyna	One-seeded Hawthorn	0	G5	-	-	SE5	I
Crataegus sp	Hawthorn Species			-	-		
Dactylis glomerata	Orchard Grass	0	G?	-	-	SE5	I
Daucus carota	Wild Carrot	0	G?	-	-	SE5	I
Dianthus armeria	Deptford Pink	0	G?	-	-	SE5	I
Dipsacus fullonum ssp. sylvestris	Common Teasel	0	G?	-	-	SE5	I
Echinochloa crusgalli	Barnyard Grass	0	G?	-	-	SE5	I
Echinocystis lobata	Wild Cucumber	3	G5	-	-	S5	
Elymus repens	Quack Grass	0	G5	-	-	SE5	I
Epilobium ciliatum ssp. glandulosum	Northern Willow-herb	**6**	G5	-	-	SU	
Epilobium coloratum	Purple-leaved Willow-herb	3	G5	-	-	S5	
Erigeron annuus	Daisy Fleabane	0	G5	-	-	S5	
Erythronium americanum ssp. americanum	Yellow Trout Lily	5	G5	-	-	S5	
Euthamia graminifolia	Grass-leaved Goldenrod	2	G5	-	-	S5	
Fagus grandifolia	American Beech	**6**	G5	-	-	S5	
Fragaria virginiana ssp. virginiana	Common Strawberry	2	G5	-	-	S5	

Scientific Name	Common Name	Coefficient Conservation	Global Rank	COSEWIC	COSSARO	SRank	Introduced
Fraxinus americana	White Ash	4	G5	-	-	S5	
Fraxinus pennsylvanica	Red Ash	3	G5	-	-	S5	
Galium aparine	Cleavers	4	G5	-	-	S5	
Geranium maculatum	Spotted Crane's-bill	**6**	G5	-	-	S5	
Geranium robertianum	Herb Robert	0	G5	-	-	SE5	I
Geum sp	Avens Species			-	-		
Glechoma hederacea	Ground Ivy	0	G?	-	-	SE5	I
Helianthus annuus ssp. annuus	Common Sunflower	0	G5	-	-	SE4	I
Hieracium caespitosum ssp. caespitosum	Field Hawkweed	0	G?	-	-	SE5	I
Hieracium vulgatum	Common Hawkweed			-	-		
Hordeum jubatum ssp. jubatum	Squirrel-tail Grass	0	G5	-	-	SE5	I
Hypericum perforatum	Common St. John's-wort	0	G?	-	-	SE5	I
Impatiens capensis	Spotted Touch-me-not	4	G5	-	-	S5	
Juglans nigra	Black Walnut	5	G5	-	-	S4	
Juncus tenuis	Path Rush	0	G5	-	-	S5	
Juniperus virginiana	Eastern Red Cedar	4	G5	-	-	S5	
Lactuca serriola	Prickly Lettuce	0	G?	-	-	SE5	I
Lathyrus odoratus	Sweet Pea	0	G?	-	-	SE1	I
Leonurus cardiaca ssp. cardiaca	Motherwort	0	G?	-	-	SE5	I
Linaria vulgaris	Butter-and-eggs	0	G?	-	-	SE5	I
Lonicera tatarica	Tartarian Honeysuckle	0	G?	-	-	SE5	I
Lotus corniculatis	Birds-foot Trefoil	0	G?	-	-	SE5	I
Lysimachia nummularia	Moneywort	0	G?	-	-	SE5	I
Lythrum salicaria	Purple Loosestrife	0	G5	-	-	SE5	I
Maianthemum racemosum ssp. racemosum	False Solomon's Seal	4	G5	-	-	S5	
Malus pumila	Common Apple	0	G5	-	-	SE5	I

Scientific Name	Common Name	Coefficient Conservation	Global Rank	COSEWIC	COSSARO	SRank	Introduced
Malus sp	Crabapple Species			-	-		
Matricaria perforata	Scentless Chamomile	0	G?	-	-	SE	I
Medicago lupulina	Black Medick	0	G?	-	-	SE5	I
Melilotus alba	White Sweet-clover	0	G5	-	-	SE5	I
Melilotus officinalis	Yellow Sweet-clover	0	G?	-	-	SE5	I
Mentha spicata	Spearmint	0	G?	-	-	SE4	I
Myosotis laxa	Small Forget-me-not	**6**	G5	-	-	S5	
Myosotis scorpioides	Common Forget-me-not	0	G5	-	-	SE5	I
Nasturtium officinale	Water-cress	0	G?	-	-	SE	I
Nepeta cataria	Catnip	0	G?	-	-	SE5	I
Oenothera biennis	Common Evening-primrose	0	G5	-	-	S5	
Ostrya virginiana	Hop Hornbeam	4	G5	-	-	S5	
Oxalis stricta	Upright Yellow Wood-sorrel	0	G5	-	-	S5	
Parthenocissus quinquefolia	Virginia Creeper	**6**	G5	-	-	S4?	
Phalaris arundinacea	Reed Canary Grass	0	G5	-	-	S5	
Phleum pratense	Timothy	0	G?	-	-	SE5	I
Phragmites australis	Common Reed	0	G5	-	-	S5	
Picea glauca	White Spruce	**6**	G5	-	-	S5	
Picea sp	Spruce Species			-	-		
Pinus sylvestris	Scots Pine	0	G?	-	-	SE5	I
Plantago lanceolata	Ribgrass	0	G5	-	-	SE5	I
Plantago major	Common Plantain	0	G5	-	-	SE5	I
Poa pratensis ssp. pratensis	Kentucky Blue Grass	0	G?	-	-	S5	
Podophyllum peltatum	Mayapple	5	G5	-	-	S5	
Polygonum pensylvanicum	Pink Knotweed	3	G5	-	-	S5	
Polygonum persicaria	Lady's Thumb	0	G?	-	-	SE5	I

Scientific Name	Common Name	Coefficient Conservation	Global Rank	COSEWIC	COSSARO	SRank	Introduced
Populus deltoides ssp. deltoides	Eastern Cottonwood	4	G5	-	-	S5	
Populus grandidentata	Largetooth Aspen	5	G5	-	-	S5	
Populus tremuloides	Trembling Aspen	2	G5	-	-	S5	
Potentilla recta	Rough-fruited Cinquefoil	0	G?	-	-	SE5	I
Potentilla simplex	Common Cinquefoil	3	G5	-	-	S5	
Prenanthes alba	White Lettuce	**6**	G5	-	-	S5	
Prunella vulgaris ssp. vulgaris	Selfheal	0	G5	-	-	SE3	I
Prunus avium	Sweet Cherry	0	G?	-	-	SE4	I
Prunus serotina	Black Cherry	3	G5	-	-	S5	
Prunus virginiana ssp. virginiana	Choke Cherry	2	G5	-	-	S5	
Pyrus communis	Common Pear	0	G5	-	-	SE4	I
Quercus alba	White Oak	**6**	G5	-	-	S5	
Quercus macrocarpa	Bur Oak	5	G5	-	-	S5	
Quercus rubra	Red Oak	**6**	G5	-	-	S5	
Ranunculus abortivus	Kidney-leaf Buttercup	2	G5	-	-	S5	
Rhamnus cathartica	Common Buckthorn	0	G?	-	-	SE5	I
Rhus radicans ssp. negundo	Climbing Poison-ivy	5	G5	-	-	S5	
Rhus radicans ssp. rydbergii	Western Poison-ivy	0	G5	-	-	S5	
Rhus typhina	Staghorn Sumac	1	G5	-	-	S5	
Ribes americanum	Wild Black Currant	4	G5	-	-	S5	
Rosa carolina	Pasture Rose	**6**	G4G5	-	-	S4	
Rosa eglanteria	Sweetbrier			-	-		
Rubus allegheniensis	Common Blackberry	2	G5	-	-	S5	
Rubus idaeus ssp. melanolasius	Wild Red Raspberry	0	G5	-	-	S5	
Rubus occidentalis	Black Raspberry	2	G5	-	-	S5	
Rudbeckia hirta	Black-eyed Susan	0	G5	-	-	S5	

Scientific Name	Common Name	Coefficient Conservation	Global Rank	COSEWIC	COSSARO	SRank	Introduced
Rumex crispus	Curly Dock	0	G?	-	-	SE5	I
Salix alba	White Willow	0	G5	-	-	SE4	I
Salix fragilis	Crack Willow	0	G?	-	-	SE5	I
Scirpus acutus	Hardstem Bulrush	**6**	G5	-	-	S5	
Scirpus atrovirens	Black Bulrush	3	G5?	-	-	S5	
Scirpus cyperinus	Wool Grass	4	G5	-	-	S5	
Scirpus validus	Softstem Bulrush	5	G?	-	-	S5	
Setaria viridis	Green Foxtail	0	G?	-	-	SE5	I
Sisymbrium officinale	Hedge Mustard	0	G?	-	-	SE5	I
Solanum dulcamara	Bittersweet Nightshade	0	G?	-	-	SE5	I
Solidago altissima var. altissima	Tall Goldenrod	1	G?	-	-	S5	
Solidago canadensis var. canadensis	Canada Goldenrod	1	G5	-	-	S5	
Solidago gigantea	Giant Goldenrod	4	G5	-	-	S5	
Solidago juncea	Early Goldenrod	3	G5	-	-	S5	
Sonchus arvensis ssp. arvensis	Field Sow-thistle	0	G?	-	-	SE5	I
Sonchus oleraceus	Common Sow-thistle	0	G?	-	-	SE5	I
Spiraea alba	Narrow-leaved Meadowsweet	3	G5	-	-	S5	
Streptopus roseus	Rose Twisted Stalk	**7**	G5	-	-	S5	
Syringa vulgaris	Common Lilac	0	G?	-	-	SE5	I
Taraxacum officinale	Common Dandelion	0	G5	-	-	SE5	I
Thlaspi arvense	Field Penny-cress	0	G?	-	-	SE5	I
Thuja occidentalis	Eastern White Cedar	4	G5	-	-	S5	
Tilia americana	Basswood	4	G5	-	-	S5	
Trifolium hybridum ssp. elegans	Alsike Clover	0	G?	-	-	SE5	I
Trifolium pratense	Red Clover	0	G?	-	-	SE5	I
Trifolium repens	White Clover	0	G?	-	-	SE5	I

Scientific Name	Common Name	Coefficient Conservation	Global Rank	COSEWIC	COSSARO	SRank	Introduced
Tussilago farfara	Coltsfoot	0	G?	-	-	SE5	I
Typha latifolia	Broad-leaved Cattail	3	G5	-	-	S5	
Ulmus americana	White Elm	3	G5?	-	-	S5	
Urtica dioica ssp. dioica	European Stinging Nettle	0	G5T?	-	-	SE2	I
Verbascum thapsus	Common Mullein	0	G?	-	-	SE5	I
Verbena hastata	Blue Vervain	4	G5	-	-	S5	
Verbena urticifolia	White Vervain	4	G5	-	-	S5	
Veronica sp	Speedwell Species			-	-		
Viburnum lentago	Nannyberry	4	G5	-	-	S5	
Vicia cracca	Cow Vetch	0	G?	-	-	SE5	I
Vicia sativa ssp. nigra	Common Vetch	0	G?	-	-	SE5	I
Viola sp	Violet Species			-	-		
Vitis riparia	Riverbank Grape	0	G5	-	-	S5	
Zanthoxylum americanum	Prickly-ash	3	G5	-	-	S5	

Table B.2. Bird Species Observed During Fieldwork in the Fruitland Road Class EA Study Area

Family	Scientific Name	Common Name	G Rank	S Rank	SARA[3] or ESA[4]	Hamilton Wentworth Conservation Priority Species	Typical primary breeding habitat
GAVIIDAE	*Gavia immer*	Common Loon	G5	S4B, SZN	-	**Yes**	Lakes/ponds/rivers
ANATIDAE	*Branta canadensis*	Canada Goose	G5	S5B, SZN	-	-	Variety of habitats near wetlands
RALLIDAE		Unknown Rail sp			-	-	
CHARADRIIDAE	*Charadrius vociferus*	Killdeer	G5	S5B, SZN	-	-	Agriculture
LARIDAE	*Larus argentatus*	Herring Gull	G5	S5B, SZN	-	-	Islands
	Larus delawarensis	Ring-billed Gull	G5	S5B, SZN	-	-	Islands
SCOLOPACIDAE	*Scolopax minor*	American Woodcock	G5	S5B, SZN	-	**Yes**	Early successional
ACCIPITRIDAE	*Buteo jamaicensis*	Red-tailed Hawk	G5	S5B, SZN	-	-	Agricultural
COLUMBIDAE	*Columba livia*	Rock Dove	G5	SE	-	-	Urban
	Zenaida macroura	Mourning Dove	G5	S5B, SZN	-	-	Early successional
APODIDAE	*Chaetura pelagica*	Chimney Swift	G5	S5B, SZN	**THR[3,4]**	-	Urban
PICIDAE	*Colaptes auratus*	Northern Flicker	G5	S5B, SZN	-	-	Mixed woodlands
	Picoides pubescens	Downy Woodpecker	G5	S5	-	-	Deciduous woodlands
ALAUDINIDAE	*Eremophila alpestris*	Horned Lark	G5	S5B, SZN	-	**Yes**	Agricultural
BOMBYCILLIDAE	*Bombycilla cedrorum*	Cedar Waxwing	G5	S5B, SZN	-	-	Open Woodlands
CARDINALIDAE	*Cardinalis cardinalis*	Northern Cardinal	G5	S5	-	-	Woodlands
	Passerina cyanea	Indigo Bunting	G5	S5B, SZN	-	-	Open Woodlands
CORVIDAE	*Corvus brachyrhynchos*	American Crow	G5	S5B, SZN	-	-	Woodlands
	Cyanocitta cristata	Blue Jay	G5	S5	-	-	Woodlands
EMBERIZIDAE	*Melospiza georgiana*	Swamp Sparrow	G5	S5B, SZN	-	**Yes**	Marsh
	Melospiza melodia	Song Sparrow	G5	S5B, SZN	-	-	Early successional
	Passerculus sandwichensis	Savannah Sparrow	G5	S5B, SZN	-	**Yes**	Agricultural

	Spizella pallida	Clay-coloured Sparrow	G5	S4B, SZN	-	**Yes**	Early successional
	Spizella passerina	Chipping Sparrow	G5	S5B, SZN	-	-	Coniferous woodlands
	Spizella pusilla	Field Sparrow	G5	S5B, SZN	-	**Yes**	Early successional
	Zonotrichia albicollis	White-throated Sparrow	G5	S5B, SZN	-	**Yes**	Early successional
FRIGILLIDAE	*Carduelis tristis*	American Goldfinch	G5	S5B, SZN	-	**Yes**	Early successional
	Carpodacus mexicanus	House Finch	G5	SE	-	-	Urban
HIRUNDINIDAE	*Hirundo rustica*	Barn Swallow	G5	S5B, SZN	-	**Yes**	Agricultural
	Stelgidopteryx serripennis	Northern Rough-winged Swallow	G5	S5B, SZN	-	**Yes**	Lakes/ponds/rivers
	Tachycineta bicolor	Tree Swallow	G5	S5B, SZN	-	-	Treed/shrubby swamp
ICTERIDAE	*Agelaius phoeniceus*	Red-winged Blackbird	G5	S5B, SZN	-	-	Marsh
	Dolichonyx oryzivorus	Bobolink	G5	S4B, SZN	-	**Yes**	Agricultural
	Icterus galbula	Baltimore Oriole	G5	S5B, SZN	-	-	Deciduous woodlands
	Icterus spurius	Orchard Oriole	G5	SZB, SZN	-	**Yes**	Open woodlands
	Quiscalus quiscula	Common Grackle	G5	S5B, SZN	-	-	Woodlands
	Molothrus ater	Brown-headed Cowbird	G5	S5B, SZN	-	-	Agricultural
	Sturnella magna	Eastern Meadowlark	G5	S5B, SZN	-	**Yes**	Agricultural
MIMIDAE	*Dumetella carolinensis*	Gray Catbird	G5	S5B, SZN	-	-	Early successional
	Mimus polyglottos	Northern Mockingbird	G5	S4B, SZN	-	**Yes**	Early successional
PARIDAE	*Poecile atricapillus*	Black-capped Chickadee	G5	S5	-	**Yes**	Mixed woodlands
PARULIDAE	*Dendroica coronata*	Yellow-rumped Warbler	G5	S5B, SZN	-	**Yes**	Coniferous woodlands
	Dendroica petechia	Yellow Warbler	G5	S5B, SZN	-	-	Early successional
	Dendroica striata	Blackpoll Warbler	G5	S4B, SZN	-	-	Coniferous woodlands/Treeline
	Geothlypis trichas	Common Yellowthroat	G5	S5B, SZN	-	-	Marsh
	Oporornis philadelphia	Mourning Warbler	G5	S5B, SZN	-	**Yes**	Open woodlands

	Seiurus aurocapillus	Ovenbird	G5	S5B, SZN	-	**Yes**	Deciduous woodlands
	Seiurus noveboracensis	Northern Waterthrush	G5	S5B, SZN	-	-	Treed /shrubby swamp
	Setophaga ruticilla	American Redstart	G5	S5B, SZN	-	**Yes**	Deciduous woodlands
PASSERIDAE	*Passer domesticus*	House Sparrow	G5	SE	-	-	Urban
STURNIDAE	*Sturnus vulgaris*	European Starling	G5	SE	-	-	Urban
SYLVIIDAE	*Polioptila caerulea*	Blue-gray Gnatcatcher	G5	S4B, SZN	-	**Yes**	Deciduous woodlands
THRAUPIDAE	*Piranga olivacea*	Scarlet Tanager	G5	S5B, SZN	-	-	Deciduous woodlands
TROGLODYTIDAE	*Troglodytes aedon*	House Wren	G5	S5B, SZN	-	-	Early successional
TURDIDAE	*Turdus migratorius*	American Robin	G5	S5B, SZN	-	-	Urban
TYRANNIDAE	*Empidonax traillii*	Willow Flycatcher	G5	S5B, SZN	-	-	Shrubby swamp
	Tyrannus tyrannus	Eastern Kingbird	G5	S5B, SZN	-	**Yes**	Early successional
VIREONIDAE	*Vireo gilvus*	Warbling Vireo	G5	S5B, SZN	-	-	Open woodlands
	Vireo olivaceus	Red-eyed Vireo	G5	S5B, SZN	-	-	Deciduous woodlands

Table B.3. Mammal Species Potentially Occurring in the Fruitland Road Class EA Study Area (Dobbyn 1994).

Scientific Name	Common Name	Provincial Status (COSSARO)	National Status (COSEWIC)	MNR Status (SRank)	Observed During Fieldwork*
Myotis lucifuga	Little Brown Bat	NAR	NAR	S5	-
Eptesicus fuscus	Big Brown Bat	NAR	NAR	S5	-
Canis latrans	Coyote	NAR	NAR	S5	-
Vulpes vulpes	Red Fox	NAR	NAR	S5	-
Procyon lotor	Raccoon	NAR	NAR	S5	yes
Mustela vison	Mink	NAR	NAR	S5	-
Mephitis mepthitis	Striped Skunk	NAR	NAR	S5	-
Odocoileus virginianus	White-tailed Deer	NAR	NAR	S5	yes
Didelphis virginiana	Virginia Opossum	NAR	NAR	S4	-
Sylvilagus floridanus	Eastern Cottontail	NAR	NAR	S5	yes
Tamias striatus	Eastern Chipmunk	NAR	NAR	S5	-
Marmota monax	Woodchuck	NAR	NAR	S5	-
Sciurus carolinensis	Gray Squirrel	NAR	NAR	S5	yes
Tamiasciurus hudsonicus	Red Squirrel	NAR	NAR	S5	-
Peromyscus leucopus	White-footed Mouse	NAR	NAR	S5	-
Peromyscus maniculatus	Deer Mouse	NAR	NAR	S5	-
Microtus pennsylvanicus	Meadow Vole	NAR	NAR	S5	yes
Ondatra zibethicus	Muskrat	NAR	NAR	S5	-
Zapus hudsonius	Meadow Jumping Mouse	NAR	NAR	S5	-
Sorex cinereus	Common Shrew	NAR	NAR	S5	-
Blarina brevicauda	Northern Short-tailed Shrew	NAR	NAR	S5	yes
Condylura cristata	Star-nosed Mole	NAR	NAR	S5	-

Table B.4. Herptile Species Potentially Occurring in the Fruitland Road Class EA Study Area (Oldham and Weller 2000).

Scientific Name	**Common Name**	**Provincial Status (COSSARO)**	**National Status (COSEWIC)**	**MNR Status (SRank)**	**Observed During Fieldwork***
Necturus maculosus	Common Mudpuppy	NAR	NAR	S4	-
Notophthalmus viridescens viridescens	Red-spotted Newt	NAR	NAR	S5	-
Ambystoma laterale	Blue-spotted Salamander	NAR	NAR	S4	-
Ambystoma jeffersonianum	Jefferson Salamander	**THR**	**THR**	S2	-
Ambystoma jeffersonianum-laterale "complex"	Jefferson / Blue-spotted Salamander Complex	NAR	NAR	S2	-
Ambystoma jeffersonianum-laterale polyploids	Jefferson / Blue-spotted Salamander polyploids	NAR	NAR	S2	-
Ambystoma maculatum	Spotted Salamander	NAR	NAR	S4	-
Plethodon cinereus	Northern Redback Salamander	NAR	NAR	S5	-
Bufo americanus americanus	American Toad	NAR	NAR	S5	-
Pseudacris crucifer	Spring Peeper	NAR	NAR	S5	-
Pseudacris triseriata	Western Chorus Frog	NAR	NAR	S4	yes
Hyla versicolor	Gray Treefrog	NAR	NAR	S5	yes
Rana sylvatica	Wood Frog	NAR	NAR	S5	-
Rana pipiens	Northern Leopard Frog	NAR	NAR	S5	yes
Rana palustris	Pickerel Frog	NAR	NAR	S4	-
Rana clamitans melanota	Green Frog	NAR	NAR	S5	yes
Rana catesbeiana	Bullfrog	NAR	NAR	S4	-
Chelydra serpentina	Common Snapping Turtle	**SC**	**SC (no schedule)**	S3	-
Chrysemys picta marginata	Midland Painted Turtle	NAR	NAR	S5	-
Emydoidea blandingi	Blanding's Turtle	**THR**	**THR**	S3	-
Clemmys insculpta	Wood Turtle	**END**	**THR**	S2	-
Apalone spinifera spinifera	Eastern Spiny Softshell	**THR**	**THR**	S3	-
Thamnophis sirtalis sirtalis	Eastern Garter Snake	NAR	NAR	S5	yes
Thamnophis sauritus septentrionalis	Northern Ribbon Snake	**SC**	**SC**	S3	-
Nerodia sipedon sipedon	Northern Water Snake	NAR	NAR	S5	-
Storeria occipitomaculata occipitomaculata	Northern Redbelly Snake	NAR	NAR	S5	-
Storeria dekayi	Brown Snake	NAR	NAR	S5	-
Liochlorophis vernalis	Smooth Green Snake	NAR	NAR	S4	-
Diadophis punctatus edwardsi	Northern Ringneck Snake	NAR	NAR	S4	-
Lampropeltis triangulum	Eastern Milk Snake	**SC**	**SC**	S3	-

Appendix C

Study Area Photographs

Photo 1 Watercourse #5 – Downstream Section May 25th, 2009 Aquatic habitat conditions looking upstream (south) from **Photo Location 1&2**.	
Photo 2 Watercourse #5 – Downstream Section May 25th, 2009 Aquatic habitat conditions looking upstream (south) from **Photo Location 1&2**.	

Photo 3 Watercourse #5 – Middlestream Section May 25th, 2009 Aquatic habitat conditions looking upstream (south) from **Photo Location 3 & 4**.	
Photo 4 Watercourse 5 – Middlestream Section May 25th, 2009 Aquatic habitat conditions looking downstream (north) from **Photo Location 3&4**.	

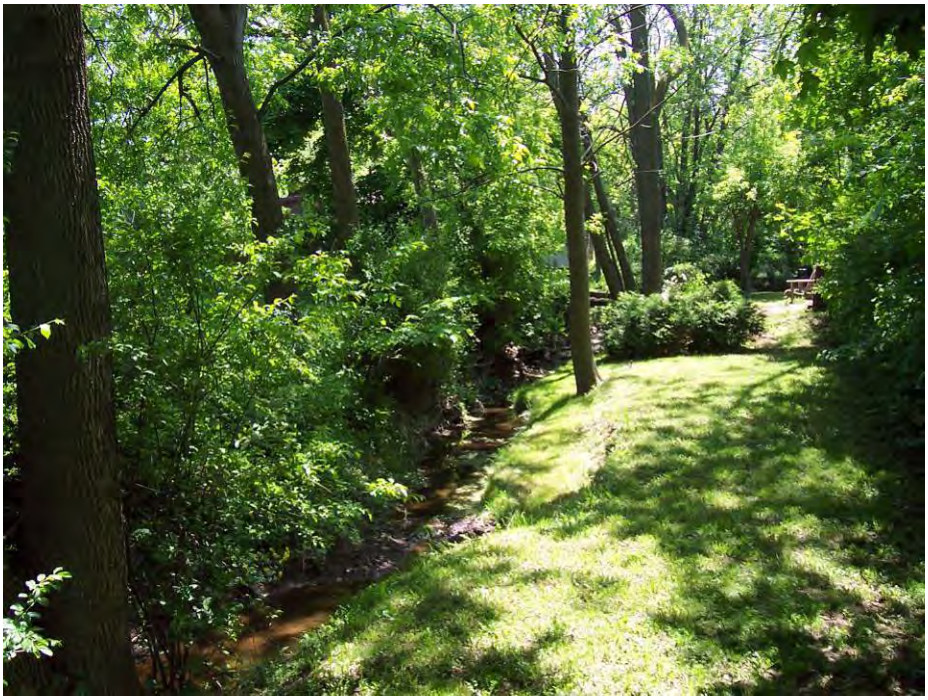
Photo 5 Watercourse 5 – Upstream Section May 25th, 2009 Aquatic habitat conditions looking upstream (south) from **Photo Location 5&6**.	
Photo 6 Watercourse 5 – Upstream Section May 25th, 2009 Aquatic habitat conditions looking downstream (north) from **Photo Location 5&6**.	

Photo 7 Tributary to Watercourse 5 May 25^{th}, 2009 Aquatic habitat conditions looking downstream (north) from **Photo Location 5&6**.	
Photo 8 Watercourse #6 May 25^{th}, 2009 Aquatic conditions looking downstream (north) immediately north of the Highway 8 culvert into the Study Area.	

Photo 9 Watercourse #6 May 25th, 2009 Aquatic habitat conditions looking downstream (north) from within the Study Area.	
Photo 10 Watercourse #6 May 25th, 2009 Aquatic habitat conditions looking upstream (south) from within Study Area.	

Photo 11 Watercourse #6 May 25th, 2009 Aquatic habitat conditions looking upstream (south) from the Barton Street culvert into the Study Area.	
Photo 12 Watercourse #6.1 July 27th, 2009 Drainage conditions looking upstream (south) from Barton Street into the Study Area.	

Photo 13 Watercourse #7 May 25th, 2009 Aquatic habitat conditions looking downstream (north) from the culvert under Highway 8.	
Photo 14 Watercourse #7 May 25th, 2009 Aquatic habitat conditions looking upstream (south) from the Glover Road culvert.	

Photo 15 MEMM4 Photograph of Fresh-Moist Mixed Meadow within the Study Area.	
Photo 16 SAGM1 Photograph of Vineyard (Agricultural) within the Study Area.	

Photo 17 THDM2-11 Hawthorn (dogwood/ buckthorn) Deciduous Shrub Thicket within the Study Area.	
Photo 18 SWDM4-1 Willow (Riparian) Mineral Deciduous Swamp within the Study Area.	

Photo 19 THDM4-1 Native Deciduous Regeneration Thicket within the Study Area.	
Photo 20 Typical soil profile within the Study Area.	

Appendix D

Fruitland Road Class EA Field Work Tables

Table D.1 – Description of ELC Communities

ELC Code	Classification	Soils/Hydrology	Vegetation	Comments
DECW	Deciduous woodlot	-	This small woodlot consists of common buckthorn, red ash, domestic apple, Norway maple, hawthorn and gray dogwood.	This community is present alongside the hawthorn deciduous thicket and orchard in the eastern portion of the study area.
FODM7-2	Fresh-Moist Green Ash Hardwood-Lowland Deciduous Forest	Silty Clay; 3-4 moisture regime	This mid-aged community's canopy and sub-canopy is dominated by red ash with rare occurrences of shagbark hickory, red oak and maple. Understory consists of bur oak, buckthorn and red ash. Jack-in-the-pulpit, garlic mustard, enchanter's nightshade and spotted jewelweed are all present in groundcover.	This community is located along parts of the riparian corridor of Watercourse #6.
FODM9-6	Fresh-Moist Oak – Hardwood Deciduous Forest	Silty clay loam; 5 moisture regime	The canopy of this naturally treed community's canopy is characterized by mature bur oak, white oak, red oak and shagbark hickory with a sub-canopy of red ask, trembling aspen and white elm. The understory is dominated by buckthorn with gray dogwood and pasture rose found occasionally. The ground layer contains herbaceous species such as Jack-in-the-pulpit.	This remnant mature forest community is a transition area between residential properties and agricultural fields in the northeastern section of the study area.. A small green ash lowland forest (FODM7-2) was documented just east of this community.
MEMM4 Inclusions:	Fresh-Moist Mixed Meadow Inclusions:	Clay; 6 moisture regime	The sparse canopy in this young community contains crabapple. The dominant understory consists of hawthorn, gray dogwood and	This large open community dominates large portions of the northwestern section of the study area.

ELC Code	Classification	Soils/Hydrology	Vegetation	Comments
1.MAMM1-15 2.MAMM2-5	1. Bulrush Gaminoid Mineral Meadow Marsh 2. Purple loosestrife Forb Mineral Meadow Marsh		rose species, while the ground layer is characterized by blue grass, barn grass, red top grass, wild carrot, red clover and timothy. Inclusion #1. This small bulrush meadow marsh has a dominant presence of hardstem bulrush. Other species present include purple loosestrife, barnyard grass, water plantain, curly dock, goldenrod and common cattail. Inclusion #2. Purple loosestrife dominates the area with common occurrences of common cattail. Other species include common reed, black bulrush, wild carrot, red osier dogwood.	Inclusion #1. Evidence of standing water in the bulrush meadow marsh was present during September field work. Inclusion #2. This small purple loosestrife meadow marsh has a high presence of alien species No standing water was evident within the marsh in September.
OAGM1	Annual Row Crop	-	Cropland (e.g. soy, lettuce, etc.)	Active agricultural areas.
SAGM2	Orchard	-	Orchard crop (e.g. apple, pear, etc.)	Active agricultural areas.
SWDM2-2	Green Ash Mineral Deciduous Swamp	Clay; 6 moisture regime	This natural wetland system's canopy is dominated by red ash with occasional presence of bur oak, white willow and Manitoba maple. The understory contains buckthorn, red ash and gray dogwood. The ground layer includes buckthorn, spotted jewelweed and common strawberry.	The green ash deciduous swamp vegetation type is the most common riparian vegetation communities in the study area.

ELC Code	Classification	Soils/Hydrology	Vegetation	Comments
			1. This is a willow swamp riparian community which occupies the banks of watercourse #6 and 7.	
TAGM1	Coniferous Plantation	-	This cultural area is located in the north-west portion of the site. Typical stands include Scotts pine, red pine, white pine, white spruce, etc.	Note: Plantation areas have been removed (labeled PR on the ELC figure). A small plantation area remains.
TAGM3	Deciduous Plantation	-	This cultural area is located in the north-west portion of the site. Typical stands include maple and oak species.	Note: Plantation areas have been removed (labeled PR on the ELC figure). A small plantation area remains.
THDM2-11	Hawthorn (Dogwood/Buckthorn) Deciduous Shrub Thicket	Silty clay loam; 1 moisture regime	This young thicket consists of an canopy of a variety of deciduous species including crabapple, red ash and bur oak. Buckthorn, gray dogwood and hawthorn species dominate the understory. Wild carrot, red clover, timothy and buckthorn are common groundcover.	Extensive gaps were found within the canopy. This small thicket is a transition area between lowland deciduous forest and graminoid mineral meadow marsh.
Other ELC Codes				
CEM	Cemetery	-	-	Graveyard and associated buildings.
CVR_3	Single Family Residential	-	-	Large single family dwellings lots that occasionally have small agricultural cropland/vineland areas.
CVR_4	Rural Property	-	-	Small single family dwellings lots

ELC Code	Classification	Soils/Hydrology	Vegetation	Comments
H	Hedgerow	-	Mainly consist of deciduous trees and shrubs. High composition of non-native species (e.g. crab apple, buckthorn)	Hedgerows that divide agricultural fields.
PR	Plantation Removed	-	-	Denotes harvested area. Land is currently denude of vegetation.

Table D.2. Plant Species Observed within the Fruitland Road Class EA Study Area

Scientific Name	Common Names	Coefficient Conservation	Global Rank	COSEWIC	COSSARO	SRank	Introduced
Abutilon theophrasti	Velvetleaf	0	G?	-	-	SE5	I
Acer negundo	Manitoba Maple	0	G5	-	-	S5	
Acer platanoides	Norway Maple	0	G?	-	-	SE5	I
Acer rubrum	Red Maple	4	G5	-	-	S5	
Acer saccharinum	Silver Maple	5	G5	-	-	S5	
Achillea millefolium ssp. millefolium	Common Yarrow	0	G5	-	-	SE	I
Agrimonia gryposepala	Tall Agrimony	2	G5	-	-	S5	
Agrostis gigantea	Redtop Grass	0	G4G5	-	-	SE5	I
Agrostis hyemalis	Tickle Grass	4	G5	-	-	S1	
Alisma plantago-aquatica	Common Water-plantain	3	G5	-	-	S5	
Alliaria petiolata	Garlic Mustard	0	G?	-	-	SE5	I
Ambrosia artemisiifolia	Common Ragweed	0	G5	-	-	S5	
Amelanchier arborea	Downy Serviceberry	5	G5	-	-	S5	
Amelanchier laevis	Smooth Serviceberry	5	G4G5Q	-	-	S5	
Arctium minus ssp. minus	Common Burdock	0	G?	-	-	SE5	I
Asclepias syriaca	Common Milkweed	0	G5	-	-	S5	
Aster ericoides var. ericoides	Heath Aster	4	G5	-	-	S5	
Aster lateriflorus var. lateriflorus	One-sided Aster	3	G5	-	-	S5	
Aster novae-angliae	New England Aster	2	G5	-	-	S5	
Aster urophyllus	Arrow-leaved Aster	6	G4	-	-	S4	
Atriplex patula	Spearscale	0	G5	-	-	S5	
Barbarea vulgaris	Common Wintercress	0	G?	-	-	SE5	I
Berberis vulgaris	Common Barberry	0	G?	-	-	SE5	I
Bidens frondosa	Devil's Beggar-ticks	3	G5	-	-	S5	
Brassica nigra	Black Mustard	0	G?	-	-	SE5	I

Scientific Name	Common Names	Coefficient Conservation	Global Rank	COSEWIC	COSSARO	SRank	Introduced
Bromus inermis ssp. inermis	Smooth Brome	0	G4G5	-	-	SE5	I
Carex bebbii	Bebb's Sedge	3	G5	-	-	S5	
Carex gracillima	Graceful Sedge	4	G5	-	-	S5	
Carex pensylvanica	Pennsylvania Sedge	5	G5	-	-	S5	
Carex rosea	Stellate Sedge	5	G5	-	-	S5	
Carex vulpinoidea	Fox Sedge	3	G5	-	-	S5	
Carya ovata	Shagbark Hickory	6	G5	-	-	S5	
Centaurea maculosa	Spotted Knapweed	0	G?	-	-	SE5	I
Cerastium fontanum	Common Mouse-ear Chickweed	0	G?	-	-	SE5	I
Chrysanthemum leucanthemum	Ox-eye Daisy	0	G?	-	-	SE5	I
Cichorium intybus	Chicory	0	G?	-	-	SE5	I
Cirsium arvense	Canada Thistle	0	G?	-	-	SE5	I
Cirsium vulgare	Bull Thistle	0	G5	-	-	SE5	I
Claytonia virginica	Virginia Spring Beauty	5	G5	-	-	S5	
Convulvulus sepium	Hedge Bindweed			-	-		
Conyza canadensis	Horseweed	0	G5	-	-	S5	
Cornus foemina ssp. racemosa	Grey Dogwood	2	G5	-	-	S5	
Cornus stolonifera	Red-osier Dogwood	2	G5	-	-	S5	
Crataegus monogyna	One-seeded Hawthorn	0	G5	-	-	SE5	I
Crataegus sp	Hawthorn Species			-	-		
Dactylis glomerata	Orchard Grass	0	G?	-	-	SE5	I
Daucus carota	Wild Carrot	0	G?	-	-	SE5	I
Dianthus armeria	Deptford Pink	0	G?	-	-	SE5	I
Dipsacus fullonum ssp. sylvestris	Common Teasel	0	G?	-	-	SE5	I
Echinochloa crusgalli	Barnyard Grass	0	G?	-	-	SE5	I
Echinocystis lobata	Wild Cucumber	3	G5	-	-	S5	

Scientific Name	Common Names	Coefficient Conservation	Global Rank	COSEWIC	COSSARO	SRank	Introduced
Elymus repens	Quack Grass	0	G5	-	-	SE5	I
Epilobium coloratum	Purple-leaved Willow-herb	3	G5	-	-	S5	
Erigeron annuus	Daisy Fleabane	0	G5	-	-	S5	
Erythronium americanum ssp. americanum	Yellow Trout Lily	5	G5	-	-	S5	
Euthamia graminifolia	Grass-leaved Goldenrod	2	G5	-	-	S5	
Fragaria virginiana ssp. virginiana	Common Strawberry	2	G5	-	-	S5	
Fraxinus pennsylvanica	Red Ash	3	G5	-	-	S5	
Galium aparine	Cleavers	4	G5	-	-	S5	
Geranium maculatum	Spotted Crane's-bill	6	G5	-	-	S5	
Geum sp.	Avens Species			-	-		
Glechoma hederacea	Ground Ivy	0	G?	-	-	SE5	I
Hieracium vulgatum	Common Hawkweed			-	-		
Helianthus annuus ssp. annuus	Common Sunflower	0	G5	-	-	SE4	I
Hypericum perforatum	Common St. John's-wort	0	G?	-	-	SE5	I
Impatiens capensis	Spotted Touch-me-not	4	G5	-	-	S5	
Juglans nigra	Black Walnut	5	G5	-	-	S4	
Juncus tenuis	Path Rush	0	G5	-	-	S5	
Juniperus virginiana	Eastern Red Cedar	4	G5	-	-	S5	
Lactuca serriola	Prickly Lettuce	0	G?	-	-	SE5	I
Lathyrus odoratus	Sweet Pea	0	G?	-	-	SE1	I
Leonurus cardiaca ssp. cardiaca	Motherwort	0	G?	-	-	SE5	I
Linaria vulgaris	Butter-and-eggs	0	G?	-	-	SE5	I
Lonicera tatarica	Tartarian Honeysuckle	0	G?	-	-	SE5	I
Lotus corniculatis	Birds-foot Trefoil	0	G?	-	-	SE5	I
Lythrum salicaria	Purple Loosestrife	0	G5	-	-	SE5	I
Malus pumila	Common Apple	0	G5	-	-	SE5	I

Scientific Name	Common Names	Coefficient Conservation	Global Rank	COSEWIC	COSSARO	SRank	Introduced
Malus sp	Crabapple Species			-	-		
Matricaria perforata	Scentless Chamomile	0	G?	-	-	SE	I
Melilotus alba	White Sweet-clover	0	G5	-	-	SE5	I
Melilotus officinalis	Yellow Sweet-clover	0	G?	-	-	SE5	I
Mentha spicata	Spearmint	0	G?	-	-	SE4	I
Nepeta cataria	Catnip	0	G?	-	-	SE5	I
Oenothera biennis	Common Evening-primrose	0	G5	-	-	S5	
Oxalis stricta	Upright Yellow Wood-sorrel	0	G5	-	-	S5	
Parthenocissus quinquefolia	Virginia Creeper	6	G5	-	-	S4?	
Phalaris arundinacea	Reed Canary Grass	0	G5	-	-	S5	
Phleum pratense	Timothy	0	G?	-	-	SE5	I
Phragmites australis	Common Reed	0	G5	-	-	S5	
Picea glauca	White Spruce	6	G5	-	-	S5	
Picea sp	Spruce Species			-	-		
Pinus sylvestris	Scots Pine	0	G?	-	-	SE5	I
Plantago major	Common Plantain	0	G5	-	-	SE5	I
Poa pratensis ssp. pratensis	Kentucky Blue Grass	0	G?	-	-	S5	
Polygonum pensylvanicum	Pink Knotweed	3	G5	-	-	S5	
Polygonum persicaria	Lady's Thumb	0	G?	-	-	SE5	I
Populus deltoides ssp. deltoides	Eastern Cottonwood	4	G5	-	-	S5	
Populus grandidentata	Largetooth Aspen	5	G5	-	-	S5	
Populus tremuloides	Trembling Aspen	2	G5	-	-	S5	
Potentilla recta	Rough-fruited Cinquefoil	0	G?	-	-	SE5	I
Prunella vulgaris ssp. vulgaris	Selfheal	0	G5	-	-	SE3	I
Prunus avium	Sweet Cherry	0	G?	-	-	SE4	I
Prunus virginiana ssp. virginiana	Choke Cherry	2	G5	-	-	S5	

Scientific Name	Common Names	Coefficient Conservation	Global Rank	COSEWIC	COSSARO	SRank	Introduced
Quercus macrocarpa	Bur Oak	5	G5	-	-	S5	
Quercus rubra	Red Oak	6	G5	-	-	S5	
Ranunculus abortivus	Kidney-leaf Buttercup	2	G5	-	-	S5	
Rhamnus cathartica	Common Buckthorn	0	G?	-	-	SE5	I
Rhus radicans ssp. rydbergii	Western Poison-ivy	0	G5	-	-	S5	
Rhus typhina	Staghorn Sumac	1	G5	-	-	S5	
Rosa carolina	Pasture Rose	6	G4G5	-	-	S4	
Rosa eglanteria	Sweetbrier			-	-		
Rubus allegheniensis	Common Blackberry	2	G5	-	-	S5	
Rubus idaeus ssp. melanolasius	Wild Red Raspberry	0	G5	-	-	S5	
Rubus occidentalis	Black Raspberry	2	G5	-	-	S5	
Rudbeckia hirta	Black-eyed Susan	0	G5	-	-	S5	
Rumex crispus	Curly Dock	0	G?	-	-	SE5	I
Salix alba	White Willow	0	G5	-	-	SE4	I
Scirpus acutus	Hardstem Bulrush	6	G5	-	-	S5	
Scirpus atrovirens	Black Bulrush	3	G5?	-	-	S5	
Scirpus cyperinus	Wool Grass	4	G5	-	-	S5	
Scirpus validus	Softstem Bulrush	5	G?	-	-	S5	
Setaria viridis	Green Foxtail	0	G?	-	-	SE5	I
Sisymbrium officinale	Hedge Mustard	0	G?	-	-	SE5	I
Solidago altissima var. altissima	Tall Goldenrod	1	G?	-	-	S5	
Solidago gigantea	Giant Goldenrod	4	G5	-	-	S5	
Solidago canadensis var. canadensis	Canada Goldenrod	1	G5	-	-	S5	
Sonchus arvensis ssp. arvensis	Field Sow-thistle	0	G?	-	-	SE5	I
Sonchus oleraceus	Common Sow-thistle	0	G?	-	-	SE5	I
Syringa vulgaris	Common Lilac	0	G?	-	-	SE5	I

Scientific Name	Common Names	Coefficient Conservation	Global Rank	COSEWIC	COSSARO	SRank	Introduced
Taraxacum officinale	Common Dandelion	0	G5	-	-	SE5	I
Thlaspi arvense	Field Penny-cress	0	G?	-	-	SE5	I
Thuja occidentalis	Eastern White Cedar	4	G5	-	-	S5	
Trifolium hybridum ssp. elegans	Alsike Clover	0	G?	-	-	SE5	I
Trifolium pratense	Red Clover	0	G?	-	-	SE5	I
Trifolium repens	White Clover	0	G?	-	-	SE5	I
Tussilago farfara	Coltsfoot	0	G?	-	-	SE5	I
Typha latifolia	Broad-leaved Cattail	3	G5	-	-	S5	
Ulmus americana	White Elm	3	G5?	-	-	S5	
Urtica dioica ssp. dioica	European Stinging Nettle	0	G5T?	-	-	SE2	I
Verbascum thapsus	Common Mullein	0	G?	-	-	SE5	I
Verbena urticifolia	White Vervain	4	G5	-	-	S5	
Veronica sp	Speedwell Species			-	-		
Vicia cracca	Cow Vetch	0	G?	-	-	SE5	I
Vicia sativa ssp. nigra	Common Vetch	0	G?	-	-	SE5	I
Vitis labrusca	Fox Grape	3	G5	-	-	S1	
Vitis riparia	Riverbank Grape	0	G5	-	-	S5	

Table D.3. Mammal Species Potentially Occurring in the Fruitland Road Class EA Study Area (Dobbyn 1994).

Scientific Name	Common Name	Provincial Status (COSSARO)	National Status (COSEWIC)	MNR Status (SRank)	Observed During Fieldwork*
Myotis lucifuga	Little Brown Bat	NAR	NAR	S5	-
Eptesicus fuscus	Big Brown Bat	NAR	NAR	S5	-
Canis latrans	Coyote	NAR	NAR	S5	-
Vulpes vulpes	Red Fox	NAR	NAR	S5	-
Procyon lotor	Raccoon	NAR	NAR	S5	-
Mustela vison	Mink	NAR	NAR	S5	-
Mephitis mepthitis	Striped Skunk	NAR	NAR	S5	-
Odocoileus virginianus	White-tailed Deer	NAR	NAR	S5	yes
Didelphis virginiana	Virginia Opossum	NAR	NAR	S4	-
Sylvilagus floridanus	Eastern Cottontail	NAR	NAR	S5	yes
Tamias striatus	Eastern Chipmunk	NAR	NAR	S5	-
Marmota monax	Woodchuck	NAR	NAR	S5	-
Sciurus carolinensis	Gray Squirrel	NAR	NAR	S5	yes
Tamiasciurus hudsonicus	Red Squirrel	NAR	NAR	S5	-
Peromyscus leucopus	White-footed Mouse	NAR	NAR	S5	-
Peromyscus maniculatus	Deer Mouse	NAR	NAR	S5	-
Microtus pennsylvanicus	Meadow Vole	NAR	NAR	S5	-
Ondatra zibethicus	Muskrat	NAR	NAR	S5	-
Zapus hudsonius	Meadow Jumping Mouse	NAR	NAR	S5	-
Sorex cinereus	Common Shrew	NAR	NAR	S5	-
Blarina brevicauda	Northern Short-tailed Shrew	NAR	NAR	S5	-
Condylura cristata	Star-nosed Mole	NAR	NAR	S5	-

Table D.4. Herptile Species Potentially Occurring in the Fruitland Road Class EA Study Area (Oldham and Weller 2000)

Scientific Name	Common Name	Provincial Status (COSSARO)	National Status (COSEWIC)	MNR Status (SRank)	Observed During Fieldwork*
Necturus maculosus	Common Mudpuppy	NAR	NAR	S4	-
Notophthalmus viridescens viridescens	Red-spotted Newt	NAR	NAR	S5	-
Ambystoma laterale	Blue-spotted Salamander	NAR	NAR	S4	-
Ambystoma jeffersonianum	Jefferson Salamander	**THR**	**THR**	S2	-
Ambystoma jeffersonianum-laterale "complex"	Jefferson / Blue-spotted Salamander Complex	NAR	NAR	S2	-
Ambystoma jeffersonianum-laterale polyploids	Jefferson / Blue-spotted Salamander polyploids	NAR	NAR	S2	-
Ambystoma maculatum	Spotted Salamander	NAR	NAR	S4	-
Plethodon cinereus	Northern Redback Salamander	NAR	NAR	S5	-
Bufo americanus americanus	American Toad	NAR	NAR	S5	-
Pseudacris crucifer	Spring Peeper	NAR	NAR	S5	-
Pseudacris triseriata	Western Chorus Frog	NAR	NAR	S4	yes
Hyla versicolor	Gray Treefrog	NAR	NAR	S5	-
Rana sylvatica	Wood Frog	NAR	NAR	S5	-
Rana pipiens	Northern Leopard Frog	NAR	NAR	S5	yes
Rana palustris	Pickerel Frog	NAR	NAR	S4	-
Rana clamitans melanota	Green Frog	NAR	NAR	S5	-
Rana catesbeiana	Bullfrog	NAR	NAR	S4	-
Chelydra serpentina	Common Snapping Turtle	**SC**	**SC (no schedule)**	S3	-
Chrysemys picta marginata	Midland Painted Turtle	NAR	NAR	S5	-
Emydoidea blandingi	Blanding's Turtle	**THR**	**THR**	S3	-
Clemmys insculpta	Wood Turtle	**END**	**THR**	S2	-
Apalone spinifera spinifera	Eastern Spiny Softshell	**THR**	**THR**	S3	-
Thamnophis sirtalis sirtalis	Eastern Garter Snake	NAR	NAR	S5	-
Thamnophis sauritus septentrionalis	Northern Ribbon Snake	**SC**	**SC**	S3	-
Nerodia sipedon sipedon	Northern Water Snake	NAR	NAR	S5	-
Storeria occipitomaculata occipitomaculata	Northern Redbelly Snake	NAR	NAR	S5	-
Storeria dekayi	Brown Snake	NAR	NAR	S5	-
Liochlorophis vernalis	Smooth Green Snake	NAR	NAR	S4	-
Diadophis punctatus edwardsi	Northern Ringneck Snake	NAR	NAR	S4	-
Lampropeltis triangulum	Eastern Milk Snake	**SC**	**SC**	S3	-

Table D.5. Bird Species Observed During Fieldwork in the Fruitland Road Class EA Study Area

Family	Scientific Name	Common Name	G Rank	S Rank	SARA[3] or ESA[4]	Hamilton Wentworth Conservation Priority Species	Typical primary breeding habitat
GAVIIDAE	*Gavia immer*	Common Loon	G5	S4B, SZN	-	**Yes**	Lakes/ponds/rivers
ANATIDAE	*Branta canadensis*	Canada Goose	G5	S5B, SZN	-	-	Variety of habitats near wetlands
RALLIDAE		Unknown Rail sp			-	-	
CHARADRIIDAE	*Charadrius vociferus*	Killdeer	G5	S5B, SZN	-	-	Agriculture
LARIDAE	*Larus argentatus*	Herring Gull	G5	S5B, SZN	-	-	Islands
	Larus delawarensis	Ring-billed Gull	G5	S5B, SZN	-	-	Islands
SCOLOPACIDAE	*Scolopax minor*	American Woodcock	G5	S5B, SZN	-	**Yes**	Early successional
ACCIPITRIDAE	*Buteo jamaicensis*	Red-tailed Hawk	G5	S5B, SZN	-	-	Agricultural
COLUMBIDAE	*Columba livia*	Rock Dove	G5	SE	-	-	Urban
	Zenaida macroura	Mourning Dove	G5	S5B, SZN	-	-	Early successional
PICIDAE	*Colaptes auratus*	Northern Flicker	G5	S5B, SZN	-	-	Mixed woodlands
	Picoides pubescens	Downy Woodpecker	G5	S5	-	-	Deciduous woodlands
ALAUDINIDAE	*Eremophila alpestris*	Horned Lark	G5	S5B, SZN	-	**Yes**	Agricultural
BOMBYCILLIDAE	*Bombycilla cedrorum*	Cedar Waxwing	G5	S5B, SZN	-	-	Open Woodlands
CARDINALIDAE	*Cardinalis cardinalis*	Northern Cardinal	G5	S5	-	-	Woodlands
CORVIDAE	*Corvus brachyrhynchos*	American Crow	G5	S5B, SZN	-	-	Woodlands
	Cyanocitta cristata	Blue Jay	G5	S5	-	-	Woodlands
EMBERIZIDAE	*Melospiza georgiana*	Swamp Sparrow	G5	S5B, SZN	-	**Yes**	Marsh
	Melospiza melodia	Song Sparrow	G5	S5B, SZN	-	-	Early successional
	Passerculus sandwichensis	Savannah Sparrow	G5	S5B, SZN	-	**Yes**	Agricultural
	Spizella pallida	Clay-coloured Sparrow	G5	S4B, SZN	-	**Yes**	Early successional
	Spizella passerina	Chipping Sparrow	G5	S5B, SZN	-	-	Coniferous woodlands

	Spizella pusilla	Field Sparrow	G5	S5B, SZN	-	**Yes**	Early successional
FRIGILLIDAE	*Carduelis tristis*	American Goldfinch	G5	S5B, SZN	-	**Yes**	Early successional
	Carpodacus mexicanus	House Finch	G5	SE	-	-	Urban
HIRUNDINIDAE	*Hirundo rustica*	Barn Swallow	G5	S5B, SZN	-	**Yes**	Agricultural
	Stelgidopteryx serripennis	Northern Rough-winged Swallow	G5	S5B, SZN	-	**Yes**	Lakes/ponds/rivers
	Tachycineta bicolor	Tree Swallow	G5	S5B, SZN	-	-	Treed/shrubby swamp
ICTERIDAE	*Agelaius phoeniceus*	Red-winged Blackbird	G5	S5B, SZN	-	-	Marsh
	Dolichonyx oryzivorus	Bobolink	G5	S4B, SZN	-	**Yes**	Agricultural
	Icterus galbula	Baltimore Oriole	G5	S5B, SZN	-	-	Deciduous woodlands
	Icterus spurius	Orchard Oriole	G5	SZB, SZN	-	**Yes**	Open woodlands
	Quiscalus quiscula	Common Grackle	G5	S5B, SZN	-	-	Woodlands
	Molothrus ater	Brown-headed Cowbird	G5	S5B, SZN	-	-	Agricultural
	Sturnella magna	Eastern Meadowlark	G5	S5B, SZN	-	**Yes**	Agricultural
MIMIDAE	*Dumetella carolinensis*	Gray Catbird	G5	S5B, SZN	-	-	Early successional
	Mimus polyglottos	Northern Mockingbird	G5	S4B, SZN	-	**Yes**	Early successional
PARIDAE	*Poecile atricapillus*	Black-capped Chickadee	G5	S5	-	**Yes**	Mixed woodlands
PARULIDAE	*Dendroica coronata*	Yellow-rumped Warbler	G5	S5B, SZN	-	**Yes**	Coniferous woodlands
	Dendroica petechia	Yellow Warbler	G5	S5B, SZN	-	-	Early successional
	Dendroica striata	Blackpoll Warbler	G5	S4B, SZN	-	-	Coniferous woodlands/Treeline
	Geothlypis trichas	Common Yellowthroat	G5	S5B, SZN	-	-	Marsh
	Oporornis philadelphia	Mourning Warbler	G5	S5B, SZN	-	**Yes**	Open woodlands
	Seiurus noveboracensis	Northern Waterthrush	G5	S5B, SZN	-	-	Treed /shrubby swamp
	Setophaga ruticilla	American Redstart	G5	S5B, SZN	-	**Yes**	Deciduous woodlands
PASSERIDAE	*Passer domesticus*	House Sparrow	G5	SE	-	-	Urban

STURNIDAE	*Sturnus vulgaris*	European Starling	G5	SE	-	-	Urban
TROGLODYTIDAE	*Troglodytes aedon*	House Wren	G5	S5B, SZN	-	-	Early successional
TURDIDAE	*Turdus migratorius*	American Robin	G5	S5B, SZN	-	-	Urban
TYRANNIDAE	*Empidonax traillii*	Willow Flycatcher	G5	S5B, SZN	-	-	Shrubby swamp
	Tyrannus tyrannus	Eastern Kingbird	G5	S5B, SZN	-	**Yes**	Early successional
VIREONIDAE	*Vireo gilvus*	Warbling Vireo	G5	S5B, SZN	-	-	Open woodlands
	Vireo olivaceus	Red-eyed Vireo	G5	S5B, SZN	-	-	Deciduous woodlands

APPENDIX D:

Water Budget Table

TABLE D.1:
Potential Infiltration Deficit Estimates

Soil / Landuse Scenario	Hypothetical Catchment Area (ha)	Pre-development Condition: Area (ha)	Landuse	Soil Types	Infiltration depth (mm/yr)	Infiltration volume (m3/yr)	Post-development Condition: Area (ha)	Landuse	Soil Types	Infiltration depth (mm/yr)	Infiltration volume (m3/yr)	Infiltration Deficit (m3/yr)	Infiltration Deficit (mm/yr)
clay / silt soils with proposed residential development	10.0	10.0	Agricultural	clay-silt	114	11,400	5.0	Impervious Surface	clay-silt	0	0		
		0.0	paved	clay-silt	114	0	5.0	Lawns / open	clay-silt	114	5,700		
					Total	**11,400**				**Total**	**5,700**	**5,700**	**57.0**
clay / silt soils with proposed industrial/commercial development	10.0	10.0	Agricultural	clay-silt	114	11,400	8.0	Impervious Surface	clay-silt	0	0		
		0.0	paved	clay-silt	114	0	2.0	Lawns / open	clay-silt	114	2,280		
					Total	**11,400**				**Total**	**2,280**	**9,120**	**91.2**
sand / gravel soils with proposed residential development	10.0	10.0	Agricultural	clay-silt	200	20,000	5.0	Impervious Surface	clay-silt	0	0		
		0.0	paved	clay-silt	200	0	5.0	Lawns / open	clay-silt	200	10,000		
					Total	**20,000**				**Total**	**10,000**	**10,000**	**100.0**

APPENDIX E:

Infiltration Targets

TABLE E.1:
Detemination of Infiltration Targets for Future Development

Soil / Landuse Scenario No.	Hypothetical Catchment Area (ha)	Potential Infiltration Deficit (mm/yr)	Portion(s) Contributing to Infiltration: Component(s)	Area (ha)	Target Infiltration Depth (mm)	Rainfall Distribution and Infiltration Volumes: rainfall range:	1-4mm	4-8mm	8-12mm	12-16mm	16-20mm	20-24mm	24-28mm	>28mm	Resulting Annual Infiltration (m3/yr)	(mm/yr over catchment)	meets or exceeds deficit target?
						avg of range:	2	6	10	14	18	22	26	33			
						No. of events/yr:	18.4	10.9	5.1	2.9	2	1.8	1.2	2.7			
clay / silt soils with proposed residential development	10	57.0	whole catchment:	10.0	**1.0**	**Infiltration Volume (m3/event):**	200	100	100	100	100	100	100	100			
						Annual Infiltration volume (m3/yr):	3680	1090	510	290	200	180	120	270	**6,340.00**	**63.4**	**YES**
			roofs and rear lots only (50%):	5	**3.0**	**Infiltration Volume (m3/event):**	100	150	150	150	150	150	150	150			
						Annual Infiltration volume (m3/yr):	1840	1635	765	435	300	270	180	405	**5,830.00**	**58.3**	**YES**
clay / silt soils with proposed industrial/commercial development	10	91.2	whole catchment:	10.0	**2.5**	**Infiltration Volume (m3/event):**	200	250	250	250	250	250	250	250			
						Annual Infiltration volume (m3/yr):	3680	2725	1275	725	500	450	300	675	**10,330.00**	**103.3**	**YES**
			roofs and lawns only (50%):	5	**6.0**	**Infiltration Volume (m3/event):**	100	300	300	300	300	300	300	300			
						Annual Infiltration volume (m3/yr):	1840	3270	1530	870	600	540	360	810	**9,820.00**	**98.2**	**YES**
sand / gravel soils with proposed residential development	10	100.0	whole catchment:	10.0	**2.5**	**Infiltration Volume (m3/event):**	200	250	250	250	250	250	250	250			
						Annual Infiltration volume (m3/yr):	3680	2725	1275	725	500	450	300	675	**10,330.00**	**103.3**	**YES**
			roofs and rear lots only (50%):	5	**7.0**	**Infiltration Volume (m3/event):**	100	300	350	350	350	350	350	350			
						Annual Infiltration volume (m3/yr):	1840	3270	1785	1015	700	630	420	945	**10,605.00**	**106.05**	**YES**

APPENDIX F:

Public Information Centre

Public Information Centre

Sign in Sheets

STONEY CREEK URBAN BOUNDARY EXPANSION AREA
SUBWATERSHED STUDY WEST and EAST

JOINT PUBLIC INFORMATION CENTRE
June 24, 2010

Note: *The purpose of the information being gathered on this form is to ensure that further information, when it becomes available, can be forwarded to those parties who have expressed an interest in this study. The information collected on this form becomes part of the public record and a copy of this document may be attached to future reports.*

NAME (Please Print)	ADDRESS, POSTAL CODE (AND E-MAIL IF APPLICABLE)	CHECK √ TO BE ADDED TO MAILING LIST
JOHN CAGNIN	JOHNCAGNIN@GMAIL.COM	✓
[illegible]	240 Glover Rd. L8E5H6	
JOHN & DIANE RUMBLES	270 GLOVER RD L8E-5H6	✓
ROSEMARY SALISBURY	30 TRILLIUM AVE L8E5E1	✓
JOSIE KOZUN	293 JONES RD. L8E 5L8	✓
Kristy Elik	3014 Swansea Dr. Oakville	(e-mail, pls)
	kelik@hamiltonnews.com	✓
Mark Johnson	mark.johnson@niagararegion.ca	✓

STONEY CREEK URBAN BOUNDARY EXPANSION AREA
SUBWATERSHED STUDY WEST and EAST

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NAME (Please Print)	ADDRESS, POSTAL CODE (AND E-MAIL IF APPLICABLE)	CHECK ✓ TO BE ADDED TO MAILING LIST
DAVE THACKERAY	208 212 FRUITLAND RD L8E 5J7	✓
	DAVID.THACKERAY@SYMPATICO.CA	
ERIC SAULESLEJA	erics@gspgroup.ca	✓
ALAN LUTYK	1308 Hwy #8 WINONA L8E 5G8	✓
WAYNE CLAYTON	332 MCNEILLY Rd L8E 5H4	
MARGARET DANIEL	79 EDGEWATER DR L8E 4Z2	✓
Brenda Johnson	194 Winona Road Winona L8E 5K4	✓
DAVID L. MITCHELL	WARD 11 HAMILTON	
Carolina Neri	240 Glover Rd L8E 5H6	
MARC MARINI	149 Millen Rd L8G 3Y6	✓
David Hambleton	1498 Baseline Road L8E 5G4	already on

STONEY CREEK URBAN BOUNDARY EXPANSION AREA
SUBWATERSHED STUDY WEST and EAST

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NAME (Please Print)	ADDRESS, POSTAL CODE (AND E-MAIL IF APPLICABLE)	CHECK ✓ TO BE ADDED TO MAILING LIST
Domenica Calcagni	243 Glover Rd. L8E 5H6	✓
Sergio Manchia	c/o 1800615 ONT INC	
Matt Johnston	1B1 Gnord · 360 James St. N. L8L 1H5	✓
Lisa & Steve Amberman	12 Chianti Cres. Winona.	✓
ARDEN SEMPER	BRANTHAVEN DEV. CORP - 720 OVAL CT. BURLINGTON L7T 6A9 asemper@branthaven.com	✓
Joe Lukatos	123 WOOLWICH STREET GUELPH ON N1H 3V1	✓
Shane McCauley	245 FRUITLAND Rd L8E 5J8	✓
Jane McCauley	245 FRUITLAND RD STONEY CREEK L8E-5J8	
Vlado Petrina	831 Ridge Road, Stoney Creek, L8J 2Y4	✓
STEVE CURIC	804 BARTON ST EAST STONEY CREEK	✓
PETER & JEANNE WIAL	275 FRUITLAND RD STONEY CREEK	✓
CHRIS DAGLIS	205 FRUITLAND RD STONEY CREEK	—
G. BEATTIE	P.O. BOX 10002, WINONA ON L8E5R1	✓
Rich Wirth	265 McNeilly Rd rwirth@cogeco.ca	✓
ROBT MARINI	346 ROSEDALE AVE HAMILTON L8K 4N8	✓
Argia Cowle	15 Watershore Dr. Stoney Creek L8E0C1	✓

STONEY CREEK URBAN BOUNDARY EXPANSION AREA SUBWATERSHED STUDY WEST and EAST

JOINT PUBLIC INFORMATION CENTRE June 24, 2010

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NAME (Please Print)	ADDRESS, POSTAL CODE (AND E-MAIL IF APPLICABLE)	CHECK √ TO BE ADDED TO MAILING LIST
Mark McLeod	841 Ridge Rd L8J 2Y4	✓
P. FORTINO	16 KENTLEY DR. L8H 7Z2	✓
Adi Irani	adi@ajclarke.com	✓
TONY MILLINGTON	millngt@allstream.net	✓
SHAWN TOMBOLINI	278 LEWIS RD L8E 5H1	✓
Danny Gabriele	35 Prestige Dr Stoney Creek Ont.	
~~[illegible]~~	~~180~~	
ANGELA GOODWIN	1036 BARTON ST. STONEY CREEK L8E 5H3	✓
TERESA DIFALCO	243 Fruitland.	✓
CAL DIFALCO	"	✓
IAN NEVILLE	ian.neville@mac.com	✓
PETER MANES	PMANES2@COGECO.CA	
	16 WATERSIDE DR. STONEY CRK. L8E 5T4	✓
Emilio & Gloria MARCONATO	1217 #8 WINONA	
KEN CHARRARD	50 COVE CR. Stoney Creek	✓

STONEY CREEK URBAN BOUNDARY EXPANSION AREA
SUBWATERSHED STUDY WEST and EAST

JOINT PUBLIC INFORMATION CENTRE
June 24, 2010

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NAME (Please Print)	ADDRESS, POSTAL CODE (AND E-MAIL IF APPLICABLE)	CHECK ✓ TO BE ADDED TO MAILING LIST
Karen Filice	116 Valera Dr. Stoney Creek, Ont L8E 4T6 Karenfilice@cirriusrealty.ca	✓
Steve Chipps	2177 Argon Crt, Burlington, ON L7L 4S5	✓
Ivan Kontic	201 King St E. L8G 1L9	✓
A. DJENERALOVIC	252 JONES RD L8E 5J5	✓
Peter Jovanovich	232 Jones Rd. L8E 5J5	✓
[illegible]	336 Jones Rd L8E 5J4	✓
[illegible]	505 WINONA RD L8E 5R5	✓
NICK AVGERINOS	46 WINDERMERE RD L8E 5G5	✓
EVELYN FOUGERE	728 BARTON ST. L8E 5L7	
Mike Czoerny	977 Ridge Rd. Vinemount L0R 2E0	✓
JULES SAVARD	37 WEST AVE WINONA L8E 5L5	✓
Marty + Sue Ryan	739 HWY 8 FRUITLAND L8E 5J6	✓
Catherine McBay	169 Silverlace Circle L8E 6A5	✓
Laurie Kovach	26 Fieldstone Cresent L8E 5Y4	✓
[illegible]	8 TRILLIUM AVE	✓
Barbara [illegible]		✓

STONEY CREEK URBAN BOUNDARY EXPANSION AREA
SUBWATERSHED STUDY WEST and EAST

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NAME (Please Print)	ADDRESS, POSTAL CODE (AND E-MAIL IF APPLICABLE)	CHECK √ TO BE ADDED TO MAILING LIST
Betty Denny	1317 HWY #8 WINONA. L8E5K5 betty@cogeco.ca	e-mail only
SLAVKO VIDAKOVIC	19 TOFERAU GRIMSBY L3M1E4	
JAKE SINKE (PROPERTY MANAGER)	880 SOUTH SERVICE RD STONEY CRK (BATTLEFIELD EQUIPMENT)	jake.sinke@toromont.com
Martin Boyko / Ferne Boyko	981 Ridge Road StoneyCreek L8J2X4	✓
Aletta Dekkers	950 Ridge Rd Stoney Creek L8J2X4	
EWALD WAGNER	50 BRANTHAVEN DR. STONEY CREEK L9J2M3	
DAVID ARMSTRONG	985 RIDGE ROAD L8J2X4	✓
HEATHER " "	" " " " STONEY CREEK	✓
TONY NIGRO	15 RANKO CR HAMILTON L8T4Z9	✓
J. CONCIATORI	27 CHIARA DR. STONEY CREEK	✓
Albert Passmore	999 # 8 Highway - L8E-5H9.	
A. [illegible]	73 WORSLEY RD	
TED & FRAN VICKERS	133 EDGEWATER DR S.C L8E 4Z2	✓
RYAN OOSTERHOF	430 McNeilly Rd Stoney Creek ON L8E 5E3	✓

Public Information Centre

Display Panels

WELCOME

to the

PUBLIC INFORMATION CENTER

for the

STONEY CREEK URBAN BOUNDARY EXPANSION AREA

(SCUBE) WEST SUBWATERSHED STUDY

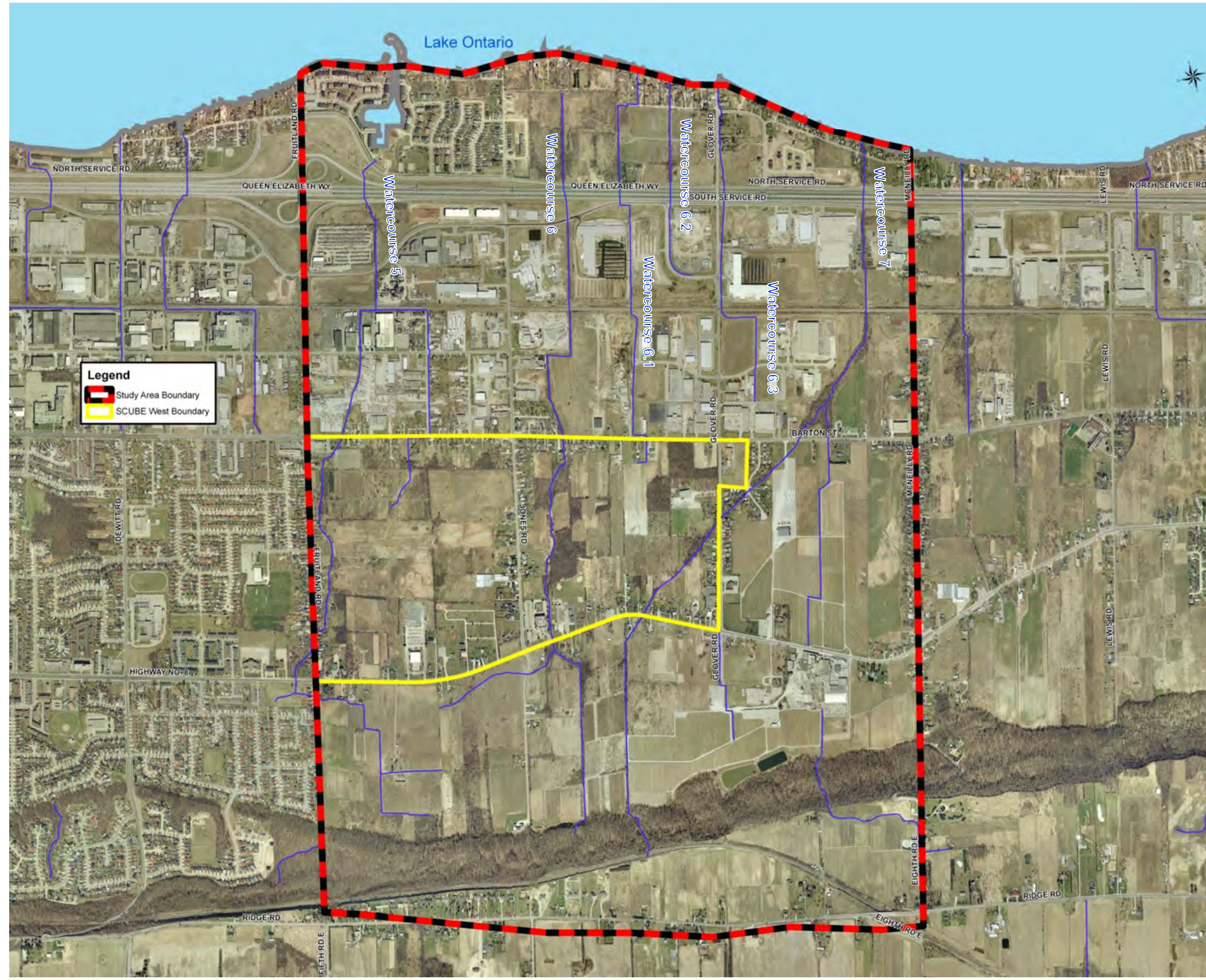
STONEY CREEK URBAN BOUNDARY EXPANSION WEST

Subwatershed Study

Public Information Centre No.# 1
Date: June 24, 2010

Study Area

The Subwatershed Study Area consists of the drainage boundaries of the watercourses which drain the proposed future development areas, namely Watercourses 5, 6, 6.1, 6.2, 6.3 and 7.



Hamilton
Public Works

Environment and Sustainable Infrastructure Division
Public Works, City of Hamilton

Aquafor Beech Limited

Study Overview

Objectives:

Key objectives of the Subwatershed Study will be to ensure that future development :

- Occurs outside of the Regulatory Floodplain;
- Does not result in unacceptable increases in downstream flooding;
- Protects groundwater quantity and quality as future development occurs;
- Maintains and enhances surface water quality;
- Protect components of the Natural Heritage System;
- Implements a preferred stormwater management plan in compliance with the Class EA.

PHASES OF THE STUDY

Phase 1: Establish Environmental Conditions

Tasks:

- Define existing environmental conditions;
- Identify and evaluate natural features and functions of the study area and their potential interrelationship with other natural features; and
- Develop constraints mapping to identify developable lands, non-developable lands, and lands requiring environmental mitigation before development can occur.

Phase 2: Complete Impact Assessment and Develop Recommended Subwatershed Plan

Tasks:

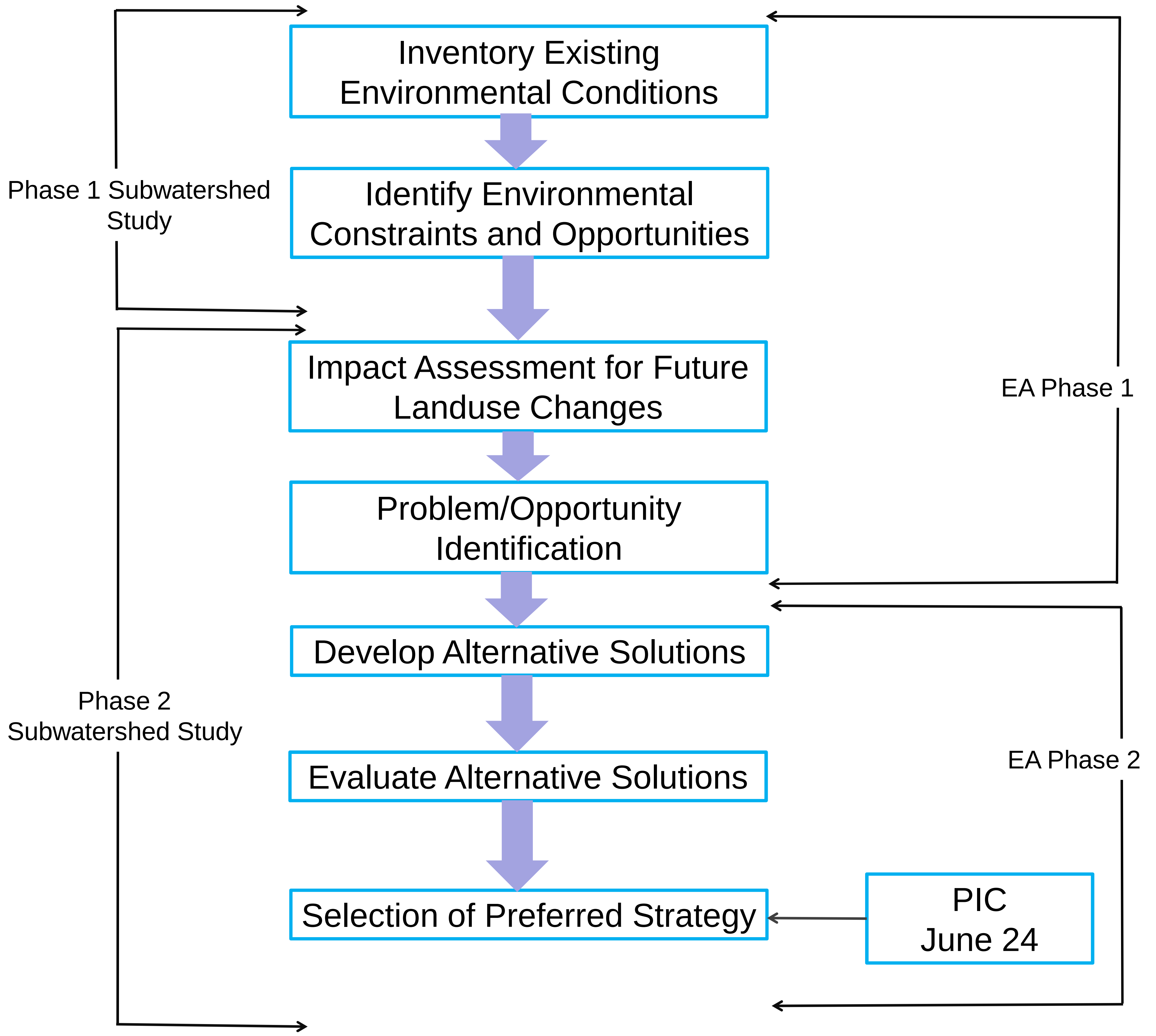
- Fill gaps identified in Phase 1
- Complete floodplain mapping
- Undertake impact assessment
- Develop preferred stormwater management plan in compliance with Class EA
- Finalize natural heritage system

Phase 3: Implementation

- Develop a plan to ensure proposed works are undertaken.

ENVIRONMENTAL ASSESSMENT PROCESS

The Study is being conducted as a Master Plan and is intended to satisfy Phases 1 and 2 of the Municipal Engineers Association (MEA) Municipal Class Environment Assessment Act (Class EA) process. This will involve a process of problem / opportunity identification, evaluation of alternative solutions, and selection of a preferred solution. Stakeholder consultation is an important part of the EA process, and a key component of the study.



RELATED PROJECTS

The City of Hamilton is in the process of preparing the Fruitland - Winona Secondary Plan in anticipation of future urban development within the Stoney Creek Urban Boundary Expansion (SCUBE). This study, termed the SCUBE West Subwatershed Study, is one of two Subwatershed studies undertaken in support of the Fruitland - Winona Secondary Plan. In addition to these two studies several other studies have been completed , or are ongoing. These include:

Draft Natural Heritage Assessment

Ø A study to assess the natural heritage features for the lands between Fruitland Road, Glover Road, Barton Street and Highway 8 was initiated in 2009.

SCUBE Area Transportation Master Plan (Phase 1 & 2) Study Report

Ø The objective of this study was to assess transportation needs to accommodate planned growth in the Stoney Creek Urban Boundary Expansion (SCUBE) area by 2021. The study was completed in 2008.

Watercourses 5 and 6 Class Environmental Assessment Study

Ø This study, completed in 2007, defined each watercourse in terms of technical environmental components such as hydraulic capacities, fluvial geomorphology, aquatic and terrestrial resources, and socio-economic conditions.

Watercourse No. 7 Creek System Improvements

Ø The primary purpose of this study was to determine a preferred watercourse system improvement solution for Watercourse No. 7, between Barton Street and Lake Ontario, to address flooding, erosion, terrestrial and aquatic habitat issues. The study was completed in 2003.

Hydraulic Study (ongoing)

Ø The study is conducting stormwater hydraulic modeling and analysis for Watercourses 5, 6, 6.1, 6.2 and 6.3

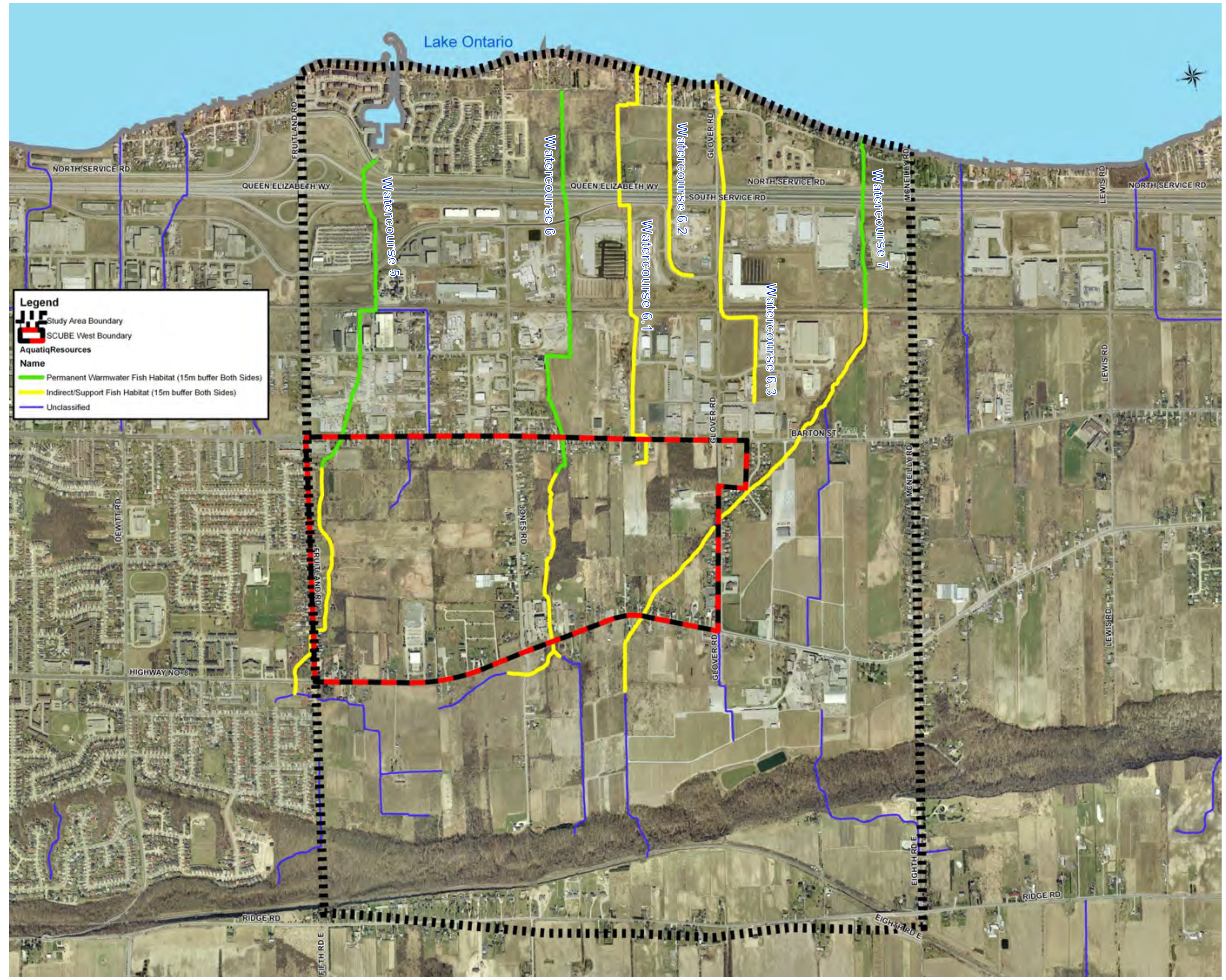
Hydrogeology Study (ongoing)

Ø The study is undertaking detailed fieldwork and analyses for SCUBE West area to determine the key characteristics of the bedrock and overburden systems and their function in the control of groundwater movement.

Aquatic Resources

Aquatic Resources

- Most headwaters are intermittent, as well as a number of the smaller drainage features and tributaries of watercourses 5 and 6
- Watercourses 5, 6 and 7 are permanent streams, watercourses 6.1, 6.2 and 6.3 are intermittent.
- The portions of Watercourses 5, 6 and 7 within and downstream of the developable land areas are considered to support warmwater fish communities, however they have a number of limitations, including:
  - Lack of baseflow
  - Instream barriers, particularly in the lower reaches
  - Lack of riparian cover
- The remaining features in the study area are considered to provide indirect/support fish habitat.
- Generally the streams are considered to support tolerant warmwater fish species, which may include the following: creek chub, white sucker, bluntnose minnow, fathead minnow, blacknose dace.

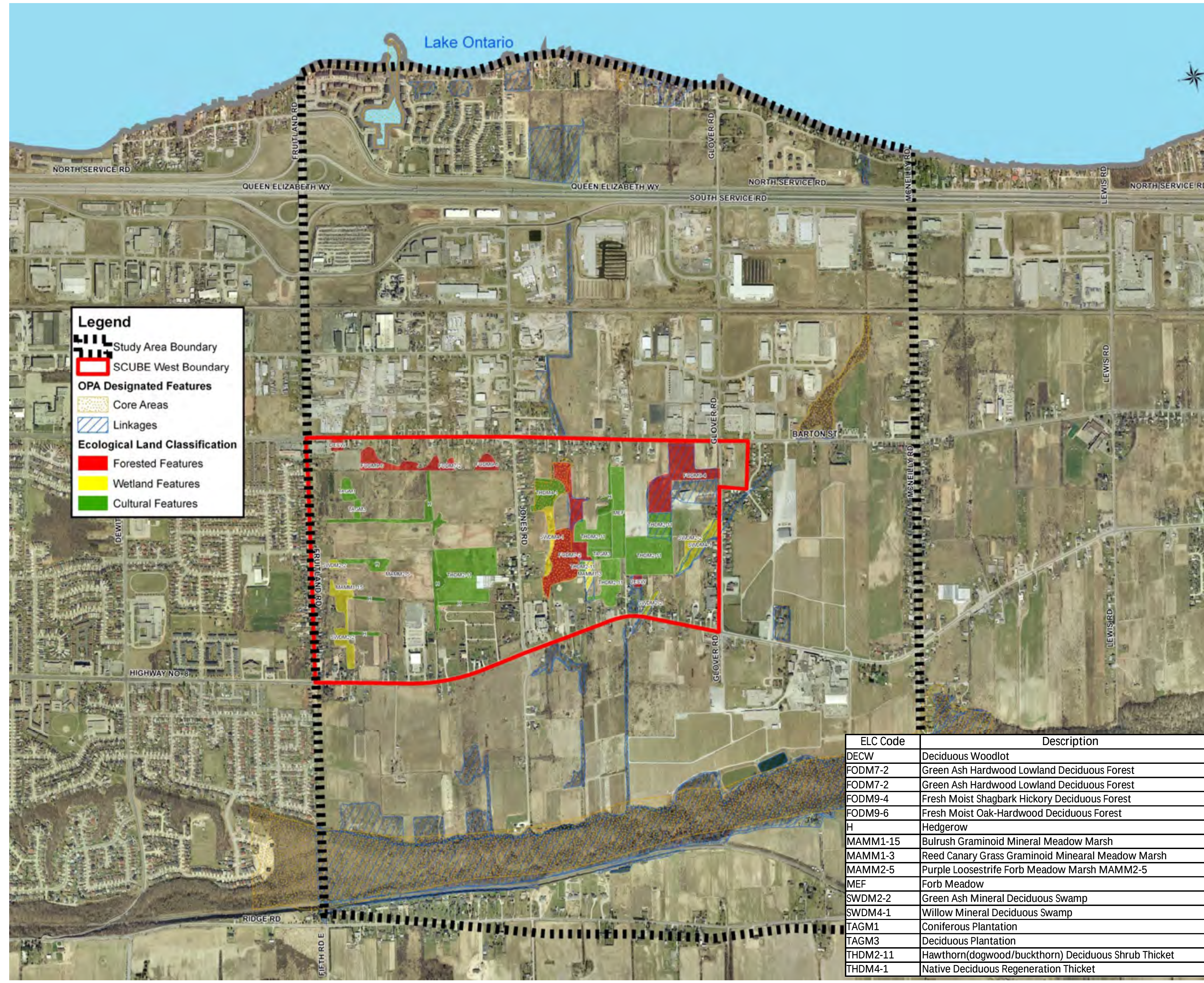


Terrestrial Resources

Terrestrial Resources

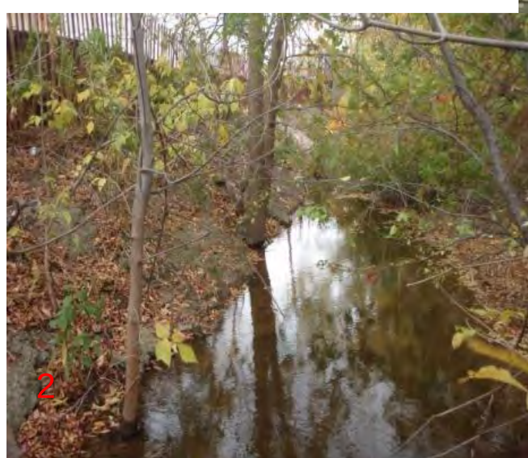
Much of the study area is currently or formerly agriculture including orchards and vineyards and the majority of the remnant natural areas are cultural forests, meadows and mixed meadows/wetlands. An Ecological Land Classification was completed of the Study Area through various previous studies with the following findings:

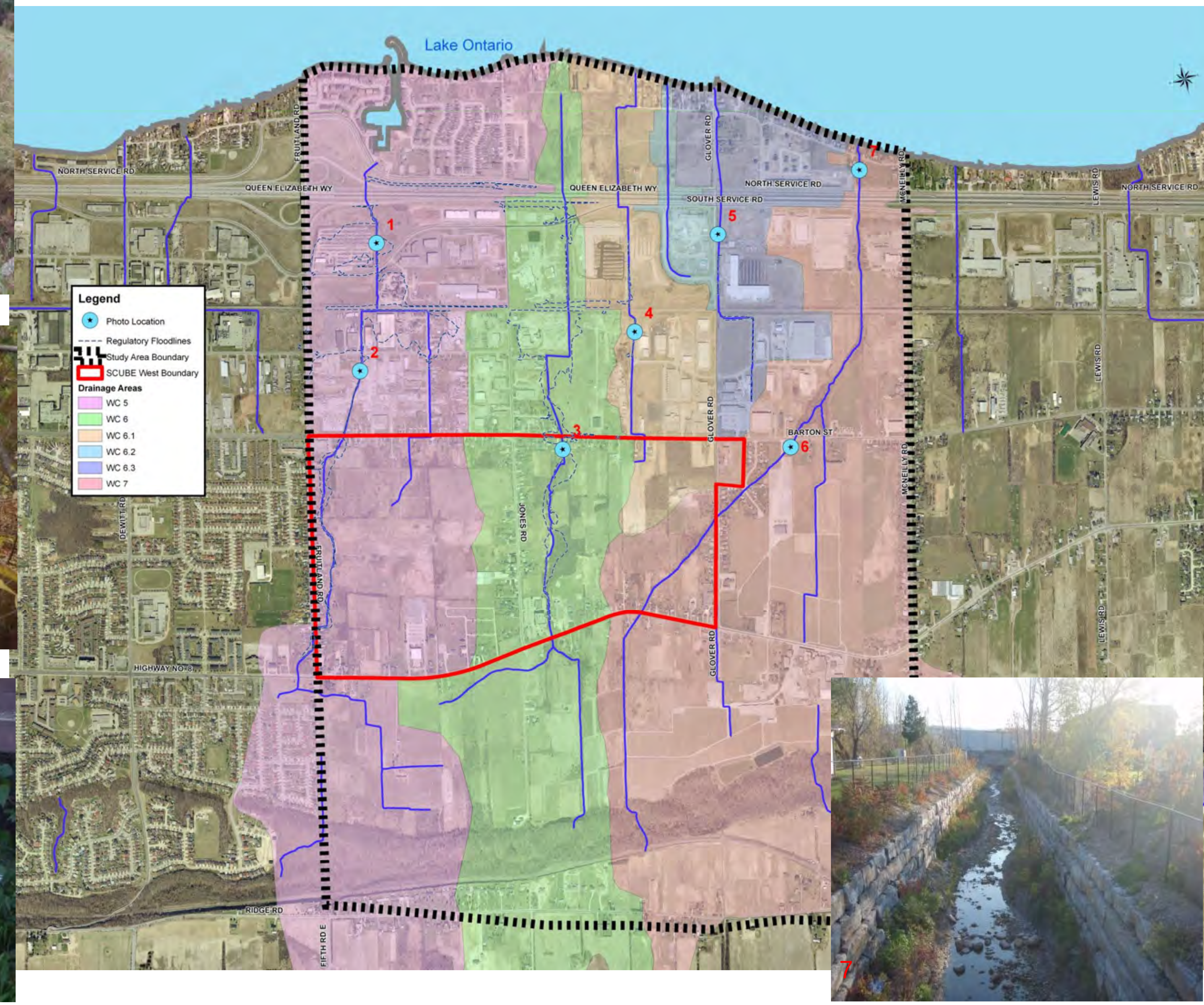
- Several Core and Linkage areas are designated in the OPA
- 11 separate ELC communities were identified, mostly cultural in nature
- 194 vegetation species, 41% of which are considered non-native
- No species at risk vegetation is present
- 6 of 22 reported mammals were observed, none of which is a species at risk
- 58 bird species were recorded including some which are considered area sensitive
- 5 amphibians were found, all of which are commonly found in Ontario
- While species range information suggests that 5 birds and 7 reptiles, which are species at risk, could occur in this area, neither the species or their habitats have been identified.



Stream Morphology and Surface Water Resources

Public Information Centre No.# 1
Date: June 24, 2010





Stream Morphology and Surface Water Resources

Surface Drainage

- The Catchment Areas of 3 Watercourses: 5, 6 and 7; drain the study area. A diversion carries flows from W.C. 6 to W.C. 5 at the QEW.
- All features have been substantially modified by agricultural, urbanization and transportation corridor-related purposes and currently function primarily as flow conveyance systems
- Most features are straightened, lack riparian cover and have wide shallow floodplains
- An updated hydrologic model and updated floodplain mapping is being completed for the study area
- Regulatory floodlines represent limits to development
- Several inconsistencies in floodplain mapping are being refined:
  - Where apparent spill zones are indicated
  - Where inconsistencies between stream channel, topographic mapping and floodlines occur

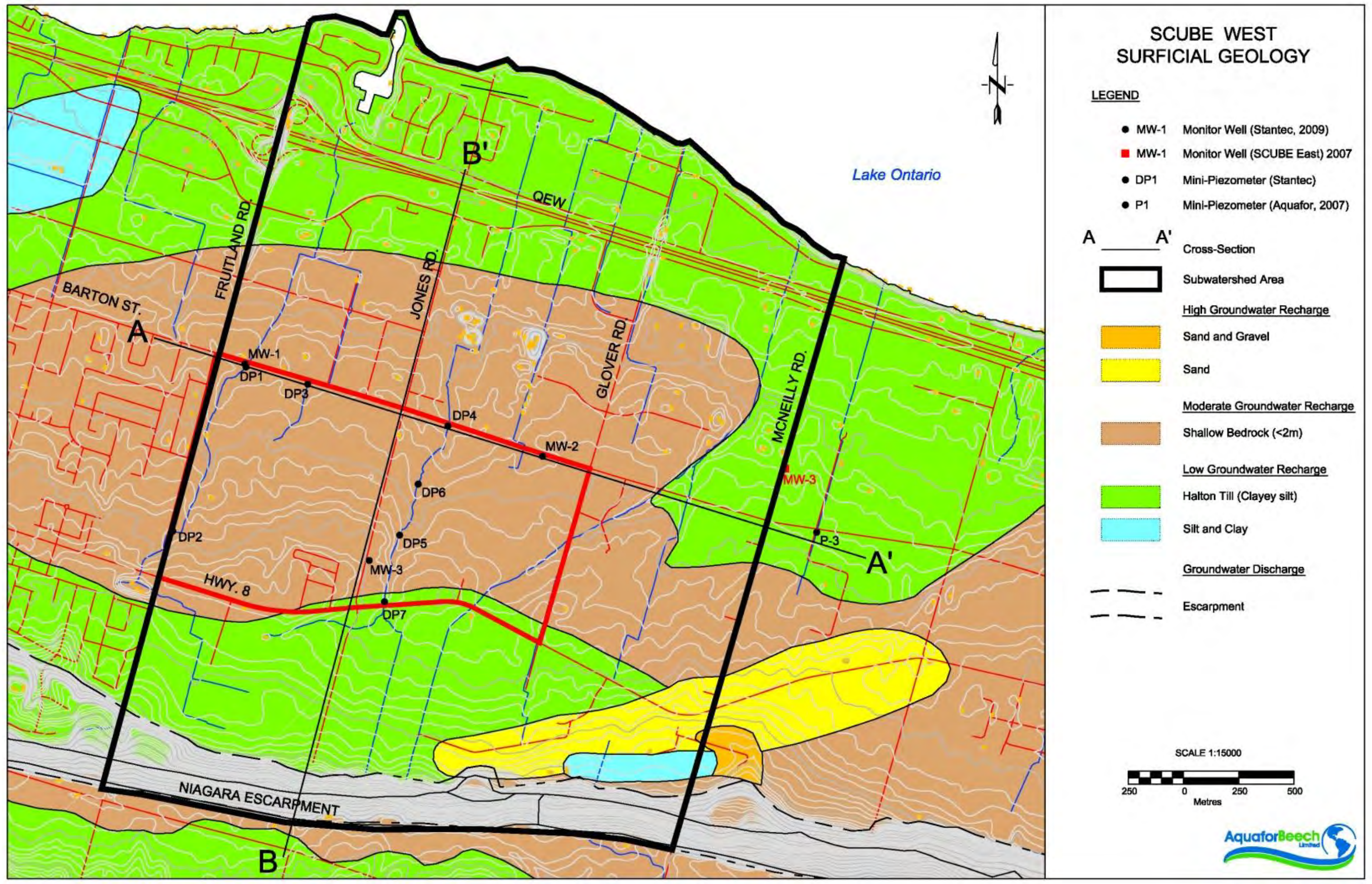
Water Quality

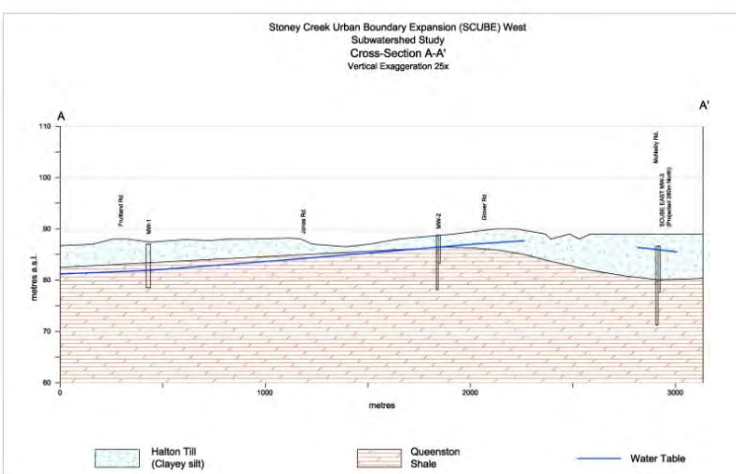
- Very little background information is available, but the watercourses can be generally characterized as nutrient rich systems with Total Phosphorus, Total Suspended Solids and E. coli (bacteria) levels exceeding standards/guidelines
- Trace metals, such as copper, lead and zinc are generally below guidelines with some exceedences during wet events as a result of the existing transportation infrastructure

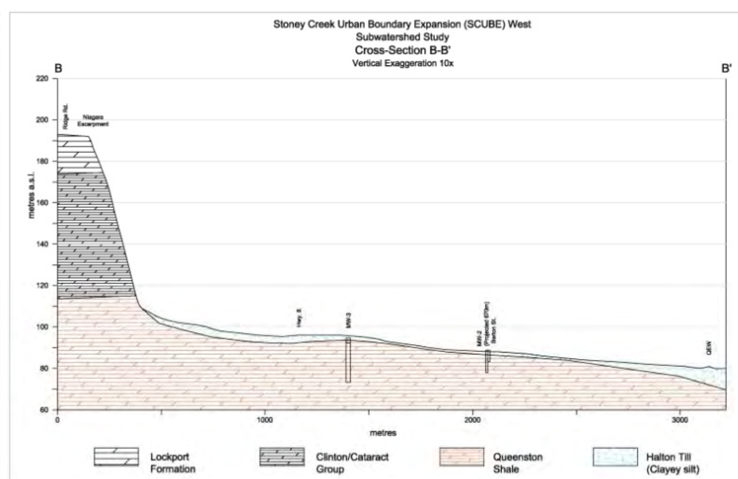
Stream Morphology

- The drainage systems are typically low gradient features in clayey silt surficial material typical of the Halton till
- Generally the watercourses are stable and have been enlarged for drainage conveyance purposes and thus are not generally susceptible to erosion
- In some areas, incisement/entrenchment of the channel has occurred leading to localized erosion and conditions where the channel is disconnected from its floodplain

Groundwater Resources







Hydrogeology is the study of water movement below the ground surface and is typically dependant on surficial and bedrock geology

Analysis

Water well records, borehole records, geology, and soils maps were reviewed to characterize the groundwater system within the study area.

Findings

- A significant portion of the subwatershed is characterized by shallow, fractured bedrock including the study area
- Within the study area, shallow fractured bedrock is considered to have moderate recharge potential in the order of 100 – 150 mm/yr
- Streamflow is generated largely by storm events although some baseflows may be generated along the base of the Escarpment
- Watercourses are near-intermittent
- Opportunities for infiltration of Stormwater are considered somwhat limited within the developable land areas

Opportunities & Constraints

Within the subwatershed area and the future development area, there are a number of environmental protection and enhancement measures to be considered. These measures represent constraints to development, as well as opportunities to enhance the natural environment, as outlined below.

CONSTRAINTS

Preservation Areas (No Development)

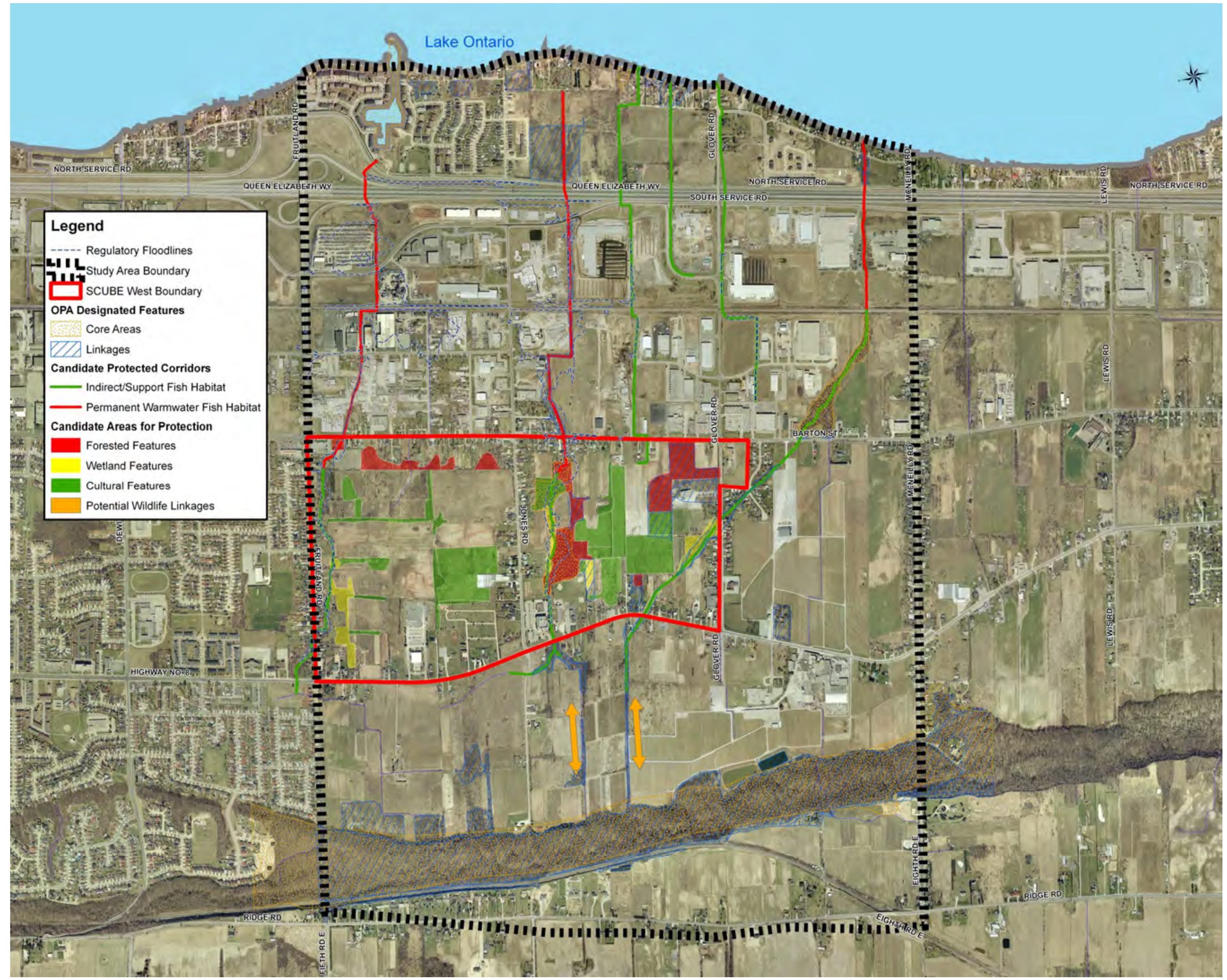
- Regulatory floodplain limits
- Candidate Protected Corridors
- Terrestrial Core Areas
- linkages
- Additional wetland habitat (yellow)
- Fisheries setbacks (from each streambank): 1) 15 m warmwater fishery setback; 2) 15 m indirect support habitat setback
- Slope Stability allowance
- Environmental/access setback
- Creeks are in private ownership in many areas

Developable Areas (Stormwater Management Requirements)

- Basic level of water quality treatment (level 2)
- Flood Control
- Erosion control
- Source Controls to maintain groundwater recharge area
- Culvert and channel improvements on lower watercourses

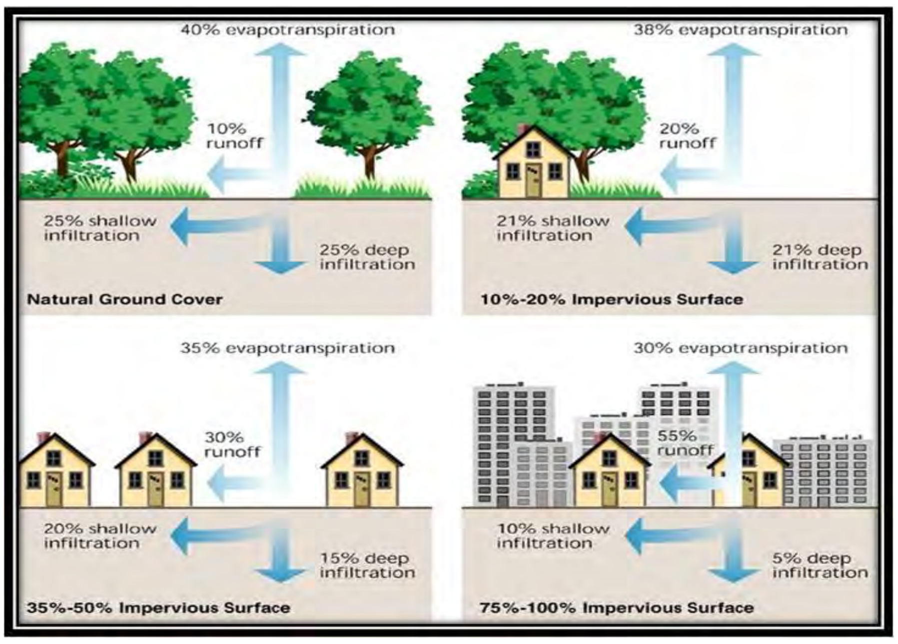
OPPORTUNITIES

- Preservation of forest and wetland areas
- Enhancement of riparian vegetation along warmwater streams
- Protection of important groundwater recharge area through rural land stewardship practices
- Revegetation of wildlife corridors along potential linkage areas through stewardship measures



IMPACTS FROM FUTURE DEVELOPMENT

- Increased runoff volumes
- Increased flood flow and erosion
- Decreased water quality
- Lower groundwater recharge
- Potential decreased baseflow
- Negative impacts to downstream fisheries



STONEY CREEK URBAN BOUNDARY EXPANSION WEST

Subwatershed Study
Public Information Centre No.# 1
Date: June 24, 2010

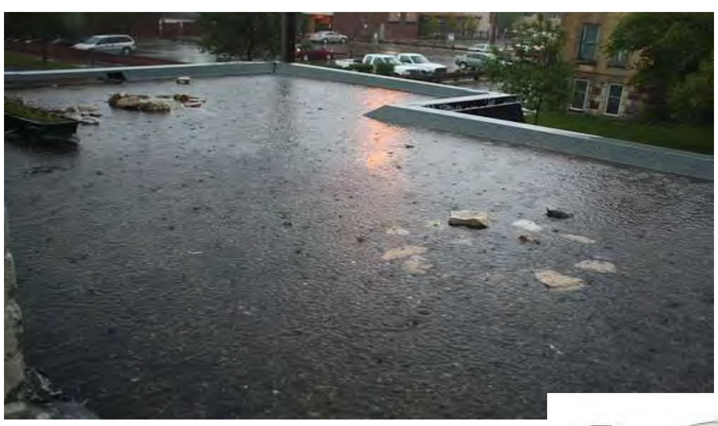
STORMWATER MANAGEMENT (SWM) ALTERNATIVES

Do Nothing

This option involves developing the SCUBE West lands without stormwater management. This alternative would result in a substantial increase in runoff, flooding, erosion and also water quality degradation.

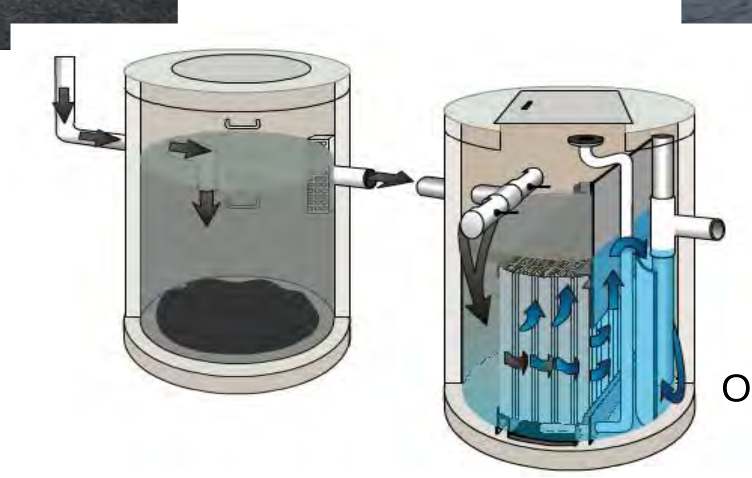
Traditional Source Controls

These measures are typically used within high-density forms of development such as commercial or industrial landuses. Rooftops, parking lots, or oversized storm sewers can be used to temporarily store rainfall from large storm events, while oil-grit separator devices can improve water quality.



Rooftop storage

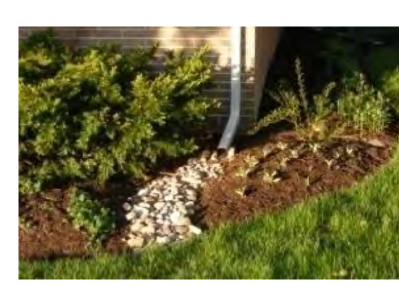
Parking lot storage



Oil & Grit separator

Low Impact Development (LID) Source Controls

This option involves addressing SWM using lot level controls/source controls that encourage the infiltration of water into the ground and reduce stormwater runoff. These systems would be integrated into the design of future urban developments and can include green roofs, permeable pavement, soakaway pits, bioretention, downspout disconnection etc.



Environment and Sustainable Infrastructure Division
Public Works, City of Hamilton

Hamilton Public Works

Aquafor Beech Limited

STONEY CREEK URBAN BOUNDARY EXPANSION WEST

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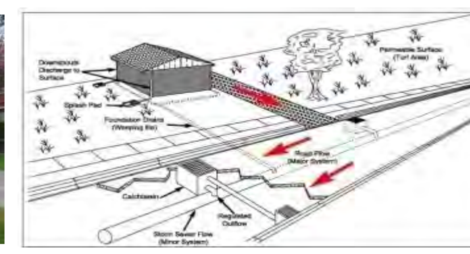
STORMWATER MANAGEMENT (SWM) ALTERNATIVES

Conveyance Controls

These controls are linear stormwater transport systems that are generally located within the road right-of-way where they encourage infiltration of water into the ground, improve water quality and reduce runoff. They can include traditional curb and gutter systems, bio-swales, grassed channels and subsurface perforated pipe systems.



End-of-pipe Controls

This option involves addressing SWM using conventional stormwater facilities at the end of the flow conveyance system. These facilities are utilized for erosion, water quantity and quality control applications.

Wet pond

Dry pond

Wetland

Stream Restoration

This option involves the replanting of floodplain and native stream side vegetation to improve stream corridor functions and water quality, slowing runoff, moderating stream temperatures, reducing erosion and improving aquatic and terrestrial habitat conditions.

Created channel

Wetland feature

Linear wetland feature

Naturalized corridor

DETAILED ASSESSMENT CRITERIA

Physical and Natural Environment

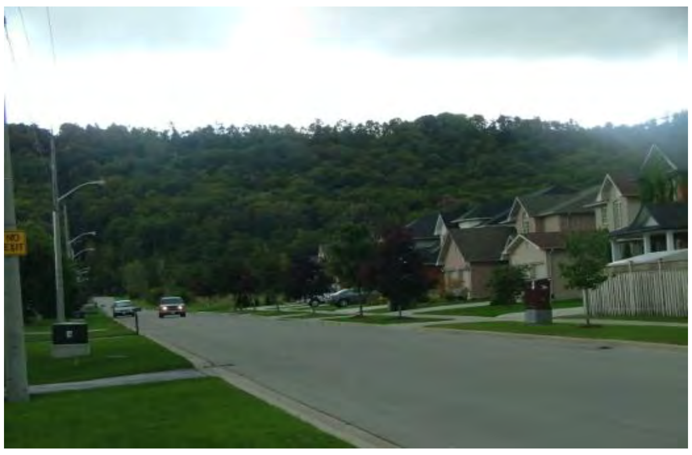
- Impact on vegetation, fish, and wildlife, surface drainage and groundwater, soils and geology;
- Meeting legislated criteria for flooding, water quality, and erosion;
- Impact on terrestrial and aquatic habitat: Connectivity, Diversity and Sustainability

Social, Economic and Cultural Environment

- Impact on existing and proposed development;
- Aesthetic value;
- Potential benefit to community and public acceptance; and
- Coordination with proposed roadway design.

Technical Factors

- Level of service- proven effectiveness;
- Regulatory agency acceptance;
- Impact on existing infrastructure;
- Constructability; and
- Maintenance requirements.



Financial Factors

- Capital cost;
- Operation and maintenance costs;
- Land requirements;
- Impact on property value; and
- Financial phasing considerations.

EVALUATION PROCESS

The project team has developed a set of Stormwater Management Alternatives for the SCUBE West lands. In order to manage the complexity and constraints inherent within the study area for stormwater management and to ensure a transparent selection process that considers all possible design alternatives, a two-phased approach has been used.

Screening Level Assessment

Are the Alternatives Feasible?

Yes

No

This phase is intended to identify those alternatives that are feasible (and infeasible) for use in the SCUBE West lands. Nine (9) screening level assessment criteria have been utilized to determine which SWM alternatives are to be carried forward to the more detailed assessment phase.

Detailed Assessment

Score the Alternatives & Rank

Rank 1

Rank 2 …etc

Select Preferred Alternative

The feasible options carried forward from screening level assessment have been used to develop SWM alternatives for SCUBE West lands. Alternatives are made up of both individual approaches and combinations of approaches (consistent with the MOE's treatment train approach to SWM).

The Detailed Assessment is a much more rigorous and thorough assessment of each alternative, based on a set of evaluation criteria. Each alternative is given an aggregate score indicating its rank based on social, economic and environmental criteria.

Implementation Considerations

Identify individual stormwater techniques that make up the Preferred Alternative

This step involves identifying which specific techniques are best suited for each landuse within the study area, together with cost estimates, construction / phasing considerations, and funding responsibilities. This will be completed as part of a future Third Phase of the Subwatershed Study.

SCREENING LEVEL ASSESSMENT

Screening Level Criteria

The primary criteria used in the evaluation include:
- Technical feasibility;
- Ability to meet targets;
- Flooding, Water quality, Erosion and Water balance;
- Cost effectiveness;
- Land requirements;
- Public acceptance; and
- Regulatory agency approval.

	Technical Feasibility	Flooding	Water Quality	Erosion	Water Balance	Cost Effectiveness	Land Requirements	Public Acceptance	Regulatory Agency Approval	Overall
Do Nothing	E	NA	NA	NA	NA	E	E	NA	NA	NA
Source Control Measures										
Traditional Source Control (storage)	E	E	P	G	P	G	G	G	F	G
LID Source Control (infiltration / filtration)	E	P	E	E	E	P	F	G	E	G
Conveyance Control Measures										
LID Conveyance (infiltration / filtration)	E	F	G	G	G	G	G	G	G	G
End-of Pipe Measures										
Wet pond	E	E	G	F	P	G	F	E	E	G
Wetland	E	E	E	G	P	P	NA	G	G	NA
Dry Pond	E	E	P	G	P	G	F	NA	P	NA
Stream Restoration	G	P	G	E	F	P	G	G	E	G
	E=Excellent, G= Good, F = Fair, P=Poor, NA = Not Acceptable									

Source Control Measures, including both traditional and LID methods, together with Conveyance Control Measures, End-of-Pipe Wet Ponds and Stream Restoration meet the screening-level criteria and are carried forward to the detailed assessment.

End-of-Pipe Wetlands tend to be inconsistent with higher-density urban settings due to the relatively large land area requirements, while Dry Ponds rank poorly in several categories and are not generally favored by the public or regulatory agencies. These techniques, together with the "Do Nothing" alternative, which is not acceptable under several categories, were not carried forward to the detailed assessment.

DETAILED ASSESSMENT

Alternative #		Physical and Natural Environment	Social and Cultural Environments	Technical Criteria	Financial Criteria	Aggregate Score
	Sole-measure Alternatives					
1	Traditional Source Controls Only	1.8	1.8	3.0	3.2	9.8
2	LID Source Controls Only	2.4	3.0	2.4	3.0	10.8
3	LID Conveyance Controls Only	2.0	2.0	2.2	2.4	8.6
4	end-of-pipe Wet Pond Only	2.6	3.3	3.6	2.2	11.7
	Combined Source Control Alternatives					
5	Traditional Source Controls and LID Source Controls	3.0	3.3	2.8	2.8	11.9
	Combined Source & Conveyance Alternatives					
6	Traditional Source & LID Conveyance Controls	2.6	2.0	2.6	2.2	9.4
7	LID Source & LID Conveyance Conrtols	2.6	2.8	2.2	2.4	10.0
	Combined Source & End-of-pipe Alternatives					
8	LID Source Controls & end-of-pipe Wet Pond	3.6	3.8	3.0	2.0	**12.4****
	Combined Source, Conveyance and End-of-pipe Alternatives					
9	LID Source Controls, LID Conveyance Controls & end-of-pipe Wet Pond	4.0	3.8	2.6	1.4	11.8
10*	**Stream Restoration ***	3.0	3.5	2.6	2.8	**11.9***

1 = Poor
2 = Fair
3 = Good
4 = Excellent

* This alternative is not intended as a stand-alone measure. Instead, it is common to all other alternative as it is recommended as part of the Natural Heritage Strategy. Therefore, it will be recommended regardless of which alternative is preferred.

** The preferred alternative for the SCUBE (West) study area is Option 8 - LID Source Controls in combination with end-of-pipe Wet Ponds, along with Stream Restoration Measures.

DETAILED ASSESSMENT

Following the Screening Assessment the project team developed alternatives to address the EA SWM objectives. The criteria developed to satisfy the SWM objectives were used to score the alternatives and select/identify the preferred alternative.

		Physical and Natural Environment					Social and Cultural Environments				Technical Criteria					Financial Criteria					
Alternative #		Water Balance	Flooding	Surface Water Quality	Erosion	Terrestrial & Aquatic Habitat	Existing Land Uses	Aesthetic Value	Benefit to Community & Public Acceptance	Coordination with proposed roadway design	Level of service-proven effectiveness	Regulatory agency acceptance	Impact on existing infrastructure	Constructability	Maintenance Requirements	Capital costs	Operations and Maintenance Costs	Land Requirements	Impacts on property value	Phasing Considerations	**Aggregate Score**
	Sole-measure Alternatives																				
1	Traditional Source Controls Only	1	3	1	3	1	2	1	1	3	3	3	3	3	3	3	4	4	1	4	47
2	LID Source Controls Only	3	1	3	2	3	3	3	3	3	3	2	2	3	2	3	2	3	3	4	51
3	LID Conveyance Controls Only	2	1	2	2	3	2	2	2	2	3	2	2	2	2	3	2	3	2	2	41
4	end-of-pipe Wet Pond Only	1	4	3	3	2	3	3	3	4	4	4	3	4	3	2	3	1	3	2	55
	Combined Source Control Alternatives																				
5	Traditional Source Controls and LID Source Controls	3	3	3	3	3	3	3	3	4	3	2	4	3	2	2	2	3	3	4	56
	Combined Source & Conveyance Alternatives																				
6	Traditional Source & LID Conveyance Controls	2	3	2	3	3	2	2	2	2	3	2	3	3	2	2	2	3	2	2	45
7	LID Source & LID Conveyance Conrtols	4	1	3	2	3	3	3	3	2	3	2	2	2	2	2	2	3	3	2	47
	Combined Source & End-of-pipe Alternatives																				
8	LID Source Controls & end-of-pipe Wet Pond	3	4	4	3	4	3	4	4	4	4	3	3	3	2	2	2	1	3	2	**58****
	Combined Source, Conveyance and End-of-pipe Alternatives																				
9	LID Source Controls, LID Conveyance Controls & end-of-pipe Wet Pond	4	4	4	4	4	3	4	4	4	4	3	2	2	2	1	1	1	3	1	55
10*	**Stream Restoration ***	3	2	3	3	4	3	4	4	3	3	3	3	1	3	2	2	4	3	3	**56***

1 = Poor
2 = Fair
3 = Good
4 = Excellent

* Note - this alternative is not intended as a stand-alone measure. Instead, it is common to all other alternative as it is recommended as part of the Natural Heritage Strategy. Therefore, it will be recommended regardless of which alternative is preferred.

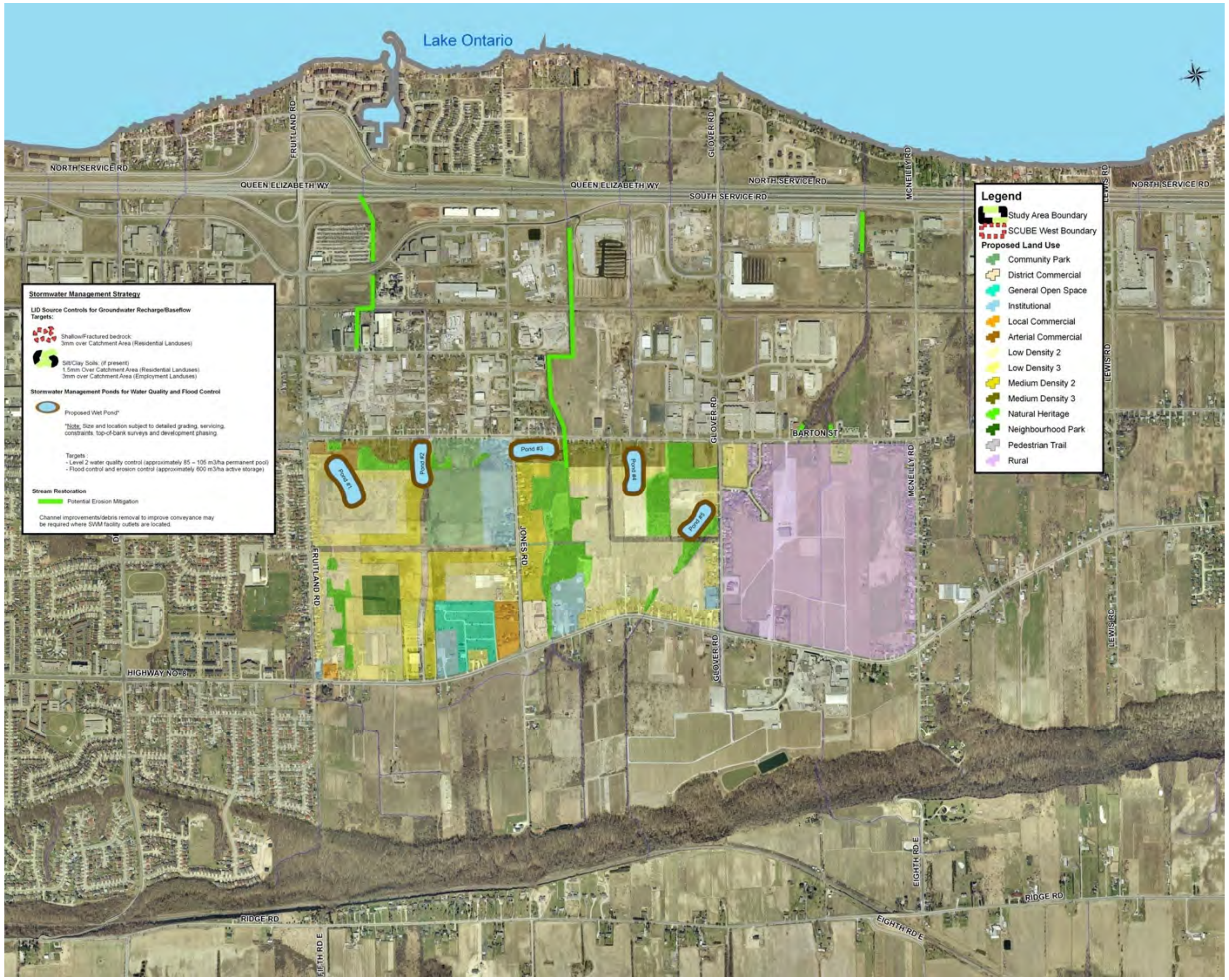
**The preferred alternative for the SCUBE (West) study area is Option 8 – LID Source Controls in combination with end-of-pipe Wet Ponds, along with Stream Restoration measures.

STONEY CREEK URBAN BOUNDARY EXPANSION WEST

Subwatershed Study

Public Information Centre No.# 1
Date: June 24, 2010

PRELIMINARY PREFERRED STORMWATER MANAGEMENT STRATEGY



The Preliminary Preferred Stormwater Management Strategy consists of 3 key measures:

1. **Low Impact Development (LID) Source Controls**

These measures encourage infiltration of water into the ground.

Benefits:
- Reduces stormwater runoff
- Improves water quality
- Promotes baseflow in streams

Targets:
- For fractured/shallow bedrock, infiltrate 3mm over catchment area (residential landuses)
- For silt/clay soils, infiltrate 1.5mm to 3mm over the catchment area (residential / employment landuses)

2. **Wet Ponds and Traditional Source Controls**

These measures store and gradually release stormwater runoff.

Benefits:
- Controls flooding
- Improves water quality

Targets:
- Up to 105m^3/ha of permanent pool storage
- Approximately 550m^3/ha of active storage

3. **Stream Restoration**

These measures involve re-planting of streamside vegetation and removal of fish barriers.

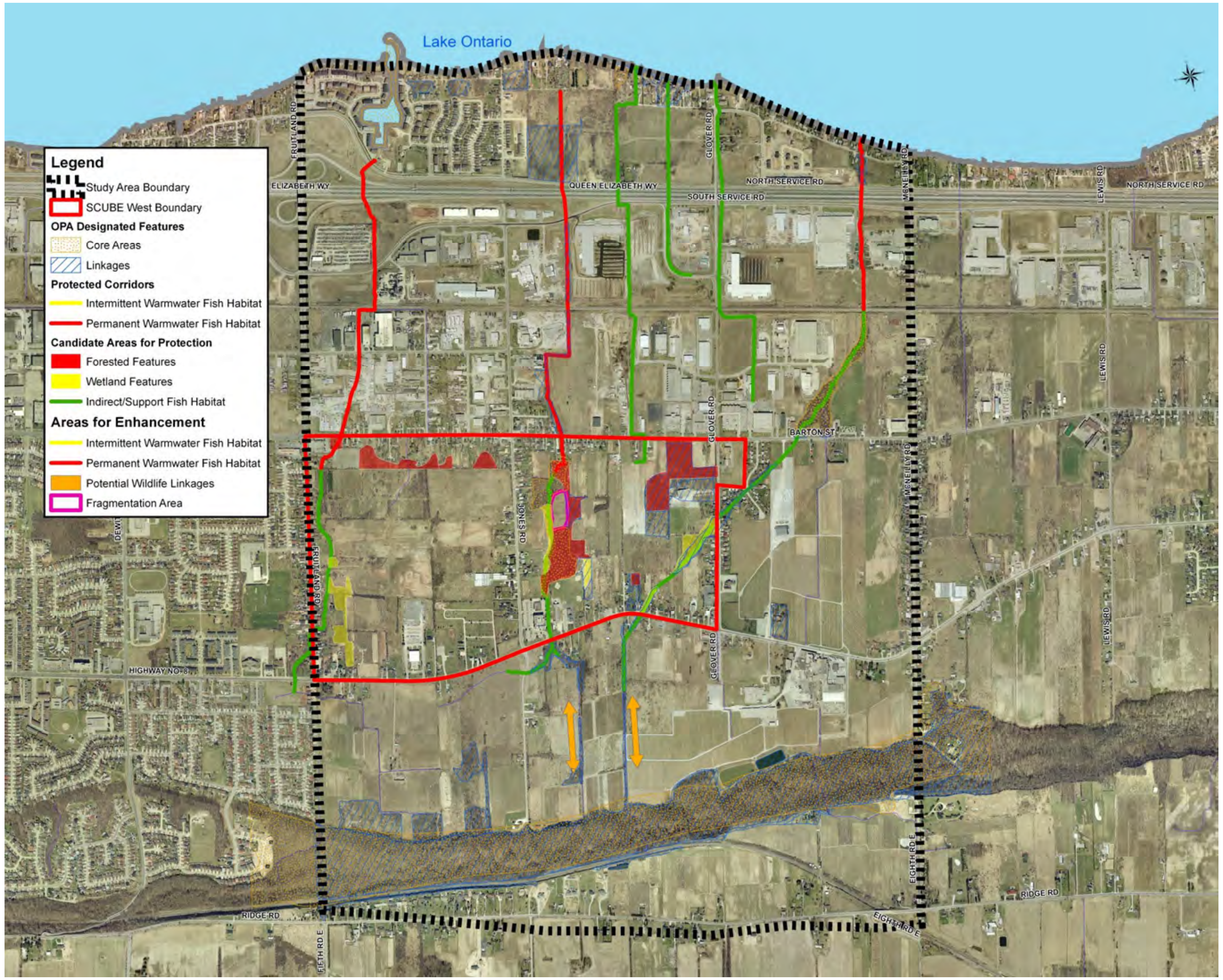
Benefits:
- Improves fish and terrestrial habitat
- Improves water quality
- Moderates stream temperatures
- Reduces erosion

Hamilton Public Works

Environment and Sustainable Infrastructure Division
Public Works, City of Hamilton

Aquafor Beech Limited

RECOMMENDED NATURAL HERITAGE SYSTEM



The Natural Heritage System for the SCUBE West subwatershed is an interconnected mosaic of existing forests, wetlands, meadows and stream/valley corridors, connected to the larger Natural Heritage System of the City of Hamilton that includes features within the Niagara Escarpment and the Lake Ontario shoreline.

Natural features are sparsely distributed within the drainage features within the SCUBE subwatershed and primarily limited to several woodlots and some riparian forested and meadow habitats along W.C. 6 and 7. Natural linkages between the Lake Ontario shoreline and the Niagara Escarpment are limited and currently occur along the headwater tributaries of W.C. 7 and generally across the existing agricultural landscape.

The Recommended Natural Heritage System is shown on the attached map and consists of Terrestrial Core Areas and Linkages, and Protected Stream Corridors. In addition, there are a number of Candidate Areas for Protection as Core/Linkage Areas and some Enhancement Areas where potential terrestrial and aquatic linkages could be improved through native vegetation plantings.

Next Steps

Following this Public Information Center, the following tasks will be completed:

- Finalize the recommended Stormwater Management Plan
- Finalize the recommended Natural Heritage System
- Develop an Implementation Plan (Phase 3)

If you have any questions, comments, please contact.

Nahed Ghbn
Environment and Sustainable Infrastructure Division
Public Works Department
City of Hamilton
Phone: 905-546-2424 ext. 6413
Email: nahed.ghbn@hamilton.ca

Dave Maunder
Aquafor Beech Limited
Phone: 905-629-0099 ext. 290
Email: maunder.d@aquaforbeech.com

Deadline for comments is July 8, 2010

Public Information Centre

Comments

Hamilton
Public Works

STONEY CREEK URBAN BOUNDARY EXPANSION AREA SUBWATERSHED STUDY WEST and EAST

JOINT PUBLIC INFORMATION CENTRE
June 24, 2010

Comments

A PORTION OF THE LAND AT 212 FRUITLAND RD HAS BEEN DESIGNATED AS WETLANDS. THIS IS AN ERROR! THE AREA SO MARKED WAS A VINEYARD IN YEARS PAST AND ~~IS~~ HAS SIMPLY GROWN OVER WITH BUSHES & TREES. PLEASE HAVE IT CHANGED ON FUTURE MAPS & DOCUMENTS.

Note: With the exception of personal information, all comments will become part of the public record and a copy of this document may be attached to future reports.

Please provide your property address. Also provide your name and phone number so that we may contact you if necessary. The bottom of this page will be excluded from future reports

Name	Address	Phone Number
DAVE THACKERAY	208 & 212 FRUITLAND RD.	905 643-3616

Hamilton
Public Works

STONEY CREEK URBAN BOUNDARY EXPANSION AREA SUBWATERSHED STUDY WEST and EAST

JOINT PUBLIC INFORMATION CENTRE
June 24, 2010

Comments

OUR CONCERNS ARE RELATED TO HOW THE CURRENT AND PROPOSED DRAINAGE FLOWS INTO THE MARINA ~~AS~~ EAST OF FRUITLAND ROAD. THIS RUNOFF IN THE "NATURAL" CREEKS IS HEAVILY POLLUTED BOTH WITH OIL PRODUCTS AND DEBRIS AS WELL AS "NATURAL" SILT FROM UPSTREAM. THIS PROBLEM HAS BEEN DISCUSSED MANY TIMES OVER THE YEARS AND NOW WOULD BE A PRIME TIME TO INCLUDE A RESOLUTION TO THE PROBLEM. THE CREEK MAY BE "NATURAL" BUT ~~THE~~ MANY POLLUTANTS ARE DERIVED FROM HUMAN ACTIVITY.

I WOULD SUGGEST THAT AFTER THE NEXT SIGNIFICANT RAINFALL THAT YOUR PLANNERS VISIT THE TWO HARBOUR OUTFALLS AND WITNESS THE CONDITIONS.

Note: *With the exception of personal information, all comments will become part of the public record and a copy of this document may be attached to future reports.*

Please provide your property address. Also provide your name and phone number so that we may contact you if necessary. The bottom of this page will be excluded from future reports

Name	Address	Phone Number
TED & FRAN VICKERS	133 EDGEWATER DR S.C. L8E 4Z2	905-643-3072

Hamilton
Public Works

STONEY CREEK URBAN BOUNDARY EXPANSION AREA SUBWATERSHED STUDY WEST and EAST

JOINT PUBLIC INFORMATION CENTRE
June 24, 2010

Comments

We have pease of land at congession 1 LOT 1 and we are concerned regarding two pounds wich would take most of oor Frontige ~~of~~ on service rd.
I would like to discus with somone before is two Late.
One proposal is without powns and onother with two ponds wich will take most of frontige.

Would you please luke in to diferent solution, that we have som of oor land with dissent frontige.

Note: With the exception of personal information, all comments will become part of the public record and a copy of this document may be attached to future reports.

Please provide your property address. Also provide your name and phone number so that we may contact you if necessary. The bottom of this page will be excluded from future reports

Name ZORAN IGNESKI **Address** 5 Ridgeview DR. **Phone Number**
905-560-9119

Hamilton
Public Works

STONEY CREEK URBAN BOUNDARY EXPANSION AREA SUBWATERSHED STUDY WEST and EAST

JOINT PUBLIC INFORMATION CENTRE
June 24, 2010

Comments

It is a Disgrace
City of Hamilton has been
dumping road run off and
toxic waste into the
Newport Marina for a number
of years !! This MUST STOP
City must remove culverts which dump
this run off immediately and
re direct these two large pipes
to meet the large Fruitland
Road Sewer line.
We do not want to live next to
a Sewer !! Please remove these
pipes going into New Port Marina
Before all this goes public -

Note: With the exception of personal information, all comments will become part of the public record and a copy of this document may be attached to future reports.

Please provide your property address. Also provide your name and phone number so that we may contact you if necessary. The bottom of this page will be excluded from future reports

Name	Address	Phone Number
M.C. Ross	145 Edgewater Dr.	9056430155

Hamilton Public Works

STONEY CREEK URBAN BOUNDARY EXPANSION AREA SUBWATERSHED STUDY WEST and EAST

JOINT PUBLIC INFORMATION CENTRE June 24, 2010

Comments

Creek (Storm Sewer Run Off) constantly floods

We have many photos taken from 1986 to date

Resevoir on S/W corner of Hwy 8 & Fruitland Rd useless

We're losing 1 ft of property into creek bed each year

Old trees that used to be on dry land are now right in the creek bed - Roots exposed - Trees falling

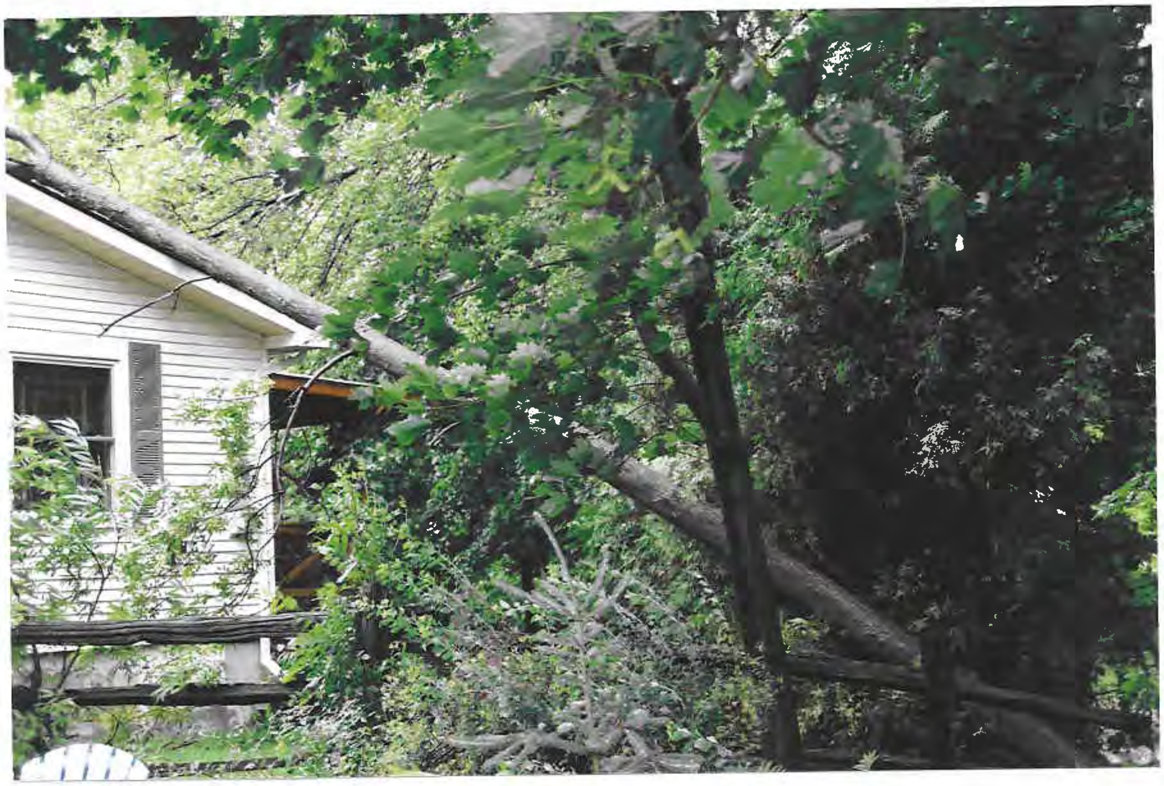
2 weeks ago large mature tree fell on our house

Many more are in danger of falling considering the amount of rainfall.

Note: With the exception of personal information, all comments will become part of the public record and a copy of this document may be attached to future reports.

Please provide your property address. Also provide your name and phone number so that we may contact you if necessary. The bottom of this page will be excluded from future reports

Name	Address	Phone Number
Jim & Elsie Chappel	181 Fruitland Rd	(905) 643-4761



APPENDIX G:

Consolidated Species Lists

Table 1: Plants recorded from the study area of the SCUBE Subwatershed Study. See Table 5 for footnotes.

		Status						Source					
											City of Hamilton		
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Conservation Coefficient[6]	Dillon[7]	NRSI[8]	NHIC[9]	Fifty Creek Valley ESA[10]	Devil's PunchBowl Escarpment ESA – Plants[11]	Devil's PunchBowl Escarpment ESA - Rare Species[12]
Bacidia trachona	A Lichen			G5	S1S2					•			
Diplotomma epipolium	A Lichen			GNR	S1S2					•			
Rhamnus frangula	Alder Buckthorn			G?	SE5	I						•	
Medicago sativa sativa	Alfalfa			G?T?	SE5	I						•	
Trifolium hybridum ssp. elegans	Alsike Clover			G?	SE5	I	0	•					
Cornus alternifolia	Alternate-leaved Dogwood			G5	S5							•	
Fagus grandifolia	American Beech			G5	S5		6	•				•	
Matteuccia struthiopteris var. pensylvanica	American Ostrich Fern			G5	S5							•	
Urtica dioica gracilis	American Stinging Nettle			G5T5	S5							•	
Lycopus americanus	American Waterhorehound			G5	S5							•	
Poa annua	Annual Blue Grass			G?	SE5	I						•	
Erigeron annuus	Annual Fleabane			G5	S5		0	•		•		•	
Stylurus spiniceps	Arrow Clubtail			G5	S2				•				
Aster urophyllus	Arrow-leaved Aster			G4	S4		6	•				•	
Asparagus officinalis	Asparagus			G5?	SE5	I	0	•	•			•	
Agrostis perennans	Autumn Bent Grass			G5	S5							•	
Geum sp	Avens Species							•					
Carex stipata	Awl-fruited Sedge			G5	S5							•	
Aster oolentangiensis	Azure Aster			G5	S4							•	
Echinochloa crusgalli	Barnyard Grass			G?	SE5	I	0	•				•	
Tilia americana	Basswood			G5	S5		4	•	•			•	
Carex bebbii	Bebb's Sedge			G5	S5		3	•					
Epifagus virginiana	Beech-drops			G5	S5							•	
Bidens tripartita	Beggar-ticks			G5	S5		4		•				
Lotus corniculatis	Birds-foot Trefoil			G?	SE5	I	0	•				•	

		Status						Source					
											City of Hamilton		
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Conservation Coefficient[6]	Dillon[7]	NRSI[8]	NHIC[9]	Fifty Creek Valley ESA[10]	Devil's PunchBowl Escarpment ESA – Plants[11]	Devil's PunchBowl Escarpment ESA - Rare Species[12]
Mitella diphylla	Bishop's Cap			G5	S5							•	
Rumex obtusifolius obtusifolius	Bitter Dock			G?	SE5	I						•	
Carya cordiformis	Bitternut Hickory			G5	S5							•	
Solanum dulcamara	Bittersweet Nightshade			G?	SE5	I	0	•				•	
Scirpus atrovirens	Black Bulrush			G5?	S5		3	•				•	
Prunus serotina	Black Cherry			G5	S5		3	•				•	
Robinia pseudoacacia	Black Locust			G5	SE5	I			•			•	
Acer saccharum nigrum	Black Maple			G5T5	S4?							•	
Medicago lupulina	Black Medick			G?	SE5	I	0	•				•	
Brassica nigra	Black Mustard			G?	SE5	I	0	•					
Rubus occidentalis	Black Raspberry			G5	S5		2	•				•	
Juglans nigra	Black Walnut			G5	S4		5	•	•			•	
Salix nigra	Black Willow			G5	S4?							•	
Rudbeckia hirta	Black-eyed Susan			G5	S5		0	•					
Staphylea trifolia	Bladdernut			G5	S4							•	
Sanguinaria canadensis	Bloodroot			G5	S5							•	
Carpinus caroliniana	Blue Beech			G5	S5	H	6	•					
Caulophyllum thalictroides	Blue Cohosh			G4G5	S5							•	
Phlox divaricata	Blue Phlox			G5	S4							•	
Verbena hastata	Blue Vervain			G5	S5		4	•	•				
Clintonia borealis	Bluebead Lily			G5	S5		7	•					
Solidago caesia	Blue-stem Goldenrod			G5	S5							•	
Echium vulgare	Blueweed			G?	SE5	I						•	
Elymus hystrix	Bottle-brush Grass			G5	S5							•	
Picris echioides	Bristly Ox-tongue			G?	SE1	I						•	
Typha latifolia	Broad-leaved Cattail			G5	S5		3	•	•				

		Status						Source					
											City of Hamilton		
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Conservation Coefficient[6]	Dillon[7]	NRSI[8]	NHIC[9]	Fifty Creek Valley ESA[10]	Devil's PunchBowl Escarpment ESA – Plants[11]	Devil's PunchBowl Escarpment ESA - Rare Species[12]
Carex platyphylla	Broad-leaved Sedge			G5	S5							•	
Claytonia caroliniana	Broad-leaved Spring Beauty			G5	S5							•	
Cystopteris bulbifera	Bulblet Fern			G5	S3					•		•	
Cirsium vulgare	Bull Thistle			G5	SE5	I	0	•				•	
Quercus macrocarpa	Bur Oak			G5	S5		5	•	•				
Carex sparganioides	Bur-reed Sedge			G5	S5							•	
Diervilla lonicera	Bush-honeysuckle			G5	S5							•	
Linaria vulgaris	Butter-and-eggs			G?	SE5	I	0	•				•	
Juglans cinerea	Butternut	END	END	G4	S3?						•		•
Poa compressa	Canada Blue Grass			G?	SE5							•	
Bromus pubescens	Canada Brome			G5	S4	h						•	
Solidago canadensis var. canadensis	Canada Goldenrod			G5	S5		1	•	•			•	
Cirsium arvense	Canada Thistle			G?	SE5	I	0	•	•			•	
Viola canadensis	Canada Violet			G5	S5							•	
Hydrophyllum canadense	Canada Waterleaf			G5	S4							•	
Smilax herbacea	Carrion-flower			G5	S4							•	
Nepeta cataria	Catnip			G?	SE5	I	0	•				•	
Sinapis arvensis	Charlock			G?	SE5	I						•	
Bromus secalinus secalinus	Cheat			G?	SE4	I						•	
Cichorium intybus	Chicory			G?	SE5	I	0	•	•			•	
Prunus virginiana ssp. virginiana	Choke Cherry			G5	S5		2	•				•	
Polystichum acrostichoides	Christmas Fern			G5	S5							•	
Pilea pumila	Clearweed			G5	S5		5		•			•	
Galium aparine	Cleavers			G5	S5		4	•				•	
Celastrus scandens	Climbing Bittersweet			G5	S5		3	•				•	
Rhus radicans negundo	Climbing Poison-ivy			G5T5	S5		5	•	•			•	

		Status						Source					
											City of Hamilton		
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Conservation Coefficient[6]	Dillon[7]	NRSI[8]	NHIC[9]	Fifty Creek Valley ESA[10]	Devil's PunchBowl Escarpment ESA – Plants[11]	Devil's PunchBowl Escarpment ESA - Rare Species[12]
Paronychia fastigiata	Cluster-stemmed Nailwort			G5	S1					•			
Tussilago farfara	Coltsfoot			G?	SE5	I	0	•					
Malus pumila	Common Apple			G5	SE5	I	0	•	•				
Berberis vulgaris	Common Barberry			G?	SE5	I	0	•					
Rubus allegheniensis	Common Blackberry			G5	S5		2	•				•	
Viola sororia	Common Blue Violet			G5	S5							•	
Rhamnus cathartica	Common Buckthorn			G?	SE5	I	0	•	•			•	
Arctium minus	Common Burdock			G?T?	SE5	I	0	•	•			•	
Stellaria media	Common Chickweed			G?	SE5	I						•	
Potentilla simplex	Common Cinquefoil			G5	S5		3	•				•	
Symphytum officinale officinale	Common Comfrey			G?	SE5	I						•	
Taraxacum officinale	Common Dandelion			G5	SE5	I	0	•	•			•	
Sambucus canadensis	Common Elder			G5	S5							•	
Oenothera biennis	Common Evening-primrose			G5	S5		0	•					
Myosotis scorpioides	Common Forget-me-not			G5	SE5	I	0	•					
Senecio vulgaris	Common Groundsel			G?	SE5	I						•	
Hieracium vulgatum	Common Hawkweed							•					
Syringa vulgaris	Common Lilac			G?	SE5	I	0	•	•				
Malva neglecta	Common Mallow			G?	SE5	I						•	
Asclepias syriaca	Common Milkweed			G5	S5		0	•	•			•	
Mentha arvensis	Common Mint			G5	S5		3		•				
Cerastium fontanum	Common Mouse-ear Chickweed			G?	SE5	I	0	•				•	
Verbascum thapsus	Common Mullein			G?	SE5	I	0	•				•	
Pyrus communis	Common Pear			G5	SE4	I	0	•	•				
Vinca minor	Common Periwinkle			G?	SE5	I						•	
Plantago major	Common Plantain			G5	SE5	I	0	•	•			•	

		Status						Source					
											City of Hamilton		
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Ambrosia artemisiifolia	Common Ragweed			G5	S5		0	•				•	
Phragmites australis	Common Reed			G5	S5		0	•	•			•	
Tragopogon porrifolius	Common Salsify			G?	SE4?	I						•	
Sonchus oleraceus	Common Sow-thistle			G?	SE5	I	0	•				•	
Veronica officinalis	Common Speedwell			G5	SE5	I						•	
Hypericum perforatum	Common St. John's Wort			G?	SE5	I	0	•	•			•	
Fragaria virginiana ssp. virginiana	Common Strawberry			G5	S5		2	•	•			•	
Helianthus annuus ssp. annuus	Common Sunflower			G5	SE4		0	•					
Dipsacus fullonum ssp. sylvestris	Common Teasel			G?	SE5	I	0	•	•			•	
Vicia sativa ssp. nigra	Common Vetch			G?	SE5	I	0	•	•				
Alisma plantago-aquatica	Common Water-plantain			G5	S5		3	•				•	
Triticum aestivum	Common Wheat			G?	SE1	I						•	
Luzula multiflora multiflora	Common Wood Rush			G5T5	S5							•	
Achillea millefolium ssp. millefolium	Common Yarrow			G5	SE		0	•	•			•	
Veronica arvensis	Corn Speedwell			G?	SE5	I						•	
Vicia cracca	Cow Vetch			G?	SE5	I	0	•				•	
Malus sp	Crabapple Species							•					
Salix fragilis	Crack Willow			G?	SE5	I	0	•	•				
Agrostis stolonifera	Creeping Bent Grass			G5	S5							•	
Juniperus horizontalis	Creeping Juniper			G5	S5		10		•				
Coronilla varia	Crown-vetch			G?	SE5	I						•	
Magnolia acuminata	Cucumber Tree	END	END	G5	S2					•			
Rumex crispus	Curly Dock			G?	SE5	I	0	•	•			•	
Ranunculus sceleratus sceleratus	Cursed Buttercup			G5	S5							•	
Geum laciniatum	Cutleaf Avens			G5	S4							•	
Cardamine concatenata	Cutleaf Toothwort			G5	S5							•	

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Hesperis matronalis	Dame's Rocket			G4G5	SE5	I						•	
Dianthus armeria	Deptford Pink			G?	SE5	I	0	•	•			•	
Bidens frondosa	Devil's Beggar-ticks			G5	S5		3	•				•	
Carex laxiflora	Distant-flowered Sedge			G5	S5							•	
Rosa canina	Dog Rose			G?	SE2	I						•	
Viola conspersa	Dog Violet			G5	S5							•	
Crataegus punctata	Dotted Hawthorn			G5	S5							•	
Viburnum rafinesquianum	Downy Arrow-wood			G5	S5							•	
Bromus tectorum	Downy Chess			G?	SE5	I						•	
Crataegus mollis	Downy Hawthorn			G5	S5	H						•	
Amelanchier arborea	Downy Serviceberry			G5	S5		5	•				•	
Viola pubescens	Downy Yellow Violet			G5T5	S5							•	
Juncus dudleyi	Dudley's Rush			G5	S5							•	
Dicentra cucullaria	Dutchman's-breeches			G5	S5	h						•	
Solidago juncea	Early Goldenrod			G5	S5		3	•				•	
Thalictrum dioicum	Early Meadow-rue			G5	S5							•	
Vaccinium pallidum	Early Sweet Blueberry			G5	S4							•	
Solanum ptycanthum	Eastern Black Nightshade			G5	S5							•	
Populus deltoides deltoides	Eastern Cottonwood			G5T?	SU		4	•				•	
Carex oligocarpa	Eastern Few-fruited Sedge			G4	S3	H				•			
Tsuga canadensis	Eastern Hemlock			G5	S5							•	
Juniperus virginiana	Eastern Red Cedar			G5	S5		4	•				•	
Thuja occidentalis	Eastern White Cedar			G5	S5		4	•	•				
Circaea lutetiana canadensis	Enchanter's Nightshade			G5	S5		3	•				•	
Crataegus monogyna	English Hawthorn			G5	SE5	I	0	•	•			•	
Sporobolus vaginiflorus	Ensheathed Dropseed			G5	S4							•	

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Aster ericoides ssp.	Ericoides Heath Aster			G5	S5							•	
Allium schoenoprasum var. schoenoprasum	European Chives			G5	SE2	I	0	•					
Urtica dioica ssp. dioica	European Stinging Nettle			G5T?	SE2	I	0	•					
Panicum dichotomiflorum	Fall Panic Grass			G5	SE5	I						•	
Convolvulus arvensis	Field Bindweed			G?	SE5	I	0	•	•			•	
Hieracium caespitosum ssp. caespitosum	Field Hawkweed			G?	SE5	I	0	•				•	
Equisetum arvense	Field Horsetail			G5	S5							•	
Thlaspi arvense	Field Penny-cress			G?	SE5	I	0	•				•	
Lepidium campestre	Field Pepper-grass			G?	SE5	I						•	
Antennaria neglecta	Field Pussytoes			G5	S5		3	•				•	
Sonchus arvensis ssp. arvensis	Field Sow-thistle			G?	SE5	I	0	•				•	
Abies sp.	Fir species (non-native)							•					
Cornus florida	Flowering Dogwood	END	END	G5	S2	h				•		•	•
Lonicera canadensis	Fly-honeysuckle			G5	S5							•	
Aethusa cynapium	Fool's Parsley			G?	SE1							•	
Glyceria striata	Fowl Manna Grass			G5T5	S4S5							•	
Poa palustris	Fowl Meadow Grass			G5	S5							•	
Carex vulpinoidea	Fox Sedge			G5	S5		3	•				•	
Carex alopecoidea	Foxtail Sedge			G5	S5	h						•	
Acer X freemanii	Freeman's Maple			G?	S5			•					
Lysimachia ciliata	Fringed Loosestrife			G5	S5							•	
Ribes rubrum	Garden Red Currant			G4G5	SE5	I						•	
Alliaria petiolata	Garlic Mustard			G?	SE5	I	0	•				•	
Solidago gigantea	Giant Goldenrod			G5	S5		4	•				•	
Dryopteris intermedia	Glandular Wood Fern			G5	S5							•	
Tragopogon dubius	Goat's-beard			G?	SE5	I						•	

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Dryopteris goldiana	Goldie's Wood Fern			G4	S4	H						•	
Carex gracillima	Graceful Sedge			G5	S5		4	•					
Euthamia graminifolia	Grass-leaved Goldenrod			G5	S5		2	•	•			•	
Stellaria graminea	Grass-leaved Stitchwort			G?	SE5	I						•	
Solidago nemoralis nemoralis	Gray Goldenrod			G5T5	S5							•	
Arctium lappa	Great Burdock			G?	SE5	I						•	
Chelidonium majus	Greater Celandine			G?	SE5	I						•	
Setaria viridis	Green Foxtail			G?	SE5	I	0	•				•	
Cornus foemina racemosa	Grey Dogwood			G5	S5		2	•	•			•	
Glechoma hederacea	Ground Ivy			G?	SE5	I	0	•				•	
Viburnum opulus	Guelder-rose			G5	SE4	I						•	
Aster pilosus var. pilosus	Hairy Aster			G5T?	S5							•	
Penstemon hirsutus	Hairy Beard-tongue			G4	S4							•	
Bromus commutatus	Hairy Chess			G?	SE4	I						•	
Carex hirtifolia	Hairy Sedge			G5	S5							•	
Scirpus acutus	Hardstem Bulrush			G5	S5	H	6	•					
Crataegus succulenta	Hawthorn			G5	S4S5							•	
Crataegus sp	Hawthorn Species							•					
Carex cephaloidea	Head-like Sedge			G5	S5	H						•	
Aster cordifolius	Heart-leaved Aster			G5	S5							•	
Aster ericoides var. ericoides	Heath Aster			G5	S5		4	•					
Calystegia sepium	Hedge Bindweed			G5	S5			•				•	
Sisymbrium officinale	Hedge Mustard			G?	SE5	I	0	•					
Torilis japonica	Hedge Parsley			G?	SE4	I						•	
Epipactis helleborine	Helleborine			G?	SE5	I						•	
Galeopsis tetrahit	Hemp-nettle			G?	SE5	I						•	

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Geranium robertianum	Herb Robert			G5	SE5	I	0	•				•	
Viburnum trilobum	Highbush-cranberry			G5T5	S5							•	
Carex hitchcockiana	Hitchcock's Sedge			G5	S5							•	
Amphicarpaea bracteata	Hog-peanut			G5	S5		4		•			•	
Cryptotaenia canadensis	Honewort			G5	S5							•	
Gleditsia triacanthos	Honey Locust			G5	S2(I to Ham)	I						•	
Ranunculus recurvatus	Hooked Buttercup			G5	S5							•	
Ostrya virginiana	Hop Hornbeam			G5	S5		4	•				•	
Aesculus hippocastanum	Horse-chestnut			G?	SE2	I			•			•	
Conyza canadensis	Horseweed			G5	S5		0	•					
Cynoglossum officinale	Hound's-tongue			G?	SE5	I						•	
Actaea x ludovici	Hybrid Baneberry			HYB	SE1							•	
Monotropa uniflora	Indian-pipe			G5	S5							•	
Arisaema triphyllum ssp. triphyllum	Jack-in-the-pulpit			G5	S5		5	•				•	
Berberis thunbergii	Japanese Barberry			G?	SE5	I						•	
Bromus japonicus	Japanese Brome			G?	SE4	I						•	
Polygonum cuspidatum	Japanese Knotweed			G?	SE4	I						•	
Polygonum virginianum	Jumpseed			G5	S4							•	
Poa pratensis pratensis	Kentucky Blue Grass			G5T5?	S5		0					•	
Ranunculus abortivus	Kidney-leaf Buttercup			G5	S5		2	•				•	
Polygonum persicaria	Lady's Thumb			G?	SE5	I	0	•	•			•	
Chenopodium album var album	Lamb's-quarters			G5T?	SE5	I	0	•				•	
Digitaria sanguinalis	Large Crab Grass			G5	SE5	I						•	
Uvularia grandiflora	Large-flowered Bellwort			G5	S5							•	
Aster macrophyllus	Large-leaved Aster			G5	S5		5	•				•	
Populus grandidentata	Largetooth Aspen			G5	S5		5	•	•			•	

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Viola rostrata	Long-spurred Violet			G5	S5							•	
Carex laxiculmis	Loose-stemmed Sedge			G5T4T5	S4							•	
Phryma leptostachya	Lopseed			G5	S4S5							•	
Vaccinium angustifolium	Lowbush Blueberry			G5	S5							•	
Cystopteris tenuis	Mackay's Fragile Fern			G4G5	S5							•	
Acer negundo	Manitoba Maple			G5	S5		0	•	•			•	
Chenopodium simplex	Maple-leaved Goosefoot			G5	S5	h						•	
Viburnum acerifolium	Maple-leaved Viburnum			G5	S5							•	
Dryopteris marginalis	Marginal Wood Fern			G5	S5							•	
Polygonum hydropiper	Marshpepper Smartweed			G5	SE5	I						•	
Podophyllum peltatum	Mayapple			G5	S5		5	•				•	
Festuca pratensis	Meadow Fescue			G5	SE5	I						•	
Tragopogon pratensis pratensis	Meadow Goat'sbeard			G?T?	SE5	I						•	
Lysimachia nummularia	Moneywort			G?	SE5	I	0	•					
Menispermum canadense	Moonseed			G5	S4							•	
Leonurus cardiaca cardiaca	Motherwort			G?	SE5	I	0	•	•			•	
Acer spicatum	Mountain Maple			G5	S5							•	
Rosa multiflora	Multiflora Rose			G?	SE4	I						•	
Viburnum lentago	Nannyberry			G5	S5		4	•				•	
Typha angustifolia	Narrow-leaved Cattail			G5	SE5							•	
Spiraea alba	Narrow-leaved Meadowsweet			G5	S5		3	•	•				
Claytonia virginica	Narrow-leaved Spring Beauty			G5	S5		5	•				•	
Aster novae-angliae	New England Aster			G5	S5		2	•	•			•	
Muhlenbergia schreberi	Nimble Will			G5	S4	H						•	
Oryzopsis racemosa	Nodding Mountainrice			G5	S4	h						•	
Athyrium filixfemina angustum	Northeastern Lady Fern			G5T5	S5							•	

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Adiantum pedatum	Northern Maidenhair Fern			G5	S5							•	
Epilobium ciliatum ssp. glandulosum	Northern Willow-herb			G5	SU		6	•					
Acer platanoides	Norway Maple			G?	SE5	i	0	•				•	
Chenopodium glaucum glaucum	Oak-leaved Goosefoot			G5T?	SE5	I						•	
Aster lateriflorus	One-sided Aster			G5	S5		3	•				•	
Hemerocallis fulva	Orange Day-lily			G?	SE5	I						•	
Hieracium aurantiacum	Orange Hawkweed			GNR	SNA	I			•				
Dactylis glomerata	Orchard Grass			G?	SE5	I	0	•				•	
Carex cephalophora	Oval-headed Sedge			G5	S5							•	
Chrysanthemum leucanthemum	Ox-eye Daisy			G?	SE5	I	0	•	•			•	
Picris hieracioides hieracioides	Ox-tongue			G5	SE5	I						•	
Impatiens pallida	Pale Touch-me-not			G5	S5							•	
Hieracium paniculatum	Panicled Hawkweed			G5	S2	H						•	
Rosa carolina	Pasture Rose			G4G5	S4		6	•					
Juncus tenuis	Path Rush			G5	S5		0	•				•	
Asimina triloba	Pawpaw			G5	S3					•			
Salix amygdaloides	Peach-leaved Willow			G5	S5							•	
Carex pedunculata	Peduncled Sedge			G5	S5							•	
Carex pensylvanica	Pennsylvania Sedge			G5	S5		5	•				•	
Lepidium ruderale	Pepper-grass			G?	SE3	I						•	
Mentha x piperita	Peppermint			HYB	SE4	I						•	
Uvularia perfoliata	Perfoliate Bellwort			G5	S1	H				•			
Erigeron philadelphicus philadelphicus	Philadelphia Fleabane			G5T5	S5				•			•	
Erechtites hieracifolia	Pilewort			G5	S5	H						•	
Matricaria matricarioides	Pineapple Weed			G5	SE5	I						•	
Polygonum pensylvanicum	Pink Knotweed			G5	S5		3	•					

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Cardamine douglassii	Pink Spring Cress			G5	S4							•	
Antennaria parlinii fallax	Plantain-leaved Everlasting			G4G5T?	SU							•	
Carex plantaginea	Plantain-leaved Sedge			G5	S5							•	
Luzula acuminata	Pointed Wood Rush			G5	S5							•	
Desmodium glutinosum	Pointed-leaved Ticktrefoil			G5	S4							•	
Phytolacca americana	Pokeweed			G5	S4	h						•	
Ribes cynosbati	Prickly Gooseberry			G5	S5							•	
Lactuca serriola	Prickly Lettuce			G?	SE5	I	0	•				•	
Rosa acicularis	Prickly Rose			G5	S5	H	7		•				
Zanthoxylum americanum	Prickly-ash			G5	S5		3	•				•	
Ligustrum vulgare	Privet			G?	SE5	I						•	
Lythrum salicaria	Purple Loosestrife			G5	SE5	I	0	•	•			•	
Trillium erectum	Purple Trillium			G5	S5							•	
Rubus odoratus	Purple-flowering Raspberry			G5	S5							•	
Epilobium coloratum	Purple-leaved Willow-herb			G5	S5		3	•					
Veronica peregrina peregrina	Purslane Speedwell			G5T5	S5	h						•	
Salix discolor	Pussy Willow			G5	S5							•	
Elymus repens	Quack Grass			G5	SE5	I	0	•				•	
Daucus carota	Queen Anne's Lace			G?	SE5	I			•			•	
Fraxinus pennsylvanica	Red Ash			G5	S5		3	•	•			•	
Actaea rubra	Red Baneberry			G5	S5							•	
Trifolium pratense	Red Clover			G?	SE5	I	0	•				•	
Ulmus rubra	Red Elm			G5	S5							•	
Acer rubrum	Red Maple			G5	S5		4	•					
Quercus rubra	Red Oak			G5	S5		6	•	•			•	
Eleocharis erythropoda	Red-based Spike-rush			G5	S5							•	

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Sambucus racemosa pubens	Red-berried Elder			G5	S5							•	
Cornus stolonifera	Red-osier Dogwood			G5	S5		2	•	•			•	
Amaranthus retroflexus	Redroot Pigweed			G?	SE5	I	0	•				•	
Agrostis gigantea	Redtop			G4G5	SE5	I	0	•				•	
Phalaris arundinacea	Reed Canary Grass			G5	S5		0	•	•			•	
Puccinellia distans	Reflexed Saltmarsh Grass			G5	SE5	I						•	
Plantago lanceolata	Ribgrass			G5	SE5	I	0	•				•	
Vitis riparia	Riverbank Grape			G5	S5		0	•	•			•	
Streptopus roseus	Rose Twisted Stalk			G5	S5		7	•					
Erigeron strigosus	Rough Fleabane			G5	S5							•	
Solidago rugosa rugosa	Rough Goldenrod			G5	S5							•	
Potentilla recta	Rough-fruited Cinquefoil			G?	SE5	I	0	•	•			•	
Cornus rugosa	Round-leaved Dogwood			G5	S5							•	
Plantago rugelii	Rugel's Plantain			G5	S5							•	
Euonymus obovata	Running Strawberrybush			G5	S5							•	
Muhlenbergia mexicana	Satin Grass			G5	S5	H						•	
Matricaria perforata	Scentless Chamomile			G?	SE	I	0	•					
Pinus sylvestris	Scots Pine			G?	SE5	I	0	•	•				
Carex radiata	Sedge			G4	S4							•	
Prunella vulgaris ssp. Vulgaris	Selfheal			G5	S5	I	0	•				•	
Onoclea sensibilis	Sensitive Fern			G5	S5							•	
Carya ovata	Shagbark Hickory			G5	S5		6	•	•				
Anemone acutiloba	Sharped-lobed Hepatica			G5	S5							•	
Capsella bursapastoris	Shepherd's-purse			G?	SE5	I						•	
Cornus amomum obliqua	Silky Dogwood			G5T?	S5							•	
Acer saccharinum	Silver Maple			G5	S5		5	•	•				

		Status						Source					
											City of Hamilton		
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Conservation Coefficient[6]	Dillon[7]	NRSI[8]	NHIC[9]	Fifty Creek Valley ESA[10]	Devil's PunchBowl Escarpment ESA – Plants[11]	Devil's PunchBowl Escarpment ESA - Rare Species[12]
Deparia acrostichoides	Silvery Spleenwort			G5	S4							•	
Symplocarpus foetidus	Skunk Cabbage			G5	S5							•	
Sphenopholis intermedia	Slender Wedge Grass			G5	S4S5							•	
Myosotis laxa	Small Forget-me-not			G5	S5		6	•					
Oenothera parviflora	Small-flowered Evening-primrose			G4?	S4?							•	
Epilobium parviflorum	Small-flowered Willow-herb			G?	SE4	I						•	
Bromus inermis inermis	Smooth Brome Grass			G5T?	SE5	I	0	•	•			•	
Arabis laevigata	Smooth Rock-cress			G5	S5	h						•	
Carex blanda	Smooth Sedge			G5?	S5							•	
Amelanchier laevis	Smooth Serviceberry			G4G5Q	S5		5	•					
Rosa blanda	Smooth Wild Rose			G5	S5							•	
Symphoricarpos albus	Snowberry			G5T5	S4S5							•	
Juncus pylaei	Soft Rush			G5T?	S5?							•	
Scirpus validus	Softstem Bulrush			G?	S5		5	•	•				
Polygonatum pubescens	Solomon's-seal			G5	S5							•	
Oxalis stricta	Sorrel			G5	S5			•				•	
Vicia tetrasperma	Sparrow Vetch			G?	SE5	I						•	
Mentha spicata	Spearmint			G?	SE4	I	0	•					
Atriplex patula	Spearscale			G5	S5	h	0	•				•	
Veronica sp	Speedwell Species							•					
Carex spicata	Spiked Sedge			G?	SE5	I						•	
Dryopteris carthusiana	Spinulose Wood Fern			G5	S5							•	
Corallorhiza maculata	Spotted Coral-root			G5	S5	H						•	
Geranium maculatum	Spotted Crane's-bill			G5	S5		6	•				•	
Centaurea maculosa	Spotted Knapweed			G?	SE5	I	0	•					
Chamaesyce nutans	Spotted Spurge			G?	S4S5	h						•	

		Status						Source					
											City of Hamilton		
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Conservation Coefficient[6]	Dillon[7]	NRSI[8]	NHIC[9]	Fifty Creek Valley ESA[10]	Devil's PunchBowl Escarpment ESA – Plants[11]	Devil's PunchBowl Escarpment ESA - Rare Species[12]
Hypericum punctatum	Spotted St. John'swort			G5	S5							•	
Impatiens capensis	Spotted Touch-menot			G5	S5		4	•				•	
Apocynum androsaemifolium ssp. androsaemifolium	Spreading Dogbane			G5	S5		3	•					
Cerastium semidecandrum	Spring Mouse-eared Chickweed			G?	SE5	I						•	
Picea sp	Spruce Species							•					
Conopholis americana	Squawroot			G5	S4?	H						•	
Dicentra canadensis	Squirrel-corn			G5	S5							•	
Hordeum jubatum jubatum	Squirrel-tail Grass			G5T5	SE5	I	0	•	•			•	
Rhus typhina	Staghorn Sumac			G5	S5		1	•	•			•	
Maianthemum stellatum	Starry False Solomon's-seal			G5	S5							•	
Hackelia virginiana	Stickseed			G5	S5							•	
Epilobium ciliatum	Sticky Willow-herb			G5	S5							•	
Polygonum achoreum	Striate Knotweed			G5	S5	H						•	
Acer saccharum saccharum	Sugar Maple			G5T5	S5		4	•	•			•	
Vitis aestivalis	Summer Grape			G5	S4							•	
Ribes triste	Swamp Red Currant			G5	S5							•	
Prunus avium	Sweet Cherry			G?	SE4	I	0	•				•	
Lathyrus odoratus	Sweet Pea			G?	SE1		0	•					
Rosa eglanteria	Sweetbrier					I		•					
Galium triflorum	Sweet-scented Bedstraw			G5	S5							•	
Bidens vulgata	Tall Beggar-ticks			G5	S5							•	
Ranunculus acris	Tall Buttercup			G5	SE5	I						•	
Maianthemum racemosum racemosum	Tall False Solomon's seal			G5	S5		4	•				•	
Solidago altissima var. altissima	Tall Goldenrod			G?	S5		1	•				•	
Aster lanceolatus lanceolatus	Tall White Aster			G5	S5							•	
Tanacetum vulgare	Tansy			G?	SE5	I						•	

		Status						Source					
											City of Hamilton		
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Conservation Coefficient[6]	Dillon[7]	NRSI[8]	NHIC[9]	Fifty Creek Valley ESA[10]	Devil's PunchBowl Escarpment ESA – Plants[11]	Devil's PunchBowl Escarpment ESA - Rare Species[12]
Lonicera tatarica	Tartarian Honeysuckle			G?	SE5	I	0	•	•			•	
Parthenocissus inserta	Thicket Creeper			G5	S5							•	
Anemone virginiana var. virginiana	Thimbleweed			G5	S5							•	
Acalypha virginica var. rhomboidea	Three-seeded Mercury			G5	S5							•	
Arenaria serpyllifolia	Thyme-leaved Sandwort			G?	SE5	I						•	
Agrostis hyemalis	Tickle Grass			G5	S1	H	4	•					
Phleum pratense	Timothy			G?	SE5	I	0	•				•	
Juncus torreyi	Torrey's Rush			G5	S5							•	
Ailanthus altissima	Tree-of-Heaven			G?	SE5	I						•	
Populus tremuloides	Trembling Aspen			G5	S5		2	•	•			•	
Carex molesta	Troublesome Sedge			G4	S4?							•	
Carex stricta	Tussock Sedge			G5	S5		4	•					
Cardamine diphylla	Twin-leaved Toothwort			G5	S5							•	
Geum urbanum	Urban Avens			G5	SE2	I						•	
Crataegus macrosperma	Variable Hawthorn			G5	S5							•	
Abutilon theophrasti	Velvetleaf			G?	SE5	I	0	•					
Viola sp	Violet Species							•					
Parthenocissus quinquefolia	Virginia Creeper			G5	S4?		6	•	•				
Hydrophyllum virginianum	Virginia Waterleaf			G5	S5							•	
Calla palustris	Water Arum			G5	S5		8	•					
Nasturtium officinale	Water-cress			G?	SE	I	0	•					
Lycopus uniflorus	Water-horehound			G5	S5							•	
Rhus radicans ssp. rydbergii	Western Poison-ivy			G5T5	S5		0	•				•	
Fraxinus americana	White Ash			G5	S5		4	•	•			•	
Geum canadense	White Avens			G5	S5							•	
Actaea pachypoda	White Baneberry			G5	S5							•	

		Status						Source					
											City of Hamilton		
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Conservation Coefficient[6]	Dillon[7]	NRSI[8]	NHIC[9]	Fifty Creek Valley ESA[10]	Devil's PunchBowl Escarpment ESA – Plants[11]	Devil's PunchBowl Escarpment ESA - Rare Species[12]
Betula papyrifera	White Birch			G5	S5		2		•			•	
Trifolium repens	White Clover			G?	SE5	I	0	•	•			•	
Ulmus americana	White Elm			G5?	S5		3	•	•			•	
Leersia virginica	White Grass			G5	S4							•	
Prenanthes alba	White Lettuce			G5	S5		6	•				•	
Morus alba	White Mulberry			G?	SE5	I						•	
Quercus alba	White Oak			G5	S5		6	•	•			•	
Pinus strobus	White Pine			G5	S5		4		•			•	
Eupatorium rugosum	White Snakeroot			G5	S5							•	
Picea glauca	White Spruce			G5	S5		6	•	•				
Melilotus alba	White Sweet-clover			G5	SE5	I	0	•	•			•	
Trillium grandiflorum	White Trillium			G5	S5							•	
Verbena urticifolia	White Vervain			G5	S5		4	•				•	
Salix alba	White Willow			G5	SE4	I	0	•				•	
Carex albursina	White-bear Sedge			G5	S5							•	
Ribes americanum	Wild Black Currant			G5	S5		4	•					
Aquilegia canadensis	Wild Columbine			G5	S5							•	
Echinocystis lobata	Wild Cucumber			G5	S5		3	•					
Allium canadense	Wild Garlic			G5	S5							•	
Asarum canadense	Wild Ginger			G5	S5							•	
Lonicera dioica	Wild Honeysuckle			G5	S5							•	
Allium tricoccum	Wild Leek			G5	S5							•	
Galium circaezans	Wild Licorice			G5	S5							•	
Maianthemum canadense	Wild Lily-of-the-valley			G5	S5							•	
Pastinaca sativa	Wild Parsnip			G?	SE5	I						•	
Rubus idaeus ssp. melanolasius	Wild Red Raspberry			G5	S5		0	•	•			•	

		Status						Source					
											City of Hamilton		
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Conservation Coefficient[6]	Dillon[7]	NRSI[8]	NHIC[9]	Fifty Creek Valley ESA[10]	Devil's PunchBowl Escarpment ESA – Plants[11]	Devil's PunchBowl Escarpment ESA - Rare Species[12]
Aralia nudicaulis	Wild Sarsaparilla			G5	S5							•	
Panicum capillare	Witch Grass			G5	S5							•	
Hamamelis virginiana	Witch-hazel			G5	S5							•	
Laportea canadensis	Wood Nettle			G5	S5							•	
Anemone quinquefolia	Wood-anemone			G5	S5							•	
Fragaria vesca americana	Woodland Strawberry			G5	S5							•	
Scirpus cyperinus	Wool Grass			G5	S5		4	•					
Erysimum cheiranthoides cheiranthoides	Wormseed Mustard			G5	SE5	I						•	
Agrimonia gryposepala	Yellow Agrimony			G5	S5		2	•				•	
Aureolaria flava	Yellow False Foxglove			G5	S3	H						•	
Setaria pumila	Yellow Foxtail			G?	SE5	I						•	
Barbarea vulgaris	Yellow Rocket			G?	SE5	I	0	•				•	
Melilotus officinalis	Yellow Sweet-clover			G?	SE5	I	0	•				•	
Erythronium americanum americanum	Yellow Trout-lily			G5T5	S5		5	•				•	
Yucca filamentosa	Yucca											•	
Solidago flexicaulis	Zig-zag Goldenrod			G5	S5							•	

Table 2: Mammals recorded from the study area of the SCUBE Subwatershed Study. See Table 5 for footnotes.

		Status					Source			
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Dillon[7]	NRSI[8]	North South[13]	Fifty Creek Valley ESA[10]
Canis latrans	Coyote	NAR	NAR	G5	S5			•		
Sylvilagus floridanus	Eastern Cottontail	NAR	NAR	G5	S5		•	•	•	
Sciurus carolinensis	Grey Squirrel	NAR	NAR	G5	S5		•	•	•	•
Microtus pennsylvanicus	Meadow Vole	NAR	NAR	G5	S5		•			
Blarina brevicauda	Northern Short-tailed Shrew	NAR	NAR	G5	S5		•			
Procyon lotor	Raccoon	NAR	NAR	G5	S5		•	•		•
Odocoileus virginianus	White-tailed Deer	NAR	NAR	G5	S5		•	•	•	•
Marmota monax	Woodchuck	NAR	NAR	G5	S5					•

Table 3: Birds recorded from the study area of the SCUBE Subwatershed Study. See Table 5 for footnotes.

		Status					Source								
														City of Hamilton	
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Dillon[7]	NRSI[8]	NHIC[9]	North South[13]	EBIRD[14]	GBBC[15]	OBBA2PC[16]	Fifty Creek Valley ESA[10]	Devil's PunchBowl Escarpment ESA - Rare Species[12]
Anas rubripes	American Black Duck			G5	S4	H					•				
Fulica americana	American Coot	NAR	NAR	G5	S4B	ex					•				
Corvus brachyrhynchos	American Crow			G5	S5B, SZN		•	•			•		•	•	
Carduelis tristis	American Goldfinch			G5	S5B,SZN		•			•	•	•	•	•	
Falco sparverius	American Kestrel			G5	S5B,SZN	h		•			•			•	
Setophaga ruticilla	American Redstart			G5	S5B,SZN	h	•				•				
Turdus migratorius	American Robin			G5	S5B,SZN		•	•		•	•		•	•	
Spizella arborea	American Tree Sparrow			G5	S4B						•	•			
Anas americana	American Wigeon			G5	S4	H					•				
Scolopax minor	American Woodcock			G5	S5B,SZN		•								
Haliaeetus leucocephalus	Bald Eagle	NAR	SC	G4	S2N,S4B						•				
Icterus galbula	Baltimore Oriole			G5	S5B,SZN		•			•	•		•		
Riparia riparia	Bank Swallow			G5	S5B					•	•			•	
Tyto alba	Barn Owl	END	END	G5	S1	ex					•				
Hirundo rustica	Barn Swallow			G5	S5B,SZN		•	•		•	•		•		
Bucephala islandica	Barrow's Goldeneye			G5	SNA						•				
Ceryle alcyon	Belted Kingfisher			G5	S5B,SZN	h		•		•	•				
Melanitta nigra	Black Scoter			G5	S4B,S4N						•				
Chlidonias niger	Black Tern	NAR	SC	G4	S3B	ex			•						
Mniotilta varia	Black-and-white Warbler			G5	S5B	h					•				
Poecile atricapillus	Black-capped Chickadee			G5	S5		•			•	•		•	•	
Nycticoraz nycticorax	Black-crowned Night-heron			G5	S3B,S3N	H			•						
Dendroica striata	Blackpoll Warbler			G5	S4B,SZN		•								
Dendroica caerulescens	Black-throated Blue Warbler			G5	S5B	H					•				
Dendroica virens	Black-throated Green Warbler			G5	S5B	H					•				

Scientific Name	Common Name	Status: COSEWIC[1]	Status: COSSARO[2]	Status: G Rank[3]	Status: S Rank[4]	Status: Regional[5]	Source: Dillon[7]	Source: NRSI[8]	Source: NHIC[9]	Source: North South[13]	Source: EBIRD[14]	Source: GBBC[15]	Source: OBBA2PC[16]	Source: City of Hamilton: Fifty Creek Valley ESA[10]	Source: City of Hamilton: Devil's PunchBowl Escarpment ESA - Rare Species[12]
Cyanocitta cristata	Blue Jay			G5	S5		•	•		•	•	•	•	•	
Polioptila caerulea	Blue-gray Gnatcatcher			G5	S4B,SZN	h	•			•					
Dolichonyx oryzivorus	Bobolink	THR	THR	G5	S4B,SZN		•			•					•
Chroicocephalus philadelphia	Bonaparte's Gull			G5	S4B,S4N						•				
Branta bernicla	Brant			G5	S4N						•				
Certhia americana	Brown Creeper			G5	S5N	h					•				
Molothrus ater	Brown-headed Cowbird			G5	S5B,SZN		•			•	•		•	•	
Bucephala albeola	Bufflehead			G5	S4						•				
Branta canadensis	Canada Goose			G5	S5B,SZN		•	•		•	•		•		
Wilsonia canadensis	Canada Warbler	THR	SC	G5	S4B	h					•				•
Aythya valisineria	Canvasback			G5	S1B,S4N						•				
Hydroprogne caspia	Caspian Tern	NAR	NAR	G5	S3B	h					•				
Petrochelidon fulva	Cave Swallow			G5	SNA						•				
Bombycilla cedrorum	Cedar Waxwing			G5	S5B,SZN		•	•		•	•		•	•	
Dendroica pensylvanica	Chestnut-sided Warbler			G5	S5B	h				•					
Chaetura pelagica	Chimney Swift	THR	THR	G5	S5B,SZN,S4B ,S4N	h	•							•	•
Spizella passerina	Chipping Sparrow			G5	S5B,SZN		•			•	•				
Spizella pallida	Clay-coloured Sparrow			G5	S4B,SZN	H	•								
Bucephala clangula	Common Goldeneye			G5	S5						•				
Quiscalus quiscula	Common Grackle			G5	S5B,SZN		•			•	•		•	•	
Gavia immer	Common Loon			G5	S4B,SZN		•				•				
Mergus merganser	Common Merganser			G5	S5B,S5N						•				
Sterna hirundo	Common Tern	NAR	NAR	G5	S4B	h					•				
Bucephala clangula x islandica	Common x Barrow's Goldeneye (hybrid)										•				
Geothlypis trichas	Common Yellowthroat			G5	S5B,SZN		•			•			•	•	
Accipiter cooperii	Cooper's Hawk	NAR	NAR	G5	S4	H					•				

		Status					Source								
														City of Hamilton	
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Dillon[7]	NRSI[8]	NHIC[9]	North South[13]	EBIRD[14]	GBBC[15]	OBBA2PC[16]	Fifty Creek Valley ESA[10]	Devil's PunchBowl Escarpment ESA - Rare Species[12]
Junco hyemalis	Dark-eyed Junco			G5	S5B						•	•			
Phalacrocorax auritus	Double-crested Cormorant	NAR	NAR	G5	S5B						•				
Picoides pubescens	Downy Woodpecker			G5	S5		•			•	•		•		
Calidris alpina	Dunlin			G5	S4B,S5N						•				
Sialia sialis	Eastern Bluebird	NAR	NAR	G5	S4S5B	h				•			•		•
Tyrannus tyrannus	Eastern Kingbird			G5	S5B,SZN		•			•			•	•	
Sturnella magna	Eastern Meadowlark			G5	S5B,SZN		•	•	•						
Sayornis phoebe	Eastern Phoebe			G5	S5B	h					•				
Contopus virens	Eastern Wood-pewee			G5	S4B					•			•		
Sturnus vulgaris	European Starling			G5	SE,SNA		•	•		•	•		•	•	
Spizella pusilla	Field Sparrow			G5	S5B,SZN		•			•					
Passerella iliaca	Fox Sparrow			G5	S4B						•				
Anas strepera	Gadwall			G5	S4	H					•				
Larus hyperboreus	Glaucous Gull			G5	S4N						•				
Regulus satrapa	Golden-crowned Kinglet			G5	S5B	H					•				
Ammodramus savannarum	Grasshopper Sparrow			G5	S4B,SZN	h		•							
Dumetella carolinensis	Gray Catbird			G5	S5B,SZN		•	•		•	•		•	•	
Catharus minimus	Gray-cheeked Thrush			G5	S4B						•				
Larus marinus	Great Black-backed Gull			G5	S2B	H					•				
Ardea herodias	Great Blue Heron			G5	S4	h					•				
Myiarchus crinitus	Great Crested Flycatcher			G5	S4B					•			•		
Aythya marila	Greater Scaup			G5	S4						•				
Aythya marila/affinis	Greater/Lesser Scaup			G5	S4						•				
Anas crecca	Green-winged Teal			G5	S4	H					•				
Picoides villosus	Hairy Woodpecker			G5	S5	h					•			•	
Catharus guttatus	Hermit Thrush			G5	S5B						•				

		Status					Source								
														City of Hamilton	
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Dillon[7]	NRSI[8]	NHIC[9]	North South[13]	EBIRD[14]	GBBC[15]	OBBA2PC[16]	Fifty Creek Valley ESA[10]	Devil's PunchBowl Escarpment ESA - Rare Species[12]
Larus argentatus	Herring Gull			G5	S5B,SZN	h	•				•				
Lophodytes cucullatus	Hooded Merganser			G5	S5B,SN	H					•				
Podiceps auritus	Horned Grebe		SC	G5	S1B,S4N						•				
Eremophila alpestris	Horned Lark			G5	S5B,SZN		•			•	•				
Carpodacus mexicanus	House Finch			G5	SE, SNA		•				•	•	•	•	
Passer domesticus	House Sparrow			G5	SE,SNA		•			•	•		•	•	
Troglodytes aedon	House Wren			G5	S5B,SZN		•			•	•		•	•	
Larus glaucoides	Iceland Gull			G5	S4N						•				
Passerina cyanea	Indigo Bunting			G5	S5B,SZN		•								
Charadrius vociferus	Killdeer			G5	S5B,SZN		•	•		•	•		•		
Somateria spectabilis	King Eider			G5	SHB						•				
Larus fuscus	Lesser Black-backed Gull			G5	SNA						•				
Aythya affinis	Lesser Scaup			G5	S4						•				
Asio otus	Long-eared Owl			G5	S4	H					•				
Clangula hyemalis	Long-tailed Duck			G5	S3B						•				
Anas platyrhynchos	Mallard			G5	S5					•	•				
Falco columbarius	Merlin	NAR	NAR	G5	S5B						•				
Zenaida macroura	Mourning Dove			G5	S5B,SZN		•	•		•	•	•	•	•	
Oporornis philadelphia	Mourning Warbler			G5	S5B,SZN	h	•								
Cygnus olor	Mute Swan			G5	SNA						•				
Vermivora ruficapilla	Nashville Warbler			G5	S5B	h					•				
Cardinalis cardinalis	Northern Cardinal			G5	S5		•	•		•	•	•	•	•	
Colaptes auratus	Northern Flicker			G5	S5B,SZN		•				•		•		
Morus bassanus	Northern Gannet			G5	SNA						•				
Accipiter gentilis	Northern Goshawk	NAR	NAR	G5	S4	H					•				
Circus cyaneus	Northern Harrier	NAR	NAR	G5	S4B	H					•				

		Status					Source								
														City of Hamilton	
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Dillon[7]	NRSI[8]	NHIC[9]	North South[13]	EBIRD[14]	GBBC[15]	OBBA2PC[16]	Fifty Creek Valley ESA[10]	Devil's PunchBowl Escarpment ESA - Rare Species[12]
Mimus polyglottos	Northern Mockingbird			G5	S4B,SZN	h	•	•		•	•	•	•		
Anas acuta	Northern Pintail			G5	S5	H					•				
Stelgidopteryx serripennis	Northern Roughwinged Swallow			G5	S5B,SZN		•			•			•		
Aegolius acadicus	Northern Saw-whet Owl			G5	S4	H					•				
Lanius excubitor	Northern Shrike			G5	SNA						•				
Seiurus noveboracensis	Northern Waterthrush			G5	S5B,SZN		•				•				
Vermivora celata	Orange-crowned Warbler			G5	S4B						•				
Icterus spurius	Orchard Oriole			G5	SZB,SZN	h	•			•	•				
Pandion haliaetus	Osprey			G5	S5B	H					•				
Seiurus aurocapillus	Ovenbird			G5	S5B,SZN		•								
Dendroica palmarum	Palm Warbler			G5T5	S5B						•				
Falco peregrinus	Peregrine Falcon	SC	THR	G4	S3B	H					•				
Carpodacus purpureus	Purple Finch			G5	S4B	H						•			
Progne subis	Purple Martin			G5	S4B	h				•	•		•	•	
Melanerpes carolinus	Red-bellied Woodpecker			G5	S4	h				•	•				
Mergus serrator	Red-breasted Merganser			G5	S4B,S5N						•				
Sitta canadensis	Red-breasted Nuthatch			G5	S5	h					•				
Vireo olivaceus	Red-eyed Vireo			G5	S5B,SZN		•								
Aythya americana	Redhead			G5	S2B,S4N	H					•				
Podiceps grisegena	Red-necked Grebe	NAR	NAR	G5	S3B,S4N						•				
Buteo jamaicensis	Red-tailed Hawk	NAR	NAR	G5	S5B,SZN		•	•		•	•			•	
Gavia stellata	Red-throated Loon			G5	S1N,S3B						•				
Agelaius phoeniceus	Red-winged Blackbird			G5	S5B,SZN		•	•		•	•		•	•	
Larus delawarensis	Ring-billed Gull			G5	S5B,SZN		•	•			•		•		
Aythya collaris	Ring-necked Duck			G5	S5						•				
Phasianus colchicus	Ring-necked Pheasant			G5	SNA					•					

		Status					Source									
														City of Hamilton	
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Dillon[7]	NRSI[8]	NHIC[9]	North South[13]	EBIRD[14]	GBBC[15]	OBBA2PC[16]	Fifty Creek Valley ESA[10]	Devil's PunchBowl Escarpment ESA - Rare Species[12]
Columba livia	Rock Dove			G5	SE		•				•				
Columba livia	Rock Pigeon			G5	SNA					•			•		
Buteo lagopus	Rough-legged Hawk			G5	S1B,S4N						•				
Regulus calendula	Ruby-crowned Kinglet			G5	S4B						•				
Passerculus sandwichensis	Savannah Sparrow			G5	S5B,SZN		•	•		•	•				
Piranga olivacea	Scarlet Tanager			G5	S5B,SZN	h	•								
Accipiter striatus	Sharp-shinned Hawk		NAR	G5	S5	H					•				
Asio flammeus	Short-eared Owl	SC	SC	G5	S2N,S4B	H					•				
Plectrophenax nivalis	Snow Bunting			G5	SNA						•				
Melospiza melodia	Song Sparrow			G5	S5B,SZN		•			•	•		•	•	
Actitis macularia	Spotted Sandpiper			G5	S5					•	•				
Melanitta perspicillata	Surf Scoter			G5	S4B,S4N						•				
Melospiza georgiana	Swamp Sparrow			G5	S5B,SZN		•								
Tachycineta bicolor	Tree Swallow			G5	S5B,SZN		•			•	•		•		
Cygnus buccinator	Trumpeter Swan	NAR	NAR	G4	S4						•				
Cygnus columbianus	Tundra Swan			G4	S4						•				
Cathartes aura	Turkey Vulture			G5	S4B,SZN	h		•			•				
	Unknown Rail sp						•								
Vireo gilvus	Warbling Vireo			G5	S5B,SZN		•			•	•		•	•	
Aechmophorus occidentalis	Western Grebe			G5	SNA						•				
Sitta carolinensis	White-breasted Nuthatch			G5	S5B,SZN	h					•				
Zonotrichia leucophrys	White-crowned Sparrow			G5	S4B						•				
Zonotrichia albicollis	White-throated Sparrow			G5	S5B,SZN	h	•				•				
Loxia leucoptera	White-winged Crossbill			G5	S5B						•				
Melanitta fusca	White-winged Scoter			G5	S4B,S4N						•				
Meleagris gallopavo	Wild Turkey			G5	S5						•				

		Status					Source								
														City of Hamilton	
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Dillon[7]	NRSI[8]	NHIC[9]	North South[13]	EBIRD[14]	GBBC[15]	OBBA2PC[16]	Fifty Creek Valley ESA[10]	Devil's PunchBowl Escarpment ESA - Rare Species[12]
Empidonax traillii	Willow Flycatcher			G5	S5B,SZN		•			•			•		
Gallinago delicata	Wilson's Snipe			G5	S5B	H					•				
Troglodytes troglodytes	Winter Wren			G5	S5B	h					•				
Hylocichla mustelina	Wood Thrush			G5	S4B					•					
Dendroica petechia	Yellow Warbler			G5	S5B,SZN		•			•	•		•	•	
Dendroica coronata	Yellow-rumped Warbler			G5	S5B,SZN	H	•				•				

Table 4: Reptiles and amphibians recorded from the study area of the SCUBE Subwatershed Study. See Table 5 for footnotes.

		Status					Source					
											City of Hamilton	
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Dillon[7]	NHIC[9]	North South[13]	Hamilton Herp Atlas[17]	Fifty Creek Valley ESA[10]	Devil's Punch Bowl Escarpment ESA - Rare Species[12]
Bufo americanus americanus	American Toad	NAR	NAR	G5	S5		•			•	•	
Storeria dekayi	Brown Snake	NAR	NAR	G5	S5		•			•		•
Chelydra serpentina	Common Snapping Turtle	SC	SC	G5	S3,S5?		•			•		•
Thamnophis sirtalis sirtalis	Eastern Garter Snake	NAR	NAR	G5T?	S5		•			•	•	
Lampropeltis triangulum	Eastern Milk Snake	SC	SC	G5	S3		•	•		•		•
Pantherophis spiloides pop. 2	Gray Ratsnake	END	END	G5T1	S1			•				
Hyla versicolor	Gray Treefrog	NAR	NAR	G5	S5		•			•		
Rana clamitans	Green Frog	NAR	NAR	G5	S5		•		•	•	•	
Ambystoma jeffersonianum	Jefferson Salamander	END	END	G4	S2	H		•				•
Ambystoma laterale-jeffersonianum	Jefferson Salamander Complex			GNA	S2					•		
Chrysemys picta marginata	Midland Painted Turtle			G5T5	S5					•		
Rana pipiens	Northern Leopard Frog	NAR	NAR	G5	S5		•			•	•	•
Plethodon cinereus	Redback Salamander			G5	S5					•		
Notophthalmus viridescens viridescens	Red-spotted newt			G5T5	S5	h				•		
Crotalus horridus	Timber Rattlesnake	EXP	EXP	G4	SX	ex		•				
Pseudacris triseriata	Western Chorus Frog	NAR	NAR	G5	S4		•			•		•

Table 5: Insects recorded from the study area of the SCUBE Subwatershed Study.

		Status					Source			
									City of Hamilton	
Scientific Name	Common Name	COSEWIC[1]	COSSARO[2]	G Rank[3]	S Rank[4]	Regional[5]	Dillon[7]	NHIC[9]	Fifty Creek Valley ESA[10]	Devil's PunchBowl Escarpment ESA - Rare Species[12]
Stylurus spiniceps	Arrow Clubtail			G5	S2			•		
Tramea lacerata	Black saddlebags			G5	S4		•			
Pachydiplax longipennis	Blue Dasher			G5	S5				•	
Pieris rapae	Cabbage White			G5	SE		•		•	
Anax junius	Common Green Darner			G5	S5		•		•	
Lestes disjunctus	Common Spreadwing			G5	S5				•	
Libellula lydia	Common Whitetail			G5	S5				•	
Ischnura verticalis	Eastern Forktail			G5	S5				•	
Erythemis simplicicollis	Eastern Pondhawk			G5	S5				•	
Everes comyntas	Eastern tailed blue			G5	S5		•			
Thymelicus lineola	European Skipper			G5	SE				•	
Enallagma civile	Familiar Bluet			G5	S5				•	
Ancyloxypha numitor	Least Skipper			G5	S5				•	
Megisto cymela	Little Wood Satyr			G5	S5				•	
Polites mystic	Long Dash			G5	S5				•	
Danaus plexippus	Monarch	SC	SC	G5	S2N,S4B		•			•
Nymphalis antiopa	Mourning Cloak			G5	S5				•	
Phyciodes cocyta	Northern crescent			G5	S5		•			
Polites peckius	Peck's Skipper			G5	S5				•	
Polygonia interrogationis	Question mark			G5	S5		•			
Colias sp.	Sulphur sp.						•			
Libellula pulchella	Twelve-spotted Skimmer			G5	S5				•	
Spilosoma virginica	Virginian tiger moth caterpillar			G5	S5		•			

1. COSEWIC Status. COSEWIC (Committee on the Status of Endangered Wildlife in Canada) assigns a federal status ranking for all species that it assesses. Ranking definitions are as follows:

Endangered (E) - A wildlife species facing imminent extirpation or extinction.

Threatened (T) - A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.

Special Concern (SC) - A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

Not at Risk (NAR) - A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.

2. COSSARO Status. COSSARO (Committee on the Status of Species at Risk in Ontario) assigns a provincial status ranking for all species that it assesses. Ranking definitions are as follows:

Extinct – the species no longer lives anywhere in the world.

Extirpated – the species lives somewhere in the world, and at one time it lived in the wild in Ontario, but it no longer lives in the wild in Ontario.

Endangered – the species lives in the wild in Ontario but is facing imminent extinction or extirpation.

Threatened – the species lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.

Special Concern – the species lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.

3. G-rank: Global ranks are assigned by a consensus of the network of Conservation Data Centres, scientific experts and The Nature Conservancy to designate a rarity rank based on the range-wide status of a species, subspecies or variety.

G1 - Extremely rare; usually 5 or fewer occurrences in the overall range or very few remaining individuals; or because of some factor(s) making it especially vulnerable to extinction.

G2 - Very rare; usually between 5 and 20 occurrences in the overall range or with many individuals in fewer occurrences; or because of some factor(s) making it vulnerable to extinction.

G3 - Rare to uncommon; usually between 20 and 100 occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.

G4 - Common; usually more than 100 occurrences; usually not susceptible to immediate threats.

G5 - Very common; demonstrably secure under present conditions.

4. S-rank: Provincial (or Subnational) rank by the MNR Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities.

S1 - Critically Imperiled - Critically imperiled in the state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.

S2 - Imperiled - Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.

S3 - Vulnerable - Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation

S4 - Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 - Secure - Common, widespread, and abundant in the province.

5. Status in the City of Hamilton as defined by the Hamilton Natural Areas Inventory (Dwyer 2003)

H - Rare in the City of Hamilton (see Dwyer 2003 for complete definition).

h - Uncommon in the City of Hamilton (see Dwyer 2003 for complete definition).

ex – Considered extirpated from the City of Hamilton.

I - Considered introduced in the City of Hamilton.

6. Coefficient of Conservation: Numeric value between 0 and 10 which indicates the degree of faithfulness a plant displays to a specific habitat or set of environmental conditions. Conservative plant species, such as those which are only found in relatively pristine natural habitats such as bogs or prairies, are assigned a high coefficient of conservatism; other plant species which grow in a wide variety of habitats and can tolerate high levels of cultural disturbance are assigned low values.

7. Observed during fieldwork by Dillon Consulting Limited (2010).

8. Observed during fieldwork by Natural Resources Solutions Incorporated.

9. Observation records obtained on April 13, 2011 from the Natural Heritage Information Centre database for squares 17PH08_74, 17PH08_84, 17PH08_86, 17PH08_94, 17PH08_96, 17PH18_04, 17PH18_05, 17PH18_14, 17PH18_15, 17PH18_24 and 17PH18_25.

10. Fifty Creek Valley ESA species observation records from the City of Hamilton Natural Heritage Database obtained from Hamilton Conservation Authority on February 28, 2011.

11. Devil's PunchBowl Escarpment ESA species observation records from the City of Hamilton Natural Heritage Database obtained from Hamilton Conservation Authority on February 28, 2011.

12. Rare species observation records from Devil's PunchBowl Escarpment ESA from the City of Hamilton Natural Heritage Database obtained from Hamilton Conservation Authority on February 28, 2011.

13. Observed during fieldwork by North South Environmental Incorporated.

14. Records obtained from Bird Studies Canada's EBIRD database for the study area of the SCUBE Subwatershed Study and immediately surrounding area.

15. Records obtained from Bird Studies Canada's Great Backyard Bird Count database for the study area of the SCUBE Subwatershed Study and immediately surrounding area.

16. Records obtained from Bird Studies Canada's Ontario Breeding Bird Atlas database for the study area of the SCUBE Subwatershed Study and immediately surrounding area.

APPENDIX H:

MNR List of COSSARO-designated Species at Risk Known or Suspected to Occur in the City of Hamilton

HAMILTON

Species At Risk Designations	
ENDANGERED	(red)
THREATENED	(yellow)
SPECIAL CONCERN	(green)
EXTIRPATED	(white)

AMPHIBIANS		ESA Protection	Key Habitats Used By Species	Timing Of Life History Events	How to Conduct a Proper Survey
Jefferson Salamander (***Ambystoma jeffersonianum***)	**Known to Occur**	*Habitat Regulations*	inhabit deciduous and mixed deciduous forests with suitable breeding areas which generally consist of ephemeral (temporary) bodies of water that are fed by spring runoff, groundwater, or springs.	Active: March – October Hibernates: October – March Breeding: Late March - Mid April	Contact local MNR office for a copy

BIRDS		ESA Protection	Key Habitats Used By Species	Timing Of Life History Events	How to Conduct a Proper Survey
Acadian Flycatcher (***Empidonax virescens***)	**Known to Occur**	*Species Protection Only*	generally requires large areas of mature, undisturbed forest; avoids the forest edge; often found in well wooded swamps and ravines	Migrate South before Winter	**When to survey:** - good weather: winds <19km/hr (<3 on the Beaufort scale); no thick fog or precipitation - peak breeding season (May 24-July 10) - between dawn and 5 hours after dawn **How to survey:** -stand still & listen for a given period of time (5 minutes for the breeding bird atlas) and record any SAR birds seen or heard during this time. The following behaviours may tell you whether it is a breeding bird rather than a migrant visitor:
Bald Eagle (***Haliaeetus leucocephalus***)	**Known to Occur**	*N/A*	prefers deciduous and mixed-deciduous forest; and habitat close to water bodies such as lakes and rivers; They roost in super canopy trees such as Pine	Breed and Nest - April or May Some Migrate South when water bodies freeze over	• Nests are easy to spot from water or air • Adults may travel long distances from nest to hunt • Nesting may begin as early as February/March
Barn Owl (***Tyto alba***)	**Known to Occur**	*Habitat Regulations*	generally prefer low-elevation, open country; often associated with agricultural lands, especially pasture. Nests are located in buildings, hollow trees and cavities in cliffs.	Active Year Round Some leave for the Winter	• Buildings can be surveyed for clues such as pellets and droppings or presense of individuals • Night surveys may be helpful as they are very vocal
Black Tern (***Childonias niger***)	**Known to Occur**	*N/A*	generally prefer freshwater marshes and wetlands; nest either on floating material in a marsh or on the ground very close to water	Migrate South for the Winter	Watch for them conspicuously hunting throughout the day in their suitable habitat.
Bobolink (***Dolichonyx oryzivorus***)	**Known to Occur**	*Habitat Protection*	generally prefers open grasslands and hay fields. In migration and in winter uses freshwater marshes and grasslands	Migrate South for the Winter	• Follow Breeding Bird Survey Protocol

Cerulean Warbler ***(Dendoica cerulea)***	**Known to Occur**	*Species Protection Only*	generally found in mature deciduous forests with an open understorey; also nests in older, second-growth deciduous forests.	Migrate South for the Winter	• Follow Breeding Bird Survey Protocol
Chimney Swift (***Chaetura pelagica***)	**Known to Occur**	*Habitat Protection*	historically found in deciduous and coniferous, usually wet forest types, all with a welldeveloped, dense shrub layer; now most are found in urban areas in large uncapped chimneys	Nesting - Late April to Mid- May Migrate South in September or Early October	• Watch for them foraging high in the sky, usually in groups • Most likely encountered in oldest sections of towns, with old buildings (churches, etc) that still have large brick/masonry chimneys • Surveys can be conducted at any time in the breeding season • A minimum of 2 visits at least 7 days apart • Best time for surveying is a dusk before and as they enter the roost
Common Nighthawk (***Chordeiles minor***)	**Suspected to Occur**	*N/A*	generally prefer open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops)	Migrate South for the Winter	**When to Look/Listen:** • Time of day: dusk and the few hours following. • Flashlight surveys for nesting adults are done in the dark. **How to Look/Listen:** • set up survey routes with counts at regular intervals in desired habitat • Look and Listen for them flying above open areas just before dusk, making a nasal "peent" call. • Males perform an aerial display over nest site which consists of deep dives resulting in a "sonic boom" • Incubating females or silent males on the ground at night can be spotted using a powerful flashlight to scan open areas or their conspicuous eye shine.
Henslow's Sparrow ***(Ammodramus henslowii)***	**Historically Known to Occur**	*Species Protection Only*	generally found in old fields, pastures and wet meadows. They prefer areas with dense, tall grasses, and thatch, or decaying plant material	Migrate South for the Winter	• Follow Breeding Bird Survey Protocol
Hooded Warbler ***(Wilsonia citrina)***	**Known to Occur**	*N/A*	generally found in the Carolinian Zone, in the interiors of large upland tracts of mature deciduous and mixed forest, and in ravines; can breed in low shrubbery such as raspberry canes	Breed from Late May to Early July	• Follow Breeding Bird Survey Protocol
King Rail ***(Rallus elegans)***	**Known to Occur**	*Species Protection Only*	generally this species requires large marshes with open shallow water that merges with shrubby areas	Breed from Late April to mid-May Migrate South for the Winter	• Follow MMP protocol; Very difficult to detect.
Least Bittern ***(Ixobrychus exilis)***	**Known to Occur**	*Species Protection Only*	generally located near pools of open water in relatively large marshes and swamps that are dominated by cattail and other robust emergent plants	Migrate South for the Winter	• Follow MMP protocol; 10 day window of male calling (variable timing). Does not respond well to playback. Very difficult to detect.

Louisiana Waterthrush ***(Seiurus motacilla)***	**Known to Occur**	*N/A*	generally inhabits mature forests along steeply sloped ravines adjacent to running water. It prefers clear, cold streams and densely wooded swamps	Migrate South for the Winter	• Follow Breeding Bird Survey Protocol
Peregrine Falcon ***(Falco peregrinus)***	**Known to Occur**	*Habitat Regulations*	generally nest on tall, steep cliff ledges adjacent to large waterbodies; some birds adapt to urban environments and nest on ledges of tall buildings, even in densely populated downtown areas.	Active Year Round Lay Eggs around Easter Hatching occurs around Mother's Day Young fledge around Father's Day	• Visit ideal habitat locations and listen/look for individuals in the vicinity.
Prothonotary Warbler ***(Protonotaria citrea)***	**Known to Occur**	*Species Protection Only*	generally found in the dead trees of flooded woodlands or deciduous swamp forests; Carolinian zone	Migrate South for the Winter Eggs are layed from Late May - Early July	• Follow Breeding Bird Survey Protocol or look for nesting birds
Red-Headed Woodpecker ***(Melanerpes erythrocephalus)***	**Known to Occur**	*N/A*	generally prefer open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks	Active from May to September	• Follow Breeding Bird Survey Protocol
Short-eared Owl ***(Asio flammeus)***	**Known to Occur**	*N/A*	generally prefers a wide variety of open habitats, including grasslands, peat bogs, marshes, sand-sage concentrations, old pastures and agricultural fields	Active Year Round	• Follow breeding bird survey protocol • Look and Listen at Dusk in appropriate habitat
Yellow-breasted Chat ***(Icteria virens)***	**Known to Occur**	*N/A*	generally prefer dense thickets around wood edges, riparian areas, and in overgrown clearings	Migrate South for the Winter Arrive in Ontario Early May	• Follow Breeding Bird Survey Protocol
FISH			**Key Habitats Used By Species**	**Timing Of Life History Events**	**How to Conduct a Proper Survey**
American Eel ***(Anguilla rostrata)***	**Known to Occur**	*Species Protection Only*	all fresh water, estuaries and coastal marine waters that are accessible to the Atlantic Ocean; 12-mile creek watershed and Lake Ontario	Active Year Round	• Electrofishing For information please contact your local MNR office, DFO, and Lakes and Rivers
Grass Pickerel ***(Esox americanus vermiculatus)***	**Known to Occur**	*N/A*	generally occur in wetlands with warm, shallow water and an abundance of aquatic plants; occur in the St. Lawrence River, Lake Ontario, Lake Erie, and Lake Huron	spawn in Ontario from late March to early May	For information please contact your local MNR office, DFO, and Lakes and Rivers
Redside Dace ***(Clinostomus elongatus)***	**Known to Occur**	*Habitat Protection*	generally found in pools and slow-moving areas of small headwater streams with a moderate to high gradien	Spawning occurs in May	• Minnow Trapping For information please contact your local MNR office, DFO, and Lakes and Rivers
INSECTS		ESA Protection	**Key Habitats Used By Species**	**Timing Of Life History Events**	**How to Conduct a Proper Survey**

Monarch Butterfly ***(Danaus plexippus)***	Known to Occur	*N/A*	exist primarily wherever milkweed and wildflowers exist; abandoned farmland, along roadsides, and other open spaces	Migrate South for the Winter Usually in Late September and October	• Watch for adults along roadsides and in open fields • Caterpillars feed on milkweeds: Common milkweed grows in open disturbed habitats (fields, roadsides, etc) and swamp milkweed grows in wet habitats (along streams, lakes, marshes) • Adults can be spotted from a distance; caterpillars must be looked for carefully on the host plant.

MAMMALS		ESA Protection	Key Habitats Used By Species	Timing Of Life History Events	How to Conduct a Proper Survey
American Badger ***(Taxidea taxus jacksoni)***	Known to Occur	*Habitat Regulations*	generally prefer open habitats, whether natural (grasslands) or man-made (agricultural fields, road right-of-ways, golf courses)	Breed: Late Summer Semi-dormant over Winter	• Determine if soils are suitable (sandy or loamy) • Dens and Woodchuck burrows should be surveyed for use
Woodland Vole ***(Microtus pinetorum)***	Known to Occur	*N/A*	generally associated with deciduous forests in areas of soft, friable, often sandy soil beneath deep humus, where it can burrow easily.	Active Year Round	The best way to document its presence is with traps. Abundances typically are highest during late summer and fall and it is during this time period that trapping efforts should be most successful. Evidence of its tunnels may be apparent in leaf litter as well as its angular chew marks on vegetation near or in passageways

MOLLUSCS		ESA Protection	Key Habitats Used By Species	Timing Of Life History Events	How to Conduct a Proper Survey

MOSSES		ESA Protection	Key Habitats Used By Species	Timing Of Life History Events	How to Conduct a Proper Survey

PLANTS		ESA Protection	Key Habitats Used By Species	Timing Of Life History Events	How to Conduct a Proper Survey
American Chestnut ***(Castanea dentata)***	Known to Occur	*Species Protection Only*	found in deciduous forest communities; this tree prefers arid forests with acid and sandy soils.	Flowers occur in Late Spring and Early Summer	• Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters • Use a plant field guide to distinguish from similar species • Perform detailed floristic inventory • Look for distinictive fruits on the ground
American Columbo ***(Frasera caroliniensis)***	Known to Occur	*Species Protection Only*	most commonly associated with open deciduous forested slopes, thickets and clearings; grows in a variety of relatively stable habitats as well as on a wide variety of soils	Germination and development of the rosette begin in early spring; Flowers open in May; Fruit production continues until October or November	• Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters • Use a plant field guide to distinguish from similar species • Look for spikes from last years flowers
American Ginseng ***(Panax quinquefolius)***	Known to Occur	*Species Protection Only*	grows in rich, moist, undisturbed and relatively mature deciduous woods in areas of neutral soil (such as over limestone or marble bedrock).	Flowering begins in June and continues until August; The fruit develop from July to August and ripen in August and September	• Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters • Use a plant field guide to distinguish from similar species

Broad Beech Fern ***(Phegopteris hexagonoptera)***	**Known to Occur**	*N/A*	generally inhabits shady areas of beech and maple forests where the soil is moist or wet	The frond of the Broad Beech Fern appears towards the end of May	• Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters • Use a plant field guide to distinguish from similar species
Eastern Flowering Dogwood ***(Cornus florida)***	**Known to Occur**	*Habitat Protection*	generally grows in deciduous and mixed forests, in the drier areas of its habitat, although it is occasionally found in slightly moist environments; Also grows around edges and hedgerows	flowering occurs in mid-spring, just as the leaves begin to develop. Fruit turns red at the end of summer.	• Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters • Use a plant field guide to distinguish from similar species • Easiest to detect during Spring when in flower • Also look for distinctive bark
Few-flowered Club-rush ***(Trichophorum planifolium)***	**Known to Occur**	*Habitat Regulations*	generally found in Dry Fresh Oak deciduous forests and Dry Fresh Oak-Maple-Hickory deciduous forests (only found on RBG property)	Plants flower early before the forest canopy leafs in	• Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters • Use a plant field guide to distinguish from similar species
Green Dragon ***(Arisaema dracontium)***	**Known to Occur**	*N/A*	generally grows in damp deciduous forests and along streams.	Flowering occurs in May and June	• Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters • Use a plant field guide to distinguish from similar species
Red Mulberry ***(Morus rubra)***	**Known to Occur**	*Species Protection Only*	generally grows in moist forest habitats. In Ontario, these include slopes and ravines of the Niagara Escarpment, and sand spits and bottom lands; Can grow in open areas such as hydro corridors	Flowering occurs when leaves emerge in late spring. Fruit emerges in Mid-July.	• Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters • Use a plant field guide to distinguish from similar species
Spotted Wintergreen ***(Chimaphila maculata)***	**Historically Known to Occur**	*Species Protection Only*	generally grow in sandy habitats in dry-mesic oak-pine woods. In Canada, they grow very close to the Great Lakes	Flowering occurs in late July to early August	• Watch for the distinct evergreen leaves in suitable habitat • May be easiest to search in fall and spring
White Wood Aster ***(Eurybia divaricata)***	**Known to Occur**	*Species Protection Only*	generally grows in open, dry, deciduous forests. It has been suggested that it may benefit from some disturbance, as it often grows along trails.	Flowering occurs in early September, and sets fruit later in the month	• Walk slowly and systematically in grid fashion, pausing to scan for plants every 5 meters • Use a plant field guide to distinguish from similar species

REPTILES		ESA Protection	**Key Habitats Used By Species**	**Timing Of Life History Events**	**How to Conduct a Proper Survey**

Blanding's Turtle ***(Emydonidea blandingii)***	**Known to Occur**	*Species Protection Only*	generally occur in freshwater lakes, permanent or temporary pools, slow-flowing streams, marshes and swamps. They prefer shallow water that is rich in nutrients, organic soil and dense vegetation. Adults are generally found in open or partially vegetated sites, and juveniles prefer areas that contain thick aquatic vegetation including sphagnum, water lilies and algae. They dig their nest in a variety of loose substrates, including sand, organic soil, gravel and cobblestone. Overwintering occurs in permanent pools that average about one metre in depth, or in slow-flowing streams.	Eggs are laid in June, with hatchlings emerging in late September and early October.	Contact your local MNR office for more information
Eastern Hog-nosed Snake ***(Heterodon platirhinos)***	**Historically Known to Occur**	*Species Protection Only*	generally prefer habitats with sandy, well-drained soil and open vegetative cover, such as open woods, brushland, fields, forest edges and disturbed sites. The species is often found near water.	Mating occurs in spring and in August and early September. Hatching occurs in late August or early September	Contact your local MNR office for more information
Eastern Ribbonsnake ***(Thamnophis sauritus)***	**Known to Occur**	*N/A*	generally occur along the edges of shallow ponds, streams, marshes, swamps, or bogs bordered by dense vegetation that provides cover. Abundant exposure to sunlight is also required, and adjacent upland areas may be used for nesting.	Hibernate: October - April Mating: Early Spring Hatching: Early Fall (September)	• In April, look for individuals near wetlands • After April, look for individuals in the wetland vegetation, occasionally basking on boardwalks/rocks/tussocks.
Milksnake ***(Lampropeltis triangulum)***	**Known to Occur**	*N/A*	generally occur in rural areas, where it is most frequently reported in and around buildings, especially old structures. It is also found in a wide variety of habitats, from prairies, pastures, and hayfields, to rocky hillsides and a wide variety of forest types. They must also be in proximity of water, and suitable locations for basking and egg-laying.	Active at dawn and dusk in the spring and fall, and at night in the summer. Hibernate: Late October to Early May	• In areas exposed to sunlight, search under warm surfaces for basking snakes • Surveys using cover boards should be used in appropriate habitats • These surveys should continue for the length of at least one active season • Surveys for potential hibernation sites should be conducted
Northern Map Turtle ***(Graptemys geographica)***	**Known to Occur**	*N/A*	generally inhabits both lakes and rivers, showing a preference for slow moving currents, muddy bottoms, and abundant aquatic vegetation. These turtles need suitable basking sites (such as rocks and logs) and exposure to the sun for at least part of the day.	Active: At night Hibernate: October - April Hatching: Late August - Early September	• scan shoreline in spring and partially submerged logs/rocks in summer for basking turtles • Be aware that map turtles do not allow as close of approach as other turtles before leaving a basking site • Snorkel in desired aquatic habitat! • Nesting season: search suitable habitat for nests

Snapping Turtle ***(Chelydra serpentina)***	**Known to Occur**	*N/A*	generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits.	Nesting: Late May and June Hibernate: October - April	• Scan offshore rocks and logs for basking turtles (10am-2pm) • Snorkel in desired aquatic habitat! • Nesting Season: Search known or preferred nesting habitat areas for females
Spiny Softshell ***(Apalone spinifera)***	**Known to Occur**	*Species Protection Only*	generally prefer marshy creeks, swift-flowing rivers, lakes, impoundments, bays, marshy lagoons, ditches and ponds near rivers	Lay eggs in June or July Hibernate over winter	• Best time to survey is during nesting season when females are active laying eggs • Visual searches should be conducted in appropriate habitat

Species at Risk info is not available in LIO – you can get some of it from NHIC. It should be noted that because the province has not been surveyed comprehensively for the presence of species at risk, the absence of an element occurrence does not indicate the absence of the species. Consequently, the presence of element occurrences is useful to flag the presence of a species at risk in an area, but is not an appropriate tool to determine whether a species is present at the local (property-scale) level.

Given the above, the District is of the opinion that field surveys are necessary to determine whether species at risk occur on a property. The District provides the following advice with respect to determining the presence of species at risk on a property for which a land-use change is being proposed.

I. Botanical Inventory

The District recommends undertaking a comprehensive botanical inventory of the entire area within the property's boundaries, in order to map all vegetation communities within the property's boundaries. The vegetation communities should be classified as per the "Ecological Land Classification for Southern Ontario" system, to either the "Ecosite" or "Vegetation Type" level, depending on the habitat specificity of potential SAR on the property.

II. Potential SAR on the property

A list of species at risk that have the potential to occur on the property can be produced by cross- referencing the Vegetation Types described during the botanical inventory with the habitat descriptions of species at risk known to occur in the county or regional municipality within which the property is located. A list of species at risk known and suspected to occur in the single tier municipality of Hamilton is attached. The species-specific COSEWIC status reports (www.cosewic.gc.ca) are a good source of information on species at risk habitat needs and will be helpful in determining the suitability of the property's Vegetation Types for a given species.

III. SAR surveys

The District is of the opinion that each species at risk identified under Step II should be surveyed for, regardless of whether or not the species has been previously recorded on the property. The survey report should describe how each species at risk was surveyed, and provide a rationale for why, if any, certain species appearing on the county/ regional municipal list were not the subject of the survey (e.g. No surveys for Wavy-rayed Lampmussel were conducted because there are no flowing watercourses within the property boundaries).

APPENDIX I:

North-South Environmental Incorporated Review of Bobolink Habitat

Introduction

In 2003 the City of Hamilton proposed Official Plan Amendments to incorporate additional lands within the Urban Area of Stoney Creek. The lands subject to these Official Plan Amendments became known as the Stoney Creek Urban Boundary Expansion (SCUBE) lands. The establishment of the Greenbelt Plan and several subsequent OMB hearings reduced the extent of the urban boundary expansion as originally proposed – in the end four disjunct blocks of land were incorporated in the Stoney Creek Urban Area. These blocks of land are referred to as SCUBE West, SCUBE Central, SCUBE East (Parcel A) and SCUBE East (Parcel B).

The City of Hamilton is currently undergoing a planning process to prepare the Fruitland-Winona Secondary Plan to cover these four blocks of land. The SCUBE East Subwatershed Study, being completed by Aquafor Beech Limited, addresses the SCUBE Central, SCUBE East (Parcel A) and SCUBE East (Parcel B) blocks as well as lands upstream and downstream.

North-South Environmental was retained by Aquafor Beech Limited in spring of 2010 to conduct breeding bird surveys within the study area of the SCUBE East Subwatershed Study, with a particular focus on the lands of SCUBE Central, SCUBE East (Parcel A) and SCUBE East (Parcel B). During these surveys, Bobolink was observed. This species is considered Threatened in Canada by the Committee on the Status of Species at Risk in Ontario (COSEWIC) and in Ontario by the Committee on the Status of Species at Risk in Ontario (COSSARO). Bobolink was noted in two areas: three singing males were noted in SCUBE Central and four singing males were noted in Zone C. These should be considered “possible” breeding records, as there was no other breeding evidence noted, but the birds were exhibiting behaviour consistent with nesting so there is no reason to assume they were not nesting. It should be noted that there may be other locations for Bobolink within the study area of the SCUBE East Subwatershed Study as most of the focus of breeding bird surveys was on SCUBE Central, SCUBE East (Parcel A) and SCUBE East (Parcel B); surveys within the broader study area were conducted by sampling representative habitats only.

In March, 2011 North-South Environmental Incorporated was requested by Aquafor Beech Limited to provide guidance for habitat conservation for Bobolink within the study area of the SCUBE East Subwatershed Study. This guidance is intended to address the requirements of the Endangered Species Act (2007). Several approaches are explored here, including the potential to build upon the Natural Heritage System (NHS) developed through the SCUBE East Subwatershed Study to include habitat for Bobolink.

MNR is currently drafting habitat specific regulations for protection of Bobolink habitat under the Endangered Species Act (2007). The habitat protection recommended in this study is predicated on the requirement to protect Bobolink habitat under the generic regulations. Once specific habitat regulations are provided they should be reviewed and the recommendations presented here revised as required to reflect the specific requirements.

Methods

North-South Environmental Incorporated reviewed a variety of literature sources, particularly the COSEWIC report for Bobolink (COSEWIC 2010 to determine the habitat requirements, as well as primary limiting factors and threats for Bobolink. Literature consulted is listed in the References section.

North-South Environmental Incorporated also consulted various agency staff including Joe Nocera, a research scientist in Species at Risk and Conservation Biology and grassland bird species specialist with the MNR, Karine Beriault, the Biodiversity and Species at Risk Biologist for the MNR Niagara Area office, Donald Sutherland, Zoologist with the Natural Heritage Information Centre, Chris Risley, Bird and Mammal Species at Risk Specialist, MNR Peterborough and Mike Cadman, songbird biologist with Environment Canada's Canadian Wildlife Service. The author's personal experience through 22 years of breeding bird surveys in a variety of urban and wilderness habitats was also used throughout the study.

Bobolink Habitat Requirements

Grassland Requirements

In southern Ontario, Bobolink nest primarily within areas of forage crops for livestock, such as hayfields and lightly-grazed pastures (COSEWIC 2010) dominated by a variety of tall grass and herb species, such as clover (*Trifolium* spp.), Timothy (*Phleum pratense*), smooth brome (*Bromus inermis*) and orchard grass (*Dactylis glomerata*), and broadleaved plants such as goldenrods (*Solidago* spp.) (COSEWIC 2010; personal observation). Hayfields and lightly-grazed pastures are this species' preferred habitat due to the plant cover present at the start of the nesting season (Nocera et al., 2007); such cover is generally absent from grain fields. Bobolink prefer habitat with moderate to tall vegetation, moderate to dense vegetation and moderately deep litter (Dechant *et al.* 1999). Bobolink also occur in wet prairie, graminoid peatlands and abandoned fields dominated by tall grasses, remnants of uncultivated tall-grass prairie, no-till cropland, small-grain fields, reed beds and irrigated fields in arid regions (COSEWIC 2010). However, in Ontario, lower densities are present in tallgrass prairie than in non-native grasslands (Sutherland 2011, pers. comm.). In Ontario, this species is also found in alvar habitat (personal observation).

The Bobolink is also known to use sites that have been restored to grassland habitat (COSEWIC 2010). Throughout its range alfalfa (*Medicago sativa*) monocultures are variably occupied (COSEWIC 2010). In Ontario, alfalfa fields support much lower abundance of Bobolink than grass-dominated hayfields (Nocera 2011, pers. comm.; Cadman 2011 pers. comm.; personal observation). Bobolinks do not generally occupy fields of row crops, such as corn, soybean and wheat (COSEWIC 2010, Cadman, Nocera pers. comm., 2010; personal observation), pastures in valleys with high shrub density or intensively grazed pastures (COSEWIC 2010). In Ontario they can be found in fields with a light shrub cover, for example, Cadman (2011, pers. comm.) has noted them in fields where there is a shrub density of approximately 1 shrub/100 m^2 of grassland habitat. However, Nocera (2011, pers. comm.) noted that they are often not found in fields with even small numbers of shrubs.

Nocera (2011, pers. comm.) noted that Bobolink habitat in hayfields in Ontario tends to rotate between different crop systems. Over time, hayfields cannot continue to produce high yields if hay is removed year after year as the soils become depleted of nutrients and so these areas have a crop rotation pattern that includes tilled crops. Therefore, Bobolinks may not nest in the same field every year depending on the rotation, but will nest in nearby fields with suitable habitat in the area. In addition, Bobolink prefer grasslands with moderate thatch (Dechant ***et al***. 1999), so grasses must be removed or the thatch will become too thick. Therefore, fields that provide preferred habitat are generally tilled from time to time reducing thatch build up. Cover crops such as alfalfa and clover are planted with grass species to return nitrogen to the soil. Hayfields are also sometimes rotated with other crops, such as pure alfalfa and even row crops such as soybeans and corn (Nocera 2011 pers. comm., personal observation).

Area-Sensitivity

Bobolink is generally noted to be area-sensitive throughout its range, occurring mainly in large fields (over 50 ha in size; Herkert et al. 1994), but also nesting in smaller (e.g. as small as 5 ha) fields (Nocera 2011, pers. comm.) in open agricultural settings (Cadman, Nocera, 2011 pers. comm.; personal observation, COSEWIC 2010). As noted by O'Leary and Nyberg (2000): "Birds' view of the vegetation structure of the landscape at many scales probably determines where they choose to settle". Estimates of area-sensitivity for Bobolink are thus somewhat variable, as they depend on factors that include the size of individual fields, the management of fields over time and the regional setting where fields are located. In a study in Illinois, Bobolink rarely occurred in grassland fields of less than 20 ha (Herkert 1991 in Vickery et al. 1994) and this author considered 10-30 ha to be the species' minimum requirement. Herkert (1994) observed that the probability of observing this species reached 50% only in fields over 50 ha. Reproductive success is reportedly lower in small (16-32 ha) habitat fragments (Johnson and Temple 1990). Forman et al. (2002), in a study within an urbanizing agricultural landscape near Boston, noted that all regular breeding (breeding observed in three or more years) of Bobolink only occurred on grasslands greater than 7.2 ha.

Area-sensitivity is at least partly related to the fact that Bobolink avoid edges of woodlands, hedgerows, etc. Nesting success of Bobolinks and other grassland birds decreases near woodland edges (Bollinger and Gavin 2004). Bobolink do not utilize the edge as frequently as the interior area (O'Leary and Nyberg 2000). Fencerows that grassland birds avoid may be dispersal corridors for small mammals as well as foraging runways for nocturnal predators, such as raccoons, skunks and coyotes (O'Leary and Nyberg 2000). However, Renfrew et al. (2005) noted that high predation rates occurred on nests regardless of distance from edge in fragmented landscapes, probably because predators were abundant and could penetrate easily into grassland habitats.

Threats

Agricultural landscapes may become ecological sinks for Bobolink, especially in actively managed hayfields, if haying occurs early in the season.(Perlut et al. 2008). Bobolink eggs and post-fledging juveniles are particularly susceptible to early haying, with nest success declining drastically if haying occurs when eggs or post-fledging juveniles are present (COSEWIC 2010). In Ontario, Gahbauer (2007) has reported that nesting success is considerably higher in undisturbed fields and those mown in mid- to late summer, as early haying results in a high rate of juvenile mortality or nest failure. Bobolink tend to have high fidelity to nest sites: they return to the same nest site every year and so will continue to use the same habitat as long as nesting success is high (Gavin and Bollinger 1988).

Nests and newly-fledged young of grassland species are also highly susceptible to predation, particularly near woodland edges (Renfrew et al. 2005, Suedkamp Wells et al. 2007), but also at considerable distance from edges in fragmented landscapes (Renfrew et al. 2005). It is likely that newly-fledged juveniles are susceptible to vehicle collisions, like most juvenile birds (personal observation), where nests are located in close proximity to roads. Grassland bird nests are also somewhat susceptible to cowbird parasitism (Dechant *et al.* 1999).

Breeding habitat of Bobolink is generally threatened because of habitat loss, due to intensification of agriculture and succession of cultural meadows to shrubland. Suitable habitat used during migration and wintering habitat is also likely being lost, though less is known about this species' migration and wintering requirements. Bobolink has one of the longest migrations of any songbird species (approximately 20,000 km), which places this species at greater risk of encountering hazards on migration and/or on wintering grounds such as human harvest, poisoning (because they are considered pests) and habitat destruction (COSEWIC 2010).

Presence in Urban Habitat

Bobolink are not generally found in habitat surrounded by urban development (personal observation; Cadman, Nocera, and Sutherland, 2011 pers. comm.); for example, this species is not found in larger grasslands that occur in some urban settings such as hydro rights-of-way and roadside verges (personal observation; Sutherland and Cadman 2011, pers. comm.). However, as in the study area of the SCUBE East Subwatershed Study, this species is occasionally found in suitable grasslands in settings where there is a mix of agricultural fields and areas recently converted to urban and residential development (personal observation: for example in the City of Mississauga and Towns of Aurora and Stony Creek). However, it is not known where the threshold exists regarding sensitivity to development, i.e. how much development Bobolink will tolerate.

Almost no studies have investigated Bobolink habitat preferences in urban settings: almost all studies are in habitat in agricultural settings where the surrounding landscape is characterised by small woodlands, riparian areas and croplands. Jones and Bock (2002) studied Bobolink and other grassland species in municipal open space in Boulder, Colorado and concluded that municipal open spaces can support populations of many Great Plains grassland birds, including Bobolink, if habitat areas are of sufficient size. However, in this study Bobolink distribution was clumped, as the only suitable tall grass habitat for Bobolink was to the south-east of the City, and it is not clear whether Bobolink were found near urban development. In a study evaluating farmland habitat use by breeding birds in southern Quebec, Jobin et al. (1998) encountered no bobolinks in urban habitat – the highest incidence was in dairy farming areas, followed by cash crops, then old fields. This study concluded that Bobolink may avoid houses, based on the fact that only one bobolink was observed out of 86 stops in or near farm houses in this study.

Haire et al. (2000) concluded that urbanization imposed limits on the abundance of all grassland bird species in a Colorado study, (including bobolink), suggesting that urbanization operates at time scales too fast for evolutionary adjustment, and the effects of urbanization continue after the landscape has changed through pollution of air and water. These authors also suggested that interactions between species may also be affected by urbanization; urban cover-types provide opportunities for interspecific competition between grassland nesters and suburban nesting species that would not exist otherwise. In addition, ground-nesting songbirds are easy targets for domestic predators (cats and dogs) whose populations are not limited by availability of prey. As noted above, predators can penetrate a considerable distance into grasslands in fragmented landscapes. However, as in the study by Jones and Bock (2002), the limited extent of tallgrass cover type corresponded with the limited extent of species that depend on this cover type (Bobolink among them), and they were unable to draw conclusions strictly regarding effects of urbanization.

Bobolink appear to avoid busy roads. Breeding of Bobolink and other grassland birds decreases within 700 m of the edges of busy (i.e. more than 15,000 to 30,000 cars/day) roads (Forman et al, 2002). Bobolink are also likely highly susceptible to urban threats. They are ground nesters, and as noted above, nests and young are highly vulnerable to predation. They are low flyers and likely susceptible to vehicle collisions. In addition, they are susceptible to trampling; for example, they are not found in heavily used pastures.

Bobolink Conservation in the SCUBE East Subwatershed

Lands Subject to Fruitland-Winona Secondary Plan

North-South Environmental Incorporated assessed SCUBE Central, SCUBE East (Parcel A) and SCUBE East (Parcel B) for potential Bobolink habitat. Within these lands, the area of most suitable Bobolink habitat consists of the portion of SCUBE Central east of Lewis Road, as it is the only area that includes a large block of grassland – all other large open areas are fragmented by fencerows, old orchards, patches of cultural woodland, etc... It is likely that this entire area would have to be protected to maintain Bobolink. This area supported three Bobolinks in 2010 (with the caveat that these are records of possible breeding only). The habitat for this species appeared suitable in 2010, with the area occupied mainly by hayfields, though with small areas of abandoned orchard, hedgerow and a small strip of ploughed cropland. The approximate area of optimal habitat within SCUBE Central east of Lewis Road is currently 10 ha. However, if the entire area (which is approximately 16 ha) were converted to grassland habitat, the area is within the lower end of the size range reported to provide preferred habitat for Bobolink. In addition, the area is currently in a regional landscape setting most often associated with the presence of Bobolink: the SCUBE Central lands are still in a largely open, agricultural setting, with localized areas of development.

However, there are many uncertainties associated with conservation of Bobolink habitat in this setting. The portion of the SCUBE Central lands east of Lewis Road is surrounded on two sides and partially on a third side with residential development along the road frontage. Since Bobolink are not generally found in urban settings, it is not certain whether this species would persist, if the remaining frontage areas along Highway 8 and Lewis Road develop in a similar fashion and/or if the SCUBE Central lands west of Lewis Road were developed, as this species appears to be sensitive to surrounding development. It is likely that the croplands located to the north and/or south of the area of optimal habitat would need to be preserved as agricultural or open space (Nocera 2011, pers. comm.). This would provide a more extensive grassland corridor north and south of the SCUBE Central lands that would encourage the persistence of grassland species (Nocera 2011, pers. comm.). However, lands north of Barton Street east of Lewis Road are currently being developed into an industrial park or are subject to planning applications to develop residential housing. Moreover, since the size of the habitat provided by the SCUBE Central lands east of Lewis Road may be near the threshold of Bobolink area requirements and may be degraded as urbanization proceeds, it could not be guaranteed that Bobolink would persist in the area all years, or at all (Nocera 2011, pers. comm., Cadman 2011, pers. comm., Sutherland 2011, pers. comm.).

In addition to protecting adjacent lands from urban development the conservation of Bobolink habitat in the SCUBE Central lands east of Lewis Road would also entail a considerable commitment to management to maintain suitable grassland habitat. For example, as trees and shrubs naturally develop in old fields or meadows they would have to be rigorously removed to ensure successional processes did not degrade Bobolink habitat. The habitat could be planted as permanent grassland, with sowing of warm season grasses, and managed as tallgrass prairie by annual mowing and prescribed burning. However, this may result in sub-optimal habitat, as in Ontario, abundance of Bobolink in tallgrass prairie is much lower than in forage crops (Sutherland 2011, pers. comm.). The preferred alternative would be to manage the area for hay with no early season cutting and with occasional crop rotation. In this case, there would be years when alfalfa or soybeans (for example) would be planted to replenish soil nutrients. The habitat would not be suitable for Bobolink during years when crops other than forage grasses were planted. In all cases, grasses would need to be removed from time to time to avoid build-up of too deep a thatch, as Bobolink prefer a moderate thatch cover.

In addition, development would have to be managed in the area surrounding the SCUBE Central lands east of Lewis Road such that this Bobolink habitat does not become completely surrounded by urban development. In particular, adjacent agricultural habitat to the north and/or south would need to be maintained. This is likely not possible for the lands north of Barton Street east of Lewis Road as they are currently being developed into an industrial park or are subject to planning applications to develop residential housing. Further, busy arterial roads (i.e. over 15,000 to 30,000 cars/day) should not be built within approximately 700 m of this species' habitat. Again, this would be difficult as Highway 8 is already an arterial road and traffic will likely increase as proposed urbanization of the lands subject to the Fruitland-Winona Secondary Plan proceeds. Control of urban predators such as cats and raccoons should be implemented, possibly with the use of a fence around the habitat. The habitat could be used as an area for passive recreation, as long as trails were routed away from nest sites (this species is not particularly sensitive to the presence of people) but dogs would have to be kept on a leash during the breeding season for these birds.

Zones A and C

North-South Environmental Incorporated also noted Bobolink in fields south of Highway 8, in the area east of Fifty Road north of the Niagara Escarpment. Bobolink may be more widespread than this study suggests as breeding bird surveys focused on SCUBE Central, SCUBE East (Parcel A) and SCUBE East (Parcel B); elsewhere within the study area of the SCUBE East Subwatershed Study only representative habitat was sampled. The habitat between the Escarpment and Highway 8 is generally very open, and any suitable grassland area is likely to provide suitable habitat for Bobolink. Bobolink will likely persist as long as the farming practices in this area continue to provide grassland habitat. However, in this part of Ontario hayfields are generally cut prior to the fledging of young (some hayfields had already been cut by the time of the second field visit, on June 12th 2010, in this study). It is likely that mortality of eggs and post-fledging young due to the practice of early cutting of hay is similar to that reported in other areas of Ontario. Thus, it is unknown whether the hayfields in this area would be source or sink habitats for Bobolink. In addition, farming practices in this area may change in the future, with potential loss of hay fields to other types of agriculture, reducing the available habitat for Bobolink. However, these areas of potential habitat are not likely to be subject to intensive urban development as the area south of Highway 8 is subject to the Niagara Escarpment Plan.

Conclusions and Recommendations

Bobolink was noted in two areas within the study area of the SCUBE East Subwatershed Study; within the portion of the SCUBE Central lands east of Lewis Road and within the agricultural lands south of Highway 8. The presence of Bobolink is related to hayfields that provide suitable grassland habitat but within the study area of the SCUBE East Subwatershed Study areas of suitable habitat may be near the threshold of the size preferred by Bobolink, a species which is highly area-sensitive. The presence of Bobolink is likely related to the open agricultural setting in which hayfields are located.

It is recommended that two management strategies be employed to protect habitat for this species:

1. Designate the entire portion of the SCUBE Central lands east of Lewis Road as an Area Specific Policy Area pending MNR development of Endangered Species Act (2007) regulations for the protection of Bobolink habitat; and

2. Promote agricultural practices that support Bobolink habitat in Zone C.

Should the hayfields in the SCUBE Central lands east of Lewis Road be included in the specific habitat regulations (as seems likely), the entire area east of Lewis Road would be protected. At such time when the specific regulation is drafted for Bobolink habitat, and when the Recovery Strategy is provided, policies for management of this area should be developed.

This two-pronged strategy would provide the most certainty that habitat can be maintained and enhanced. However, the habitat within the SCUBE Central lands may be near the threshold of this area-sensitive species' size range in urban settings, and the habitat will become less suitable as the surrounding landscape becomes developed, such that the species may not persist even if the habitat is maintained and appropriately managed. Fields must be managed to control shrubs and trees, to reduce thatch build-up and also to ensure that the soil nutrients are not depleted by continuous removal of hay. This will likely entail occasional use of the area for other crops such as soybeans or alfalfa which are not suitable habitat for Bobolink. Management of the surrounding lands would also have to include control of development so that the grassland does not become surrounded by urban uses, as well as control of road development as Bobolink abundance decreases within 700 m of a busy highway. Such control may be difficult to accomplish as the lands north of SCUBE Central east of Lewis Road are currently being developed into an industrial park or are subject to planning applications to develop residential housing. Moreover, Highway 8 is already an arterial road. In addition, a fence should be erected around the area to protect it from urban predators. The preserve could be used as recreational open space, and during parts of the year even as an off-leash dog park, but dogs would have to be on-leash during the breeding season.

In order to increase the certainty that Bobolinks persist in the SCUBE East Subwatershed, it is recommended that continued management of the agricultural area south of Highway 8 and east of Fifty Road for hay be promoted through stewardship initiatives. However, late haying practices should be promoted.

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APPENDIX J:

Preliminary Meander Belt Assessment

Aquafor Beech Limited determined a preliminary meander belt width for each watercourse within Zone B of the SCUBE Subwatershed Study. Quantification of the meander belt was intended to be a first approximation and thus did not consist of a thorough and detailed assessment. Instead, the empirical relation provided by TRCA (2001) was used to quantify the meander belt. This equation was developed for watercourses within the TRCA jurisdiction and is based on sound physical predictors of meander belt widths, which include slope, discharge, and drainage area. The equation is based on a data set of rural watercourses which had not been previously altered, had no recent change in hydrologic regime, had drainage areas < 25 km^2 and were not situated on bedrock.

Data used to calculate the meander belts for Zone B (e.g. drainage area and estimates of future flows) were obtained from elsewhere in the Stage 1 and Stage 2 Report. Data pertaining to channel slope were derived from City of Hamilton digital mapping. The empirical equation presented in TRCA (2001) provides approaches for taking into account changes in hydrologic regime and thus this was used for the current study since not only peak flows would change, but also flow duration and frequencies. Results of the preliminary meander belt assessment are provided below.

Site	Preliminary meander belt width (m)
WC 5.0 Future	42
WC 5.2 Future	16
WC 6 - Future	44
WC 7 West - Future	41
WC 7 East - Future	42
WC 7 Center - Future	55
WC 7.2 - Future	17

Typically, when undertaking meander belt assessments, multiple approaches are used to converge upon a single meander belt value. Thus, caution should be used when applying the above value for future land planning decisions and a thorough meander belt assessment should be undertaken for each watercourse.

Reference:

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Appendix K:

Breeding Bird Report Completed in 2012 by Stantec Consulting Limited

REPORT ON FOUR AVIAN SPECIES AT RISK AND OTHER BREEDING BIRD SPECIES
Within Fruitland-Winona Secondary Plan Area, Scube Central, Scube East 'A' and Scube East 'B' Parcels
DRAFT COPY

Prepared for:
City of Hamilton.
Planning and Economic Development Department
Community Planning and Design Section
71 Main Street West, 6th Floor,
Hamilton ON L8P 4Y5

Prepared by:
Stantec Consulting Ltd.
Suite 1 – 70 Southgate Drive
Guelph, Ontario N1G 4P5

Stantec File 160950433
August 2012

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1.0 Introduction

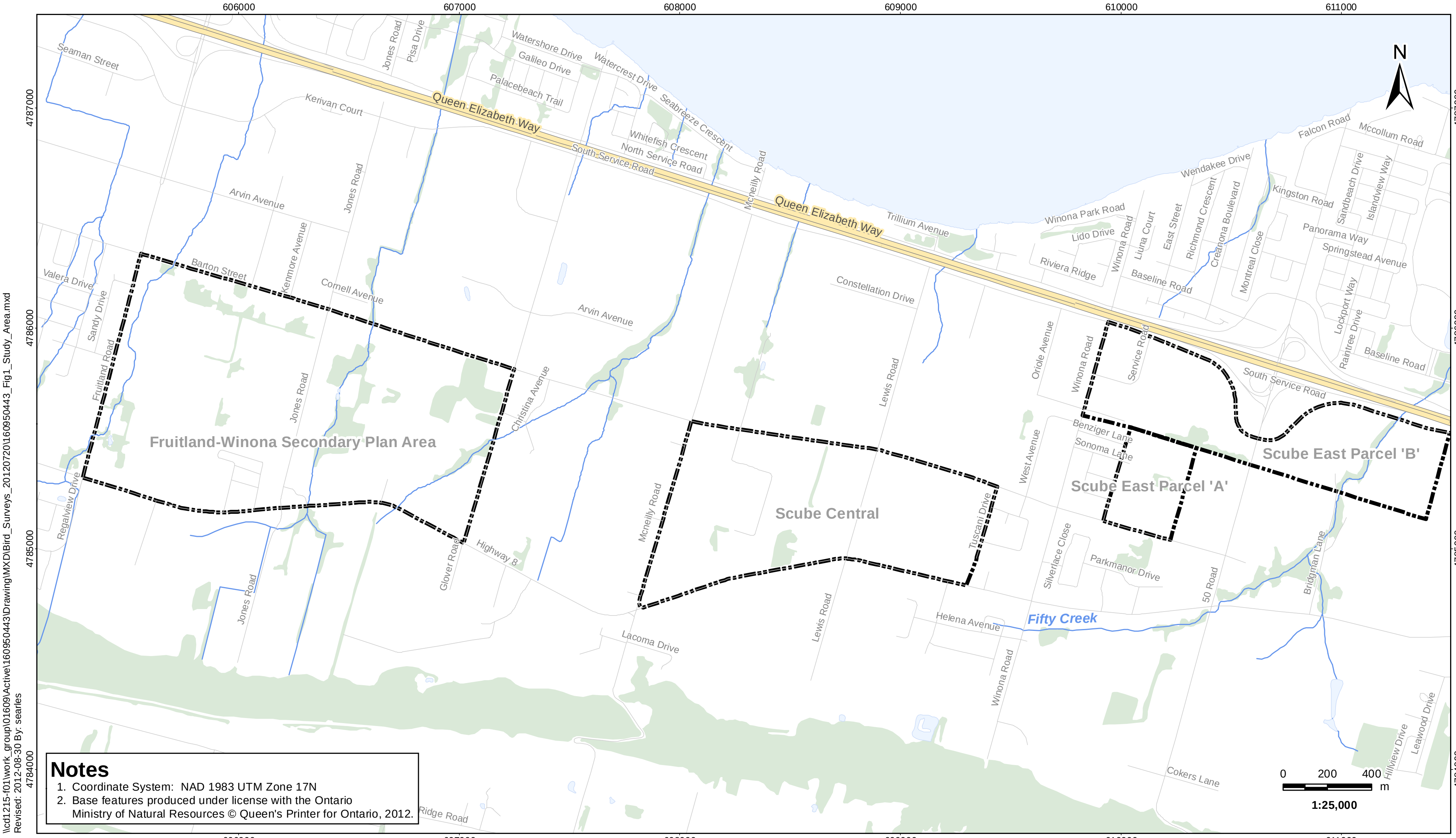
Stantec was retained by the City of Hamilton in 2012 to conduct avian Species at Risk (SAR) surveys and Breeding Bird Surveys within the Fruitland-Winona Secondary Plan Area (hereafter SPA) and the Scube Central, Scube East ‘A’ and Scube East ‘B’ parcels (hereafter Scube Parcels). The SPA and Scube Parcels are located in the east portion of the City of Hamilton and are generally bounded to the north by the Queen Elizabeth Way, to the west by Fruitland Road, to the south by Highway 8 and to the east by Fifty Road. A portion of the Scube East Parcel B extends easterly from Fifty Road approximately 1 kilometre so as to contain the channel of 50 Creek and additional lands east of the channel. The location of these parcels is shown in Figure 1.

SAR surveys were conducted for Bobolink (*Dolichonyx oryzivorus*), Eastern Meadowlark (*Sturnella magna*), Barn Swallow (*Hirundo rustica*) and Chimney Swift (*Chaetura pelagica*) as these species were considered to potentially occur and breed in the SPA and Scube Parcels (Karine Beriault, MNR Guelph District SAR Biologist). Each of these provincially threatened species typically nest and forage in human-altered habitats throughout much of eastern North America, including areas with a mix of rural and urban land use such as occur within the SPA and Scube Parcels. The Bobolink, Eastern Meadowlark and Barn Swallow typically nest and forage in agricultural habitats while Chimney Swift nests and forages over urban areas.

The purpose of these surveys was to determine whether particular avian SAR occur within the SPA and Scube Parcels and, to identify locations where avian SAR occur. Based on our findings, we were to make recommendations regarding areas, if any, which should be preserved for these avian SAR. General Breeding Bird Surveys were also conducted to identify breeding bird species within the SPA and Scube Parcels, whether SAR or non-SAR species. Findings of these surveys will be used to guide land use planning as part of the Fruitland-Winona Secondary Plan. Work performed was based on the Scope of Work provided by the City of Hamilton on April 3rd, 2012 and June 25th, 2012.

This report includes:

- Findings of avian SAR Surveys
- Maps of avian SAR Locations
- An evaluation of the habitat types in the study area in terms of their potential use by the following SAR: Bobolink, Eastern Meadowlark, Barn Swallow, and Chimney Swift;
- Recommendations regarding any potential areas for preservation of avian SAR habitat;
- Findings of Breeding Bird Surveys; and
- Field data sheets.



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2012.

August 2012
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Stantec

Legend

- Study Area
- Road
- Highway
- Watercourse
- Waterbody
- Woodlot

Client/Project

City of Hamilton
SAR Surveys

Figure No.
1

DRAFT

Title

Study Area

2.0 Current Land Use

The SPA and Scube Parcels have historically been rural areas where farming was the dominant land use. In the SPA, wheat is still farmed to the west of Jones Road and remnant fruit trees and vineyards are occasionally present throughout the remainder of the SPA. In the Scube Parcels, farming still occurs on the east side of Lewis Road.

An examination of aerial imagery reveals that buildings within the SPA and Scube Central Parcel are common and highly concentrated along roadways; fallow land and limited active agricultural land lies in the interiors of parcels. The majority of buildings present are residences, but business and municipal buildings also occur. In the Scube East 'A' and Scube East 'B' parcels, fallow land occupies almost all of the parcels and buildings are only rarely present along roadways.

In addition to widespread fallow land, the SPA and Scube Parcels include small woodlands, shrub thickets and wetlands. All forms of natural habitat within the SPA and Scube Parcels are small in area, fragmented and in pioneering or early stages of vegetation succession.

3.0 Methods

SAR Surveys for Chimney Swift, Barn Swallow, Eastern Meadowlark and Bobolink were carried out in the SPA and Scube Parcels using protocols recommended by the MNR and Bird Studies Canada when these had been developed; and, protocols of the Ontario Breeding Bird Atlas (OBBA) when specialized protocols do not exist.

Surveys for non-SAR birds were carried out in the SPA and Scube Parcels using protocols of the OBBA.

Survey methods for both SAR and non-SAR birds are described below.

3.1 CHIMNEY SWIFT

Chimney Swift is known to depend almost entirely on chimneys for nesting and roosting within southern Ontario. Therefore, assessment for this species focused on examining the suitability of chimneys for nesting and roosting using the Chimney Swift Monitoring Protocol (Bird Studies Canada, 2009) as well as making Chimney Swift observations.

The Chimney Swift Monitoring Protocol assesses the suitability of chimneys for Chimney Swift roosting/nesting based on their physical dimensions and the presence/absence of features which prevent Chimney Swifts from entering and leaving chimneys such as animal guards, spark protectors, terra cotta liners and metal liners. As buildings with potentially suitable chimneys were found within the Study Area only along the existing roadways, surveys consisted of stopping at 200 m intervals along all roadways where buildings occurred and determining the suitability of chimneys at these locations for Chimney Swift nesting and roosting. At each survey location, chimneys were observed for 15 minutes to allow opportunity to detect any Chimney Swifts using the chimney. Surveys for Chimney Swift were conducted throughout daylight hours as this species remains active throughout the day.

Using the 200 m intervals, and given the length of roadways present, 27 locations were surveyed within the SPA and 13 locations were surveyed within the Scube parcels. The lower number of locations within the Scube parcels is due to the lack of buildings in Scube East 'A' and Scube East 'B' parcels. Locations where chimneys were assessed for their suitability for Chimney Swift nesting are shown In Figure 2.

Chimney Swift surveys were conducted within the SPA on May 17th and 31st, 2012. Additional observations within the SPA were made June 25th, 2012 at two locations where Chimney Swift were encountered on May 31st. Surveys within the Scube Parcels occurred on June 26th, July 4th and July 12th, 2012.

In addition to the dedicated Chimney Swift survey, any Chimney Swifts encountered in all other surveys conducted including SAR Surveys for Barn Swallow, Bobolink and Eastern Meadowlark and surveys for non-SAR birds were also recorded.

3.2 BARN SWALLOW

No MNR-sanctioned survey method for Barn Swallows exists. Recognizing that it is standard practice in avian surveys to identify and record all species of birds heard or seen, it was decided to assess Barn Swallows simultaneously with other species during standard OBBA point counts. These point counts are of five minute duration and are conducted during early morning hours (5 AM to 10 AM) when bird activity is at a maximum.

Point count locations were chosen before fieldwork commenced through consideration of habitat as characterized by Aquafor Beech (2012). Locations were chosen to provide the best possible access to all habitats found within the study area. Selection of point count locations had to accommodate limited property access within the SPA and restriction to road ROWs within the Scube Parcels. The survey locations selected for Barn Swallows were considered to adequately cover available habitat since Barn Swallows are aerial foragers and are highly mobile and easily detectable. To increase the probability of detection, monitoring occurred 3 times spaced through the nesting season.

Seventeen point count locations were chosen within both the SPA and Scube Parcels (Figure 3). Point counts within the SPA included locations both on and off roadways. Point counts within the Scube Parcels were limited to road ROWs. Surveys at the point count locations took place on June 11th/12th, June 25th and July 10th 2012 within the SPA and on June 26th, July 4th and July 12th, 2012 within the Scube Parcels.

Barn Swallow nests were searched for under bridges spanning watercourses within the SPA and Scube Parcels because Barn Swallows often nest on the exposed beams of older bridges (Cadman et al. 2007). Aerial imagery and background documents identify that small watercourses cross under several roadways within the SPA and Scube Parcels including Barton, Highway 8, Fruitland Road and Glover Road in the SPA and the South Service Road in the Scube Parcels. Searches for Barn Swallow nests occurred at all locations where roads crossed watercourses.

Surveys for Barn Swallow nests took place at 7 watercourse locations within the SPA (Figure 3). These surveys took place on June 11th/12th, June 25th and July 10th 2012 within the SPA. Surveys for Barn Swallow nests took place at 2 watercourse locations within the Scube Parcels (Figure 3). Surveys within the Scube Parcels occurred on June 26th, July 4th and July 12th, 2012. Surveys for Barn Swallow nests took place throughout the day as any nests present would be visible at any time of the day.

Any incidental observations of Barn Swallows made during Chimney Swift, Bobolink and Eastern Meadowlark surveys were also recorded.

3.3 EASTERN MEADOWLARK

Surveys for Eastern Meadowlark used 10 minute point counts in areas of apparently suitable habitat as identified through prior studies (Aquafor Beech, 2012) and aerial imagery. The 10 minute period is suggested by the MNR and is probably sufficient given the species frequent and distinctive vocalizations and conspicuousness in the open habitats it frequents.

Areas of apparently suitable habitat for Eastern Meadowlark consist of forb meadow, fresh – moist mixed meadow habitats and other open habitats. Point count locations were selected within the SPA and Scube Parcels before fieldwork commenced, in areas where access had been granted and habitat appeared suitable. To improve probability of detection, monitoring occurred 3 times spaced through the nesting season.

Surveys within the SPA took place at 10 locations on June 11th/12th, June 25th and July 10th, 2012. An initial reconnaissance of the Scube Parcels for Eastern Meadowlark habitat found habitat to be limited such that only 1 location of apparently suitable habitat was selected for surveys. Surveys within the Scube Parcels occurred on June 26th, July 4th and July 12th, 2012. Because access to properties was not obtained for the Scube Parcels, this survey took place along the roadway adjacent to suitable habitat. Eastern Meadowlark survey locations are shown on Figure 4.

During general Breeding Bird Surveys and all other surveys, any additional Eastern Meadowlark sightings were recorded.

3.4 BOBOLINK

Bobolink was searched for simultaneously with Eastern Meadowlark at the same locations and dates. Therefore, surveys within the SPA took place at 10 locations on June 11th/12th, June 25th and July 10th, 2012 and within the Scube Parcels at 1 location on June 26th, July 4th and July 12th, 2012. Bobolink survey locations are shown on Figure 4.

During general Breeding Bird Surveys and all other surveys, any additional Bobolink sightings were recorded.

3.5 COMMON SPECIES

Surveys of non-SAR birds were conducted within the SPA and Scube Parcels using 5 minute point counts during which all species of birds heard or seen are identified and recorded. This 5 minute period is the standard recommended in the OBBA (Cadman et al. 2007). Surveys were conducted during early morning hours (5 AM to 10 AM) when bird activity is at a maximum.

Point count locations were chosen before fieldwork commenced through consideration of habitat as characterized by Aquafor Beech (2012). Locations were selected to to provide the best possible access to all habitats found within the study area. Selection of point count locations had to accommodate limited property access within the SPA and restriction to road ROWs within the Scube Parcels. This restriction on point count locations likely affected detection of some species within the Scube Parcels.

To improve probability of detection, monitoring occurred 3 times spaced through the nesting season. Seventeen point count locations were chosen within both the SPA and Scube Parcels (Figure 5). Point counts within the SPA included locations both on and off roadways. Point counts within the Scube Parcels were limited to road ROWs. Surveys at the point count locations took place on June 11th/12th, June 25th and July 10th 2012 within the SPA and on June 26th, July 4th and July 12th, 2012 within the Scube Parcels.

Any avian SAR observed during these surveys were recorded and are mapped and considered in this report.

4.0 Considerations for Species at Risk

This section presents relevant information on the biology of Chimney Swift, Barn Swallow, Eastern Meadowlark and Bobolink, evidence that declines have occurred in Ontario's populations and factors thought to be involved in their declines.

Evidence of declines is based primarily on the Ontario Breeding Bird Atlas (OBBA) and Breeding Bird Survey (BBS) as these two projects provide the most comprehensive information on Ontario's bird populations. The OBBA was conducted from 1981 to 1985 (Cadman et al.

1987) and again from 2001 to 2005 (Cadman et al. 2007), with over 121,000 hours and 152,000 hours of observations conducted in the first and second atlases respectively. The BBS has been conducted annually since 1966 across North America and Ontario and over 300 surveys have been conducted within Ontario (Sauer et al. 2011).

Factors thought to be involved in declines are those discussed in relevant COSEWIC and COSSARO reports.

4.1 CHIMNEY SWIFT

Chimney Swift can be thought of as having two components to its habitat: chimneys within which nesting, roosting and reproduction occur and air masses within which foraging takes place. Chimney Swift nest sites have been afforded general habitat protection through the ESA (MNR 2008).

Chimney Swift is an aerial forager of flying insects; a group or guild of bird species that includes swallows, martins, flycatchers, goatsuckers and others . Aerial foragers have experienced widespread population declines since about the 1980's and these declines are suspected to be due, in part, to declining populations of flying insects (McCracken 2008). According to the BBS, the Canadian Chimney Swift population declined 7.8% annually between 1968 and 2005, resulting in a cumulative decline of 95% over that 37-year period (COSEWIC 2007). Similarly, data from the OBBA estimates that the probability of Chimney Swift detection declined by 46% in Ontario between 1981-1985 and 2001-2005. Data from the United States indicates that the species is declining there as well (COSEWIC 2007).

Chimney Swifts are believed to have declined only in part due to drops in flying insect populations. Major losses of nest and roost sites may be a more significant problem. Chimney Swifts are almost entirely dependent upon chimneys for nesting and roosting. Suitable chimneys are larger than 28.5 cm in diameter, offer protection against cold weather and include a rough inner surface of brick, cement, or tile permitting the attachment of nests. . Suitable chimneys also must be freely accessible to Chimney Swifts (Bird Studies Canada, 2009). In recent decades, older chimneys have been modified to improve safety by the addition of spark protectors, animal guards, metal liners and caps. These modifications inadvertently made chimneys inaccessible to Chimney Swifts (COSSARO, 2009; COSEWIC 2007). As well, since about 1960, homes have generally been built with chimneys too small for use by Chimney Swift.

As the dramatic reduction in suitable nesting and roosting sites appears to be a principal cause for declining populations of Chimney Swift, any effort to protect the species would need to focus on protecting remaining nest and roost sites.

4.2 BARN SWALLOW

Like the Chimney Swift, Barn Swallow habitat can be considered to consist of a nest site and foraging habitat. Nests are almost always built on human structures that provide a horizontal nesting surface such as barns, sheds, garages, bridges with exposed beams and road culverts.

Barns have historically been important breeding sites for Barn Swallow and unlike garages, shed and other structures where nest sites are more limited, barns typically support larger colonies of Barn Swallow (COSEWIC 2011a). Barn Swallows forage for flying insects over a variety of relatively open areas such as pastures, fallow land, and farmland of various descriptions, wetlands, road rights-of-way, large forest clearings, cottage areas, islands, sand dunes and lakeshores (COSEWIC 2011a).

Like Chimney Swift, Barn Swallows are aerial foragers and have experienced widespread population declines both within Ontario and across much of North America (COSSARO 2011a). The declines in Barn Swallow populations are likely due in part to reductions in flying insect populations (McCracken 2008). In Canada, long-term BBS data show a statistically significant decline of 3.6% per year between 1970 and 2009, which corresponds to an overall population decline of about 76% over the last 40 years (COSEWIC 2011a). In Ontario, the probability of detection for Barn Swallow declined by 35% between the first and second OBBA (Cadman et al. 2007).

Despite these declines, Barn Swallows remain quite widespread and common in southern Ontario (Cadman *et al.* 2007; COSEWIC 2011a). While it may seem contradictory that a species can be both "at risk" and relatively common and widespread, SAR classification within Ontario considers population trends and threats to a species as well as its current abundance and distribution. For Barn Swallow, classification as a provincially threatened species was made because the population decline is over the threshold level of 30% over the most recent 10-year period (COSSARO 2011a).

While declining populations of flying insects are likely partly responsible for declines in Barn Swallow populations, declines in the number of nest sites may also be involved as older-style wooden farm structures with easy access to nest sites are gradually replaced by modern buildings that lack easy access to suitable nesting sites (COSEWIC 2011a, COSSARO 2011a). Other factors responsible for declining populations are the replacement of grassland and pastures with row crops and urban land uses, use of pesticides, reduction in the fecundity of Barn Swallows and other factors (COSEWIC, 2011a).

4.3 EASTERN MEADOWLARK

The Eastern Meadowlark is most common in native grasslands, pastures and savannahs. It also uses other anthropogenic grassland habitats including hayfields, weedy meadows and grassy airfields. Eastern Meadowlarks occasionally nest in row crop fields such as corn and soybean, but these crops are considered low-quality habitat. Large tracts of grasslands are preferred over smaller fragments: the *Significant Wildlife Habitat Technical Guide* (MNR, 2000) states that 10 ha of suitable habitat are necessary for Eastern Meadowlark breeding. Vegetation structure is also important. Generally, optimal habitat contains moderately tall (25 to 50 cm) grass with abundant litter cover, a high proportion of grass, moderate to high forb density and low shrub and tree cover.

The Eastern Meadowlark is one of a number of grassland species which have shown widespread population declines (McCracken 2005). The Eastern Meadowlark has shown significant declines in Ontario and Canada. Long-term BBS data show a statistically significant population decline of 3.1% per year in Canada between 1970 and 2009, which corresponds to an overall decline of 71% over 40 years (Sauer et al. 2011). The OBBA shows a similar decline with Eastern Meadowlark detected 13% less frequently in Ontario and 16% less frequently in the Carolinian zone in the second Atlas compared to the first 20 years earlier.

Several factors appear to be involved in the species’ declining populations. Habitat loss appears to be a primary factor as grasslands and pastures at the edges of urban areas or in marginal farming areas are abandoned and succeed to forest or shrub-dominated areas. Habitat is also lost when grasslands and pastures are converted to row crops or urban land uses. Other factors that may be involved in declining populations include: changes in farming practices, particularly earlier and more frequent haying that appears to significantly reduce nestling and adult survival; pesticide use; predation; Brown-headed Cowbird parasitism; climate change; and overgrazing by livestock (COSEWIC 2011b; COSSARO 2011b).

4.4 BOBOLINK

The Bobolink nests primarily in forage crops (e.g., hayfields and pastures), abandoned fields dominated by tall grasses and small-grain fields (COSEWIC 2010). In Ontario it was probably originally rare, but its range expanded with the arrival of Europeans and the conversion of forests to forage crops. The Bobolink is sensitive to habitat size; the MNR (2000) suggests that habitat should be at least 50 ha in size to support breeding.

Like Eastern Meadowlark, Bobolink is a grassland species. The Bobolink has significantly declined in Canada and Ontario. In Canada, long-term BBS data show a significant decline of 5.2% per year between 1968 and 2008, which corresponds to a population loss of 88% over the last 40 years (COSEWIC 2010). In Ontario, the OBBA showed a statistically significant decline in the probability of detection of 28% in Ontario and of 10% within the Carolinian zone between 1981-1985 and 2001-2005.

Changing farming practices and habitat loss appear to be the major factors involved in population declines. Haying is occurring earlier in the summer and frequently occurs before Bobolinks fledge. When fields with active nests are cut, mortality of young is 94% (COSEWIC 2010). The conversion of hayfields and pastures to row crops has also played a part in population declines as row crops are rarely used for nesting. Pastures have declined by 35% to 70% between 1981 and 2001 in different regions of Ontario (Cadman et al. 2007). Bobolink breeding habitat has also been lost as farmland near cities have been converted to urban land uses, and abandoned farmland has succeeded to forested or shrub-dominated habitat. Pesticide use on both breeding and wintering grounds, habitat fragmentation, overgrazing by livestock and climate change are also considered potential contributors to population declines (COSEWIC 2010; COSSARO 2010).

5.0 Results

The following reports findings of 2012 surveys for SAR based on all survey types and for non-SAR based on general Breeding Bird Surveys. All data sheets used to record observations are provided in Appendix C.

5.1 CHIMNEY SWIFT

Fruitland-Winona SPA

A significant effort was made to detect Chimney Swift and Chimney Swift accessible chimneys in the SPA. Surveys of chimneys took place at 27 locations on May 17th and 31st, 2012. Additional opportunity to detect Chimney Swifts occurred while conducting non-SAR bird surveys. Such surveys took place at 17 locations throughout the SPA on June 11th/12th, June 25th and July 10th, 2012. The total time spent searching for Chimney Swift within the SPA was approximately 30 hours.

Despite this considerable search effort, Chimney Swift was recorded at only 3 locations within the SPA. Birds observed appeared to be foraging only, flying well above chimneys present, making no effort to enter chimneys and flying over an extensive area. As Chimney Swifts are aerial foragers which fly for much of the day and wander widely from nest and roost sites, the limited observations suggest that the observed swifts nest and roost outside of the SPA but occasionally forage in the air mass above the SPA. Locations where Chimney Swift was encountered were in the vicinity of Highway 8 and are shown in Figure 6.

During surveys of chimneys, chimneys at 27 properties were assessed for suitability based on their dimensions and the presence or absence of safety features such as animal guards, spark protectors, metal liners, and terra cotta liners. At all chimneys examined, it was observed that chimneys were unsuitable for nesting or roosting due to various types of modifications to chimneys which prevent swifts from entering.

Based on the unsuitability of chimneys, the limited number of Chimney Swift sightings and the behaviour of those swifts observed, Chimney Swifts do not appear to nest or roost within the SPA.

Scube Parcels

A significant effort was also made to detect Chimney Swift and Chimney Swift accessible chimneys in the Scube parcels. Surveys of chimneys took place on June 26th, July 4th and 12th, 2012 using the Chimney Swift Monitoring Protocol at 13 locations. As with the SPA, additional opportunity to detect Chimney Swifts occurred while conducting non-SAR bird surveys which took place on June 26th, July 4th and July 12th, 2012 at 17 locations. Despite a search effort of approximately 10 hours during dedicated Chimney Swift surveys and an additional time of approximately 15 hours during general breeding bird surveys, Chimney Swift was not recorded within any of the Scube parcels during any component of fieldwork (Figure 6).

Chimneys were assessed for suitability for Chimney Swift nesting and roosting on June 26th, July 4th and 12th, 2012 using the Chimney Swift Monitoring Protocol at 13 locations. No chimneys were found which appeared suitable for use by Chimney Swift. Only Scube Central had a significant number of buildings with chimneys, but these chimneys all had modifications such as animal guards and metal liners which prevent Chimney Swift from entering the chimney. Chimneys were found to be almost entirely lacking in the Scube East 'A' and Scube East 'B' parcels due to buildings being only rarely present.

Based on the lack of Chimney Swift sightings and the unsuitability of chimneys, Chimney Swifts do not appear to nest or roost within the Scube Parcels.

5.2 BARN SWALLOW

Fruitland-Winona SPA

Barn Swallows are common and widespread within the SPA. They were observed at 17 locations and were encountered on surveys conducted May 17th and 31st, June 11th, 12th and 25th and July 10th, 2012. Birds were encountered on general Breeding Bird Surveys, Bobolink and Eastern Meadowlark surveys and Chimney Swift surveys. Surprisingly, no Barn Swallows or Barn Swallow nests were encountered at the seven watercourse crossing locations. Overall, the species was encountered with such frequency that it was one of the most widespread species in the SPA (Table 1). The locations of observed birds are shown in Figure 7. The abundance of Barn Swallow within the SPA may seem at odds with its status as a provincially threatened SAR but its provincial status is based on declining numbers (COSSARO 2011a) rather than rarity and our results are in accord with results of the second OBBA which showed it to be present in almost all parts of southern Ontario (Cadman et al. 2007).

Birds were observed to preferentially forage over cultural meadows, abandoned farmland, agricultural fields and mown lawns. These habitats are all herbaceous-dominated and consistent with descriptions of foraging habitat provided in COSEWIC (2011a). Field investigations and aerial photography show such herbaceous-dominated areas to dominate the majority of the SPA and the ubiquity of this type of habitat likely accounts for the abundance of the species within the SPA. When observed, Barn Swallows were found in small numbers (<10) rather than large concentrations.

During fieldwork it was observed that apparently suitable nest sites for Barn Swallow such as sheds and garages were common within the SPA. While these structures were not counted they may number several hundred. These apparently suitable structures are for the most part associated with private residences which are common along all roadways and not within the interior of land parcels. Field investigations also determined that barns which could support larger Barn Swallow colonies were not present within the SPA. Therefore it is expected that sheds, garages and other structures associated with private residences are the most frequently used and important structures for Barn Swallow nesting. Observations which would suggest nesting in these structures such as birds entering/leaving buildings were limited but did occur. Unlike barns which can support larger colonies (COSEWIC 2011a), individual sheds and garages within the SPA likely typically support only one or two pairs due to their relatively limited space.

Barn Swallow nests were specifically searched for at 7 locations where roadways within the SPA crossed watercourses (Figure 2). This specific effort was made because Barn Swallows frequently nest on the exposed horizontal beams that support many bridges. Barn Swallow nests were not observed at any of the 7 watercourse crossings and watercourses were found to be spanned by box culverts or corrugated steel pipes rather than bridges. The box culverts and corrugated steel pipes which span watercourses within the SPA do not provide Barn Swallow nesting opportunities due to the lack of horizontal structures upon which swallows could build nests, their relatively small height and width (1 to 2 metres) and the presence of vegetation at the ends of culverts which appears likely to obstruct Barn Swallows from entering.

Scube Parcels

Barn Swallows are common and widespread within the Scube parcels. They were observed at 14 locations within the Scube parcels distributed across all Scube Parcels. Barn Swallows were observed on surveys conducted June 26th, July 4th and July 12th, 2012 both during general Breeding Bird and dedicated Chimney Swift surveys. The locations of observed birds are shown in Figure 7 and the relevant data sheets are provided in Appendix B.

Birds observed were foraging over cultural meadows, abandoned farmland and mown lawns. Field investigations and aerial photography show such areas to dominate the majority of the Scube Parcels and the ubiquity of this type of habitat likely accounts for the abundance of the species within the Scube Parcels. When observed, Barn Swallows were found in small numbers (<10) rather than large concentrations.

Field investigations determined that apparently suitable nest sites such as sheds and garages were common within the Scube Central parcel and concentrated along existing roadways and not within the interior of land parcels. Scube East Parcel 'A' and Scube East Parcel 'B' had very limited number of garages, sheds and other potential nest sites within them. Field investigations also determined that barns which often support larger colonies in Ontario were not present within the Scube parcels.

Watercourse crossings which have the potential to allow Barn Swallow nesting under bridges were limited to a crossing of a creek along the South Service Road to the east of Fifty Road. No Barn Swallows or their nests were observed at this watercourse (Appendix B). Field investigations determined that this watercourse is spanned by a relatively large box culvert which does not provide nesting opportunities due to the lack of ledges upon which swallows could build nests, and the presence of vegetation at the ends of culverts which appeared to obstruct entrance to the culverts.

5.3 EASTERN MEADOWLARK

Fruitland-Winona SPA

A significant effort was made to detect Eastern Meadowlark in the SPA. Dedicated Eastern Meadowlark surveys took place at 10 locations with suitable habitat located throughout the SPA on June 11th/12th, June 25th and July 10th, 2012. General breeding bird surveys which can also detect Eastern Meadowlark took place at an additional 7 locations on June 11th/12th, June 25th and July 10th, 2012. The total time spent searching for Eastern Meadowlark within the SPA was approximately 15 hours.

Despite this significant search effort, Eastern Meadowlarks were not observed within the SPA during surveys dedicated to this species or during other fieldwork (Figure 8). The lack of observations occurred despite the conspicuous nature of the species and the observers' prior experience with the species. When present, the Eastern Meadowlark is easily detected as its breeding songs and calls are distinctive and its frequent flights above grasslands are conspicuous. The absence of sightings during our 2012 investigations provides good evidence that no Eastern Meadowlark breeding occurred this year within the SPA.

Habitat within the SPA appears unsuitable for Eastern Meadowlarks for two reasons. First, grassland habitats within the SPA are relatively small compared to the 10 ha value cited in the *Significant Wildlife Habitat Technical Guide* (MNR, 2000). Second, herbaceous vegetation appears to be denser, higher and composed of a high frequency of forbs relative to grasses compared to optimal habitat preferred by Eastern Meadowlarks (Zimmerman 1992; Bollinger 1995). Optimal habitat for Eastern Meadowlark is considered to consist of sparse, short, patchily-distributed, grass-dominated vegetation. Third, shrubs and tree saplings appear to be too frequent within abandoned farmland for Eastern Meadowlark. Shrub and tree cover values of 5% are considered optimal for Eastern Meadowlark habitat (COSEWIC 2011b) but shrub and tree cover within the SPA appeared to significantly exceed this value. As the shrub and tree saplings already present will likely increase in density and height, the suitability of the land for breeding by Eastern Meadowlark will only decrease in the future.

Scube Parcels

Search effort for Eastern Meadowlark within the Scube Parcels was considerable with searches occurring at 17 locations on June 26th, July 4th and July 12th, 2012. Despite a search effort of approximately 15 hours within the Scube parcels, Eastern Meadowlarks were detected at only three locations within the Scube parcels, all in the vicinity of Lewis Road (Figure 8). Birds were encountered at these sites only on the initial survey (June 26th) and appeared to be absent on subsequent surveys (July 4th and 12th) at the same locations. Due to its frequent vocalizations, Eastern Meadowlark is a fairly conspicuous species and the lack of sightings on July 4th and 12th suggests the species may have abandoned the sites between the first and subsequent surveys.

Habitat within the Scube parcels was compared to optimal Eastern Meadowlark habitat as described in COSEWIC (2011b**)** and the *Significant Wildlife Habitat Technical Guide* (MNR, 2000). To be suitable for occupancy, grassland habitat must be 10 ha or larger (MNR 2000). However, within the Scube parcels, hedgerows, shrubs and treed areas are frequent and appear to fragment grassland habitat into areas less than 10 ha in size. Second, optimal shrub and tree cover is considered to be 5% for Eastern Meadowlark (COSEWIC 2011b) but shrub and tree cover within herbaceous-dominated areas appears to exceed this value. Due to insufficient sizes and excessive woody cover, habitat for Eastern Meadowlark appears to be marginal within the Scube parcels.

5.4 BOBOLINK

Fruitland-Winona SPA

Despite three surveys conducted specifically to detect Bobolink at 10 point count locations and an additional three surveys conducted for breeding birds in general at 17 point count locations, Bobolinks were observed in only one part of the SPA. These sightings occurred between Fruitland and Jones Roads where a mixed meadow several hectares in size exists (Figure 8). During the June 11th, 2012 survey, 4 male and 1 female Bobolink were observed in a mixed meadow. Two males appeared agitated by the observer's presence and the female appeared paired with one of the males. These observations suggest that at this date, Bobolinks were attempting to breed within the area. During the second and third surveys conducted June 25th and July 10th, 2012, no Bobolinks were observed in the same area. Their absence at these later dates suggests the birds had abandoned the mixed meadow as it is unlikely that birds would have successfully bred and then dispersed from the area by these dates.

The area Bobolinks were observed within had earlier been identified as a fresh-moist mixed meadow (Aquafor Beech, 2012). Habitat within this area was compared to optimal Bobolink habitat as described in COSEWIC (2010) and the *Significant Wildlife Habitat Technical Manual* (MNR 2000). Optimal Bobolink habitat has a low frequency of shrub and tree cover within the dominant herbaceous vegetation (COSEWIC 2010). While conducting fieldwork, it was observed that the mixed meadow had inclusions of old hedgerows and stands of trees and shrubs and that the number of new saplings and shrubs was high, making the area unsuitable as Bobolink habitat. Further evidence of the unsuitability of the area for Bobolink is based on the area occupied. The *Significant Wildlife Habitat Technical Manual* states that 50 ha or more of habitat is required for occupancy by Bobolink. Within the SPA, the area occupied by Bobolink was estimated by creating a polygon from observation locations and determining the enclosed area. This area was determined by be 7 ha, far below the 50 ha value cited in the *Technical Manual*.

During the July 10th, 2012 survey, 2 male and one female/juvenile Bobolinks overflew the area. Based on their behaviour, these birds appeared to be post-breeding individuals moving through the area. Fall migration of this species begins in mid-to-late July, with adults and immature birds forming loose flocks close to the breeding grounds (COSEWIC, 2010).

Scube Parcels

Despite a search effort of approximately 15 hours which included three surveys for breeding birds in general at 17 locations and three surveys specifically for Bobolink at one location, no evidence that Bobolink breed within the Scube parcels was obtained. During surveys conducted June 26th and July 4th, Bobolink was not observed at any locations despite the conspicuous nature of this species with its frequent singing and flights over open grasslands. The absence of sightings provides good evidence that Bobolinks do not breed within the Scube Parcels.

On the July 12th survey, Bobolink was observed at one location (Figure 8). At this location, three Bobolinks were observed to overfly the area, moving in an easterly direction without stopping. Fall migration of this species begins in mid-to-late July, with adults and immature birds forming loose flocks close to the breeding grounds (COSEWIC, 2010). The three individuals observed overflying the Scube parcels were judged to be post-breeding birds engaged in this behavior.

As with the SPA, habitat within the Scube parcels was compared to optimal Bobolink habitat as described in COSEWIC (2010) and the *Significant Wildlife Habitat Technical Manual* (MNR 2000). Optimal Bobolink habitat has a low frequency of shrub and tree cover within the dominant herbaceous vegetation (COSEWIC 2010). While conducting fieldwork, it was observed that no land was being farmed and that fallow land was a mix of herbaceous meadows, thickets and early succession forest. As with the SPA, herbaceous dominated areas appeared to include a frequency of shrubs and saplings sufficiently high that these areas would be unsuitable for Bobolink. As well, no area of herbaceous-dominated vegetation was near in size to the 50 ha value cited in The *Significant Wildlife Habitat Technical Manual* (MNR 2000). It was also noted during fieldwork that some portions of the Scube parcels are being developed for residences.

Our observations that much of the Scube parcels are succeeding to tree and shrub-dominated communities or are being developed for residences, coupled with the lack of breeding evidence, strongly suggests that the Scube parcels lack breeding Bobolink and that the species will continue to be absent from the area.

5.5 COMMON NIGHTHAWK

Common Nighthawk (*Chordeiles minor*) has been designated as a species of Special Concern on the SARO list and when observed is often within urban areas (Cadman et al. 2007). Surveys for this species were not included within the work plan but one individual was observed during the Chimney Swift chimney assessment carried out May 31st. The individual observed was flying about 100 m above the ground in an erratic manner and appeared to be foraging in the way characteristic of its species. No behavior was observed which would suggest nesting. As a species of special concern, the Common Nighthawk and its habitat are not protected through the ESA (2007).

5.6 COMMON SPECIES

The following section reports findings of 2012 general Breeding Bird Surveys with respect to all species of breeding birds including SAR. SAR results are discussed in more detail in Sections 5.1 through 5.5.

Fruitland-Winona SPA

A total of 44 species were encountered within the SPA. These species are listed in Table 1 (Appendix B) from the most frequently encountered to least frequently encountered species. Of the 44 species encountered, 26 are considered to be common and widespread within Ontario (S5 rank), 14 are considered uncommon but not rare within Ontario (S4 rank) and 2 species are not native to Ontario.

Species observed are adaptive to a wide variety of habitat and capable of using small, fragmented areas of suitable habitat. Examples of such species include American Robin (*Turdus migratorius*), Song Sparrow (*Melospiza melodia*), Northern Cardinal (*Cardinalis cardinalis*), American Goldfinch (*Carduelis tristis*) and Brown-headed Cowbird (*Molothrus ater*). Each of these species was encountered at 10 or more locations within the SPA. Due to their abundance and widespread distributions within Ontario, these species are not considered of conservation concern. The provincially threatened Barn Swallow was also widespread (10 locations) and is discussed in Section 5.2.

The least frequent species were 11 species encountered at only 1 location. These species were Red-tailed Hawk, (*Buteo jamaicensis*), American Kestrel (*Falco sparverius*), American Woodcock (*Scolopax minor*), Black-billed Cuckoo (*Coccyzus erythropthalmus*), Downy Woodpecker (*Picoides pubescens*), Northern Flicker (*Colaptes auratus*), Alder Flycatcher (*Empidonax alnorum*), Warbling Vireo (*Vireo gilvus*), White-breasted Nuthatch (*Sitta carolinensis*), Brown Thrasher (*Toxostoma rufum*) and Swamp Sparrow (*Melospiza georgiana*). Although these species were only infrequently found within the SPA, they are still relatively common species within Ontario with wide distributions (S4 and S5 species) and are not of conservation concern.

Within the SPA, most species encountered have relatively stable populations. Thirty of 44 species encountered did not show any statistically significant change in numbers between the two OBBAs in the Carolinian zone (Table 1). Relatively stable species include most of the more widespread species such as Northern Cardinal, Song Sparrow, Gray Catbird and Brown-headed Cowbird and the Barn Swallow, which was reported as stable in the Carolinian zone, even though this species was reported as showing statistically significant declines in the province as a whole based on the OBBA work.

Statistically significant declines over the OBBA periods were reported in 11 of the 44 species encountered (Table 1). Declining species included four aerial insectivores, five grassland/shrub species, one wetland and one forest species.

Declines in aerial insectivores are possibly due to declines in aerial insects, pesticides use both on breeding grounds and wintering areas, loss of habitat and for Chimney Swift, loss of nesting and roosting sites (North American Bird Conservation Initiative Canada. 2012; Nebel *et al.* 2010). Declining aerial insectivores encountered within the SPA were Chimney Swift, Northern Rough-winged Swallow, Common Nighthawk and Eastern Kingbird.

Grassland and shrub dwelling species have shown widespread declines in much of North America (North American Bird Conservation Initiative Canada. 2012). The decline in grassland/shrub species appears to be due to: the loss of habitat as grasslands/shrub habitat is replaced by urban development near urban areas or reforested on marginal farmland; as pastures are replaced by row crops and hedgerows are removed; and through increases in pesticide and herbicide use (North American Bird Conservation Initiative Canada. 2012). Declining grassland/shrub species detected consisted of Field Sparrow, Bobolink, American Kestrel, Brown Thrasher and Eastern Kingbird, which is also considered a member of the aerial insectivores.

The wetland species encountered within the SPA which has shown declines within the Carolinian zone is the American Woodcock while the forest-dwelling species is the Northern Flicker.

Three species encountered within the SPA have had statistically significant population increases within the Carolinian zone; these species are House Finch, Cooper's Hawk and Black-capped Chickadee. The House Finch has shown a large population increase between 1981/85 and 2001/05. During this time period the species colonized southern Ontario after being introduced in New York state (Cadman et al. 2007). Cooper's Hawk has also increased greatly after adapting to urban landscapes (BirdLife International (2012). The Black-capped Chickadee population increase is much smaller but still statistically significant. Population increases are possibly due to an increase in the amount of forest habitat (North American Bird Conservation Initiative Canada. 2012).

Scube Parcels

A total of 45 species were encountered within the Scube parcels and these are listed in Table 2 (Appendix B) from the most frequently encountered to least frequently encountered species. Of species encountered, 24 are considered to be common and widespread within Ontario (S5 rank), 18 species are considered uncommon but not rare within Ontario (S4 rank) and 3 species are not native to Ontario.

As with the SPA, species were adaptive to a wide variety of habitat and capable of using small, fragmented areas of suitable habitat. The most widespread species were largely the same as within the SPA: American Robin, Northern Cardinal, Red-winged Blackbird (*Agelaius phoeniceus*), American Goldfinch, Song Sparrow and Brown-headed Cowbird were all encountered at 15 or more locations. These species are not considered of conservation concern.

The least frequently encountered species were 7 species encountered at 1 location: American Kestrel, Downy Woodpecker, Eastern Phoebe (*Sayornis phoebe*), Purple Martin (Progne subis), White-breasted Nuthatch (*Sitta carolinensis*), Indigo Bunting (*Passerina cyanea*) and Purple Finch (*Carpodacus purpureus*).

Barn Swallow, Eastern Meadowlark and Bobolink, all of which are provincially threatened, were all encountered within the Scube parcels. The Barn Swallow was observed at 14 locations (Figure 4) while the Eastern Meadowlark and Bobolink were observed at 3 and 1 locations respectively. These SAR are discussed in Sections 5.2 through 5.5.

The comparison of birds encountered in the Scube parcels and the list of increasing, decreasing and relatively stable species, based on the two OBBAs, yielded results similar to the SPA area. Of the 45 species encountered, 27 have shown relatively stable populations within the larger Carolinian zone between 1981/85 and 2001/05 (Table 2). Relatively stable species again include most of the species which are widespread in the Scube Parcels such as American Robin, Red-winged Blackbird, Mourning Dove, Song Sparrow and the Barn Swallow although this species has shown statistically significant declines in the province as a whole.

Statistically significant (<0.1) declines have occurred in 12 of the 45 species encountered within the Scube parcels (Table 1). Declining species included three aerial insectivores, six grassland/shrub species and three forest species. Declining aerial insectivores encountered within the Scube parcels were Northern Rough-winged Swallow, Eastern Kingbird and Purple Martin. Declines in aerial insectivores are possibly due to declines in aerial insects, pesticides use both on breeding grounds and wintering areas and loss of habitat (North American Bird Conservation Initiative Canada. 2012; Nebel *et al.* 2010).

Grassland/shrub species encountered within the Scube parcels which have declined significantly in the Carolinian zone are Eastern Meadowlark, Field Sparrow, Bobolink, Brown Thrasher, American Kestrel and Eastern Kingbird which is a shrub-dwelling species as well as an aerial insectivore.

Forest-dwelling species encountered within the Scube parcels which have declined significantly in the Carolinian zone are Northern Flicker, Indigo Bunting and Purple Finch.

One additional declining species was encountered whose habitat is difficult to categorize. This species, the Killdeer, typically forages and nests on lawns and bare soil.

6.0 Discussion

The following section evaluates habitat in the SPA and Scube Parcels in terms of their potential use by Bobolink, Eastern Meadowlark, Barn Swallow, Chimney Swift and common species. No areas are recommended for preservation for these species due to small or non-existent populations, poor quality habitat which appears to be further declining in value as breeding habitat, and for Barn Swallows, the lack of concentrated breeding or foraging areas.

6.1 CHIMNEY SWIFT

Fruitland-Winona SPA

No areas within the SPA are recommended for preservation as a means of preserving the provincially threatened Chimney Swift..

The primary reason for not protecting any portion of the SPA for Chimney Swift populations is that the species appears to be limited to occasional foraging within the air mass above the SPA. Nesting appears to occur somewhere outside of the SPA.

Secondly, it was observed that chimneys in the SPA were unsuitable for nesting or roosting by this species due to modifications to chimneys which increase safety but prevented Chimney Swift from entering.

Scube Parcels

No areas within the Scube Parcels are recommended for preservation as a means of preserving the provincially threatened Chimney Swift. The rationale for this conclusion is as follows.

Based on our 2012 surveys, the Chimney Swift does not appear to occur within the Scube Parcels (Figure 6).

Secondly, it was observed that chimneys in the Scube Parcels were unsuitable for nesting or roosting by this species due to the absence of chimneys in the Scube East ‘A’ and Scube East ‘B’ parcels, and the modifications to chimneys which had occurred in the Scube Central parcel.

6.2 BARN SWALLOW

Fruitland-Winona SPA

No areas within the SPA are recommended for preservation as a means of preserving the provincially threatened Barn Swallow. This conclusion is based on the lack of concentrated foraging and nesting areas for Barn Swallows. The absence of areas where Barn Swallows nest or forage in large numbers means that protecting specific areas would be ineffective in protecting a large proportion of birds currently present. In addition, because Barn Swallow populations appear to be falling in part due to declining numbers of flying insects, and because numbers of flying insects are expected to continue to fall (McCracken, 2008), retention of specific nest sites and/or foraging areas is not likely to prevent Barn Swallow numbers from falling within the SPA.

Scube Parcels

No areas within the Scube Parcels are recommended for preservation as a means of preserving the provincially threatened Barn Swallow. This conclusion is based on the lack of concentrated foraging and nesting areas for Barn Swallows. The absence of areas where Barn Swallows nest or forage in large numbers means that protecting specific areas would be ineffective in protecting a large proportion of birds currently present. In addition, because Barn Swallow populations appear to be falling in part due to declining numbers of flying insects, and because numbers of flying insects are expected to continue to fall (McCracken, 2008), retention of specific nest sites and/or foraging areas is not likely to prevent Barn Swallow numbers from falling within the Scube Parcels.

6.3 EASTERN MEADOWLARK

Fruitland-Winona SPA

No areas within the SPA are recommended for preservation as a means of preserving the provincially threatened Eastern Meadowlark.

The principal reason for not protecting land for Eastern Meadowlark within the SPA is that the species already appears to be absent. This conclusion is based on the findings of our 2012 surveys which did not detect Eastern Meadowlark within any part of the SPA (Figure 8).

A second reason for not protecting land for Eastern Meadowlark populations within the SPA is that habitat within the SPA appears to be unsuitable for Eastern Meadowlarks due to the insufficient size of grasslands present and excessive amounts of shrub and tree cover within grassland areas.

Succession of fallow land within the SPA from herbaceous-dominated to shrub and tree-dominated communities is widespread and has made the SPA unsuitable for Eastern Meadowlark breeding. This same process of succession is also occurring within marginal farmland across much of Ontario and North America and causing declining populations in these much larger areas (COSSARO 2011b).

Scube Parcels

No areas within the Scube Parcels are recommended for preservation as a means of preserving the provincially threatened Eastern Meadowlark.

The primary reason for not protecting land for Eastern Meadowlark populations within the Scube Parcels is that populations are small. This conclusion is based on our 2012 surveys which found only three individuals during approximately 15 hours of field investigations.

A second reason for not protecting land for Eastern Meadowlark populations within the Scube Parcels is that habitat within the Scube parcels appears to be unsuitable for Eastern Meadowlarks due to insufficient size and excessive woody cover.

The reforestation of fallow land within the Scube Parcels is reducing the suitability of habitat for Eastern Meadowlark. This same process is also occurring within marginal farmland across much of Ontario and North America and causing declining populations in these much larger areas (COSSARO 2011b).

6.4 BOBOLINK

Fruitland-Winona SPA

No areas within the SPA are recommended for preservation as a means of preserving the provincially threatened Bobolink.

The first reason for not protecting land for Bobolink populations within the SPA is that the Bobolink population is already small and likely declining.

The second reason for not protecting land for Bobolink populations within the SPA is that Bobolink habitat within the SPA is of marginal and decreasing value to Bobolinks due to insufficient area and the high frequency of shrub and sapling growth. Within several years, this growth in the amount of woody vegetation will likely result in the disappearance of Bobolink as a breeding species from the SPA.

The succession of abandoned farmland from herbaceous-dominated to shrub and tree-dominated communities which is occurring within the SPA is an example of the larger scale succession of abandoned farmland across Ontario and much of North America which is considered to be a major factor in the species’ decline within Ontario and much of North America (COSSARO 2010).

Scube Parcels

No areas within the Scube Parcels are recommended for preservation as a means of preserving the provincially threatened Bobolink..

The first reason for not protecting land for Bobolink populations within the Scube Parcels is that a breeding population within these parcels already appears to be absent. This conclusion is based on the findings of our 2012 surveys

The second reason for not protecting land for Bobolink populations within the Scube Parcels is that habitat within the Scube parcels already appears to be unsuitable for Bobolinks due to the insufficient size of habitats and the high and increasing frequency of shrub and tree cover.

6.5 COMMON SPECIES

Fruitland-Winona SPA

Forty-four species of birds were encountered within the SPA and these included four Species at Risk (Chimney Swift, Barn Swallow, Common Nighthawk and Bobolink) (Table 1). Most species encountered likely breed within the SPA and are common, widespread species within Ontario (S5), are uncommon but not rare within Ontario (S4) or are non-native species to Ontario (SNA). The majority of species are widespread because they commonly nest and forage in small and fragmented areas of suitable habitat such as occurs within the studied areas.

No portions of the SPA are recommended for preservation to protect common bird species found within them. This is because most common species present have stable numbers, are widespread within Ontario and adaptive to human development to the extent that that they will continue to occur in developed areas, using planted trees and shrubs for nesting. Examples of such species include American Robin, Chipping Sparrow and American Goldfinch. Additional common species found within the SPA are declining in the larger Carolinian zone but preservation of habitat for these species within the SPA is not recommended due to the ineffectiveness of habitat protection in a small portion of these species' ranges to reverse declining populations at much larger scales. For example, Field Sparrow, Eastern Kingbird, Northern Rough-winged Swallow and American Woodcock are all declining in the Carolinian zone, but protecting the limited habitat for these species found within the SPA will not effectively reverse population declines throughout the Carolinian zone. Other species which currently occur such as Willow Flycatcher, Savannah Sparrow and Northern Flicker are expected to disappear from the SPA as a result of development, but their expected disappearance is not considered sufficient cause to preserve the area as they are widespread within Ontario and not considered to be of conservation concern. Area-sensitive species of forest, grassland and wetland are often of conservation concern in areas with extensive development such as occurs within the SPA and Scube Parcels because suitable large areas of forest, grassland and wetland are infrequent in such areas. Within the SPA, 3 of 44 species found (Bobolink, Cooper's Hawk and White-breasted Nuthatch) are considered to be area-sensitive species. Based on the fragmented nature of habitat within the SPA, it cannot be considered important habitat for area-sensitive species.

Scube Parcels

Forty-five species of birds were encountered within the Scube Parcels including three Species at Risk (Barn Swallow, Bobolink and Eastern Meadowlark) (Table 2). All species encountered likely breed within the Scube Parcels and are common, widespread species within Ontario (S5), are uncommon but not rare within Ontario (S4) or are non-native species to Ontario (SNA). The majority of species are widespread because they commonly nest and forage in small and fragmented areas of suitable habitat such as occurs within the studied areas.

No portions of the Scube Parcels are recommended for preservation to protect common bird species found within them. This is because most species present are common and widespread within Ontario and are adaptive to human development such that many will continue to occur in developed areas, using planted trees and shrubs for nesting. As with the SPA, additional common species found within the Scube Parcels are declining in the larger Carolinian zone but preservation of habitat for these species within the Scube parcels is not recommended due to the ineffectiveness of habitat protection in a small portion of these species' ranges to reverse declining populations at much larger scales. For example, Field Sparrow, Eastern Kingbird, Northern Rough-winged Swallow and American Woodcock are all declining in the Carolinian zone, but protecting habitat for these species within the Scube parcels will not effectively reverse population declines throughout the Carolinian zone. With development, some species are expected to disappear such as Willow Flycatcher, Gray Catbird and Savannah Sparrow however these species are not considered to be of conservation concern. Area-sensitive species of forest, grassland and wetland were limited to 3 of 45 species (Bobolink, Eastern Meadowlark and White-breasted Nuthatch) detected within the Scube Parcels. Based on the fragmented nature of habitat within the Scube Parcels, it cannot be considered important habitat for area-sensitive species.

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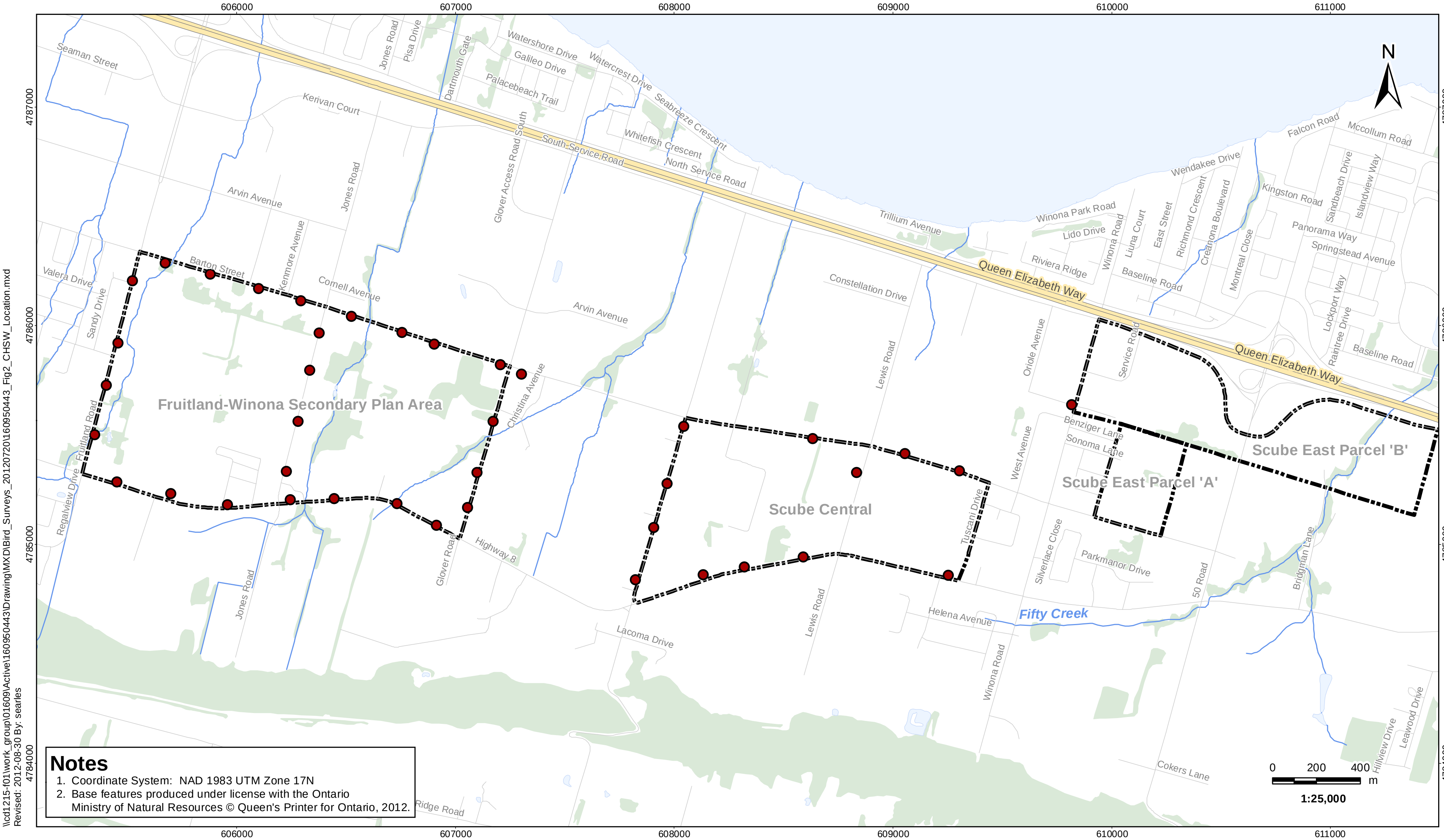
APPENDIX A:
Figures



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
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August 2012
160950443

Stantec

Legend

- Chimney Swift Survey Location
- Study Area
- Road
- Highway
- Watercourse
- Waterbody
- Woodlot

Client/Project

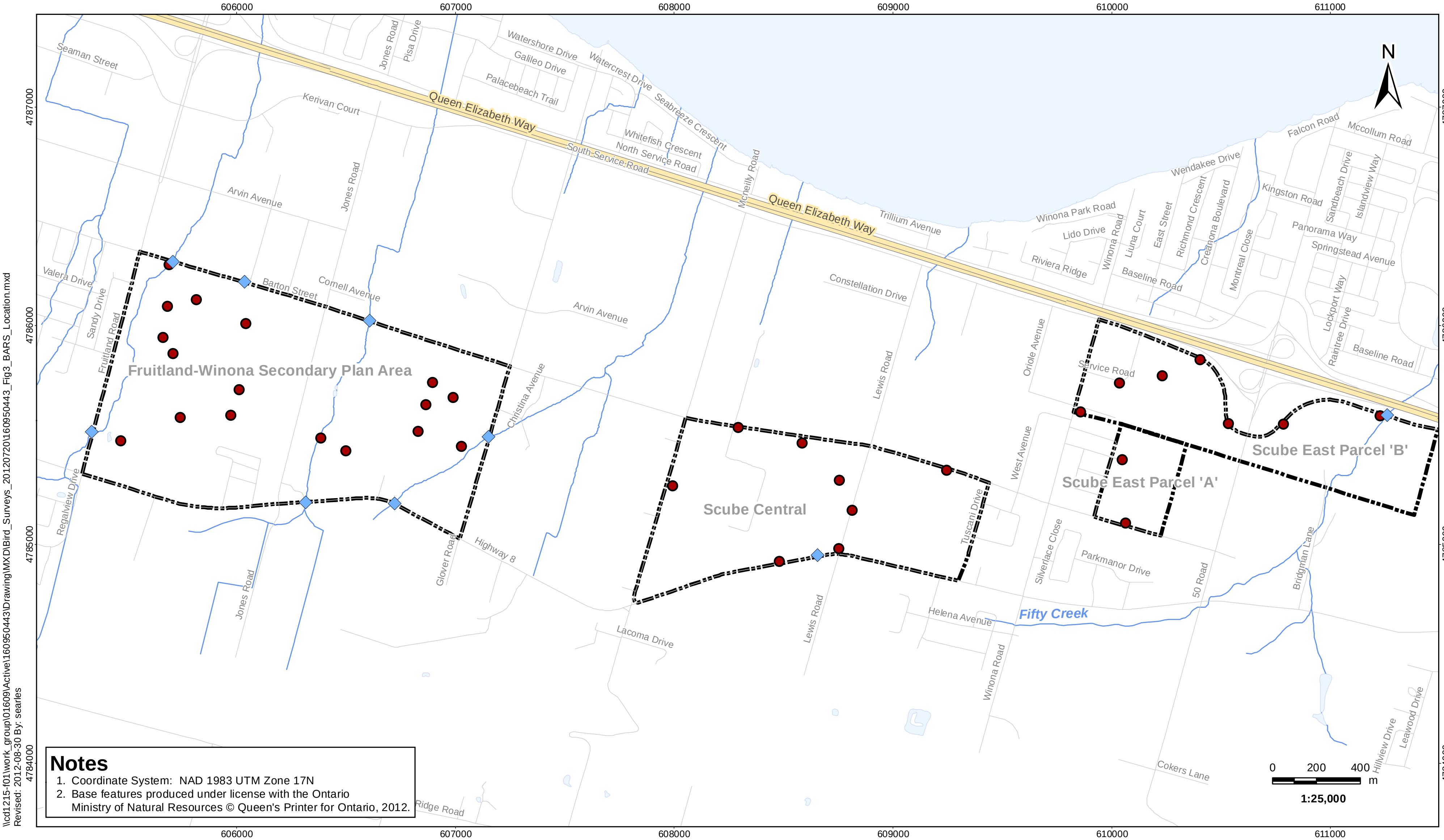
City of Hamilton
SAR Surveys

Figure No.
2

DRAFT

Title

Chimney Swift Survey Location



August 2012
160950443

Legend

- Barn Swallow Survey Location
- Barn Swallow Nest Search Location
- Study Area
- Road
- Highway
- Watercourse
- Waterbody

Stantec

Client/Project

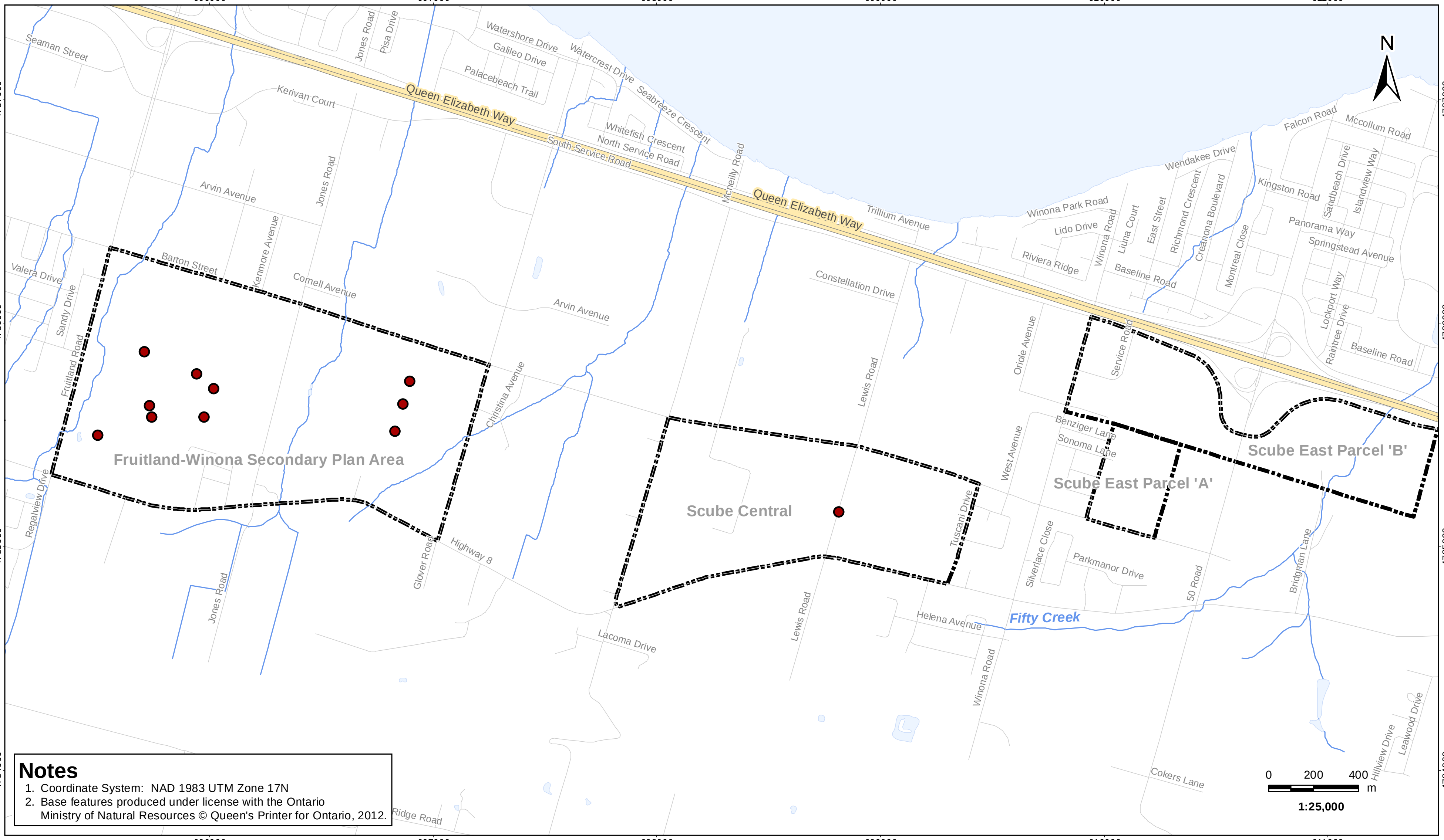
City of Hamilton
SAR Surveys

Figure No.
3

DRAFT

Title

Barn Swallow Survey Location



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
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\\cd1215-f01\work_group\01609\Active\160950443\Drawing\MXD\Bird_Surveys_20120720\160950443_Fig4_BOBO_EAME_Location.mxd
Revised: 2012-08-30 By: searles

August 2012
160950443

Stantec

Legend

- Bobolink/Eastern Meadowlark Survey Location
- Study Area
- Road
- Highway
- Watercourse
- Waterbody

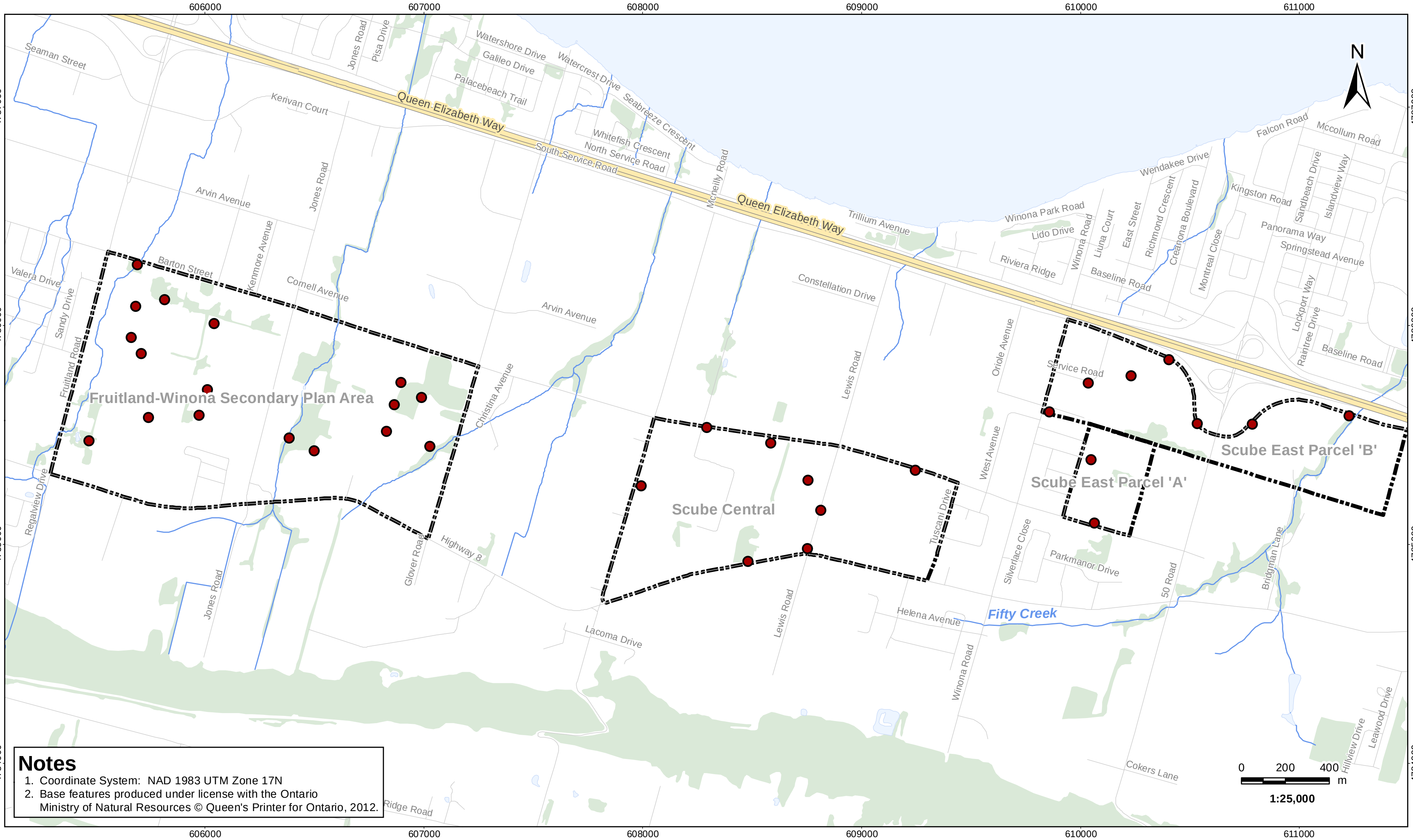
Client/Project

City of Hamilton
SAR Surveys

Figure No.
4 **DRAFT**

Title

Bobolink & Eastern Meadowlark Survey Location



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
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Revised: 2012-08-30 By: searles

August 2012
160950443

Stantec

Legend

- Breeding Bird Survey Location
- Study Area
- Road
- Highway
- Watercourse
- Waterbody
- Woodlot

Client/Project

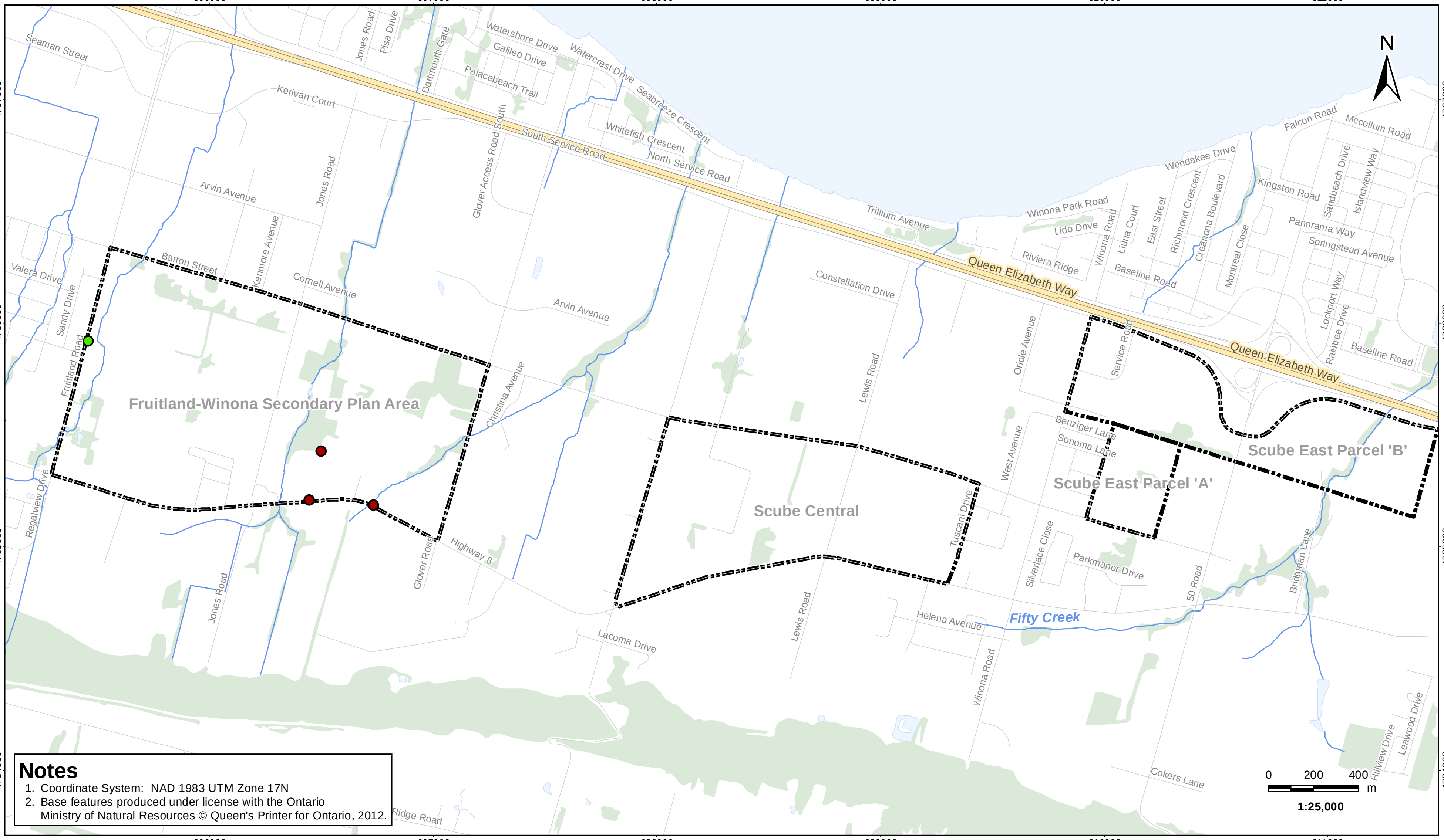
City of Hamilton
SAR Surveys

Figure No.
5

DRAFT

Title

Breeding Bird Survey Locations



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Revised: 2012-08-30 By: searles

August 2012
160950443

Stantec

Legend

- Common Nighthawk Sighting Location
- Chimney Swift Sighting Location
- Study Area
- Road
- Highway
- Watercourse
- Waterbody
- Woodlot

Client/Project

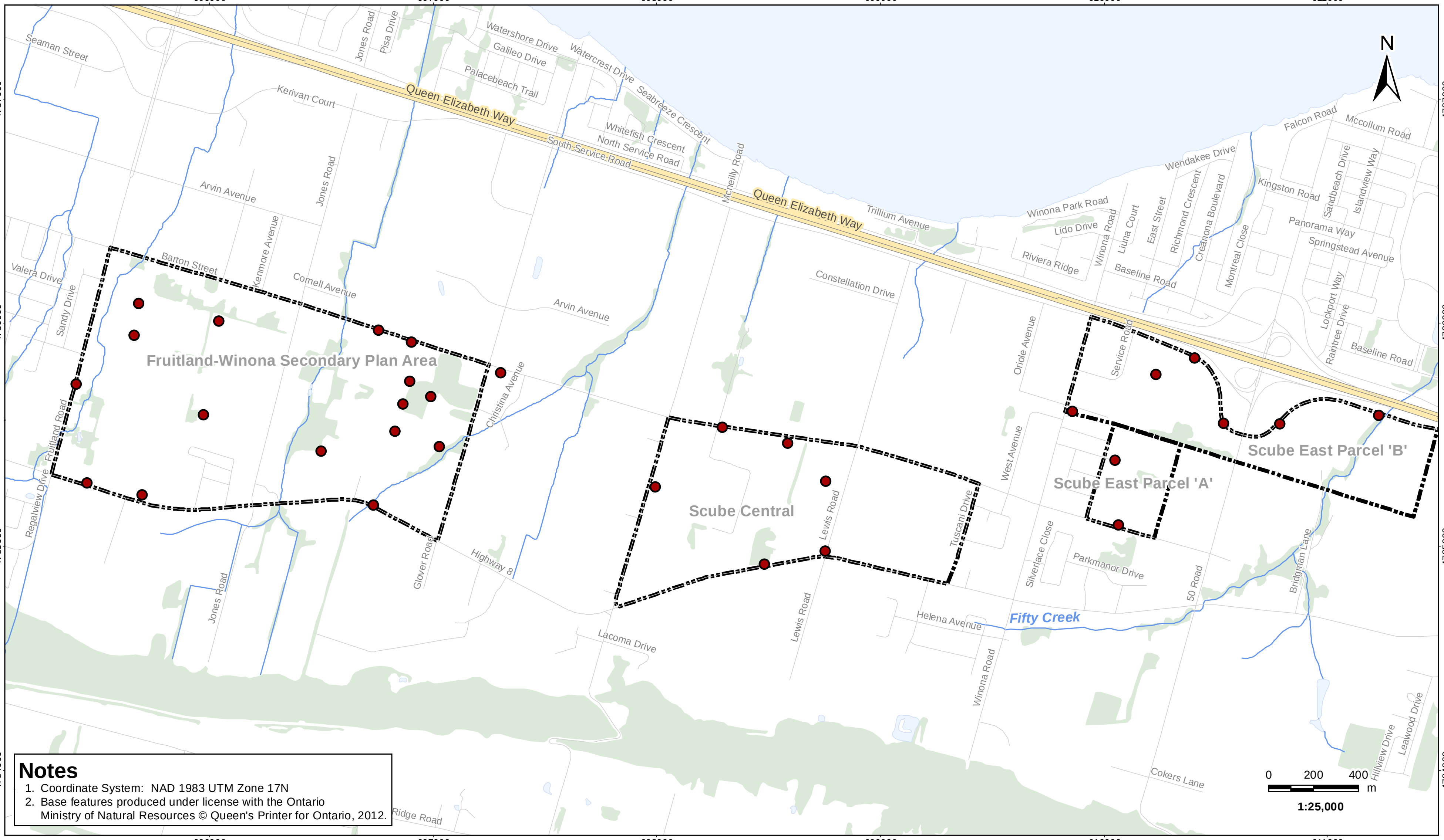
City of Hamilton
SAR Surveys

Figure No.
6

DRAFT

Title

Chimney Swift & Common Nighthawk Sighting Location



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
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\\cd1215-f01\work_group\01609\Active\160950443\Drawing\MXD\Bird_Surveys_20120720\160950443_Fig7_BARS_Sightings.mxd
Revised: 2012-08-30 By: searles

August 2012
160950443

Stantec

Legend

- Barn Swallow Sighting Location
- Study Area
- Road
- Highway
- Watercourse
- Waterbody
- Woodlot

Client/Project

City of Hamilton
SAR Surveys

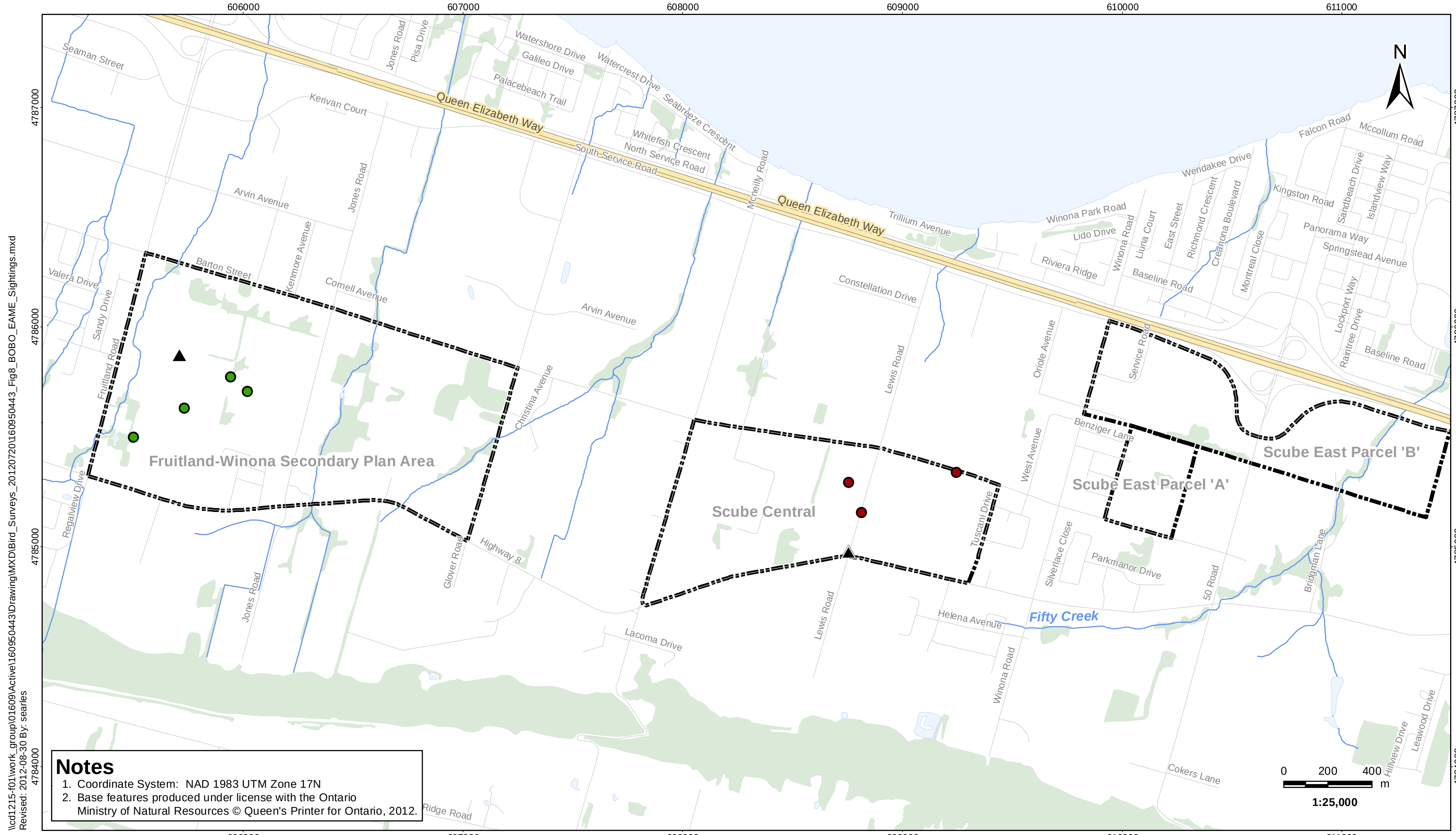
Figure No.

7

DRAFT

Title

Barn Swallow Sighting Location



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
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August 2012
160950443

Stantec

Legend

- Bobolink Sighting Location
- Boblink Non-Breeding Sighting Location
- Eastern Meadowlark Sighting Location
- Study Area
- Road
- Highway
- Watercourse
- Waterbody
- Woodlot

Client/Project

City of Hamilton
SAR Surveys

Figure No.
8

DRAFT

Title

Bobolink & Eastern Meadowlark Sighting Location

APPENDIX B:

Tables

Table 1: Breeding Bird Species within the SPA.

Common Name	*Scientific Name*	*Habitat Preference*	*Total # of Stations per Species*	*Ontario Status*	COSSARO	COSEWIC	Population Changes Between Atlases[1]	Area Sensitivity (ha)	Local Status Hamilton
American Robin	*Turdus migratorius*	Isolated trees/Forest	*16*	S5B			NS		
Song Sparrow	*Melospiza melodia*	Shrubs	*15*	S5B			NS		
Northern Cardinal	*Cardinalis cardinalis*	Shrubs	*15*	S5			NS		
American Goldfinch	*Carduelis tristis*	Shrubs	*15*	S5B			NS		
Brown-headed Cowbird	*Molothrus ater*	Shrubs	*13*	S4B			NS		
Barn Swallow	*Hirundo rustica*	Grassland	*10*	S4B	THR	THR-NS	NS		
Gray Catbird	*Dumetella carolinensis*	Shrubs	*9*	S4B			NS		
Red-winged Blackbird	*Agelaius phoeniceus*	Grassland	*9*	S5			NS		
Mourning Dove	*Zenaida macroura*	Isolated trees/Forest	*8*	S5			NS		
European Starling	*Sturnus vulgaris*	Isolated trees/Forest	*8*	SNA			NS		
Field Sparrow	*Spizella pusilla*	Grassland/Shrubs	*7*	S4B			-17		
Common Grackle	*Quiscalus quiscula*	Isolated trees	*7*	S5B			NS		
Blue Jay	*Cyanocitta cristata*	Forest	*6*	S5			NS		
Cedar Waxwing	*Bombycilla cedrorum*	Shrubs	*6*	S5B			NS		
Willow Flycatcher	*Empidonax traillii*	Shrubs	*5*	S5B			NS		
Eastern Kingbird	*Tyrannus tyrannus*	Shrubs	*5*	S4B			-8		
American Crow	*Corvus brachyrhynchos*	Isolated trees/Forest	*5*	S5B			NS		
Tree Swallow	*Tachycineta bicolor*	Grassland	*5*	S4B			NS		
Black-capped Chickadee	*Poecile atricapillus*	Forest	*5*	S5			+11		
House Wren	*Troglodytes aedon*	Shrubs	*5*	S5B			NS		
Yellow Warbler	*Setophaga petechia*	Shrubs	*5*	S5B			NS		
Chipping Sparrow	*Spizella passerina*	Residential	*4*	S5B			NS		
Savannah Sparrow	*Passerculus sandwichensis*	Grassland	*4*	S4B			NS		

Table 1: Breeding Bird Species within the SPA.

Common Name	*Scientific Name*	*Habitat Preference*	*Total # of Stations per Species*	*Ontario Status*	COSSARO	COSEWIC	Population Changes Between Atlases[1]	Area Sensitivity (ha)	Local Status Hamilton
Killdeer	*Charadrius vociferus*	Grassland	*3*	S5B, S5N			-11		
Red-eyed Vireo	*Vireo olivaceus*	Forest	*3*	S5B			NS		
Common Yellowthroat	*Geothlypis trichas*	Wetland	*3*	S5B			NS		
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	Grassland	*2*	S4B			-11		
Bobolink	*Dolichonyx oryzivorus*	Grassland	*2*	S4B	THR	THR-NS	-10	50	
Baltimore Oriole	*Icterus galbula*	Forest	*2*	S4B			NS		
House Finch	*Carpodacus mexicanus*	Residential	*2*	SNA			>+200		
Cooper's Hawk	*Accipiter cooperii*	Residential/Forest	*1*	S4	NAR	NAR	>+200	4-50+	Rare
Red-tailed Hawk	*Buteo jamaicensis*	Grassland	*1*	S5	NAR	NAR	NS		
American Kestrel	*Falco sparverius*	Grassland	*1*	S5B			-21		Uncommon
American Woodcock	*Scolopax minor*	Wetland	*1*	S4B			-29		
Black-billed Cuckoo	*Coccyzus erythropthalmus*	Shrubs	*1*	S5B			NS		Uncommon
Common Nighthawk	*Chordeiles minor*	Residential	*1*	S4B	SC	THR	-59		Rare
Chimney Swift	*Chaetura pelagica*	Aerial forager	*1*	S4B, S4N	THR	THR	-32		Uncommon
Downy Woodpecker	*Picoides pubescens*	Forest	*1*	S5			NS		
Northern Flicker	*Colaptes auratus*	Forest	*1*	S4B			-7		
Alder Flycatcher	*Empidonax alnorum*	Shrubs	*1*	S5B			NS		Uncommon

Table 1: Breeding Bird Species within the SPA.

Common Name	*Scientific Name*	*Habitat Preference*	*Total # of Stations per Species*	*Ontario Status*	COSSARO	COSEWIC	Population Changes Between Atlases[1]	Area Sensitivity (ha)	Local Status Hamilton
Warbling Vireo	*Vireo gilvus*	Forest	*1*	S5B			NS		
White-breasted Nuthatch	*Sitta carolinensis*	Forest	*1*	S5			NS	10	
Brown Thrasher	*Toxostoma rufum*	Shrubs	*1*	S4B			-32		Uncommon
Swamp Sparrow	*Melospiza georgiana*	Wetland	*1*	S5B			NS		

[1] Proportional changes in species numbers between the 1st (1981-1985) and 2nd (2001-2005) OBBAs (Cadman et al. 2007).
COSSARO: Committee on the Status of Species at Risk in Ontario

COSEWIC: Committee on the Status of Endangered Wildlife in Canada

S4: Apparently Secure—Uncommon but not rare

S5: Secure—Common, widespread, and abundant in the province

SNA: Not applicable—A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

END: Endangered

THR: Threatened

NS: Not Statistically Significant

Table 2: Breeding Bird Species within Scube Central, Scube East Parcel 'A' and Scube East Parcel 'B'.

Common Name	*Scientific Name*	*Habitat Preference*	*Total # of Stations per Species*	*Ontario Status*	COSSARO	COSEWIC	Population Changes Between Atlases	Area Sensitivity (ha)	Local Status Hamilton
American Robin	*Turdus migratorius*	Isolated trees/Forest	17	S5B			NS		
Northern Cardinal	*Cardinalis cardinalis*	Shrubs	17	S5			NS		
Red-winged Blackbird	*Agelaius phoeniceus*	Grassland	17	S5			NS		
American Goldfinch	*Carduelis tristis*	Shrubs	17	S5B			NS		
Song Sparrow	*Melospiza melodia*	Shrubs	15	S5B			NS		
Brown-headed Cowbird	*Molothrus ater*	Shrubs	15	S4B			NS		
Mourning Dove	*Zenaida macroura*	Isolated trees/Forest	14	S5			NS		
Barn Swallow	*Hirundo rustica*	Grassland	14	S4B	THR	THR-NS	NS		
European Starling	*Sturnus vulgaris*	Isolated trees/Forest	14	SNA			NS		
Common Grackle	*Quiscalus quiscula*	Isolated trees	12	S5B			NS		
Eastern Kingbird	*Tyrannus tyrannus*	Shrubs	11	S4B			-8		
Field Sparrow	*Spizella pusilla*	Grassland/Shrubs	10	S4B			-17		
Savannah Sparrow	*Passerculus sandwichensis*	Grassland	10	S4B			NS		
Gray Catbird	*Dumetella carolinensis*	Shrubs	9	S4B			NS		
Cedar Waxwing	*Bombycilla cedrorum*	Shrubs	9	S5B			NS		
House Sparrow	*Passer domesticus*	Residential	9	SNA			NS		
Blue Jay	*Cyanocitta cristata*	Forest	8	S5			NS		
Willow Flycatcher	*Empidonax traillii*	Shrubs	7	S5B			NS		
House Wren	*Troglodytes aedon*	Shrubs	7	S5B			NS		
Tree Swallow	*Tachycineta bicolor*	Grassland	6	S4B			+6		
Black-capped Chickadee	*Poecile atricapillus*	Forest	6	S5			+11		

Table 2: Breeding Bird Species within Scube Central, Scube East Parcel 'A' and Scube East Parcel 'B'.

Common Name	*Scientific Name*	*Habitat Preference*	*Total # of Stations per Species*	*Ontario Status*	COSSARO	COSEWIC	Population Changes Between Atlases	Area Sensitivity (ha)	Local Status Hamilton
Yellow Warbler	*Setophaga petechia*	Shrubs	6	S5B			NS		
Chipping Sparrow	*Spizella passerina*	Residential	6	S5B			NS		
Killdeer	*Charadrius vociferus*	Grassland	5	S5B, S5N			-11		
Northern Flicker	*Colaptes auratus*	Forest	4	S4B			-7		
Bobolink	*Dolichonyx oryzivorus*	Grassland	4	S4B	THR	THR-NS	-10	50	
Red-tailed Hawk	*Buteo jamaicensis*	Grassland	3	S5	NAR	NAR	NS		
Warbling Vireo	*Vireo gilvus*	Forest	3	S5B			NS		
American Crow	*Corvus brachyrhynchos*	Isolated trees/Forest	3	S5B			NS		
Northern Mockingbird	*Mimus polyglottos*	Shrubs	3	S4			>+200		Uncommon
Brown Thrasher	*Toxostoma rufum*	Shrubs	3	S4B			-32		Uncommon
Common Yellowthroat	*Geothlypis trichas*	Wetland	3	S5B			NS		
Eastern Meadowlark	*Sturnella magna*	Grassland	3	S4B	THR	THR-NS	-16	10	
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	Grassland	2	S4B			-11		
Carolina Wren	*Thryothorus ludovicianus*	Shrubs	2	S4			>+200		Rare
Swamp Sparrow	*Melospiza georgiana*	Wetland	2	S5B			NS		
Baltimore Oriole	*Icterus galbula*	Forest	2	S4B			NS		
House Finch	*Carpodacus mexicanus*	Residential	2	SNA			>+200		
American Kestrel	*Falco sparverius*	Grassland	1	S5B			-21		Uncommon
Downy Woodpecker	*Picoides pubescens*	Forest	1	S5			NS		
Eastern Phoebe	*Sayornis phoebe*	Forest	1	S5B			+44		Uncommon

Table 2: Breeding Bird Species within Scube Central, Scube East Parcel 'A' and Scube East Parcel 'B'.

Common Name	*Scientific Name*	*Habitat Preference*	*Total # of Stations per Species*	*Ontario Status*	COSSARO	COSEWIC	Population Changes Between Atlases	Area Sensitivity (ha)	Local Status Hamilton
Purple Martin	*Progne subis*	Aerial forager	1	S4B			-21		Uncommon
White-breasted Nuthatch	*Sitta carolinensis*	Forest	1	S5			NS	10	
Indigo Bunting	*Passerina cyanea*	Forest	1	S4B			-14		
Purple Finch	*Carpodacus purpureus*	Forest	1	S4B			-36		Uncommon

COSSARO: Committee on the Status of Species at Risk in Ontario

COSEWIC: Committee on the Status of Endangered Wildlife in Canada

S4: Apparently Secure—Uncommon but not rare

S5: Secure—Common, widespread, and abundant in the province

SNA: Not applicable—A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

END: Endangered

THR: Threatened

NS: Not Statistically Significant

APPENDIX C:
Data Sheets

Stantec

Stantec Consulting Ltd.
70-1 Southgate Drive
Guelph, Ontario, Canada
N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Barn Swallow Observation Form

Project Number: 160950443 Project Name: Fruitland-Winona

Date: June 25, 2012 Field Personnel: Nicole Kopysch

Weather Conditions:	Temp: 16-20°C	Wind: 2-3	Cloud: 100	PPT: Ø	PPT in last 24 hrs: rain

Survey Station	Time	GPS Coordinates	# BARS observed	Type of structure (e.g. barn, culvert)	Accessible nesting sites (Y or N)	Nests: Active	Nests: Inactive
4	6^{19}-6^{24}		2	N.A.	Foraging	only	
10	8^{11}-8^{16}		2	N.A.	Foraging	only	
9	8^{30}-8^{35}		1	N.A.	Foraging	only	
14	9^{37}-9^{42}		8	N.A.	Foraging	only	
15	9^{45}-9^{50}		8	N.A.	Foraging	only	
13	9^{30}-9^{35}		8	N.A.	Foraging	only	
17	10^{04}-10^{09}		2	N.A.	Foraging	only	

Quality Control: This form is complete (__) & legible (__).

Signature: ______________________ Signature: ______________________
(Field Personnel) (Project Manager)

Stantec
Stantec Consulting Ltd.
70-1 Southgate Drive
Guelph, Ontario, Canada
N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Barn Swallow Observation Form

Project Number: 60950443
Project Name: Hamilton
Date: June 12, 2012
Field Personnel: N. Kopysh

Weather Conditions:	Temp: 20°C.	Wind: 3	Cloud: 100%	PPT:	PPT in last 24 hrs: rain overnight

Station #13.

Location of BARS observation: ~~Ø~~

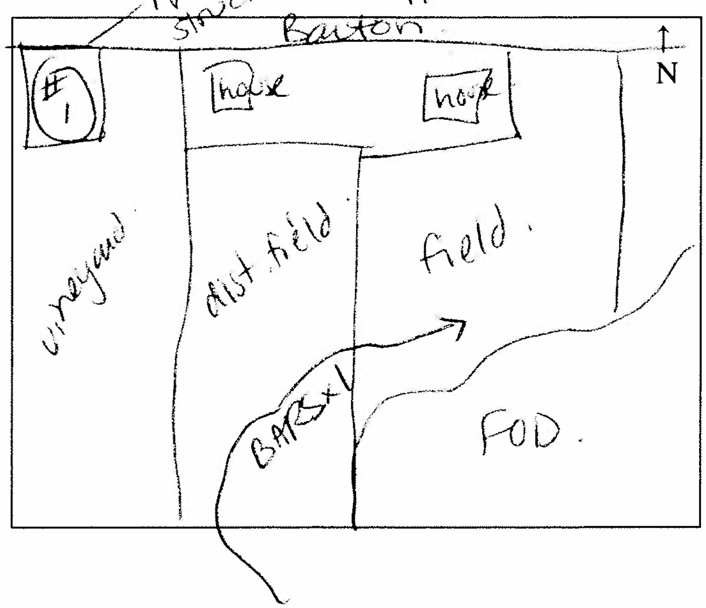
Start Time: 06:30 End Time: 06:45

Tally of BARS: ~~Ø~~ 1

Sketch of Habitat (include foraging habitat and location of potential nesting structures) or provide details on air photo

- Map crop types in vicinity of BARS observation and surrounding area (i.e. within 200m)
- Include location of water bodies (e.g. river, pond)
- Mark location of BARS foraging
- Mark location of potential nesting structures

potential nesting structure - old barn/sml shed - window covered with mesh



Description of Potential Nesting Structures:

Structure # (indicate location on map)	Type of structure (e.g. barn, culvert)	Accessible nesting sites (Y or N)	Number of nests present: BARS Active	BARS Inactive	CLIS Active	CLIS Inactive
#1	barn/shed.	open windows =	unknown - no	access		
		covered with	to observe			
		mesh				
		Y - front =	Ø	BARS seen		

open doorway. entering/exiting
1 seen in vicinity foraging

Quality Control: This form is complete (✓) & legible (✓).
Signature: [signature] (Field Personnel)
Signature: ____________ (Project Manager)

Stantec

Stantec Consulting Ltd.
70-1 Southgate Drive
Guelph, Ontario, Canada
N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Barn Swallow Observation Form

Project Number: 160950443

Project Name: Fruitland - Winona

Date: June 11, 2012

Field Personnel: M. Oliveira

Weather Conditions:	Temp:	Wind:	Cloud:	PPT:	PPT in last 24 hrs:
	17°C	0	20%	∅	∅

Hwy 8

Survey Station	Time	GPS Coordinates	# BARS observed	Type of structure (e.g. barn, culvert)	Accessible nesting sites (Y or N)	Nests Active	Nests Inactive
1	$10^{10}-10^{15}$	606318, 4785210	0	Concrete box culvert	No.		None.
	$10^{23}-10^{28}$	606729, 4785199	0	Concrete box culvert	No		None
	$10^{35}-10^{40}$	607153, 4785490	0	Concrete box culvert	No		None
	$10^{43}-10^{48}$	606608, 4786033	0	Pipe culvert	No		None
	$10^{55}-11^{03}$	606002, 4786211	0	No culvert present	No		None
	$11^{09}-11^{14}$	608693, 4786279	0	Pipe/concrete culvert	No		None
	$11^{18}-11^{23}$	608331, 4785484	0	Two small concrete	No		None
				pipes running			
				parallel with			
				Fruitland Rd.			
				Not suitable			
				for nesting			

Quality Control: This form is complete (__) & legible (__).

Signature: ________________
(Field Personnel)

Signature: ________________
(Project Manager)

Stantec

Stantec Consulting Ltd.
70-1 Southgate Drive
Guelph, Ontario, Canada
N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Barn Swallow Observation Form

Project Number 160950443

Project Name: Fonthill - Winona

Date: June 11, 2012

Field Personnel: Michael Oliveira

Weather Conditions:	Temp:	Wind:	Cloud:	PPT:	PPT in last 24 hrs:
	17°C	0	20%	0	0

Survey Station	Time	GPS Coordinates	# BARS observed	Type of structure (e.g. barn, culvert)	Accessible nesting sites (Y or N)	Nests Active	Nests Inactive
10	913-918	606801 4785428	5	N/A.	Foraging	only	

Quality Control: This form is complete (__) & legible (__).

Signature: ______________________ (Field Personnel)

Signature: ______________________ (Project Manager)

REV: June-09 FORM 034

Stantec

Stantec Consulting Ltd.
70-1 Southgate Drive
Guelph, Ontario, Canada
N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Barn Swallow Observation Form

Project Number: 160950443

Project Name: Fruitland - Winona

Date: July 10, 2012

Field Personnel: D. Graham

Weather Conditions:	Temp:	Wind:	Cloud:	PPT:	PPT in last 24 hrs:
	17-24°C	1	10%	None	Light rain

Survey Station	Time	GPS Coordinates	# BARS observed	Type of structure (e.g. barn, culvert)	Accessible nesting sites (Y or N)	Nests	
						Active	Inactive
1	5^{30}-5^{35}	605665, 4785945	1	N.A.	Foraging only		
2	5^{40}-5^{45}	605685, 4786087	1	N.A.	Foraging only		
4	6^{15}-6^{20}	606042, 4786009	1	N.A.	Foraging only		
10	8^{34}-8^{39}	606501, 4785828	6	N.A.	Foraging only		
13	9^{25}-9^{30}	606896, 4785741	1	N.A.	Foraging only		
14	9^{35}-9^{40}	606866, 4785638	1	N.A.	Foraging only		
15	9^{45}-9^{50}	606832, 4785515	1	N.A.	Foraging only		
16	10^{05}-10^{10}	606992, 4785871	1	N.A.	Foraging only		
17	10^{15}-10^{20}	607028, 4785448	1	N.A.	Foraging only		

Quality Control: This form is complete (__) & legible (__).

Signature: ____________________ (Field Personnel)

Signature: ____________________ (Project Manager)

Stantec

Stantec Consulting Ltd.
70-1 Southgate Drive
Guelph, Ontario, Canada
N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Barn Swallow Observation Form

Project Number: 160950443

Project Name: Fruitland - Winona

Date: July 12, 2012

Field Personnel: D. Graham

Weather Conditions:	Temp: 26 °C	Wind: 1	Cloud: 0%	PPT: None	PPT in last 24 hrs: None

Survey Station	Time	GPS Coordinates	# BARS observed	Type of structure (e.g. barn, culvert)	Accessible nesting sites (Y or N)	Nests Active	Nests Inactive
Hwy 8 1	12^{33}	606323 4785209	0	Box culvert	N. - no ledges for nesting roof of culvert too, vegetation obstructs entrance		
Hwy 8 2	12^{45}	606912 4785072	0	Corrugated steel culvert	N - too small 1 m dia. no ledges, veg. obstructs		
Glover 3	13^{00}	607163 4785495	0	Box culvert	N - no ledges, veg. obstructs		
Barton 4	13^{10}	606607 4786030	0	Corrugated steel culvert	N - too small 1.5 m dia. no ledges, veg. obstructs		
Barton 5	13^{25}	605990 4786219	0	unable to find any structure or watercourse			
Barton 6	13^{35}	605681 4786313	0	Box culvert	N - no ledges, veg. obstructs		
Fruitland 7	13^{45}	605353 4785531	0	Box culvert	N - " "		

Quality Control: This form is complete (__) & legible (__).

Signature: ____________________ (Field Personnel)

Signature: ____________________ (Project Manager)

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Guelph, Ontario, Canada
N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

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Barn Swallow Observation Form

Project Number 60950443
Project Name: Hamilton – Fruitland
Date: June 25, 2012 05:30 – 1040
Field Personnel: N. KOPYSH

Weather Conditions:	Temp: 20°C.	Wind: 2-3	Cloud: 10%	PPT: ∅	PPT in last 24 hrs:

Survey Station BARSH#	Time	GPS Coordinates	# BARS observed out/in culvert	Type of structure (e.g. barn, culvert)	Accessible nesting sites (Y or N)	Nests Active	Nests Inactive
6	05:30	0605692/	∅	sml. round culvert	N	∅.	
		4786278					
3	10:11	Glover Rd. ~~see map~~	~~start~~ ∅	sml. rnd. culvert	N.	∅.	
2	10:32	Hwy 8	∅		N	∅	
1	10:34	Hwy 8	∅		N	∅	
4	10:37	Barton	∅	see rd 1	N	∅	
5	10:40	Barton	∅.		N	∅	

Quality Control: This form is complete (✓) & legible (✓).
Signature: [signature] (Field Personnel)   Signature: ____________ (Project Manager)

REV: June-09 FORM 034

BBS

Stantec Consulting Ltd.
1 – 70 Southgate Drive
Guelph, ON
Canada N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Stantec

Birding Point Counts Survey Observation Form

Project Number: 60950443 **Project Name:** Hamilton

Date: June 12, 2012 **Field Personnel:** N. Kopysh

Weather Conditions:	TEMP (°C):	WIND:	CLOUD:	PPT:	PPT (in last 24 hrs):
	20°C	1-2	100%	∅	rain overnight

GPS #: T
BBS - 5min PC

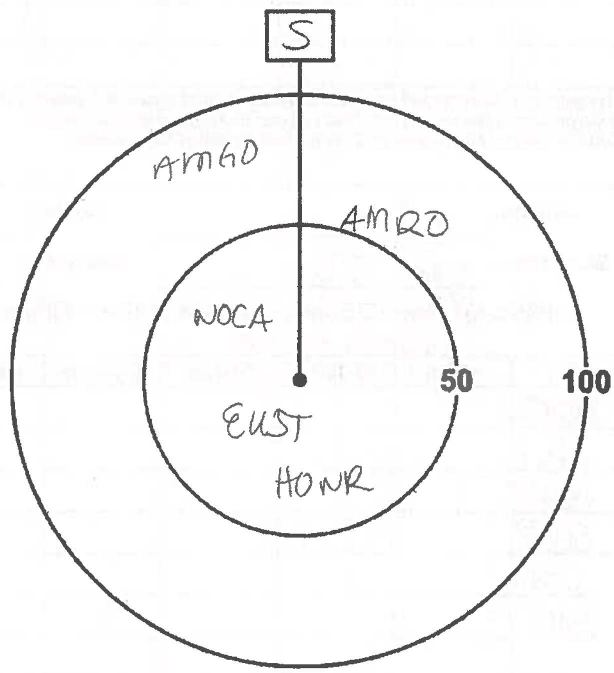
Station: 12 **Feature:** riparian corridor **UTM:**

Start Time: 06:00 **End Time:** 06:05

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
AMGO		1			
EUST	1				
HOWR	1				
AMRO		1			
NOCA	1				

** Height of blade sweep varies from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page 1 of 2 Quality Control: This form is complete ❑ & legible ❑.

Signature: NKop (Field Personnel) **Signature:** (Project Manager)

17T 0606896, 4785741

Station: 13 **Feature:** **UTM:**

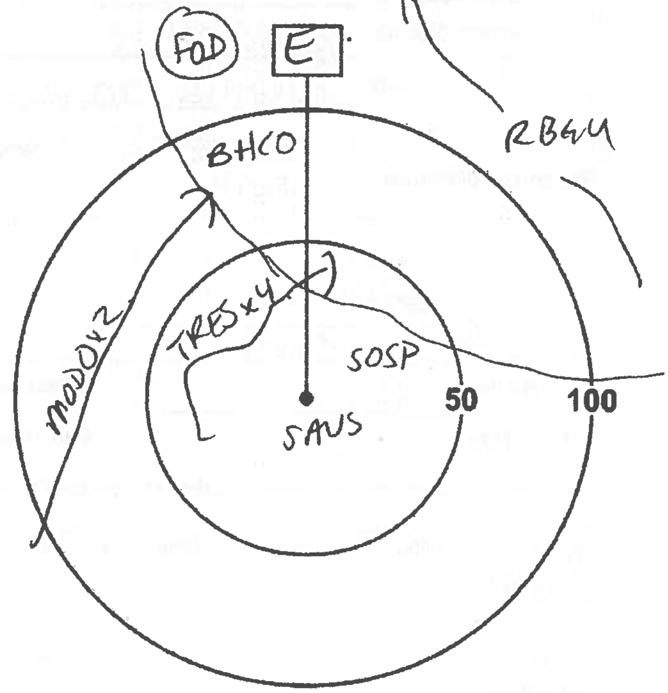
Start Time: 06:30 **End Time:** 06:35

Habitat: ☐Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☐Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
TRES				4	
MODO				2	
SOSP	1				
SAVS	1				

BARTON

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



Station: 14. **Feature:** **UTM:** 17T 0606866 4785638

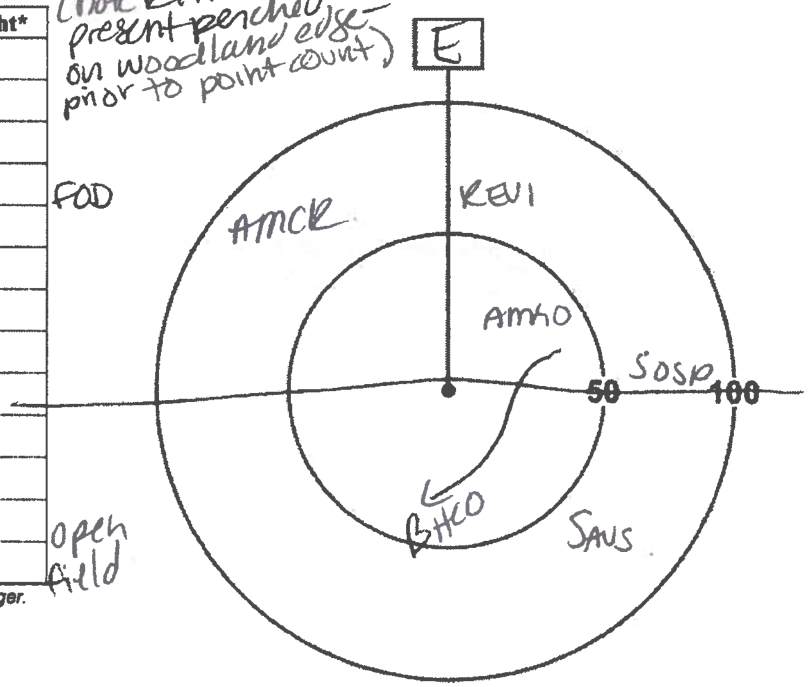
Start Time: 06:56 **End Time:** 07:01

Habitat: ☑Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☐Crop
open field

(not RTHA present perched on woodland edge prior to point count) flew 080

Species	<50m	50-100m	>100m	Flyovers	Height*
AMCR		1			
REVI		1			
AMGO	1				
SOSP		1			
SAVS		1			
BHCO				1	

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



Page ___ of ___

Quality Control: This form is complete ☐ & legible ☐.

Signature: ______________________ (Field Personnel)

Signature: ______________________ (Project Manager)

REV: 2011-05-04 / FORM 020

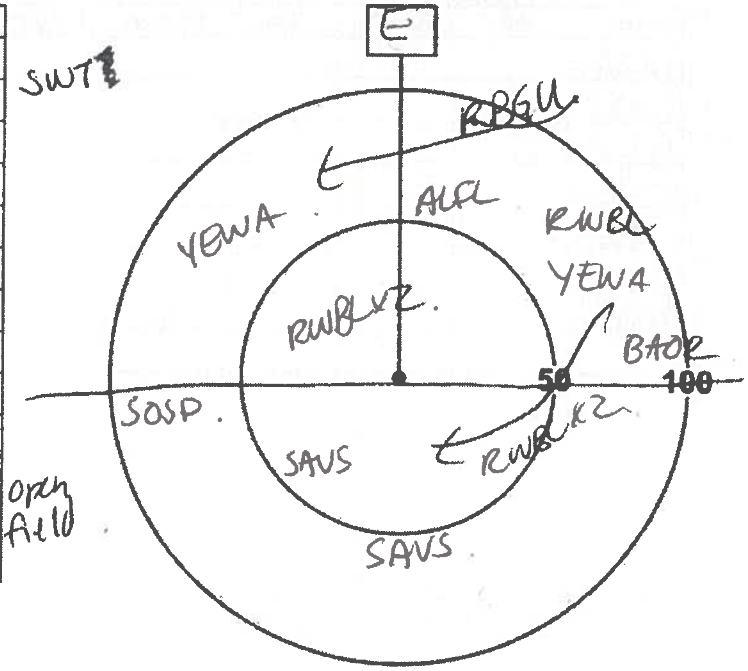
Station: 15 Feature: UTM: 17T 0606832 4785515

Start Time: 07:15 End Time: 07:20.

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
YEWA		2			
RWBL	2	1		2	
ALFL		1			
BAOR		1			
RBGU				1	
SOSP		1			
SAVS	1	1			

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep; C-Above height of blade sweep; D-Well above height of blade sweep



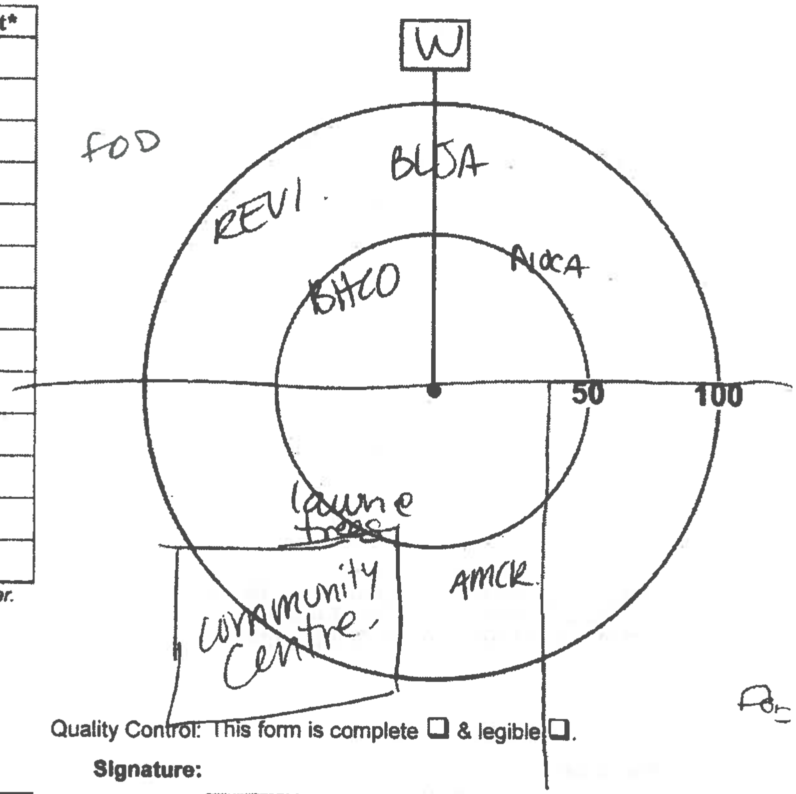
Station: 16 – community centre Feature: UTM: 0606992 4785671

Start Time: 07 40 End Time: 07:45

Habitat: ☑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop lawn.

Species	<50m	50-100m	>100m	Flyovers	Height*
REVI		1			
BLJA		1			
BHCO	1				
NOCA		1			
AMCR		1			

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep; C-Above height of blade sweep; D-Well above height of blade sweep



Page 2 of 2

Signature: [signature] (Field Personnel)

Quality Control: This form is complete ❑ & legible ❑.

Signature: (Project Manager)

REV: 2011-05-04 / FORM 020

birdscare guns

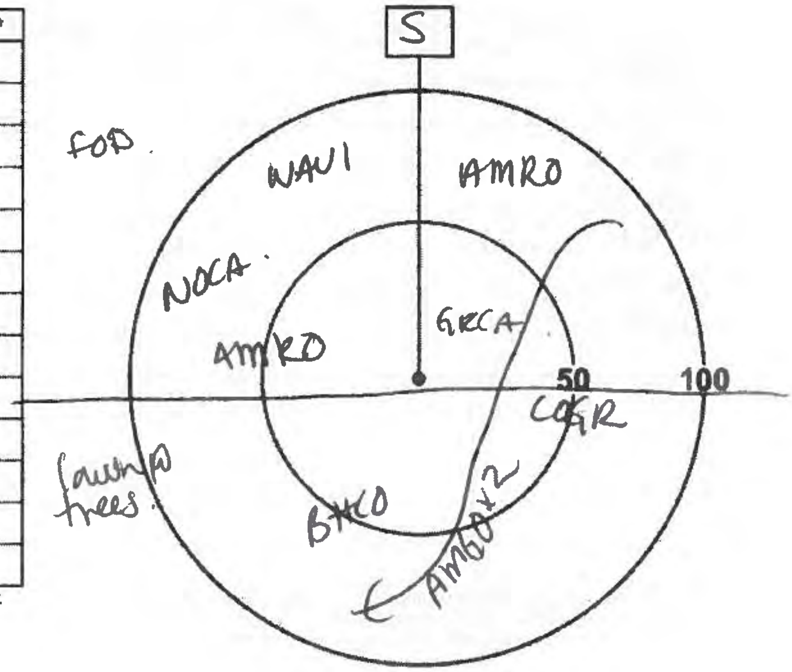
Station: 17 – Community Centre. Feature: UTM: 17T 0607028 4785448.

Start Time: 07:50 End Time: 07:55.

Habitat: ☑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop lawn.

Species	<50m	50-100m	>100m	Flyovers	Height*
NOCA.		1			
AMRO	1	1			
GRCA	1				
BHCO		1			
COGR	1				
WAVI		1			
AMGO				2.	

*Height of blade sweep will vary from project to project; check with project manager.
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



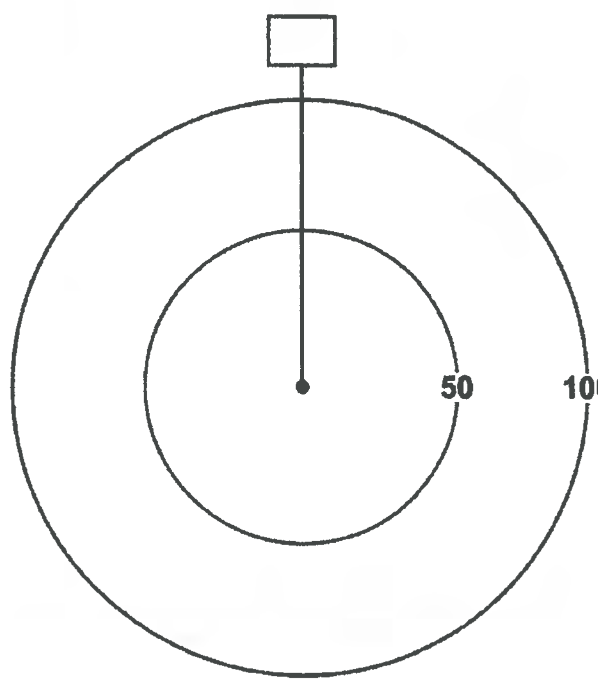
Station: Feature: UTM:

Start Time: End Time:

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*

*Height of blade sweep will vary from project to project; check with project manager.
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



Page ___ of ___

Quality Control: This form is complete ❑ & legible ❑.

Signature: ______________________ (Field Personnel)

Signature: ______________________ (Project Manager)

REV: 2011-05-04 / FORM 020

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Stantec Consulting Ltd.
1 – 70 Southgate Drive
Guelph, ON
Canada N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Birding Point Counts Survey Observation Form

Project Number: 160950443

Project Name: Fruitland-Winona Secondary Plan Area.

Date: JUNE 11 2012

Field Personnel: ~~D Graham~~, MICHAEL OLIVEIRA

Weather Conditions:	TEMP (ºC):	WIND:	CLOUD:	PPT:	PPT (in last 24 hrs):
	17°c	0	20 %	0	0

GPS #: T (PERSONAL GPS, MODEL: GARMIN 60CSX)

Station: 1

Feature: SPRUCE PLANTATION / FARM SUCCESSION

UTM: 17 T 0603665 4785945

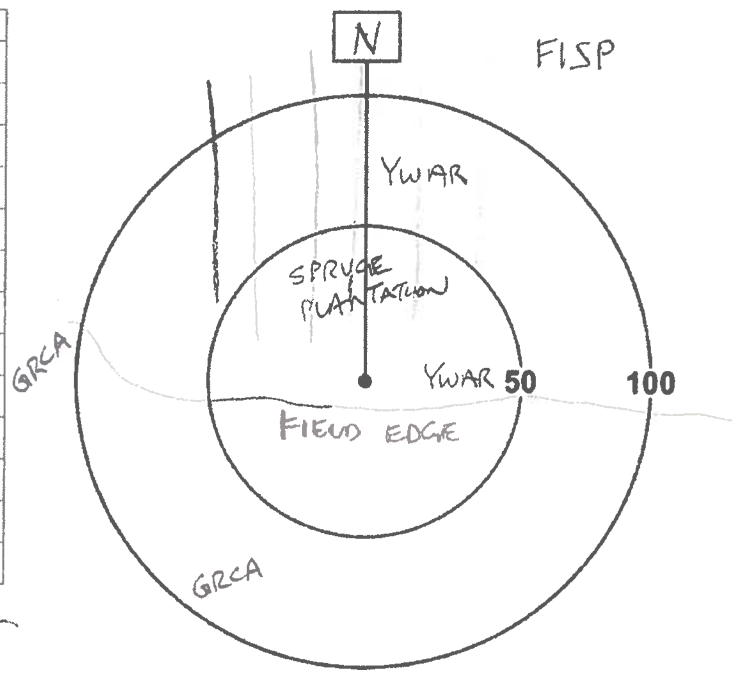
Start Time: 5:26

End Time: 5:31

Habitat: ☑Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☐Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
YWAR	1	1			
GRCA		1	1		
FISP			1		

~~* *Height of blade sweep varies from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep~~



Page ___ of ___

Signature: (Field Personnel)

Quality Control: This form is complete ☐ & legible ☐.

Signature: (Project Manager)

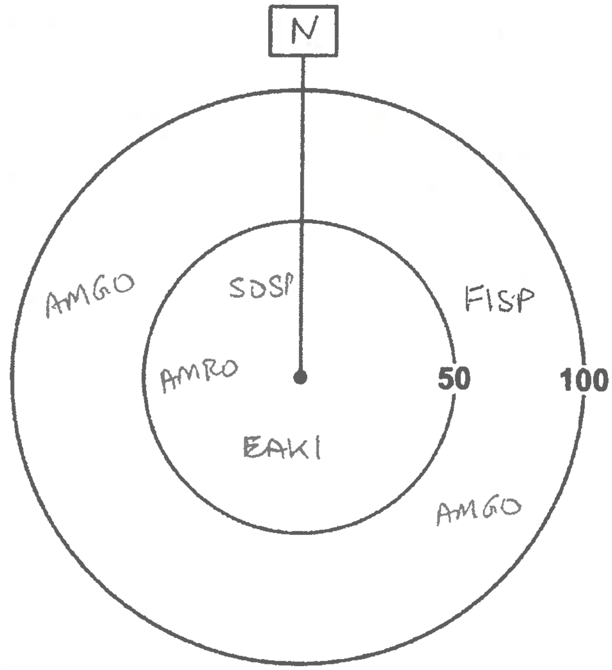
Station: 2 | Feature: SPRUCE PLANTATION / EARLY SUCCESSIONAL | UTM: 17 T 0605685 4786087

Start Time: 0541 | End Time: 05:46

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
EAKI	1				
AMRO	1				
AMGO		2			
SOSP	1				
FISP		1			

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



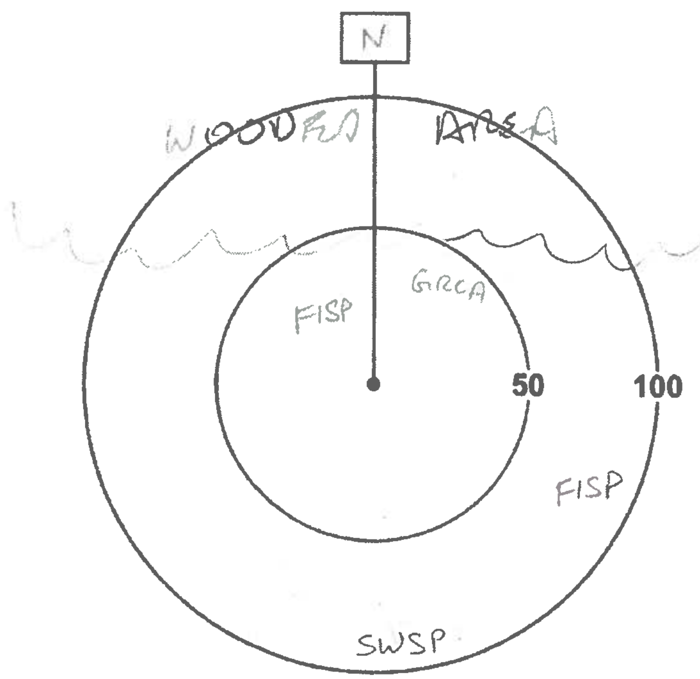
Station: 3 | Feature: WOODED AREA / EARLY SUCCESSION | UTM: 17 T 0605817 4786118

Start Time: 05:50 | End Time: 05:55

Habitat: ☑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
FISP	1	1			
GRCA	1				
SWSP		1			

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



Page ___ of ___

Quality Control: This form is complete ❑ & legible ❑.

Signature: ______________________ (Field Personnel)

Signature: ______________________ (Project Manager)

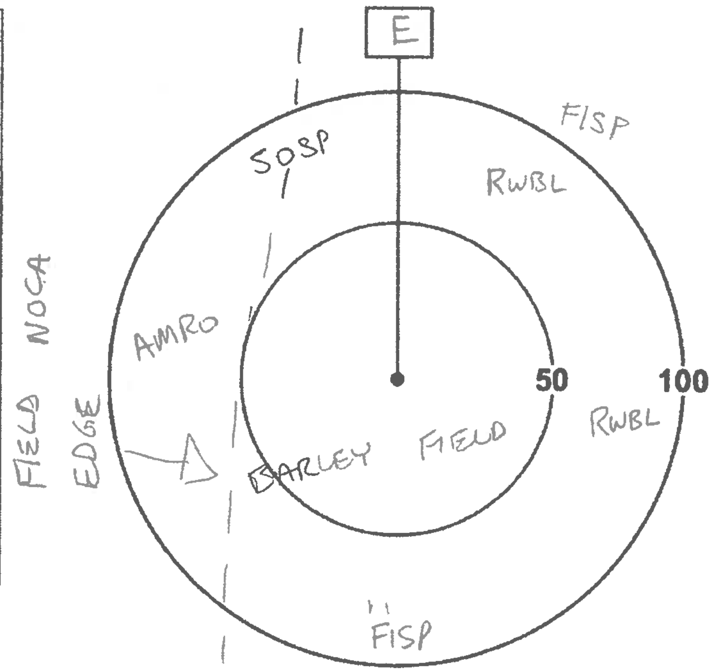
Station: 4 **Feature:** CROP FIELD **UTM:** 17 T 0606042 4786009

Start Time: 06:04 **End Time:** 06:09

Habitat: ☐Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
SOSP		1			
AMRO		1			
FISP		1	1		
RWBL		2			

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep; **C**-Above height of blade sweep; **D**-Well above height of blade sweep



Station: 5 **Feature:** OPEN FIELD **UTM:** 17 T 0606012 4785706

Start Time: 06:17 **End Time:** 06:22

Habitat: ☐Forest / ☐Swamp / ☐Marsh / ☑Hay / ☐Pasture / ☐Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
GRCA			1		
SOSP		2			
BOBO			1		
RWBL	2				

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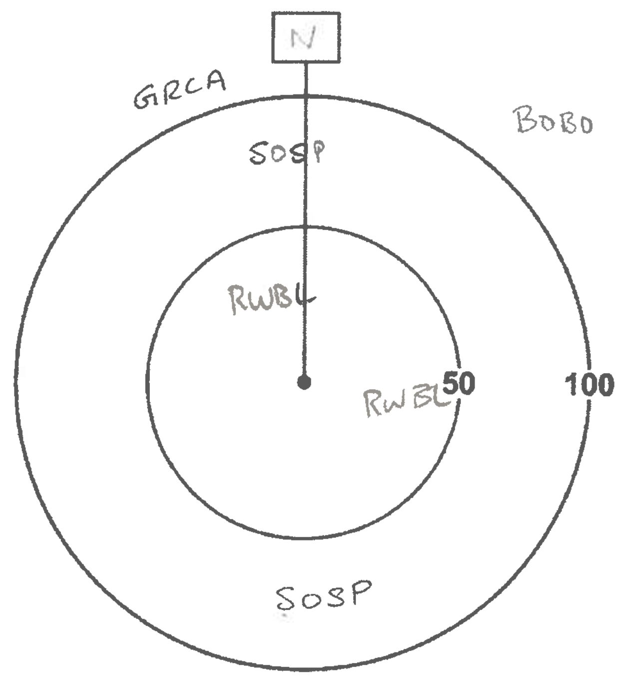
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep; **C**-Above height of blade sweep; **D**-Well above height of blade sweep



Page ___ of ___

Quality Control: This form is complete ☐ & legible ☐.

Signature: ______________________ (Field Personnel)

Signature: ______________________ (Project Manager)

REV: 2011-05-04 / FORM 020

Station: 6 **Feature:** HAYFIELD **UTM:** 17T 0605709 4785872

Start Time: 06:54 **End Time:** 06:59

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ☑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
YWAR		1	1		
SOSP		1	1		
RWBL		2	1		
BOBO		1			

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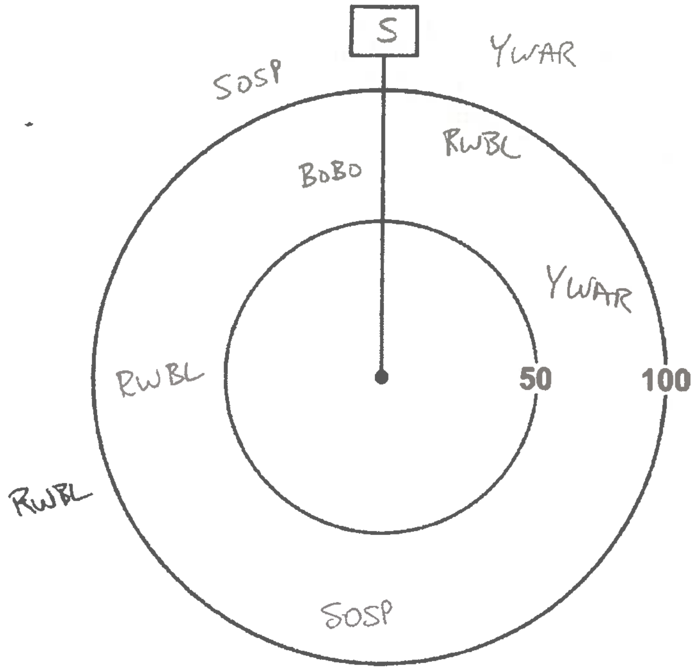
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



Station: 7 **Feature:** WOODLOT **UTM:** 17T 0605472 4785472

Start Time: 07:22 **End Time:** 07:27

Habitat: ☑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
AMGO		1			
RWBL		1			
COGR	1				
SOSP		1			
NOCA		1			
AMRO		1			

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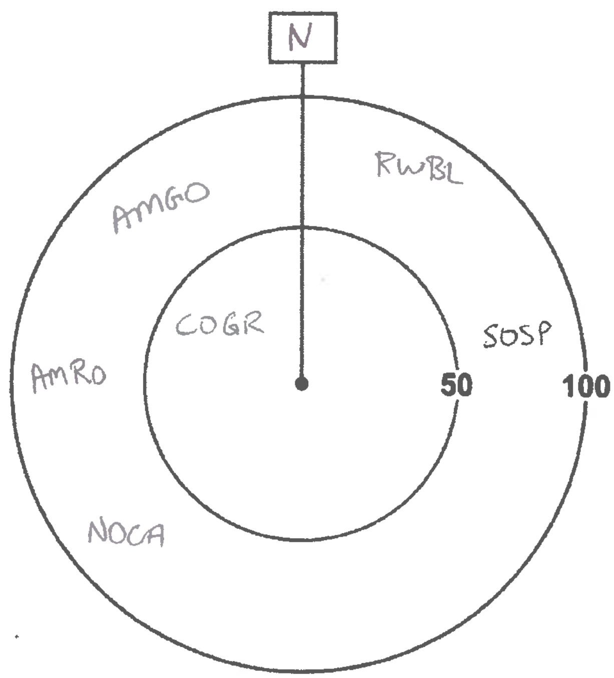
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



Page ___ of ___

Quality Control: This form is complete ❑ & legible ❑.

Signature: ____________________ (Field Personnel)

Signature: ____________________ (Project Manager)

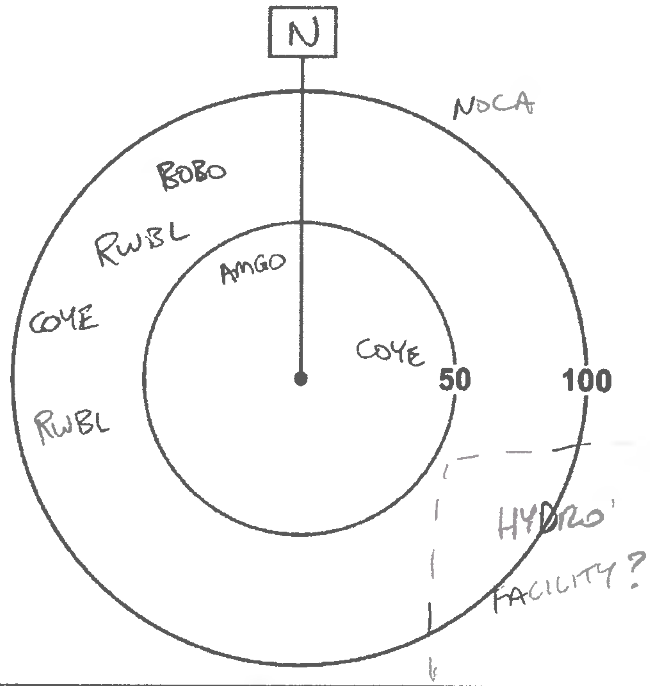
Station: 8 **Feature:** ~~[illegible]~~ OPEN FIELD / WETLAND MIX **UTM:** 17T 0605743 4785580

Start Time: 08:08 **End Time:** 08:13

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
NOCA			1		
BOBO		1			
RWBL					
COYE	1	1			
RWBL		2			
AMGO	1				

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



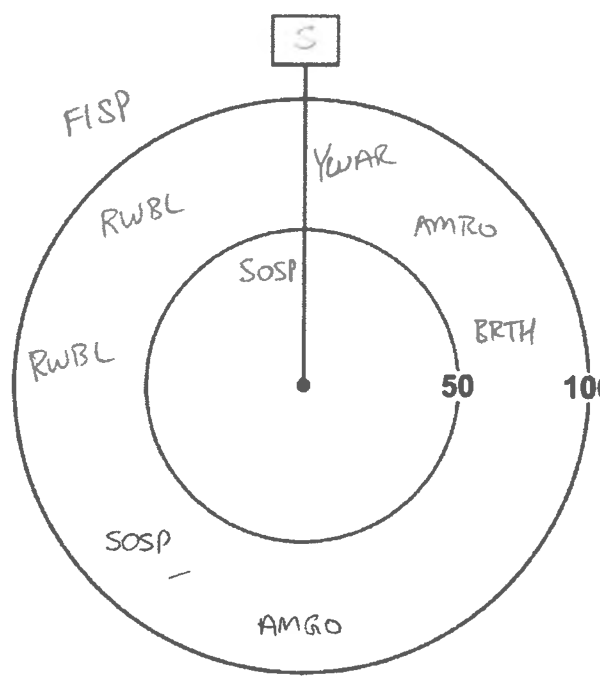
Station: 9 **Feature:** MOIST SCRUB / FIELD **UTM:** 17T 0605974 4785591

Start Time: 08:30 **End Time:** 08:35

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
FISP			1		
RWBL		2			
SOSP	1	1			
YWAR		1			
AMRO		1			
BRTH		1			
AMGO		1			

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page ___ of ___ Quality Control: This form is complete ❑ & legible ❑.

Signature: ____________________ (Field Personnel) **Signature:** ____________________ (Project Manager)

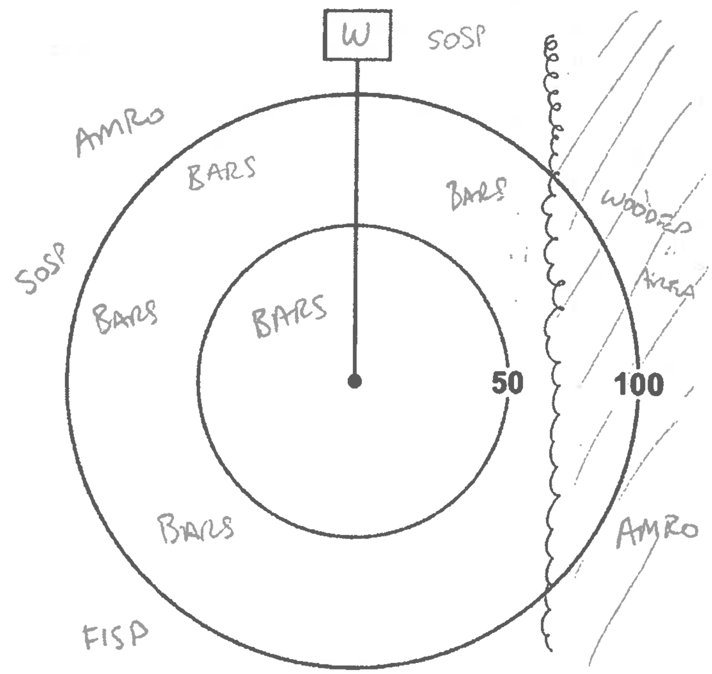
Station: 10 Feature: WOODED AREA ADJACENT TO SOCCER FIELDS & BB ◇ UTM: 17T 0606501 4785428

Start Time: 09:13 End Time: 09:18

Habitat: ☑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
BARS	1	4			
AMRO			1		
SOSP			2		
FISP			1		

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



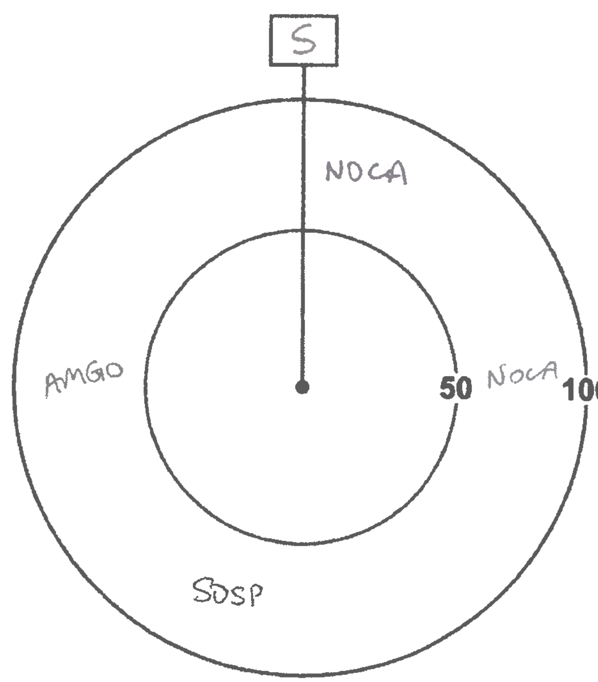
Station: 11 Feature: WOODLOT W SMALL CREEK UTM: 17T 0606387 4785485

Start Time: 09:26 End Time: 09:31

Habitat: ☑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
NOCA		2			
AMGO		1			
SOSP		1			

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page ___ of ___

Quality Control: This form is complete ❑ & legible ❑.

Signature: ________________ (Field Personnel)

Signature: ________________ (Project Manager)

Stantec

Stantec Consulting Ltd.
1 – 70 Southgate Drive
Guelph, ON
Canada N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Birding Point Counts Survey Observation Form

Project Number: 160950443
Project Name: Fruitland-Winona
Date: July 10, 2012
Field Personnel: D. Graham

Weather Conditions:	TEMP (ºC):	WIND:	CLOUD:	PPT:	PPT (in last 24 hrs):
	17-24°C	1	No	None	Light rain

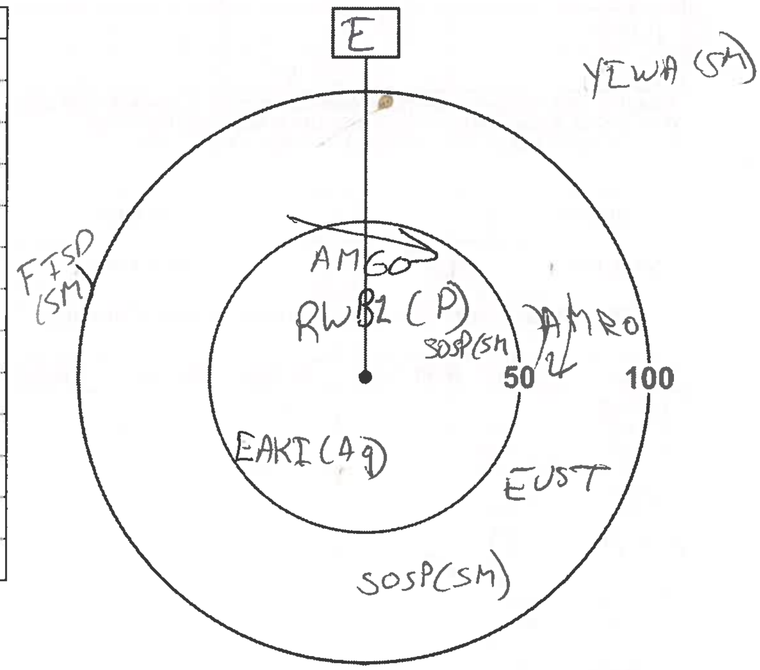
GPS #: T

Station: 1
Feature:
UTM: 605665 4785945
Start Time: 5:30
End Time: 5 35

Habitat: ☑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
RWBL	P				
EAKI	A5				
AMGO	✓			✓	
SOSP	SM	SM			
EUST	✓				
AMRO		✓		✓	
YEWA			SM		
BASW	✓			✓	
FISP			SM		

* *Height of blade sweep varies from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page ___ of ___

Quality Control: This form is complete ❑ & legible ❑.

Signature: ______________ (Field Personnel)

Signature: ______________ (Project Manager)

REV: 2011-05-04 / FORM 020

als w:\resource\internal info and teams\field forms\birds\breeding bird\form_020_bird-point-counts-survey_2-sided.docx

Station: 2 **Feature:** **UTM:** 605685 4786087

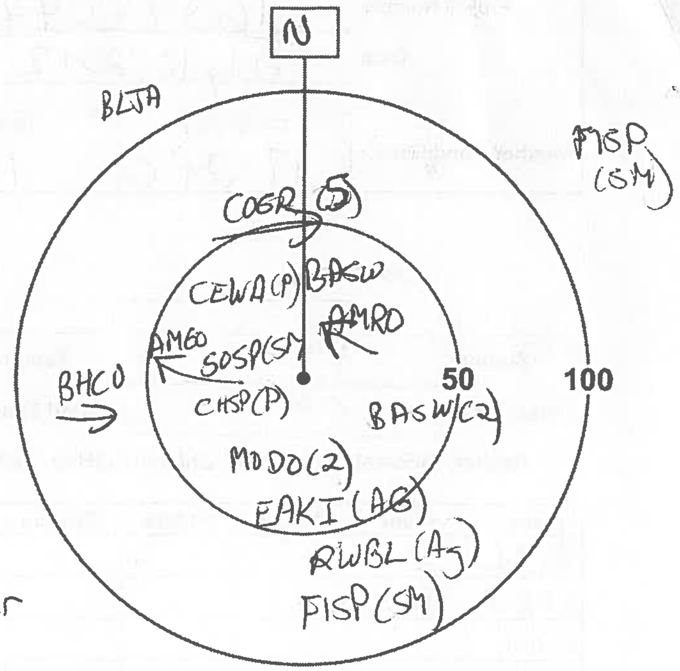
Start Time: 5:40 **End Time:** 5 45

Habitat: ☑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
COGR	✓			✓	
CEWA	P				
BASW	✓			✓	
AMRO	✓			✓	
AMGO	✓			✓	
SOSP	SM				
CHSP	P				
MODO	P				
EAKI	AG				
RWBL	~~Ag~~	Ag			
FISP		SM			
BHCO		✓		✓	
BLJA			✓		

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

Deer



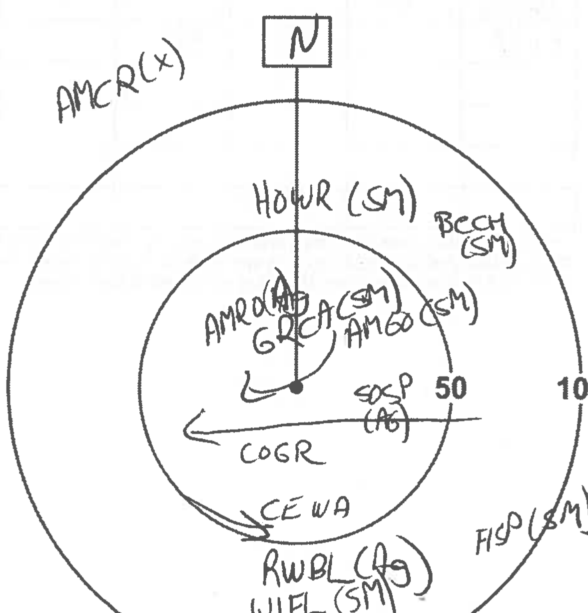
Station: 3 **Feature:** **UTM:** 605817 4786118

Start Time: 6 00 **End Time:** 6 05

Habitat: ☑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
AMCR			✓		
HOWR	✓SM				
AMRO	Ag				
GRCA	SM				
AMGO	SM				
SOSP	Ag				
COGR	✓			✓	
BCCH		SM			
CEWA	✓			✓	
RWBL		Ag			
WIFL		SM			
FISP		SM			

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Other than housewrens robins, birds are avoiding dec. forest to north

Page ___ of ___ Quality Control: This form is complete ❑ & legible ❑.

Signature: (Field Personnel) **Signature:** (Project Manager)

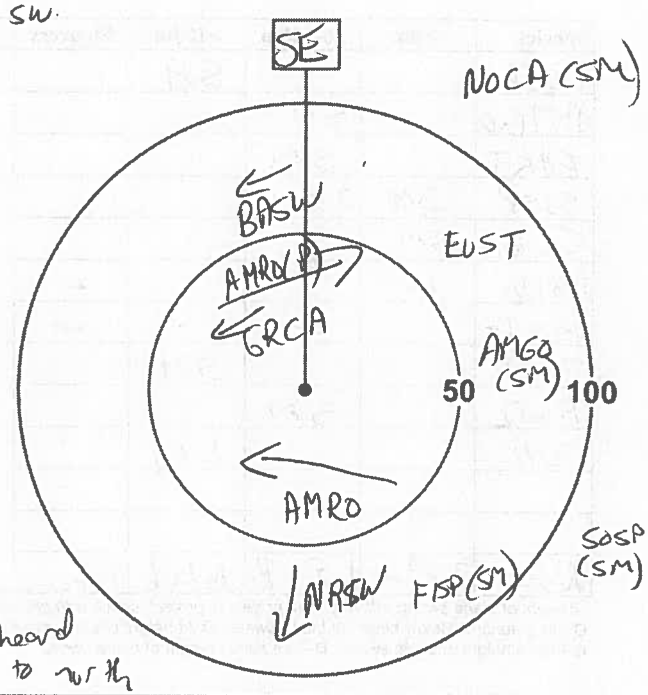
REV: 2011-05-04 / FORM 020

Station: 4 Feature: C UTM: 606042 4786009

Start Time: 6^{15} End Time: 6^{20}

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ☑Crop grain to SW.

Species	<50m	50-100m	>100m	Flyovers	Height*
BASW		✓		✓	
NOCA			SM		
EUST		✓			
AMRO	✓	P		✓	
GRCA	✓			✓	
AMGO		SM			
NRSW		✓			
FISP		SM			
SOSP			SM		
No bobolinks or meadowlarks					



* Height of blade sweep will vary from project to project; check with project manager.
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

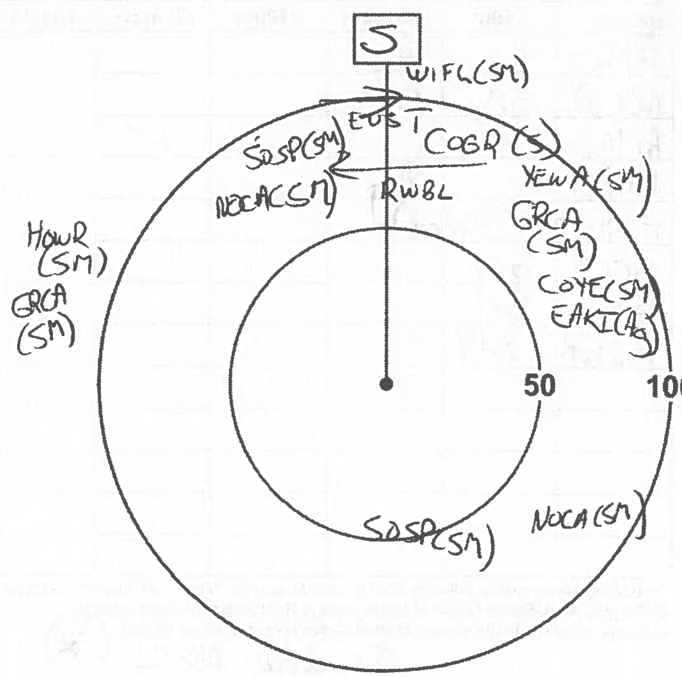
Treefrog heard in forest to north

Station: 5 Feature: UTM: 606012 4785872

Start Time: 6^{30} End Time: 6^{35}

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ☑Crop Cultural meadow

Species	<50m	50-100m	>100m	Flyovers	Height*
WIFL			SM		
EUST		✓		✓	
COGR		✓		✓	
SOSP	SM	SM			
NOCA		2 SM			
RWBL		✓			
YEWA		SM			
GRCA		SM	SM		
COYE		SM			
EAKI		Ag			
HOWR			SM		



* Height of blade sweep will vary from project to project; check with project manager.
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

Page ___ of ___ Quality Control: This form is complete ❑ & legible ❑.

Signature: ____________ (Field Personnel) Signature: ____________ (Project Manager)

REV: 2011-05-04 / FORM 020

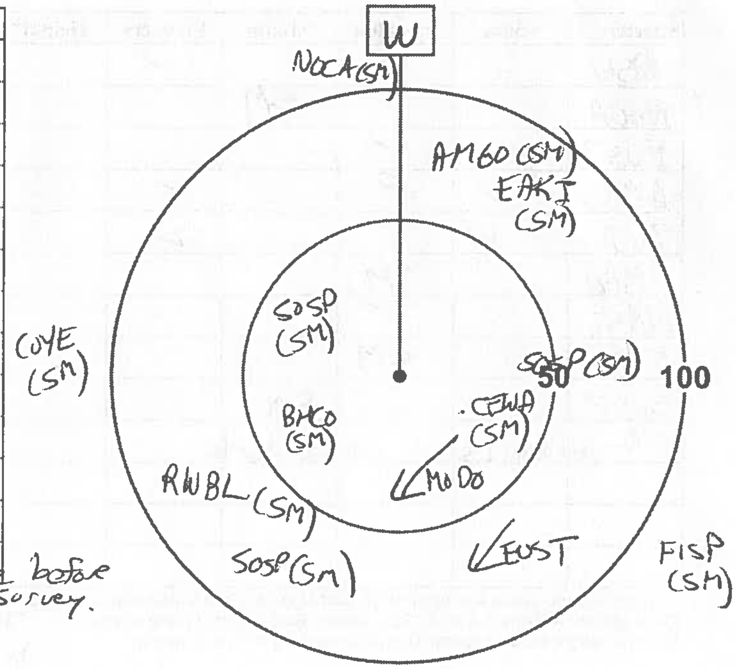
Station: 6 **Feature:** **UTM:** 605709 4785472

Start Time: 6:45 **End Time:** 6:50

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop CUM

Species	<50m	50-100m	>100m	Flyovers	Height*
NOCA			SM		
AMGO		SM			
EAKI		SM			
SOSP	SM	2 SM			
CEWA	SM				
MODO	✓			✓	
EUST		✓		✓	
FISP			SM		
RWBL		SM			
COYE			SM		

Note: 2 ♂ & 1 ♀ Bobolink flew over me before survey.



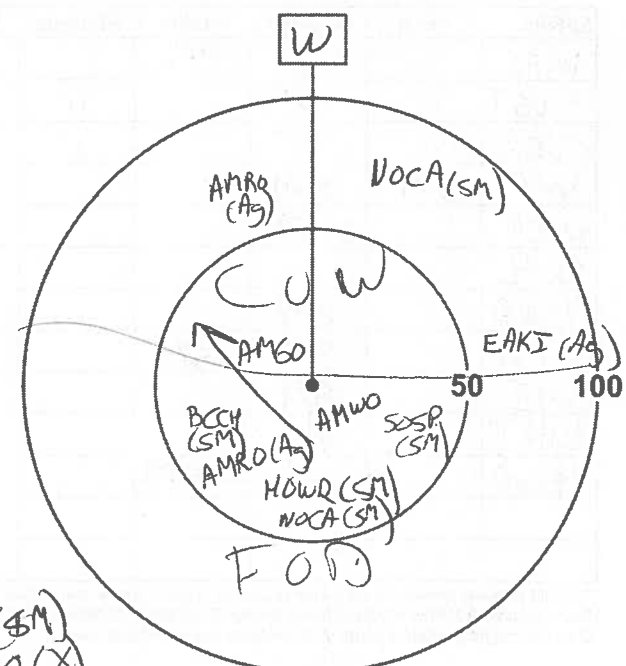
* Height of blade sweep will vary from project to project; check with project manager.
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

Station: 7 **Feature:** **UTM:** 605472 4785472

Start Time: 7:15 **End Time:** 7:20

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
AMRO	Ag	Ag			
NOCA	SM	SM			
AMGO	✓			✓	
EAKI		Ag			
AMWO	✓ (flushed)				
BCCH	SM				
SOSP	SM				
HOWR	SM				



* Height of blade sweep will vary from project to project; check with project manager.
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

Incidental: NOFL (X), WAVI (SM), DOWO (X)

Page ___ of ___ Quality Control: This form is complete ❑ & legible ❑.

Signature: ____________ (Field Personnel) **Signature:** ____________ (Project Manager)

REV: 2011-05-04 / FORM 020

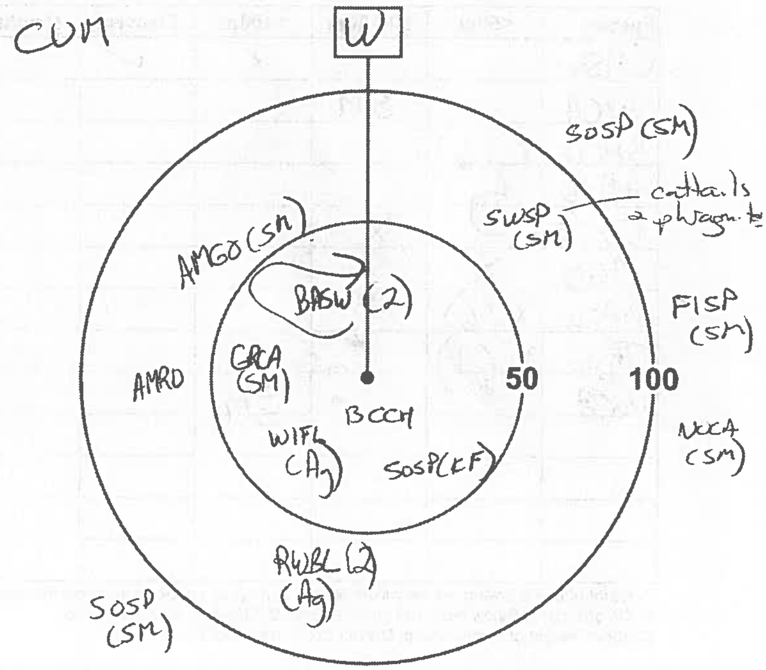
Station: 8 **Feature:** **UTM:** 605743 4785580

Start Time: 8:00 **End Time:** 8:05

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
SOSP	CF		SM(2)		
SWSP		SM			
FISP			SM		
NOCA			SM		
BCCH	X				
WIFL	Ag				
GRCA	SM				
AMGO		SM			
AMRO	V				
RWBL		Ag(2)			

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



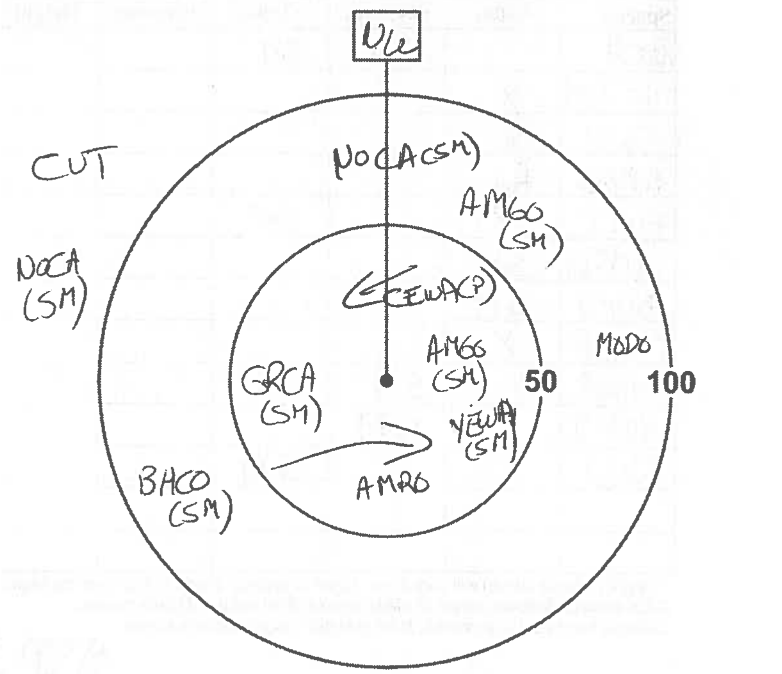
Station: 9 **Feature:** **UTM:** 605974 4785591

Start Time: 7:40 **End Time:** 7:45

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
NOCA		SM	SM		
AMGO	SM	SM			
CEWA	P				
MODO		X			
YEWA	SM				
AMRO	X				
GRCA	SM				
BHCO		SM			

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page ___ of ___ Quality Control: This form is complete ❑ & legible ❑.

Signature: ____________________ (Field Personnel) **Signature:** ____________________ (Project Manager)

REV: 2011-05-04 / FORM 020

*

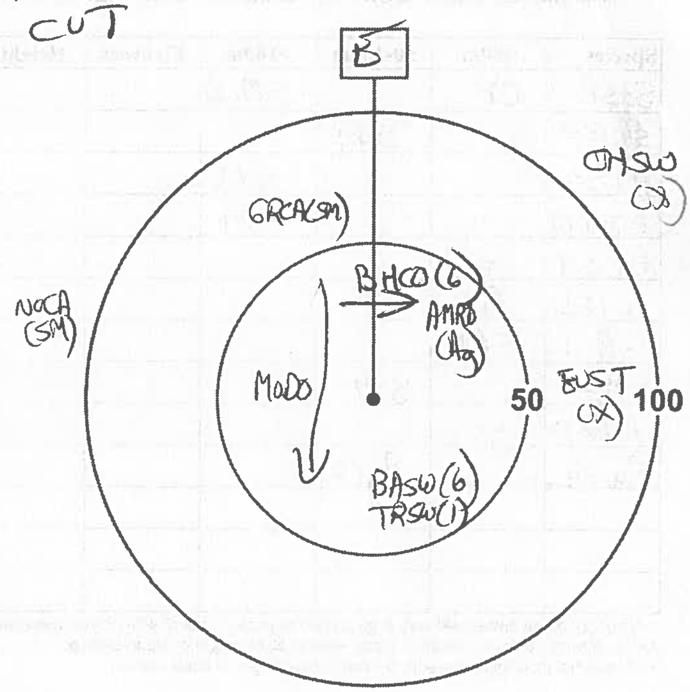
Station: 10 Feature: UTM: 606509 4785428

Start Time: 8[34] End Time: 8[39]

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop CUT

Species	<50m	50-100m	>100m	Flyovers	Height*
CHSW			X	✓	
GRCA		SM			
BHCO	P (6)				
AMRO	Ag				
EUST		X			
MODO	X				
BASW	X (6)				
TRSW	X (1)				
NOCA			SM		

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



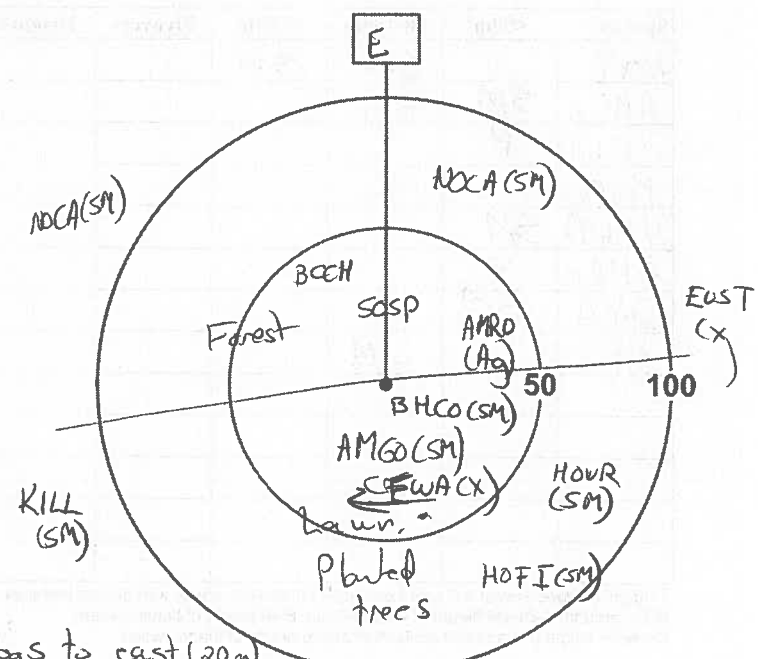
Station: 11 Feature: UTM: 606387 4785485

Start Time: 8[45] End Time:

Habitat: ☑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
NOCA		SM	SM		
BCCH	X				
SOSP	X				
AMRO	Ag				
EUST			X		
AMGO	SM				
BHCO	SM				
CEWA	X				
HOWR		SM			
HOFI		SM			
KILL			SM		

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



green frogs to east (20 m) of survey station

Page ___ of ___ Quality Control: This form is complete ❑ & legible ❑.

Signature: (Field Personnel) Signature: (Project Manager)

REV: 2011-05-04 / FORM 020

Stantec Consulting Ltd.
1 – 70 Southgate Drive
Guelph, ON
Canada N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Stantec

Birding Point Counts Survey Observation Form

Project Number: ______ Project Name: ______

Date: July 10, 2012 Field Personnel: ______

Weather Conditions:	TEMP (°C):	WIND:	CLOUD:	PPT:	PPT (in last 24 hrs):

GPS #: T

Station: 12 Feature: ______ UTM: 605692 4786278

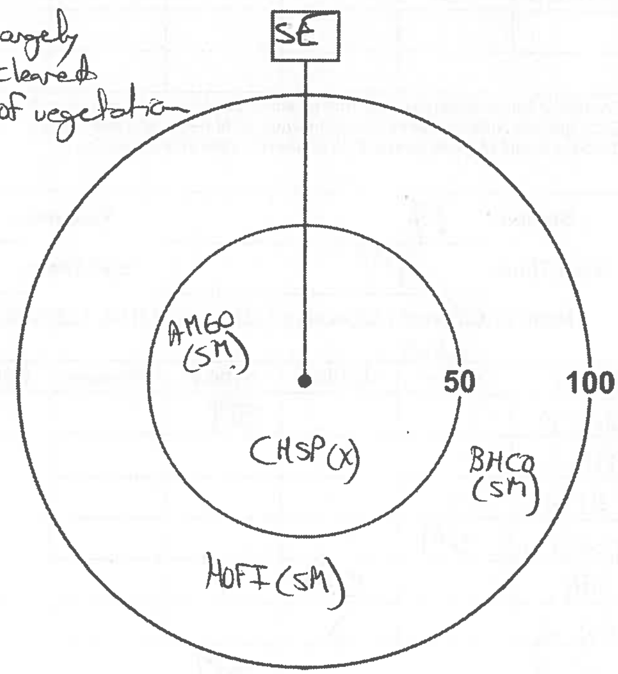
Start Time: 8 55 End Time: 9 00

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
AMGO	SM				
CHSP	X				
BHCO		SM			
HOFI		SM			

** Height of blade sweep varies from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

largely cleared of vegetation



Page ___ of ___ Quality Control: This form is complete ❑ & legible ❑.

Signature: ______ (Field Personnel) Signature: ______ (Project Manager)

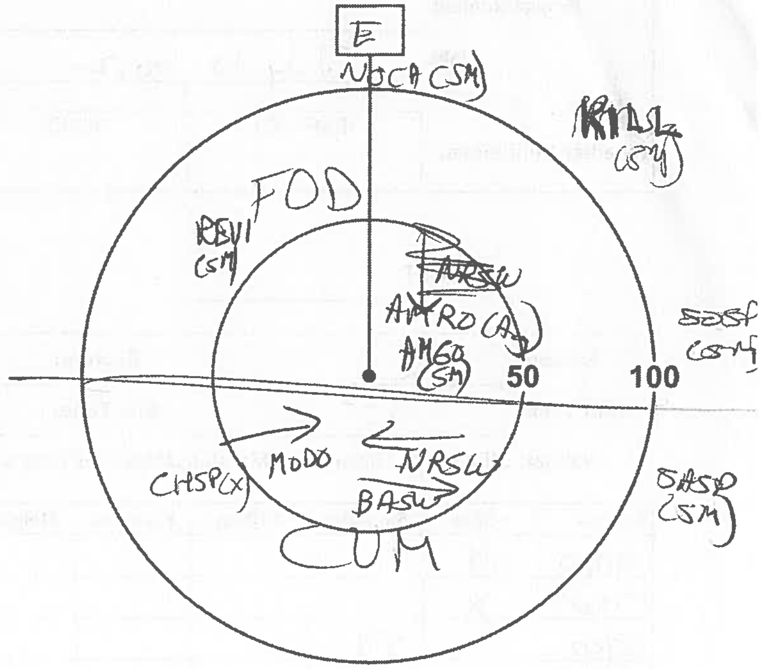
Station: 13 Feature: UTM: 606 896 4785741

Start Time: 9 25 End Time: 9 30

Habitat: ☑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop
CUM

Species	<50m	50-100m	>100m	Flyovers	Height*
NOCA			SM		
KILL			SM		
REVI		SM			
AMRO	Ag				
AMGO	SM				
SOSP			SM		
CHSP		X			
NRSW	✓			✓	
BASW	✓			✓	
SASP			SM	✓	
MODO	✓				

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



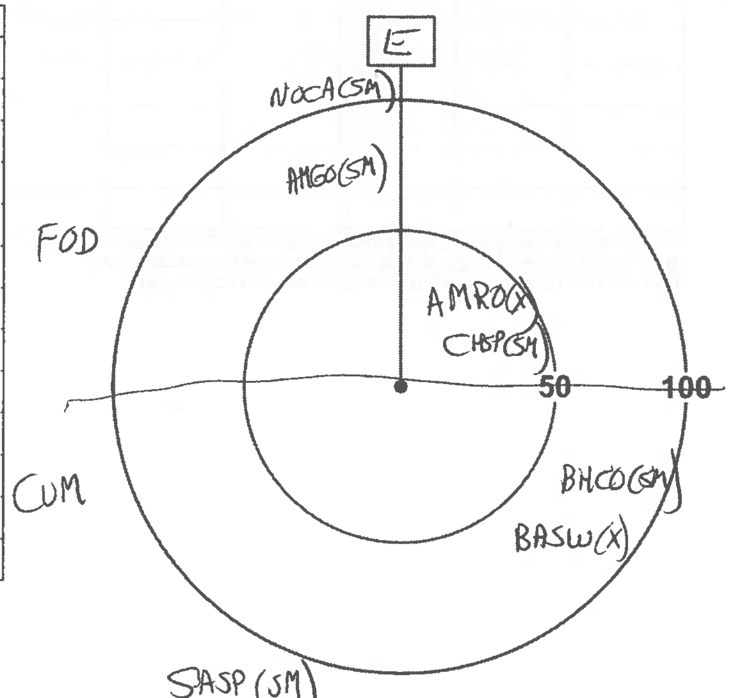
Station: 14 Feature: UTM: 606866 4785638

Start Time: 9 35 End Time: 9 40

Habitat: ☑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop
CUM

Species	<50m	50-100m	>100m	Flyovers	Height*
NOCA			SM		
AMGO		SM			
AMRO	X				
CHSP	SM				
BHCO		SM			
BASW		X			
SASP			SM		

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page ___ of ___ Quality Control: This form is complete ❑ & legible ❑.

Signature: ______________________ Signature: ______________________

(Field Personnel) (Project Manager)

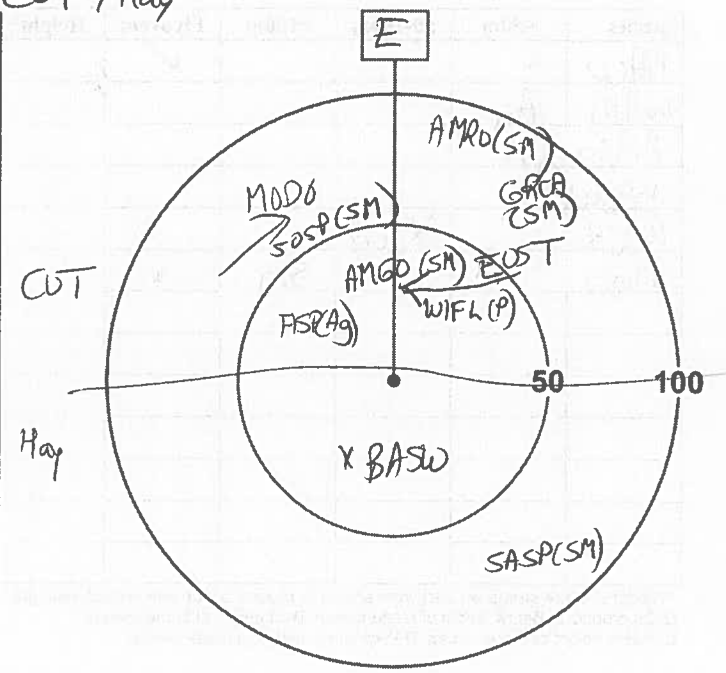
Station: 15 Feature: UTM: 606832

Start Time: 9[45] End Time: 9[50] 4785515

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop CUT / Hay

Species	<50m	50-100m	>100m	Flyovers	Height*
AMRO		SM			
GRCA		SM			
MODO		X			
SOSP		SM			
AMGO	SM				
EUST	X				
WIFL	P				
FISP	Ag				
SASP		SM			
BASW	X				

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



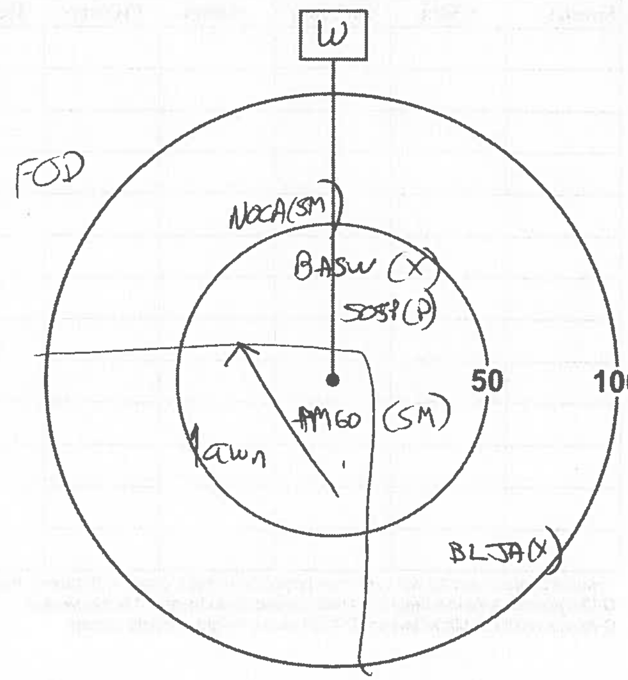
Station: 16 Feature: UTM: 606992

Start Time: 10[05] End Time: 10[15] 4785671

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
NOCA		SM			
BASW	X			✓	
SOSP	P				
AMGO	SM			✓	
BLJA		X			

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page ___ of ___ Quality Control: This form is complete ❑ & legible ❑.

Signature: ______________________ Signature: ______________________

(Field Personnel) (Project Manager)

REV: 2011-05-04 / FORM 020

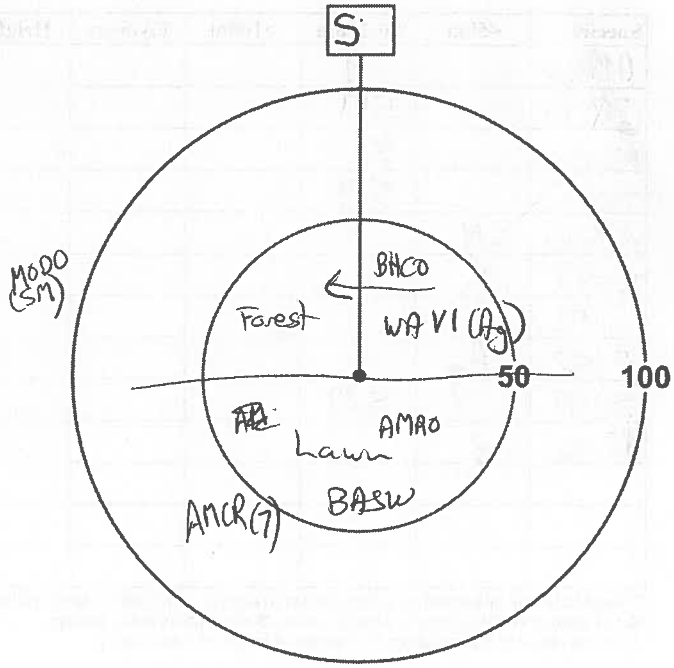
Station: 17 Feature: UTM: 607028 4785448

Start Time: 10[15] End Time: 10[20]

Habitat: ☑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
BHCO	✓			✓	
WAVI	Ag				
AMRO	X				
BASW	X				
AMCR		X (7)			
MODO			Sm		

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



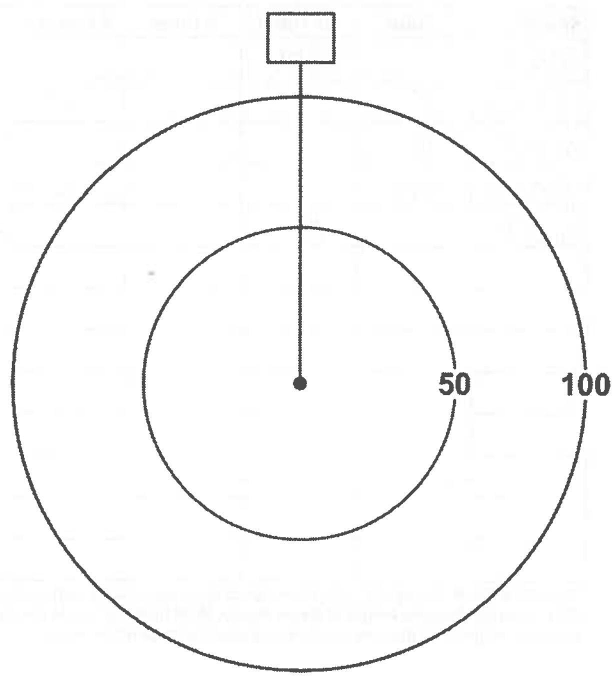
Station: Feature: UTM:

Start Time: End Time:

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page ___ of ___ Quality Control: This form is complete ❑ & legible ❑.

Signature: ______________________ (Field Personnel) Signature: ______________________ (Project Manager)

Stantec

Stantec Consulting Ltd.
1 – 70 Southgate Drive
Guelph, ON
Canada N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Birding Point Counts Survey Observation Form

Project Number: 60950443

Project Name: Hamilton-Fruitland

Date: June 25, 2012 05.30 –

Field Personnel: M. Korysl

Weather Conditions:	TEMP (°C):	WIND:	CLOUD:	PPT:	PPT (in last 24 hrs):
	16° T 20°	2-3 (incr. to 4 by 9:45)	10%	Ø	rain

GPS #: T

Station: 12

Feature:

UTM: 17T 0605692 4786278

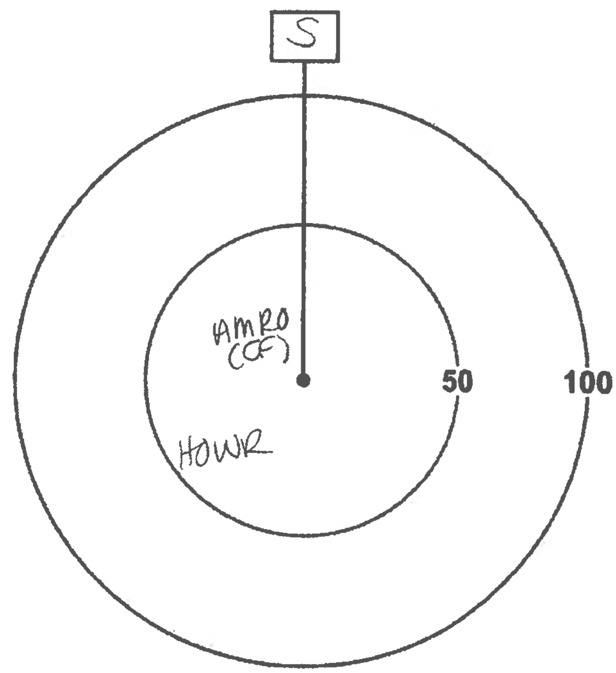
Start Time: 05 30

End Time: 05 35

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
AMCR	1				
HOWR	1				

*** *Height of blade sweep varies from project to project; check with project manager.***
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page 1 of 5

Signature: MK (Field Personnel)

Quality Control: This form is complete ❑ & legible ❑.

Signature: (Project Manager)

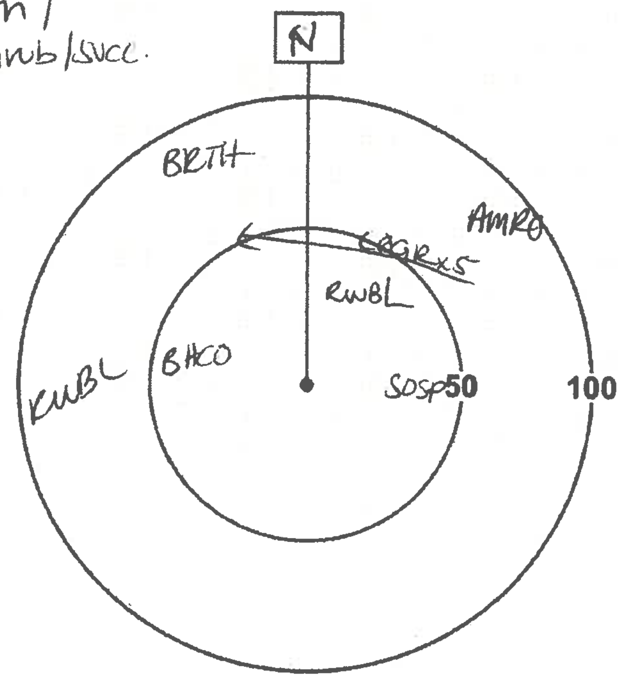
Station: 2 **Feature:** **UTM:** see Round 1

Start Time: 05:58 **End Time:** 06:03

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

cum / shrub/succ.

Species	<50m	50-100m	>100m	Flyovers	Height*
BRTH		1			
BHCO	1				
RWBL	1	1			
COGR				5	
AMRO		1			
SOSP	1				



** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

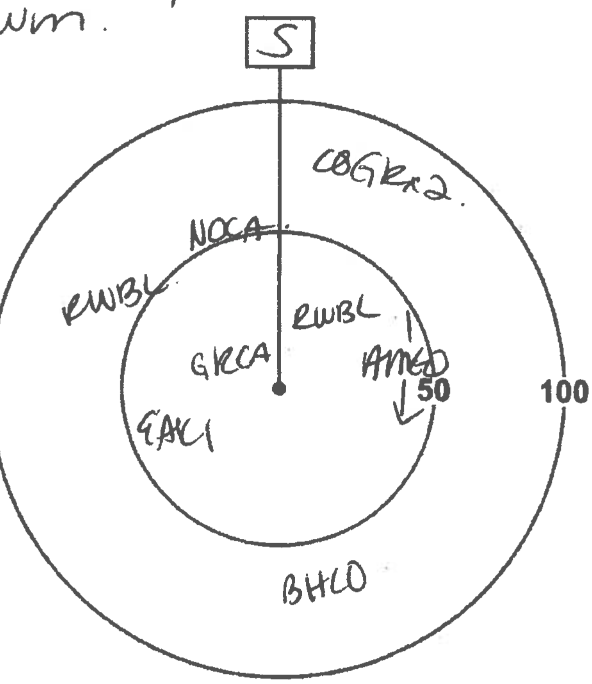
Station: 1 **Feature:** **UTM:** see round 1.

Start Time: 07:15 **End Time:** 07:20.

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

shrub/succ. / cum.

Species	<50m	50-100m	>100m	Flyovers	Height*
COGR		2			
NOCA		1			
RWBL	1	1			
GRCA	1				
EAKI	1				
AMGO				1	
BHCO		1			



** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

Page ___ of ___

Signature: [signature] (Field Personnel)

Quality Control: This form is complete ❑ & legible ❑.

Signature: ____________ (Project Manager)

REV: 2011-05-04 / FORM 020

Station: 5 **Feature:** **UTM:** see round 1

Start Time: 06:35 **End Time:** 06:40

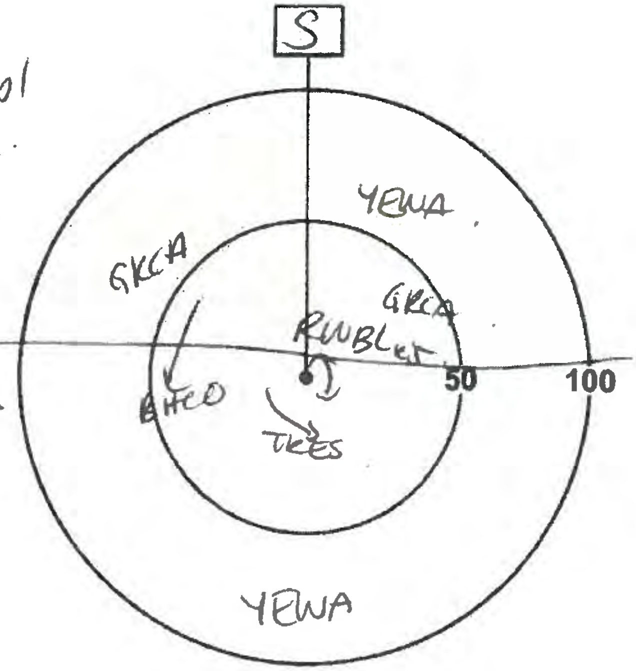
-no BARS

Habitat: ☐Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☐Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
GRCA	1	1			
YEWA		2			
BHCO	1				
RWBL	5				
TRES				1	

shrub/ succ.

cum.



** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

Station: 6 **Feature:** **UTM:** See Round 1

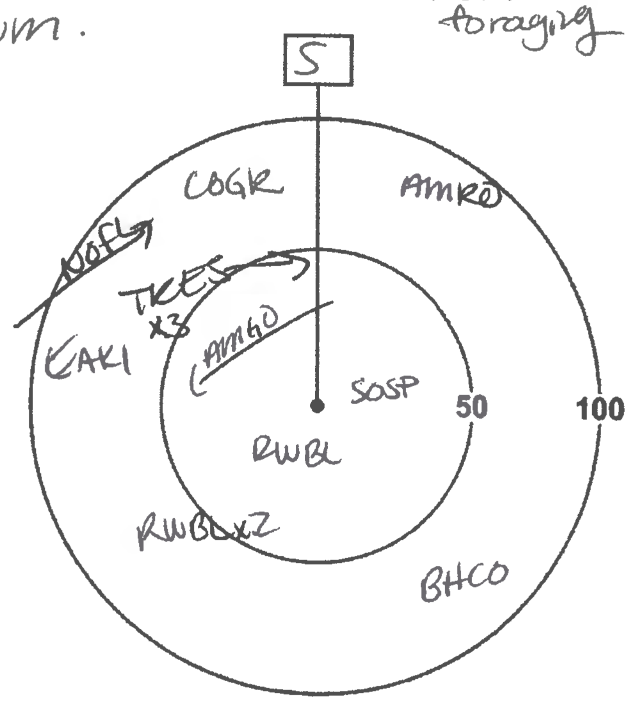
Start Time: 06:55 **End Time:** 07:00

Habitat: ☐Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☐Crop

cum.

4 BARS foraging.

Species	<50m	50-100m	>100m	Flyovers	Height*
COGR		1			
AMRO		1			
TRES				3	
AMGO				1	
SOSP	1				
RWBL	1	2			
BHCO		1			
EAKI		1			
NOFL				1	



** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

Page 2 of 5

Signature: [signature]
(Field Personnel)

Quality Control: This form is complete ☐ & legible ☐

Signature:
(Project Manager)

REV: 2011-05-04 / FORM 020

Station: 3 Feature: UTM:

Start Time: 06:09 End Time: 06:14.

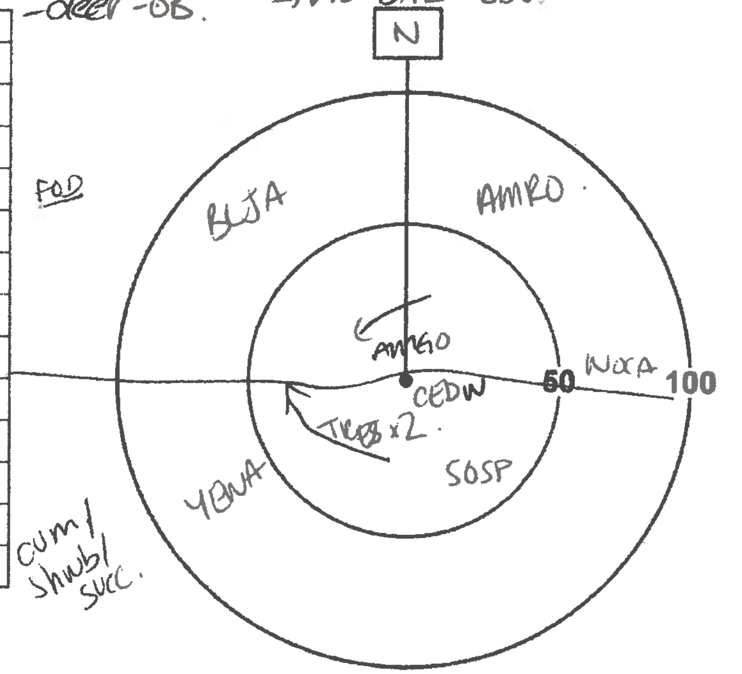
Habitat: ☑Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☐Crop

CUM

-deer-OB.

→no BOBO/game habitat
→no BARS obs.

Species	<50m	50-100m	>100m	Flyovers	Height*
BLJA		1			
AMRO		1			
AMGO				1	
CEDW	1				
TRES				2	
YEWA		1			
SOSP	1				
NOCA		1			



** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

Station: 4 Feature: UTM:

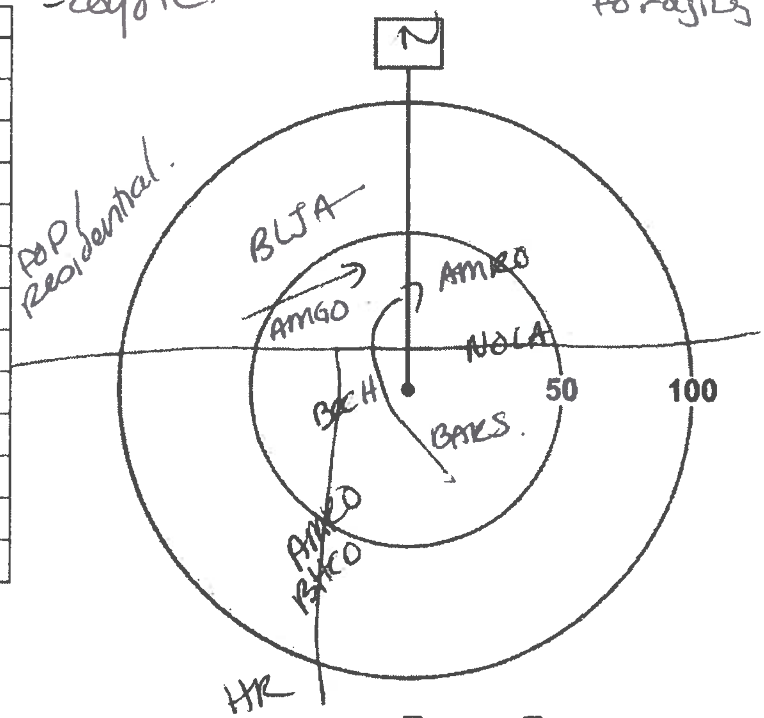
Start Time: 06:19 End Time: 06:24

Habitat: ☑Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☑Crop

-coyote

*BARS x2 foraging

Species	<50m	50-100m	>100m	Flyovers	Height*
BLJA		1			
AMGO				1	
AMRO	2				
NOCA	1				
BCCH	1				
BARS				2	
BHCO		1			



** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

Page ___ of ___

Quality Control: This form is complete ☐ & legible ☐.

Signature: ________________ (Field Personnel)

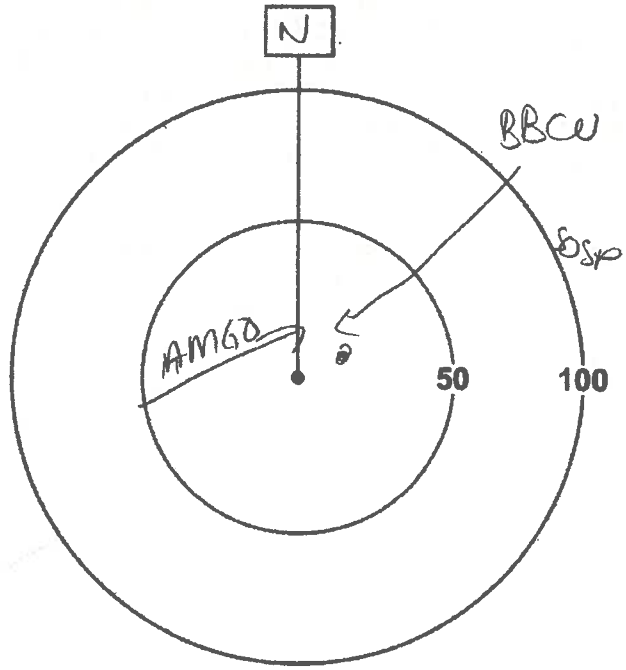
Signature: ________________ (Project Manager)

Station: 7 **Feature:** **UTM:**

Start Time: 07:35 **End Time:** 07:40

Habitat: ☒Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☐Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
AMGO				1	
BBCU	1				
SOSP			1		



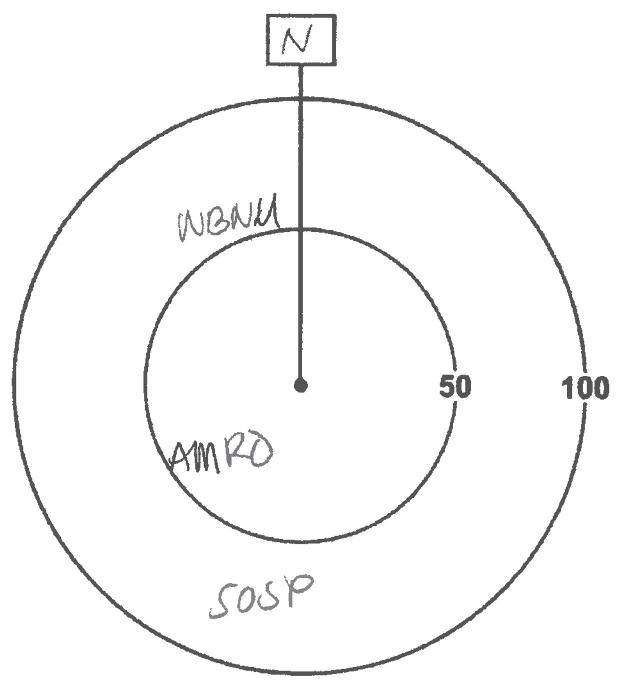
** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

Station: 11 **Feature:** **UTM:**

Start Time: 08:04 **End Time:** 08:09

Habitat: ☐Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☐Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
WBNU		1			
AMRO	1				
SOSP		1			



** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

Page 3 of 5

Signature: [signature]
(Field Personnel)

Quality Control: This form is complete ☐ & legible ☐.

Signature:
(Project Manager)

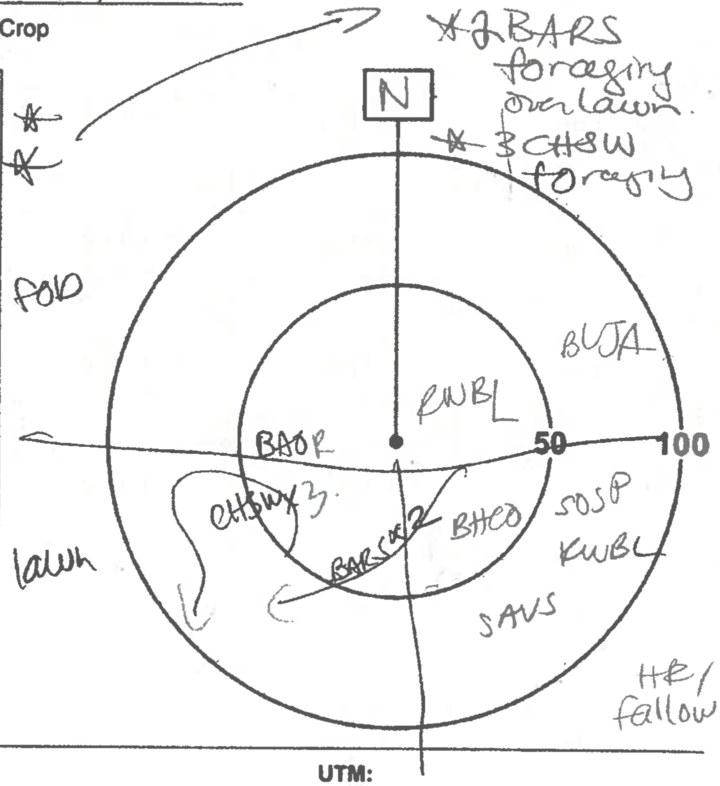
Station: 10 **Feature:** **UTM:**

Start Time: 08:11 **End Time:** 08:16

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop
/lawn

Species	<50m	50-100m	>100m	Flyovers	Height*
BARS				2	
CHSW				3	
BAOR	1				
RWBL	1	1			
BHCO	1				
SOSP		1			
SAVS		1			
BLJA		1			

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



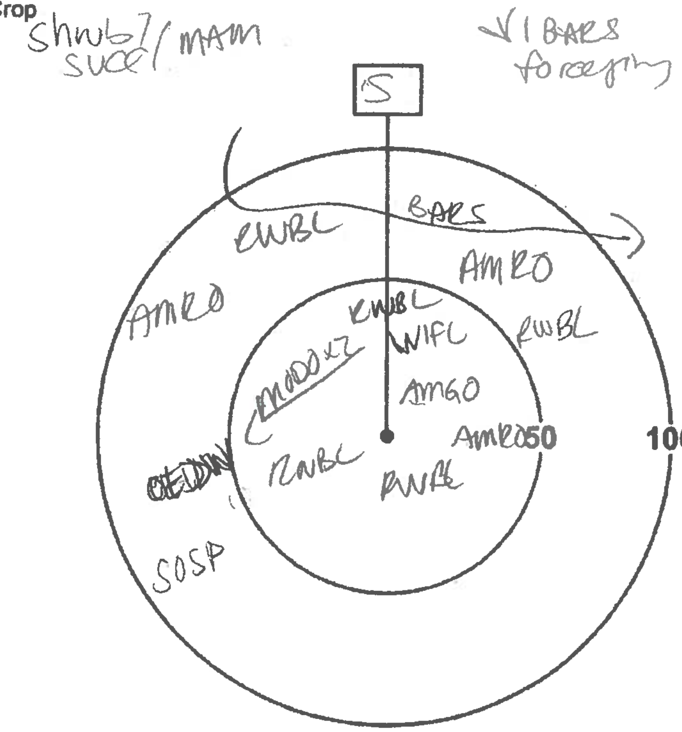
Station: 9 **Feature:** **UTM:**

Start Time: 08:30 **End Time:** 08:35

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop
shrub/succ/MAM

Species	<50m	50-100m	>100m	Flyovers	Height*
BARS				1	
AMRO	1	2			
MODO				2	
AMGO	1				
RWBL	3	2			
WIFL	1				
SOSP		1			

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page ___ of ___ Quality Control: This form is complete ❑ & legible ❑.

Signature: ____________________ (Field Personnel) **Signature:** ____________________ (Project Manager)

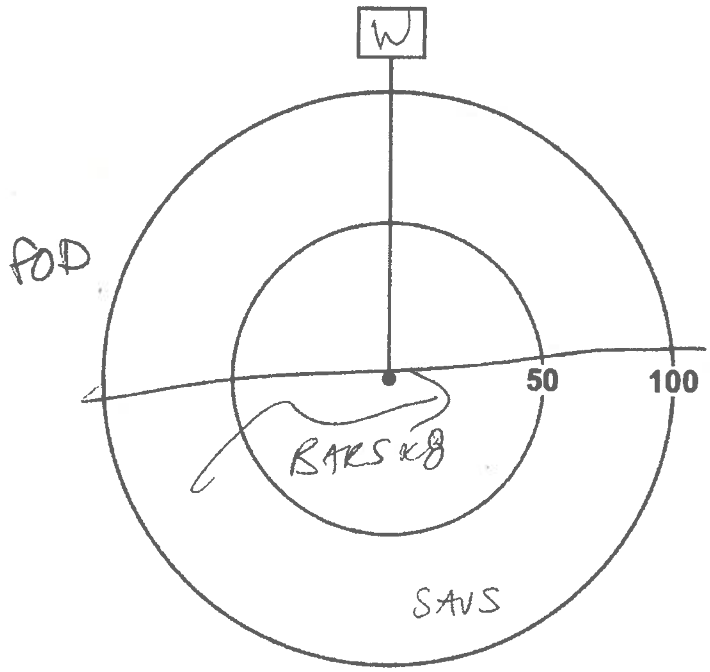
Station: 14 | Feature: | UTM:

Start Time: 09:37 | End Time: 09:42

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
BARS				8	
SAVS		1			

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



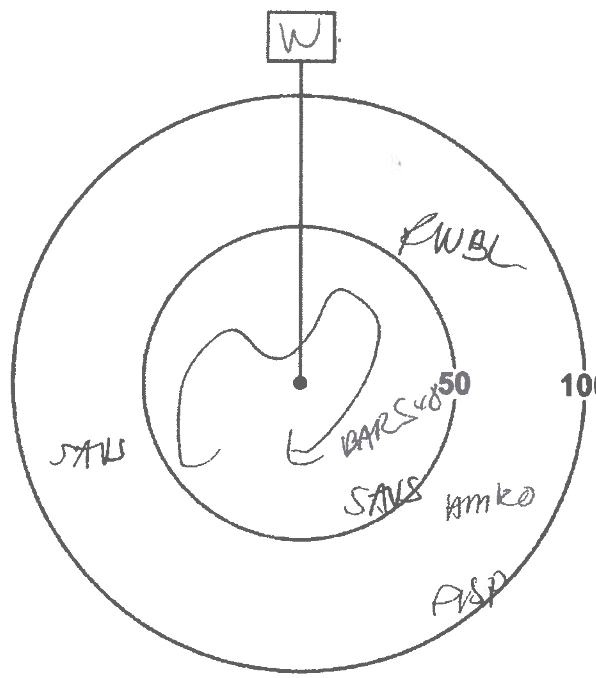
Station: 15 | Feature: | UTM:

Start Time: 09.45 | End Time: 09:50

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
BARS				8	
SAVS	1	1			
FISP		1			
AMKO		1			
RWBL		1			

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



Page 4 of 5

Signature: [signature] (Field Personnel)

Quality Control: This form is complete ❑ & legible ❑.

Signature: (Project Manager)

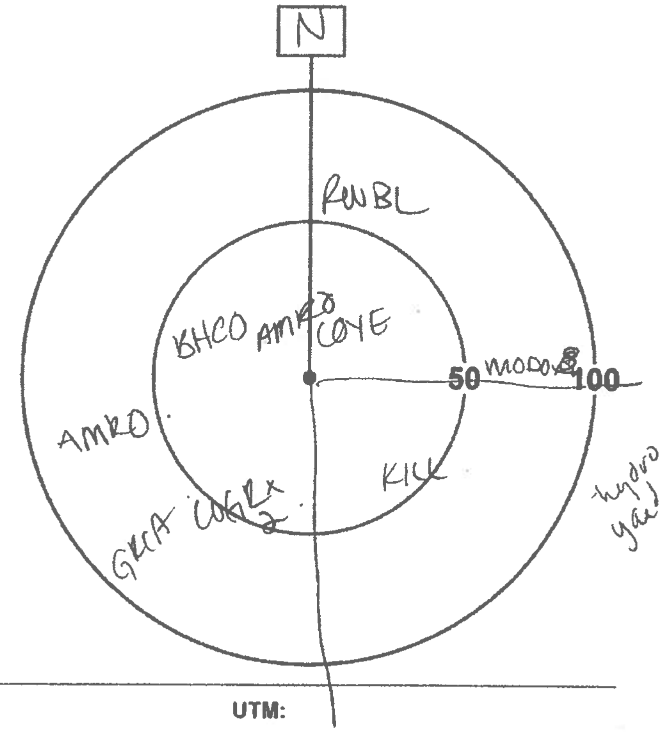
Station: 8 **Feature:** **UTM:** 0605757 4785545

Start Time: 09:05 **End Time:** 09:10

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
RWBL		1			
BHCO	1				
AMRO	1	1			
COYE	1				
MODO			8		
KILL	1				
GRCA		1			
COGR	2				

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Station: 13 **Feature:** **UTM:**

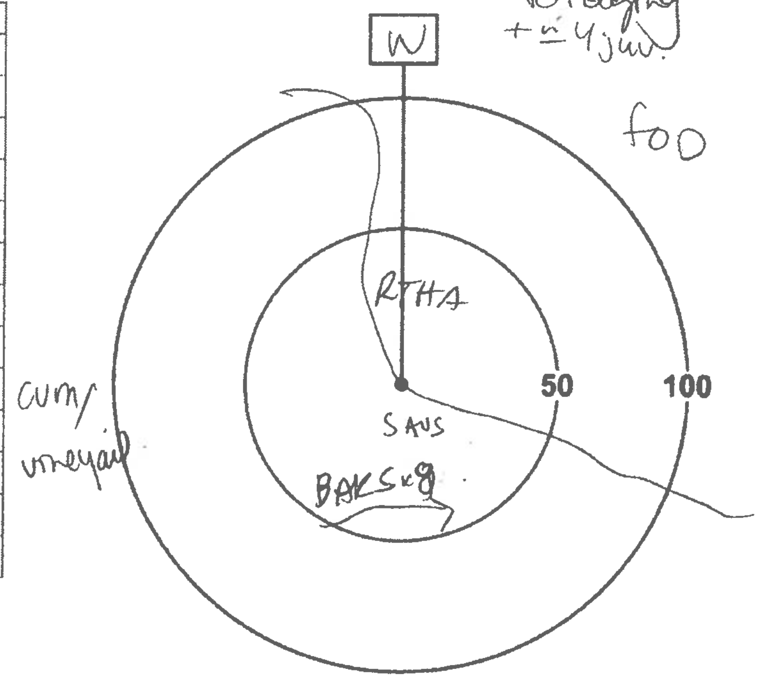
Start Time: 09:30 **End Time:** 09:35

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop
cum

* 4 adult BARS foraging + ~4 juv.

Species	<50m	50-100m	>100m	Flyovers	Height*
RTHA	1				
BARS				8	
SAVS	1				

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page ___ of ___

Signature: ______________________ (Field Personnel)

Quality Control: This form is complete ❑ & legible ❑.

Signature: ______________________ (Project Manager)

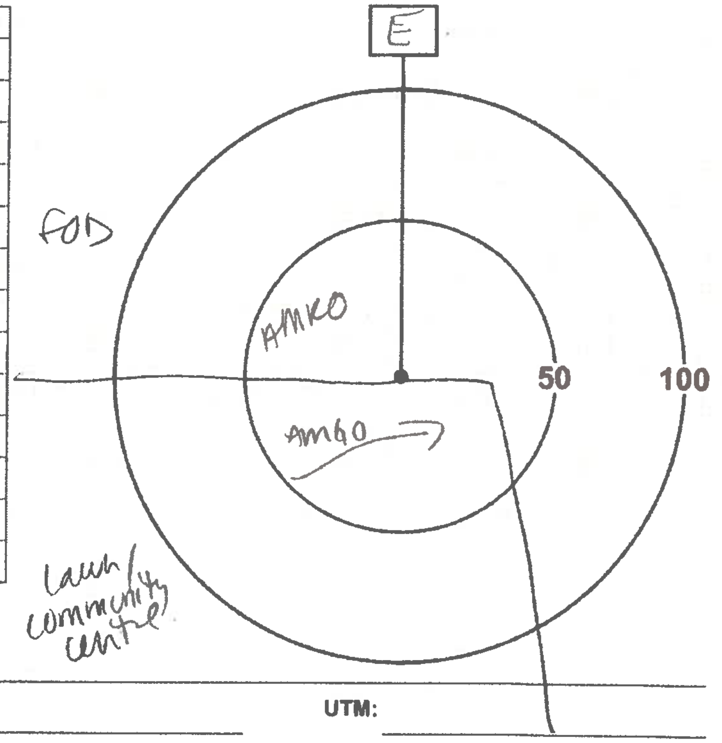
REV: 2011-05-04 / FORM 020

Station: 16 **Feature:** **UTM:**

Start Time: 09:56 **End Time:** 10:01

Habitat: ☑Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☐Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
AMKO	1				
AMGO				1	



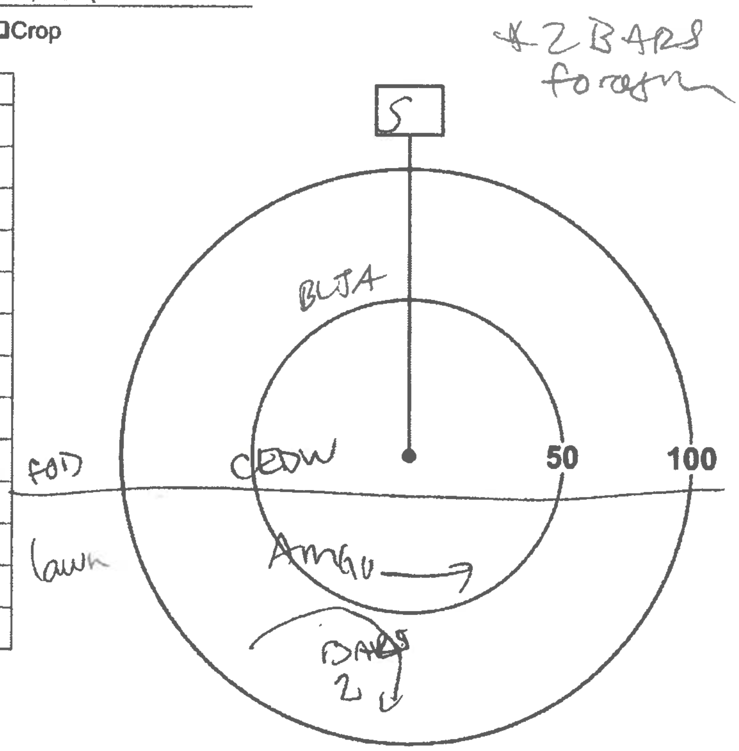
* Height of blade sweep will vary from project to project; check with project manager.
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

Station: 17 **Feature:** **UTM:**

Start Time: 10:04 **End Time:** 10:09

Habitat: ☑Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☐Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
AMGO				1	
CEDW	1				
BLJA		1			
BARS				2	



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O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

Page 5 of 5 Quality Control: This form is complete ☐ & legible ☐.

Signature: [signature] **Signature:**

(Field Personnel) (Project Manager)

REV: 2011-05-04 / FORM 020

Stantec

Stantec Consulting Ltd.
1 – 70 Southgate Drive
Guelph, ON
Canada N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Bobolink and Eastern Meadowlark Breeding Survey Form

Project Number: 160950443

Project Name: Fruitland-Winona Secondary Plan Area

Date: June 11 2012

Field Personnel: [redacted] M. Oliveira

Weather Conditions:	TEMP (ºC):	WIND:	CLOUD:	PPT:	PPT (in last 24 hrs):
	17°c	0	20%	Ø	Ø

Please mark transect location on map and indicate areas of species observations on map.

Transect No.: 1

Habitat: NO SUITABLE HABITAT (SHRUB SUCCESSIONAL)

Start Time: /

End Time: /

Start Point UTM: /

End Point UTM: /

Species	Tally
Bobolink	0
Eastern Meadowlark	0

Transect No.: 2

Habitat: NO SUITABLE HABITAT

Start Time: /

End Time: /

Start Point UTM: /

End Point UTM: /

Species	Tally
Bobolink	0
Eastern Meadowlark	0

Pg. ___ of ___

Signature: (Field Personnel)

Quality Control: This form is complete ☐ & legible ☐.

Signature: (Project Manager)

REV: 2011-06-03 / FORM 014c

Transect No.: 3
Habitat: CROP FIELD (NOT SUITABLE HABITAT)
Start Time: 06:
End Time:
Start Point UTM:
End Point UTM:

Species	Tally
Bobolink	
Eastern Meadowlark	

Transect No.: 4
Habitat: HAY FIELD (UNCUT)
Start Time: 06:22
End Time: 06:32
Start Point UTM: 0606019 4785708
End Point UTM: 0606132 4785774

Species	Tally
Bobolink	11 (PAIR)
Eastern Meadowlark	0

Transect No.: 5
Habitat: HAY FIELD (UNCUT)
Start Time: 06:39
End Time: 06:50
Start Point UTM: 0605944 4785773
End Point UTM: 06057355 4785841

Species	Tally /
Bobolink	1 ♂
Eastern Meadowlark	0

Pg. ___ of ___

Quality Control: This form is complete ☐ & legible ☐.

Signature: ______________________
(Field Personnel)

Signature: ______________________
(Project Manager)

Transect No.:	6	Habitat:	FIELD
Start Time:	07:31	End Time:	07:41
Start Point UTM:	0605501 4785499	End Point UTM:	0605585 4785606

Species	Tally
Bobolink	1 ♂
Eastern Meadowlark	0

DRY/WET MEADOW FALLOW AREA

Transect No.:	7	Habitat:	FIELD / MIXED HAY/SCRUB
Start Time:	08:16	End Time:	08:26
Start Point UTM:	0605732 4785631	End Point UTM:	0605910 4785646

Species	Tally
Bobolink	1 ♂
Eastern Meadowlark	0

Transect No.:	8	Habitat:	WET MEADOW ? /FIELD
Start Time:	08:35	End Time:	08:45
Start Point UTM:	0605977 4785580	End Point UTM:	0606046 4785562

Species	Tally
Bobolink	0
Eastern Meadowlark	0

Pg. ___ of ___

Quality Control: This form is complete ☐ & legible ☐.

Signature: ______________________ (Field Personnel)

Signature: ______________________ (Project Manager)

Stantec
Stantec Consulting Ltd.
1 – 70 Southgate Drive
Guelph, ON
Canada N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Bobolink and Eastern Meadowlark Breeding Survey Form

Project Number: 160950443

Project Name: Fruitland-Winona

Date: July 10, 2012

Field Personnel: D. Graham

Weather Conditions:	TEMP (ºC):	WIND:	CLOUD:	PPT:	PPT (in last 24 hrs):
	17-24°C	1	10%	None	Light rain

Please mark transect location on map and indicate areas of species observations on map.

Station ~~Transect~~ No.: 4

Habitat: Wheat field

Start Time: 6:15

End Time: 6:25

Start Point UTM: 606042, 4786009

End Point UTM:

Species	Tally
Bobolink	Ø
Eastern Meadowlark	Ø

Station ~~Transect~~ No.: 6

Habitat: Cultural meadow

Start Time: 6:45

End Time: 6:50

Start Point UTM: 605709, 4785872

End Point UTM:

Species	Tally
Bobolink	3: Two males, 1 female/juvenile
Eastern Meadowlark	Ø

Pg. ___ of ___

Quality Control: This form is complete ☐ & legible ☐.

Signature: ______________________ (Field Personnel)

Signature: ______________________ (Project Manager)

REV: 2011-06-03 / FORM 014c

Stantec
Stantec Consulting Ltd.
1 – 70 Southgate Drive
Guelph, ON
Canada N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Bobolink and Eastern Meadowlark Breeding Survey Form

Project Number: 60950443
Project Name: Hamilton-Fruitland
Date: June 25, 2012.
Field Personnel: N. Kopysh

Weather Conditions:	TEMP (°C):	WIND:	CLOUD:	PPT:	PPT (in last 24 hrs):
		2.		Ø	

10 min pc + transects.

Please mark transect location on map and indicate areas of species observations on map.

stn/ Transect No.: 5
Habitat: CUM – high degree of forbs
Start Time: 06:40.
End Time: 06:50.
Start Point UTM: 060612/4785706
End Point UTM:

Species	Tally
Bobolink	Ø
Eastern Meadowlark	Ø
→ walked transects through field – no EAME or BOBO observed	

stn/ Transect No.: 6.
Habitat: CUM – high degree of forbs
Start Time: 07:00
End Time: 07:10.
Start Point UTM: 605709/4785872
End Point UTM:

Species	Tally
Bobolink	Ø
Eastern Meadowlark	Ø.

Pg. 1 of 1
Signature: [signature] (Field Personnel)

Quality Control: This form is complete ☐ & legible ☐.
Signature: (Project Manager)

REV: 2011-06-03 / FORM 014c

dsg g:\resource\internal info and teams\field forms\birds\breeding bird\form_014c_bobolink-and-eame_sar_breeding-survey.docx

Transect No.: 7.

Habitat: CUM

Start Time: 07:45

End Time: 07:55 -

Start Point UTM: 0605506 / 4785507.

End Point UTM:

Species	Tally
Bobolink	Ø
Eastern Meadowlark	Ø
COGR / RWBL BHCO	flocks in field.

Transect No.: 9

Habitat: CUW / CUM.

Start Time: 08:30 - 08:40

End Time:

Start Point UTM: 0605974 / 4785591

End Point UTM:

Species	Tally
Bobolink	Ø not suitable habitat -
Eastern Meadowlark	Ø shrub/succ. habitat
	sml - CUM/CUW
	+ patches of MAM.

Transect No.: 8.

Habitat: CUM.

Start Time: 09:10

End Time: 09:20

Start Point UTM: 0605743 / 4735580

End Point UTM:

Species	Tally
Bobolink	Ø
Eastern Meadowlark	Ø

Pg. ___ of ___

Quality Control: This form is complete ☐ & legible ☐.

Signature: ____________ (Field Personnel)

Signature: ____________ (Project Manager)

Chimney Assessment Form

Page 1

May 17, 2012 1

Observer Details

Name	Phone Number	Email Address	
Don Graham	( )		
Street Address	**City**	**Prov.**	**Postal Code**

Building Details

Street Address	City	Prov.	Postal Code
660 Barton	Hamilton.	ON	
Owner Name	**Phone Number**	**Email Address**	
	( )		

Type of building (please check one):

- ☐ House
- ☐ Church
- ☑ Store
- ☐ Lowrise Apartment
- ☐ School
- ☐ Factory
- ☐ Highrise Apartment
- ☐ Hospital
- ☐ Other, please specify: ______

Chimney Details

Site Name: 660 ~~Fruitland~~ Barton

Chimney Code: H-660-0

GPS coordinates (DD.dddd):

Lat. 4786287 ° N

Long. 605674 ° W

Number of years active (if known):

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Chimney material (please check one):

- ☐ Brick
- ☐ Stucco
- ☐ Concrete
- ☐ Stone
- ☐ Other, please specify: ______

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.

No chimney

If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- ☐ Cap
- ☐ Terra Cotta Liner
- ☐ Animal Guard
- ☐ Spark Protector
- ☐ Metal Liner
- ☐ Other, please specify: ______

Surrounding habitat (please check one):

- ☐ Residential
- ☐ Industrial
- ☑ Commercial
- ☐ Natural
- ☐ Other, please specify: ______

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- ☐ Round → Diameter (cm): ______
- ☐ Square → Width (cm): ______
- ☐ Rectangular → Width (cm): ______ Length (cm): ______

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Stantec

Stantec Consulting Ltd.
70-1 Southgate Drive
Guelph, Ontario, Canada
N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Barn Swallow Observation Form

Project Number: 160950443 Project Name: Scube

Date: July 12, 2012 Field Personnel: D. Graham

Weather Conditions:	Temp:	Wind:	Cloud:	PPT:	PPT in last 24 hrs:
	16-25°C	0-1	10%	None	None

Survey Station	Time AM	GPS Coordinates	# BARS observed	Type of structure (e.g. barn, culvert)	Accessible nesting sites (Y or N)	Nests Active	Nests Inactive	
2	5^45	608483 4784921	2					Foraging
4	6^15	608758 4785292	3					Foraging
6	6^45		1					Foraging
8	7^05	610065 4785097	1					Foraging
11	7^45	610234 4785771	1					Foraging
14	8^15	609860 4785605	1					Foraging
15	9^05	610787 4785550	3					Foraging
16	8^35	608784 4785104	1					Foraging
17	8^50	611228 4785587	4					Foraging
Box culvert - on south Service Rd	12^10	612446 4785577	0	Box culvert	N			
Box culvert - Hwy 8	12^30	608654 4784950	0	Box culvert	N			

Quality Control: This form is complete (__) & legible (__).

Signature: ______________________ (Field Personnel) Signature: ______________________ (Project Manager)

REV: June-09 FORM 034

Stantec
Stantec Consulting Ltd.
70-1 Southgate Drive
Guelph, Ontario, Canada
N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Barn Swallow Observation Form

Project Number: 160950443
Project Name: Scube
Date: July 4, 2012
Field Personnel: Michael Oliveira

Weather Conditions:	Temp: 20° C	Wind: 1-2	Cloud: 50%	PPT: Ø	PPT in last 24 hrs: Ø

Survey Station	Time	GPS Coordinates	# BARS observed	Type of structure (e.g. barn, culvert)	Accessible nesting sites (Y or N)	Nests	
						Active	Inactive
6	6:51-6:56	608587, 4785464	1	N.A.	Foraging only		
8	7:16-7:21	610089, 4785467	2	N.A.	Foraging only		

Quality Control: This form is complete (__) & legible (__).

Signature: ______________________ (Field Personnel)

Signature: ______________________ (Project Manager)

Stantec

Stantec Consulting Ltd.
70-1 Southgate Drive
Guelph, Ontario, Canada
N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Barn Swallow Observation Form

Project Number: 60950443

Project Name: Scube

Date: June 26, 2012

Field Personnel: N. Kopysch

Weather Conditions:	Temp:	Wind:	Cloud:	PPT:	PPT in last 24 hrs:
	15 to 20°C	0-1	20%	Ø	Ø

Survey Station	Time	GPS Coordinates	# BARS observed	Type of structure (e.g. barn, culvert)	Accessible nesting sites (Y or N)	Nests: Active	Nests: Inactive
15	6^{50}-6^{55}	610049, 4785387	1	N.A.	Foraging only		
8	7^{04}-7^{09}	610651, 4785097	2	N.A.	Foraging only		
17	7^{49}-7^{54}	608784 4785404	1	N.A.	Foraging only		
5	8^{35}-8^{40}	608294' 4785534	1	N.A.	Foraging only		
6	8^{45}-8^{50}	608587' 4785464	3	N.A.	Foraging only		
18	9^{00}-9^{05}	610787,' 4785550	1	N.A.	Foraging only		

Quality Control: This form is complete (__) & legible (__).

Signature: ____________________ (Field Personnel)

Signature: ____________________ (Project Manager)

Chimney Assessment Form

Page 2

Chimney height above roofline (m):	Number of Flues:	Colour of Chimney:

Total Chimney Height (m) = ______ (Number of stories in building) × 3 m (approx height of one story) + ______ (Height above roofline (m)) = ______ m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None seen

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McIlwraith Field Naturalists

Chimney Assessment Form

Page 1

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Observer Details

Name	Phone Number	Email Address	
D. Graham	( )		
Street Address	**City**	**Prov.**	**Postal Code**

Building Details

Street Address	City	Prov.	Postal Code
692 Barton	Hamilton	ON	
Owner Name	**Phone Number**	**Email Address**	
	( )		

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ______

Chimney Details

Site Name: 692 Barton

Chimney Code: H-692-1

GPS coordinates (DD.dddd):

Lat. 4786235 ° N

Long. 605881 ° W

Number of years active (if known):

NOTE: Chimney codes are created using the following scheme:

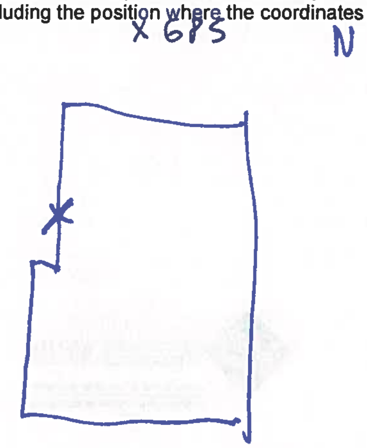
City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify: ______

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [x] Cap
- [ ] Terra Cotta Liner
- [ ] Animal Guard
- [x] Spark Protector
- [x] Metal Liner
- [ ] Other, please specify: ______

Surrounding habitat (please check one):

- [x] Residential
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: limited to roadway

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [x] Square → Width (cm): 40
- [ ] Rectangular → Width (cm): ______ Length (cm): ______

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

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Chimney height above roofline (m): 2 m	Number of Flues: 1	Colour of Chimney: Brown

Total Chimney Height (m) = 1 (Number of stories in building) × 3 m (approx height of one story) + 2 m (Height above roofline (m)) = 5 m m

If swifts are present, are they: ☐ Nesting ☐ Roofing ☐ Unknown

Additional Comments:

None seen

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Chimney Assessment Form

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Observer Details

Name	Phone Number	Email Address		
D. Graham	( )			
Street Address		**City**	**Prov.**	**Postal Code**

Building Details

Street Address	City	Prov.	Postal Code
720 Barton	Hamilton	ON	
Owner Name	**Phone Number**	**Email Address**	
	( )		

Type of building (please check one):

- ☐ House
- ☐ Church
- ☐ Store
- ☐ Lowrise Apartment
- ☐ School
- ☐ Factory
- ☐ Highrise Apartment
- ☐ Hospital
- ☐ Other, please specify: ______

Chimney Details

Site Name: 720 Barton

Chimney Code: H - 720 - 1

GPS coordinates (DD.dddd):

Lat. 4786169 ° N

Long. 606102 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

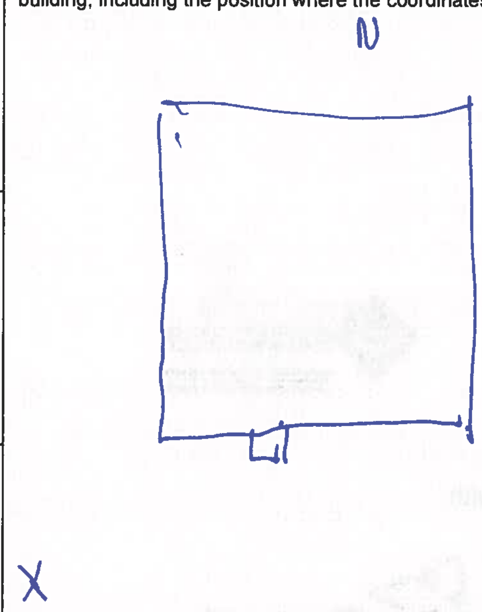
Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1 LO-141-2

Number of years active (if known):

Chimney material (please check one):

- ☑ Brick
- ☐ Stucco
- ☐ Concrete
- ☐ Stone
- ☐ Other, please specify: ______

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- ☑ Cap
- ☐ Terra Cotta Liner
- ☐ Animal Guard
- ☐ Spark Protector
- ☑ Metal Liner
- ☐ Other, please specify: ______

Surrounding habitat (please check one):

- ☑ Residential
- ☐ Industrial
- ☐ Commercial
- ☐ Natural
- ☐ Other, please specify: ______

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- ☐ Round → Diameter (cm): ______
- ☑ Square → Width (cm): 40
- ☐ Rectangular → Width (cm): ______ Length (cm): ______

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

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Chimney height above roofline (m): 1	Number of Flues: 1	Colour of Chimney: brown

Total Chimney Height (m) = 2 (Number of stories in building) × 3 m (approx height of one story) + 1 (Height above roofline (m)) = 7 m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None seen

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Chimney Assessment Form

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Observer Details

Name	Phone Number	Email Address
D. Graham	( )	

Street Address	City	Prov.	Postal Code

Building Details

Street Address	City	Prov.	Postal Code
748 Barton	Hamilton	ON	

Owner Name	Phone Number	Email Address
	( )	

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ______

Chimney Details

Site Name: 748 Barton

Chimney Code: H-748-1

GPS coordinates (DD.dddd):

Lat. 111 ° N

Long. 297 ° W

Number of years active (if known):

NOTE: Chimney codes are created using the following scheme:

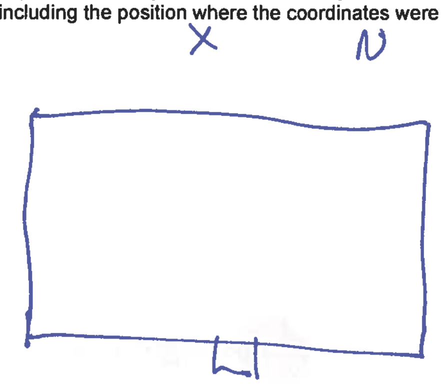
City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify: ______

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [ ] Cap
- [x] Terra Cotta Liner
- [ ] Animal Guard
- [x] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify: ______

Surrounding habitat (please check one):

- [x] Residential
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ______

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [ ] Square → Width (cm): ______
- [x] Rectangular → Width (cm): 60 Length (cm): 2V

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

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Chimney height above roofline (m): 1	Number of Flues: 1	Colour of Chimney: brown

Total Chimney Height (m) = 2 (Number of stories in building) × 3 m (approx height of one story) + 1 (Height above roofline (m)) = 7 m

If swifts are present, are they: ☐ Nesting ☐ Roosting ☐ Unknown

Additional Comments:

None seen.

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Chimney Assessment Form

Page 1

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Observer Details

Name D. Graham	Phone Number ( )	Email Address	
Street Address	City	Prov.	Postal Code

Building Details

Street Address 789 Barton	City Hamilton	Prov. ON	Postal Code
Owner Name	Phone Number ( )	Email Address	

Type of building (please check one):

- ☐ House
- ☐ Lowrise Apartment
- ☐ Highrise Apartment
- ☐ Church
- ☐ School
- ☐ Hospital
- ☐ Store
- ☐ Factory
- ☐ Other, please specify: ________

Chimney Details

Site Name: 789 Barton

Chimney Code: H-789-1

GPS coordinates (DD.dddd):

Lat. 4786 043536 ° N

Long. 606 527 ° W

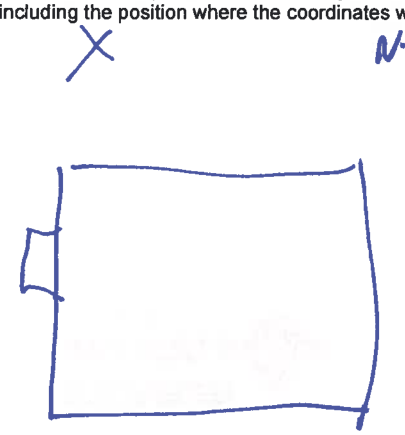
NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg. City Name	Site Name	No. of Chimneys	Code
Port Rowan	Public Library	1	PR-PL-1
London	141 Wortley	2	LO-141-1
			LO-141-2

Number of years active (if known):

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



Chimney material (please check one):

- ☑ Brick
- ☐ Stucco
- ☐ Concrete
- ☐ Stone
- ☐ Other, please specify: ________

If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- ☐ Cap
- ☑ Terra Cotta Liner
- ☐ Animal Guard
- ☑ Spark Protector
- ☐ Metal Liner
- ☐ Other, please specify: ________

Surrounding habitat (please check one):

- ☑ Residential
- ☐ Industrial
- ☐ Commercial
- ☐ Natural
- ☐ Other, please specify: ________

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- ☐ Round → Diameter (cm): ________
- ☑ Square → Width (cm): 40
- ☐ Rectangular → Width (cm): ________ Length (cm): ________

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

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Chimney height above roofline (m): 3	Number of Flues: 1	Colour of Chimney: Brown
Total Chimney Height (m) = ~~3~~ 1 (Number of stories in building) × 3 m (approx height of one story) + 3 (Height above roofline (m)) = 6 m		
If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**		
Additional Comments: None seen		

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Chimney Assessment Form

Page 1

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Observer Details

Name	Phone Number	Email Address
D Graham	( )	

Street Address	City	Prov.	Postal Code

Building Details

Street Address	City	Prov.	Postal Code
822 Barton	Hamilton	ON	

Owner Name	Phone Number	Email Address
	( )	

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ______

Chimney Details

Site Name: 822 Barton

Chimney Code: H-822-1

GPS coordinates (DD.dddd):

Lat. 47 8.5968 ° N

Long. 6 0 6758 ° W

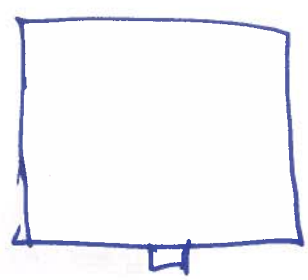
NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify: ______

If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [x] Cap
- [ ] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify: ______

Surrounding habitat (please check one):

- [x] Residential
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ______

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [x] Square → Width (cm): 40 x 40
- [ ] Rectangular → Width (cm): ______ Length (cm): ______

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Page 2

Chimney height above roofline (m):	0.5	Number of Flues:	1	Colour of Chimney:	Brown

Total Chimney Height (m) = 2 (Number of stories in building) × 3 m (approx height of one story) + 0.5 (Height above roofline (m)) = 6.5 m

If swifts are present, are they: ☐ Nesting ☐ Roosting ☐ Unknown

Additional Comments: None seen.

However several Barn Swallows observed flying in & out of wooden garage, behaviour which suggests nesting.

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Chimney Assessment Form

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Page 1

Observer Details

Name	Phone Number	Email Address
D. Graham	( )	

Street Address	City	Prov.	Postal Code

Building Details

Street Address	City	Prov.	Postal Code
844 Barton	Hamilton	ON	

Owner Name	Phone Number	Email Address
	( )	

Type of building (please check one):

☑ House ☐ Church ☐ Store

☐ Lowrise Apartment ☐ School ☐ Factory

☐ Highrise Apartment ☐ Hospital ☐ Other, please specify: ____________

Chimney Details

Site Name	Chimney Code
844 Barton	H -844-1

GPS coordinates (DD.dddd):

Lat. 4785915 ° N

Long. 606904 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	**Public Library**	**1**	PR-PL-1
	London	**141 Wortley**	**2**	LO-141-1
				LO-141-2

Number of years active (if known):

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.

Chimney material (please check one):

☐ Brick ☐ Stucco

☐ Concrete ☐ Stone

☐ Other, please specify: ____________

If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

☑ Cap ☐ Terra Cotta Liner

☐ Animal Guard ☐ Spark Protector

☑ Metal Liner ☐ Other, please specify: ____________

Surrounding habitat (please check one):

☐ Residential ☐ Industrial

☐ Commercial ☐ Natural

☑ Other, please specify: Rural/residential

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

☐ Round → Diameter (cm): ______

☐ Square → Width (cm): ______

☑ Rectangular → Width (cm): 40 Length (cm): 80

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Page 2

Chimney height above roofline (m): 1	Number of Flues: 2	Colour of Chimney: Black

Total Chimney Height (m) = 2 (Number of stories in building) × 3 m (approx height of one story) + 1 (Height above roofline (m)) = 7 m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None seen

At least 2 Barn Swallow seen here

2 potential nest sites @ 832 Barton exists (barn, garage)

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Chimney Assessment Form

Page 1

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Observer Details

Name: D. Graham	Phone Number: ( )	Email Address
Street Address: ~~Barton~~	City	Prov.: ON
		Postal Code

Building Details

Street Address: Barton	City: Hamilton	Prov.: ON	Postal Code
Owner Name	Phone Number: ( )	Email Address	

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify:

Chimney Details

Site Name: 884 Barton

Chimney Code: H-884 -1

GPS coordinates (DD.dddd):

Lat. 4785 821 ° N

Long. 607206 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

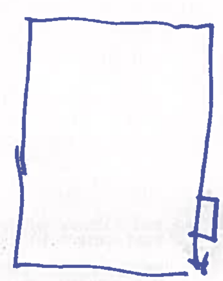
Number of years active (if known):

Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify:

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.

xN



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [x] Cap
- [ ] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [x] Metal Liner
- [ ] Other, please specify:

Surrounding habitat (please check one):

- [x] Residential
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify:

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm):
- [x] Square → Width (cm): 40 x 40
- [ ] Rectangular → Width (cm): Length (cm):

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

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Chimney height above roofline (m): 3	Number of Flues: 1	Colour of Chimney: Brown
Total Chimney Height (m) = 1 (Number of stories in building) × 3 m (approx height of one story) + 3 (Height above roofline (m)) = 6 m		
If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**		
Additional Comments: None seen		

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Chimney Assessment Form

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Observer Details

Name	Phone Number	Email Address
D. Graham	( )	

Street Address	City	Prov.	Postal Code

Building Details

Street Address	City	Prov.	Postal Code
Barton	Hamilton	ON	

Owner Name	Phone Number	Email Address
	( )	

Type of building (please check one):

- ☐ House
- ☑ Church
- ☐ Store
- ☐ Lowrise Apartment
- ☐ School
- ☐ Factory
- ☐ Highrise Apartment
- ☐ Hospital
- ☐ Other, please specify: ______

Chimney Details

Site Name

Chimney Code H -

GPS coordinates (DD.dddd):

Lat. 4785777 ° N

Long. 607304 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1 LO-141-2

Number of years active (if known):

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.

Chimney material (please check one):

- ☑ Brick
- ☐ Stucco
- ☐ Concrete
- ☐ Stone
- ☐ Other, please specify: ______

If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- ☐ Cap
- ☑ Terra Cotta Liner
- ☑ Animal Guard
- ☑ Spark Protector
- ☐ Metal Liner
- ☐ Other, please specify: ______

Surrounding habitat (please check one):

- ☑ Residential
- ☐ Industrial
- ☐ Commercial
- ☐ Natural
- ☐ Other, please specify: ______

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- ☐ Round → Diameter (cm): ______
- ☐ Square → Width (cm): ______
- ☑ Rectangular → Width (cm): 90 Length (cm): 270

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Page 2

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Chimney height above roofline (m): 2	Number of Flues: 1	Colour of Chimney: Tan.

Total Chimney Height (m) = 2 (Number of stories in building) × 3 m (approx height of one story) + 2 (Height above roofline (m)) = 8 m

If swifts are present, are they: ☐ Nesting ☐ Roosting ☐ Unknown

Additional Comments: None seen

1 Barn Swallow nesting on east side of church under eaves. 2nd BASW pair present.

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Chimney Assessment Form

Page 1

Observer Details

Name: Don Graham	Phone Number: ( )	Email Address	
Street Address	City	Prov.	Postal Code

Building Details

Street Address: 26 Glover	City: Hamilton	Prov.: ON	Postal Code
Owner Name	Phone Number: ( )	Email Address	

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ______

Chimney Details

Site Name: 26 Glover

Chimney Code: H-26-1

GPS coordinates (DD.dddd):

Lat. 4785563 ° N

Long. 607173 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

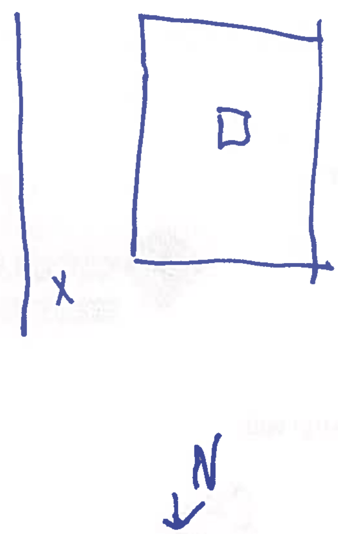
Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify: ______

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [x] Cap
- [x] Terra Cotta Liner
- [ ] Animal Guard
- [x] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify: ______

Surrounding habitat (please check one):

- [x] Residential
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ______

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [x] Square → Width (cm): 40
- [ ] Rectangular → Width (cm): ______ Length (cm): ______

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

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Chimney height above roofline (m): 2	Number of Flues: 1	Colour of Chimney: Brown
Total Chimney Height (m) = 1.5 (Number of stories in building) × 3 m (approx height of one story) + 2 (Height above roofline (m)) = 6.5 m		
If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**		
Additional Comments: None seen		

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Chimney Assessment Form

Page 1

Observer Details

Name	Phone Number	Email Address	
D. Graham	( )		
Street Address	**City**	**Prov.**	**Postal Code**

Building Details

Street Address	City	Prov.	Postal Code
239 Glover	Hamilton	ON	
Owner Name	**Phone Number**	**Email Address**	
	( )		

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: Apr

Chimney Details

Site Name: 239 Glover

Chimney Code: H-239-1

GPS coordinates (DD.dddd):

Lat. 4785327 ° N

Long. 607101 ° W

Number of years active (if known):

NOTE: Chimney codes are created using the following scheme:

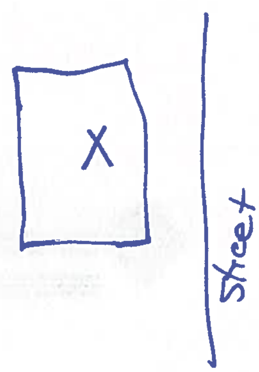
City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify:

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [ ] Cap
- [x] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify:

Surrounding habitat (please check one):

- [x] Residential
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify:

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm):
- [ ] Square → Width (cm):
- [x] Rectangular → Width (cm): 40 Length (cm): 80

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Page 2

Chimney height above roofline (m): 1.5	Number of Flues: 2	Colour of Chimney: Tan

Total Chimney Height (m) = 1 (Number of stories in building) × 3 m (approx height of one story) + 1.5 (Height above roofline (m)) = 4.5 m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None seen

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Chimney Assessment Form

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Observer Details

Name D. Graham	Phone Number ( )	Email Address	
Street Address	City	Prov.	Postal Code

Building Details

Street Address Glover	City Hamilton	Prov. ON	Postal Code
Owner Name	Phone Number ( )	Email Address	

Type of building (please check one):

- [ ] House
- [x] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify:

Kingdom Hall of Jehovah Witnesses

Chimney Details

Site Name: Glover

Chimney Code: H- -0

GPS coordinates (DD.dddd):

Lat. 4785169 ° N

Long. 607057 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1 LO-141-2

Number of years active (if known):

Chimney material (please check one):

- [ ] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify:

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.

None seen

If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [ ] Cap
- [ ] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify:

Surrounding habitat (please check one):

- [x] Residential + Rural
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify:

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm):
- [ ] Square → Width (cm):
- [ ] Rectangular → Width (cm): Length (cm):

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

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Chimney height above roofline (m):	Number of Flues:	Colour of Chimney:

Total Chimney Height (m) = ______ (Number of stories in building) × 3 m (approx height of one story) + ______ (Height above roofline (m)) = ______ m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None. seen

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Chimney Assessment Form

Page 1

Observer Details

Name	Phone Number	Email Address
D. Graham	( )	

Street Address	City	Prov.	Postal Code

Building Details

Street Address	City	Prov.	Postal Code
873 Hwy 8	Hamilton	ON	

Owner Name	Phone Number	Email Address
	( )	

Type of building (please check one):

- ☐ House
- ☐ Lowrise Apartment
- ☐ Highrise Apartment
- ☐ Church
- ☐ School
- ☐ Hospital
- ☐ Store
- ☐ Factory
- ☐ Other, please specify: ______

Chimney Details

Site Name: 873 Hwy 8

Chimney Code: H -

GPS coordinates (DD.dddd):
Lat. 4785087 ° N
Long. 606915 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

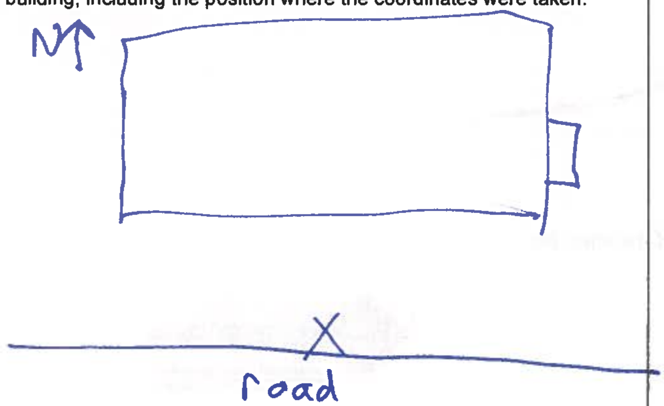
Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

Chimney material (please check one):

- ☑ Brick
- ☐ Concrete
- ☐ Other, please specify: ______
- ☐ Stucco
- ☐ Stone

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- ☑ Cap
- ☐ Animal Guard
- ☐ Metal Liner
- ☑ Terra Cotta Liner
- ☐ Spark Protector
- ☐ Other, please specify: ______

Surrounding habitat (please check one):

- ☑ Residential / Rural
- ☐ Commercial
- ☐ Other, please specify: ______
- ☐ Industrial
- ☐ Natural

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- ☐ Round → Diameter (cm): ______
- ☐ Square → Width (cm): ______
- ☑ Rectangular → Width (cm): 40 Length (cm): 120

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Page 2

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Chimney height above roofline (m): 2	Number of Flues: 2	Colour of Chimney: Brown

Total Chimney Height (m)	=	1	×	3 m	+	2	=	5 m
		Number of stories in building		(approx height of one story)		Height above roofline (m)		

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None seen

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Chimney Assessment Form

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Observer Details

Name		Phone Number	Email Address	
D Graham		( )		
Street Address	City		Prov.	Postal Code

Building Details

Street Address	City		Prov.	Postal Code
843 Hwy 8	Ham. Ham		ON.	
Owner Name		Phone Number ( )	Email Address	

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ______

Chimney Details

Site Name: 843 Hwy 8

Chimney Code: H-843-1

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

GPS coordinates (DD.dddd):

Lat. 4785187 ° N

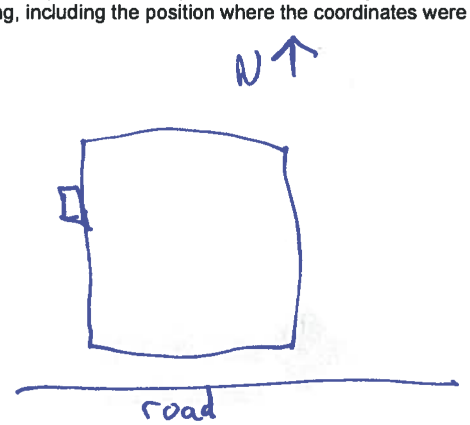
Long. 606734 ° W

Number of years active (if known):

Chimney material (please check one):

- [ ] Brick
- [ ] Stucco
- [x] Concrete
- [ ] Stone
- [ ] Other, please specify: ______

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [ ] Cap
- [x] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify: ______

Surrounding habitat (please check one):

- [x] Residential rural
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ______

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [x] Square → Width (cm): 40cm
- [ ] Rectangular → Width (cm): ______ Length (cm): ______

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Page 2

Chimney height above roofline (m): 2	Number of Flues: 1	Colour of Chimney: Gray

Total Chimney Height (m) = 2 (Number of stories in building) × 3 m (approx height of one story) + 2 (Height above roofline (m)) = 8 m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments: None seen.

BASW seen in area. Potential nest sites in area.

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Ontario Region / Région de l'Ontario

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Chimney Assessment Form

Page 1

Observer Details

Name		Phone Number	Email Address
D. Graham		( )	
Street Address	City	Prov.	Postal Code

Building Details

Street Address	City	Prov.	Postal Code
809 Hwy 8	Hamilton	ON	
Owner Name	Phone Number	Email Address	
	( )		

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ______

Chimney Details

Site Name: 809 Hwy 8

Chimney Code: H-809

GPS coordinates (DD.dddd):

Lat. 43.12 ° N

Long. 79.41 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1 LO-141-2

Number of years active (if known):

Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify: ______

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.

If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [x] Cap
- [x] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify: ______

Surrounding habitat (please check one):

- [x] Residential / rural
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ______

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [ ] Square → Width (cm): ______
- [x] Rectangular → Width (cm): 20 Length (cm): 120

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Page 2

Chimney height above roofline (m): 3	Number of Flues: 2	Colour of Chimney: Brown

Total Chimney Height (m) = 1 (Number of stories in building) × 3 m (approx height of one story) + 3 (Height above roofline (m)) = 6 m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None seen

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Chimney Assessment Form

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Observer Details

Name	Phone Number	Email Address	
D. Graham	( )		
Street Address	City	Prov.	Postal Code

Building Details

Street Address	City	Prov.	Postal Code
777 Hwy 8	Hamilton	ON	
Owner Name	Phone Number	Email Address	
	( )		

Type of building (please check one):

- ☐ House
- ☐ Church
- ☐ Store
- ☐ Lowrise Apartment
- ☐ School
- ☐ Factory
- ☐ Highrise Apartment
- ☐ Hospital
- ☑ Other, please specify: Stoney Creek Municipal Building

Chimney Details

Site Name: 777 Hwy 8

Chimney Code: H-777-0

GPS coordinates (DD.dddd):

Lat. 43.12.731 ° N

Long. 79.41.500 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

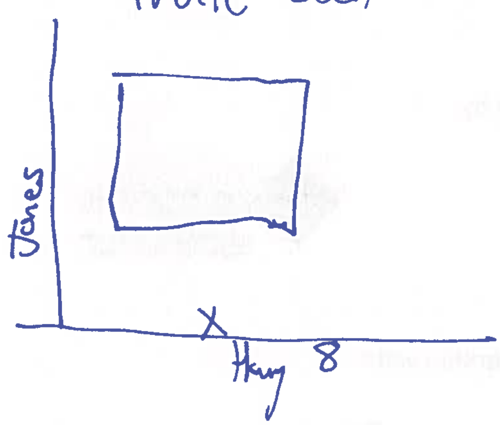
Number of years active (if known):

Chimney material (please check one):

- ☐ Brick
- ☐ Stucco
- ☐ Concrete
- ☐ Stone
- ☐ Other, please specify: ____________

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.

None seen



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- ☐ Cap
- ☐ Terra Cotta Liner
- ☐ Animal Guard
- ☐ Spark Protector
- ☐ Metal Liner
- ☐ Other, please specify: ____________

Surrounding habitat (please check one):

- ☐ Residential
- ☐ Industrial
- ☐ Commercial
- ☐ Natural
- ☐ Other, please specify: ____________

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- ☐ Round → Diameter (cm): ______
- ☐ Square → Width (cm): ______
- ☐ Rectangular → Width (cm): ______ Length (cm): ______

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

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Chimney height above roofline (m):	Number of Flues:	Colour of Chimney:

Total Chimney Height (m) = ______ (Number of stories in building) × 3 m (approx height of one story) + ______ (Height above roofline (m)) = ______ m

If swifts are present, are they: ☐ Nesting ☐ Roosting ☐ Unknown

Additional Comments:

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Chimney Assessment Form
Page 1

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Observer Details

Name	Phone Number	Email Address	
D. Graham	( )		
Street Address	**City**	**Prov.**	**Postal Code**

Building Details

Street Address	City	Prov.	Postal Code
743 Hwy 8	Hamilton	ON	
Owner Name	**Phone Number**	**Email Address**	
	( )		

Type of building (please check one):

- [x] House
- [ ] Lowrise Apartment
- [ ] Highrise Apartment
- [ ] Church
- [ ] School
- [ ] Hospital
- [ ] Store
- [ ] Factory
- [ ] Other, please specify: ______

Chimney Details

Site Name: 743 Hwy 8

Chimney Code: H-

GPS coordinates (DD.dddd):

Lat. 4785182 ° N

Long. 605959 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

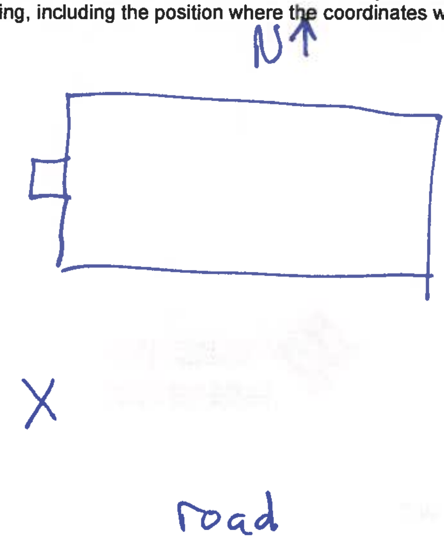
Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

Chimney material (please check one):

- [x] Brick
- [ ] Concrete
- [ ] Other, please specify: ______
- [ ] Stucco
- [ ] Stone

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [ ] Cap
- [ ] Animal Guard
- [ ] Metal Liner
- [x] Terra Cotta Liner
- [ ] Spark Protector
- [ ] Other, please specify: ______

Surrounding habitat (please check one):

- [x] Residential / rural
- [ ] Commercial
- [ ] Other, please specify: ______
- [ ] Industrial
- [ ] Natural

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [x] Square → Width (cm): 50 X 50
- [ ] Rectangular → Width (cm): ______ Length (cm): ______

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Page 2

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Chimney height above roofline (m): 1	Number of Flues: 1	Colour of Chimney: Brown
Total Chimney Height (m) = 2 (Number of stories in building) × 3 m (approx height of one story) + 1 (Height above roofline (m)) = 7 m		
If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**		
Additional Comments: None seen		

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Chimney Assessment Form

Page 1

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Observer Details

Name		Phone Number	Email Address	
D. Graham		( )		
Street Address	City		Prov.	Postal Code

Building Details

Street Address	City		Prov.	Postal Code
703 Hwy 8	Hamilton		ON.	
Owner Name		Phone Number	Email Address	
		( )		

Type of building (please check one):

- ☐ House
- ☐ Church
- ☑ Store
- ☐ Lowrise Apartment
- ☐ School
- ☐ Factory
- ☐ Highrise Apartment
- ☐ Hospital
- ☐ Other, please specify: ______

Chimney Details

Site Name: 703 Hwy 8

Chimney Code: H - 703

GPS coordinates (DD.dddd):

Lat. 4785231 ° N

Long. 605701 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

Chimney material (please check one):

- ☐ Brick
- ☐ Stucco
- ☐ Concrete
- ☐ Stone
- ☐ Other, please specify: ______

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.

No chimney

If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- ☐ Cap
- ☐ Terra Cotta Liner
- ☐ Animal Guard
- ☐ Spark Protector
- ☐ Metal Liner
- ☐ Other, please specify: ______

Surrounding habitat (please check one):

- ☐ Residential
- ☐ Industrial
- ☐ Commercial
- ☐ Natural
- ☐ Other, please specify: ______

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- ☐ Round → Diameter (cm): ______
- ☐ Square → Width (cm): ______
- ☐ Rectangular → Width (cm): ______ Length (cm): ______

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

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Chimney height above roofline (m):	Number of Flues:	Colour of Chimney:
Total Chimney Height (m) = ______ Number of stories in building × 3 m (approx height of one story) + ______ Height above roofline (m) = ______ m		
If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**		
Additional Comments: No birds seen		

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Chimney Assessment Form

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Page 1

Observer Details

Name	Phone Number	Email Address
D. Graham	( )	

Street Address	City	Prov.	Postal Code

Building Details

Street Address	City	Prov.	Postal Code
669 Hwy 8	Ham. Hon	ON	

Owner Name	Phone Number	Email Address
	( )	

Type of building (please check one):

- ☑ House
- ☐ Church
- ☐ Store
- ☐ Lowrise Apartment
- ☐ School
- ☐ Factory
- ☐ Highrise Apartment
- ☐ Hospital
- ☐ Other, please specify: ____________

Chimney Details

Site Name: 669 Hwy 8

Chimney Code: H-669-1

GPS coordinates (DD.dddd):

Lat. 4785285 ° N

Long. 605454 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

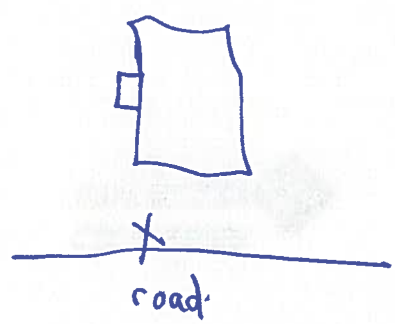
Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

Chimney material (please check one):

- ☐ Brick
- ☐ Stucco
- ☐ Concrete
- ☑ Stone
- ☐ Other, please specify: ____________

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- ☐ Cap
- ☑ Terra Cotta Liner
- ☐ Animal Guard
- ☐ Spark Protector
- ☐ Metal Liner
- ☐ Other, please specify: ____________

Surrounding habitat (please check one):

- ☑ Residential (road)
- ☐ Industrial
- ☐ Commercial
- ☐ Natural
- ☐ Other, please specify: ____________

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- ☐ Round → Diameter (cm): ______
- ☑ Square → Width (cm): 40 cm
- ☐ Rectangular → Width (cm): ______ Length (cm): ______

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

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Chimney height above roofline (m):	2	Number of Flues:	1	Colour of Chimney:	Gray

Total Chimney Height (m) = 1 (Number of stories in building) × 3 m (approx height of one story) + 2 (Height above roofline (m)) = 5 m

If swifts are present, are they: ☐ Nesting ☐ Roosting ☐ Unknown

Additional Comments:

None seen.

Barn Swallow foraging. Apparently suitable nesting sites nearby.

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Chimney Assessment Form

Page 1

Observer Details

Name	Phone Number	Email Address	
D. Graham	( )		
Street Address	**City**	**Prov.**	**Postal Code**

Building Details

Street Address	City	Prov.	Postal Code
196 Fruitland Rd	Hamilton	ON	
Owner Name	**Phone Number**	**Email Address**	
	( )		

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ______

Chimney Details

Site Name: 196 Fruitland

Chimney Code: H-

GPS coordinates (DD.dddd):

Lat. 4785502 ° N

Long. 605353 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

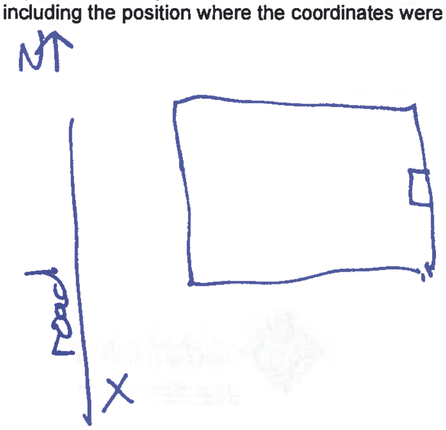
Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify: ______

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [x] Cap
- [ ] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [x] Metal Liner
- [ ] Other, please specify: ______

Surrounding habitat (please check one):

- [x] Residential
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ______

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [ ] Square → Width (cm): ______
- [x] Rectangular → Width (cm): 15 Length (cm): 30

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

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Chimney height above roofline (m): 0.5	Number of Flues: 1	Colour of Chimney: Brown

Total Chimney Height (m) = 2 (Number of stories in building) × 3 m (approx height of one story) + 1 (Height above roofline (m)) = 7 m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None seen

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Chimney Assessment Form

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Page 1

Observer Details

Name	Phone Number	Email Address	
D. Graham	( )		
Street Address	**City**	**Prov.**	**Postal Code**

Building Details

Street Address	City	Prov.	Postal Code
222 Fruitland Rd	Hamilton	ON	
Owner Name	**Phone Number**	**Email Address**	
	( )		

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ______

Chimney Details

Site Name: 222 Fruitland

Chimney Code: H-222-1

GPS coordinates (DD.dddd):

Lat. 4785727 ° N

Long. 605406 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

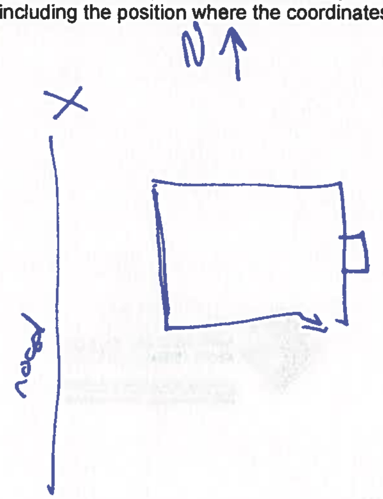
Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

Chimney material (please check one):

- [ ] Brick
- [ ] Stucco
- [x] Concrete
- [ ] Stone
- [ ] Other, please specify: ______

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [x] Cap
- [ ] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify: ______

Surrounding habitat (please check one):

- [x] Residential / rural
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ______

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [ ] Square → Width (cm): ______
- [x] Rectangular → Width (cm): 20 Length (cm): 60

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

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Chimney height above roofline (m): 1	Number of Flues: 1	Colour of Chimney: Gray

Total Chimney Height (m) = 2 (Number of stories in building) × 3 m (approx height of one story) + 1 (Height above roofline (m)) = 7 m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None seen.

Barn Swallow foraging overhead

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Chimney Assessment Form

Page 1

Observer Details

Name D. Graham		Phone Number ( )	Email Address
Street Address	City	Prov.	Postal Code

Building Details

Street Address 250 Fruitland Rd		City Hamilton	Prov. ON	Postal Code
Owner Name	Phone Number ( )		Email Address	

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ________

Chimney Details

Site Name: 250 Fruitland

Chimney Code: H-250-1

GPS coordinates (DD.dddd):

Lat. 4785 921 ° N

Long. 605459 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify: ________

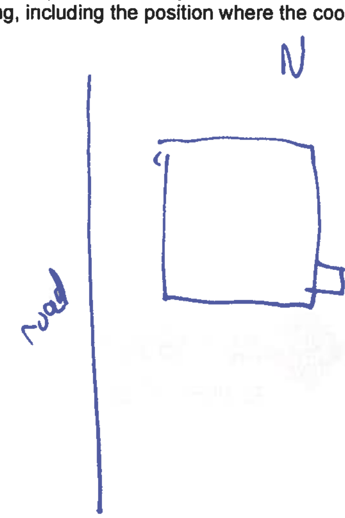
If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [x] Cap
- [ ] Terra Cotta Liner
- [ ] Animal Guard
- [x] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify: ________

Surrounding habitat (please check one):

- [x] Residential /Rural
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ________

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [ ] Square → Width (cm): ______
- [x] Rectangular → Width (cm): 25 Length (cm): 50

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

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Chimney height above roofline (m): 3	Number of Flues: 1	Colour of Chimney: Brown

Total Chimney Height (m) = 1 (Number of stories in building) × 3 m (approx height of one story) + 3 (Height above roofline (m)) = 6 m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None seen

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Chimney Assessment Form

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Observer Details

Name	Phone Number	Email Address
D. Graham	( )	

Street Address	City	Prov.	Postal Code

Building Details

Street Address	City	Prov.	Postal Code
288 Fruitland Rd	Hamilton	ON	

Owner Name	Phone Number	Email Address
	( )	

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ____________

Chimney Details

Site Name: 288 Fruitland

Chimney Code: H-288-1

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

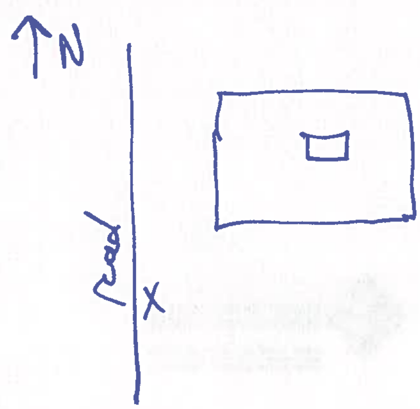
GPS coordinates (DD.dddd):

Lat. 4786204 ° N

Long. 605526 ° W

Number of years active (if known):

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



Chimney material (please check one):

- [ ] Brick
- [ ] Stucco
- [x] Concrete
- [ ] Stone
- [ ] Other, please specify: ____________

If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [x] Cap
- [ ] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify: ____________

Surrounding habitat (please check one):

- [x] Residential /rural
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ____________

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [x] Square → Width (cm): 50
- [ ] Rectangular → Width (cm): ______ Length (cm): ______

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

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Page 2

Chimney height above roofline (m): 1	Number of Flues: 1	Colour of Chimney: Gray

Total Chimney Height (m) = 2 (Number of stories in building) × 3 m (approx height of one story) + 1 (Height above roofline (m)) = 7 m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None seen

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Chimney Assessment Form

Page 1

Observer Details

Name	Phone Number	Email Address	
D. Graham	( )		
Street Address	**City**	**Prov.**	**Postal Code**

Building Details

Street Address	City	Prov.	Postal Code
287 Jones Rd.	Hamilton	ON	
Owner Name	**Phone Number**	**Email Address**	
	( )		

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ______________________

Chimney Details

Site Name: 287 Jones

Chimney Code: H-287

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

GPS coordinates (DD.dddd):

Lat. 4785965 ° N

Long. 606379 ° W

Number of years active (if known):

Chimney material (please check one):

- [ ] Brick
- [ ] Stucco
- [x] Concrete
- [ ] Stone
- [ ] Other, please specify: ______________________

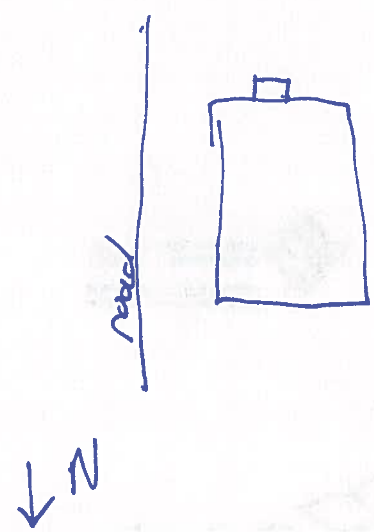
If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [x] Cap
- [ ] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify: ______________________

Surrounding habitat (please check one):

- [x] Residential / Rural
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ______________________

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [x] Square → Width (cm): 50
- [ ] Rectangular → Width (cm): ______ Length (cm): ______

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Page 2

Chimney height above roofline (m): 1	Number of Flues: 1	Colour of Chimney: Gray

Total Chimney Height (m) = 1 (Number of stories in building) × 3 m (approx height of one story) + 1 (Height above roofline (m)) = 4 m

If swifts are present, are they: ☐ Nesting ☐ Roosting ☐ Unknown

Additional Comments:

None seen

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Chimney Assessment Form

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Page 1

Observer Details

Name D. Graham		Phone Number ( )	Email Address
Street Address	City	Prov.	Postal Code

Building Details

Street Address 259 Jones Rd	City Hamilton	Prov. ON	Postal Code
Owner Name	Phone Number ( )	Email Address	

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ______

Chimney Details

Site Name: 259 Jones

Chimney Code: H-259

GPS coordinates (DD.dddd):

Lat. 4785796 ° N

Long. 606335 ° W

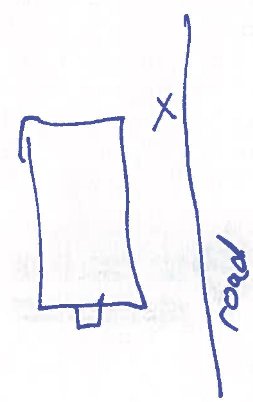
NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify: ______

If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [ ] Cap
- [x] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify: ______

Surrounding habitat (please check one):

- [x] Residential / Rural
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ______

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [ ] Square → Width (cm): ______
- [x] Rectangular → Width (cm): 50 Length (cm): 80

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

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Page 2

Chimney height above roofline (m): 2.5		Number of Flues: 1		Colour of Chimney: Brown	
Total Chimney Height (m) =	1 Number of stories in building	× 3 m (approx height of one story)	+ 2.5 Height above roofline (m)	= 5.5 m	
If swifts are present, are they:	☐ **Nesting**	☐ **Roosting**	☐ **Unknown**		
Additional Comments: None seen					

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Chimney Assessment Form

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Page 1

Observer Details

Name	Phone Number	Email Address	
D. Graham	( )		
Street Address	City	Prov.	Postal Code

Building Details

Street Address	City	Prov.	Postal Code
238 Jones Rd	Hamilton	ON	
Owner Name	Phone Number ( )	Email Address	

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify:

Chimney Details

Site Name: 238 Jones

Chimney Code: H-238-1

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1 LO-141-2

GPS coordinates (DD.dddd):

Lat. 4785562 ° N

Long. 606281 ° W

Number of years active (if known):

Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify:

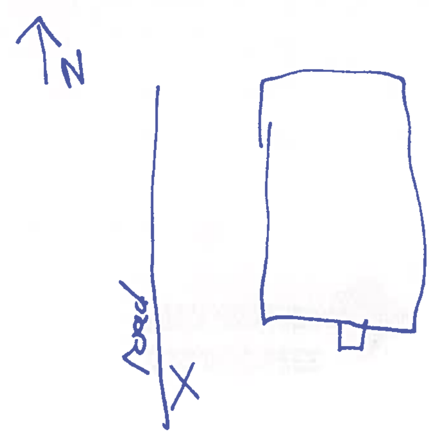
If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [x] Cap
- [ ] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify:

Surrounding habitat (please check one):

- [x] Residential / rural
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify:

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm):
- [ ] Square → Width (cm):
- [x] Rectangular → Width (cm): 40 Length (cm): 80

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form 26

Page 2

Chimney height above roofline (m): 0.5	Number of Flues: 1	Colour of Chimney: Brown

Total Chimney Height (m) = 2 (Number of stories in building) × 3 m (approx height of one story) + 0.5 (Height above roofline (m)) = 6.5 m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None seen

Created by:

BIRD STUDIES CANADA / ÉTUDES D'OISEAUX CANADA — understand appreciate conserve / comprendre apprécier conserver

Canadian co-partner of / un partenaire canadien de BirdLife INTERNATIONAL

In partnership with:

Ontario

The Ontario Trillium Foundation / La Fondation Trillium de l'Ontario

Environment Canada / Environnement Canada — Ontario Region / Région de l'Ontario

McIlwraith Field Naturalists

Chimney Assessment Form

27

Page 1

Observer Details

Name	Phone Number	Email Address	
D. Graham	( )		
Street Address	**City**	**Prov.**	**Postal Code**

Building Details

Street Address	City	Prov.	Postal Code
197 Jones Rd	Ham. Hton	ON.	
Owner Name	**Phone Number**	**Email Address**	
	( )		

Type of building (please check one):

- ☑ House
- ☐ Lowrise Apartment
- ☐ Highrise Apartment
- ☐ Church
- ☐ School
- ☐ Hospital
- ☐ Store
- ☐ Factory
- ☐ Other, please specify: ______

Chimney Details

Site Name: 197 Jones

Chimney Code: H- 197 -1

GPS coordinates (DD.dddd):

Lat. 4785332 ° N

Long. 606 228 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

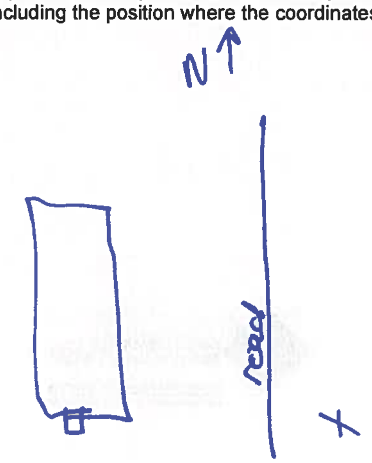
Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

Chimney material (please check one):

- ☑ Brick
- ☐ Concrete
- ☐ Other, please specify: ______
- ☐ Stucco
- ☐ Stone

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- ☑ Cap
- ☐ Animal Guard
- ☐ Metal Liner
- ☑ Terra Cotta Liner
- ☐ Spark Protector
- ☐ Other, please specify: ______

Surrounding habitat (please check one):

- ☑ Residential / rural
- ☐ Commercial
- ☐ Other, please specify: ______
- ☐ Industrial
- ☐ Natural

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- ☐ Round → Diameter (cm): ______
- ☐ Square → Width (cm): ______
- ☑ Rectangular → Width (cm): 50 Length (cm): 120

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form 27

Page 2

Chimney height above roofline (m): 1	Number of Flues: 1	Colour of Chimney: Tan

Total Chimney Height (m) = 1 (Number of stories in building) × 3 m (approx height of one story) + 1 (Height above roofline (m)) = 4 m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None seen

Created by:

Bird Studies Canada / Études d'Oiseaux Canada — understand appreciate conserve / comprendre apprécier conserver

Canadian co-partner of / un partenaire canadien de BirdLife International

In partnership with:

Ontario

The Ontario Trillium Foundation / La Fondation Trillium de l'Ontario

Environment Canada Ontario Region / Environnement Canada Région de l'Ontario

McIlwraith Field Naturalists

Hamilton
60950443
CHSW

June 25 2012

- wind ≤ 4m
- 20°C
- 10% cloud
- Ø precip.

① stn 14 – 843 Hwy 8
10:15 – 10:30 – Ø CHSW observed.

② stn 15 – 809 - Hwy 8
10:35 - 10:50

→ Ø CHSW obs. BUT
→ note ~~#~~ 3 CHSW obs.
on BBS#10 adjacent to
this stn (earlier)

Daytime Chimney Observation Form

Page 1

Province: Ontario
City: Hamilton
Site Name: Fruitland Winona
Chimney Code:
GPS Coord. (UTMs or Lat/Long):

Observer Name: D. Graham
Observer Address: Stantec Markham
300-675 Cochrane Dr. West Tower
Telephone: 905-415-6417
E-mail: don.graham@stantec.com

Date (dd/mm/yy)	Observation start time (hh:mm)	Observation end time (hh:mm)	Visit #	Estimated # of birds using chimney
31/05/12	14:45	21:15	1	

Precipitation	Cloud	Wind	Temperature (°C)
None Trace Rain	1 2 3 4 5	0 1 ~~2~~ 3 4 5 6	18° C.

Easting + Northing recorded on 2nd sheet

Additional Comments:
No chimneys suitable for chimney swift roosting or nesting were observed at the following 27 sites during a reconnaissance survey conducted May 2012. This additional survey conducted to provide evidence that Chimney Swift is absent as a nesting or roosting species in the Fruitland-Winona Secondary Plan Area

Wind (Beaufort Scale)	
0	Calm, smoke rises vertically
1	Light air movement, smoke drifts
2	Slight breeze, wind felt on face
3	Gentle breeze, small twigs move
4	Moderate breeze, small branches move
5	Fresh breeze, small trees sway
6	Strong breeze, large branches in motion

Cloud Cover	
1	0-25%
2	25-50%
3	50-75%
4	75-100%
5	Fog

Station #	Entrances Time (hh:mm)	# Birds	Time (hh:mm)	# Birds	Exits Time (hh:mm)	# Birds	Time (hh:mm)	# Birds
1	14:45	0			14:45	0		
2	15:00	0			15:00	0		
3	15:15	0			15:15	0		
4	15:30	0			15:30	0		
5	15:45	0			15:45	0		
6	16:00	0			16:00	0		
7	16:20	0			16:20	0		
8	16:40	0			16:40	0		
9	17:00	0			17:00	0		
10	17:20	0			17:20	0		
11	17:40	0			17:40	0		
12	18:00	0			18:00	0		
13	18:20	0			18:20	0		
14	18:40	0	2 birds flew over but made no effort to the site chimney		18:40	0		
15	19:00	0	or adjacent properties' chimneys. Chimneys unsuitable for CHSW using criteria in the		19:00	0		

CHSW Monitoring Protocol.

Incidental.
Barn Swallow seen @ #7, #6, #14, #18, #19
Cooper's Hawk: #19
C. Nighthawk (THR) #22

Daytime Chimney Observation Form

	Entrances				Exits			
	Time (hh:mm)	# Birds	Time (hh:mm)	# Birds	Time (hh:mm)	# Birds	Time (hh:mm)	# Birds
16	19:20	0			19:20	0		
17	19:40	0			19:40	0		
18	20:00	0			20:00	0		
19	20:15	0			20:15	0		
20	20:30	0			20:30	0		
21	20:40	0			20:40	0		
22	20:50	0			20:50	0		
23	21:00	0			21:00	0		
24								
25								
26								
27								

Property	Site Number	Easting	Northing
660 Barton ✓	1	605674	4786287
692 Barton ✓	2	605881	4786235
720 Barton ✓	3	606102	4786169
748 Barton ✓	4	606297	4786111
789 Barton ✓	5	606527	4786043
822 Barton ✓	6	606758	4785968
844 Barton ✓	7	606904	4785915
884 Barton ✓	8	607206	4785821
Barton (Stoney Creek Christian Fellowship) ✓	9	607304	4785777
261 Glover ✓	10	607173	4785563
239 Glover ✓	11	607101	4785327
Glover ✓ (Kingdom Hall of Jehovah's Witness	12	607057	4785169
873 Hwy 8 ✓	13	606915	4785087
843 Hwy 8 ✓	14	606734	4785187
809 Hwy 8 ✓	15	43.12	79.41
777 Hwy 8 ✓	16	43.12	79.41
743 Hwy 8 ✓	17	605959	4785182
703 Hwy 8 ✓	18	605701	4785231
669 Hwy 8 ✓	19	605454	4785285
196 Fruitland ✓	20	605353	4785502
222 Fruitland ✓	21	605406	4785727
250 Fruitland ✓	22	605459	4785921
288 Fruitland ✓	23	605526	4786204
287 Jones ✓	24	606379	4785965
259 Jones ✓	25	606335	4785796
238 Jones ✓	26	606281	4785562
197 Jones	27	606228	4785332

CHSW
606448, 4785209
606241, 4785242

May 31st Daytime Chimney Swift Survey

Comments

Site 2: AMKE, a declining grassland species observed overflying site.

Site 14: 2 CHSW aerial foraging over site. Birds made no effort to fly into chimney of this or adjacent properties. Chimneys of subject property & adjacent properties appeared unsuitable for species based on criteria contained in the CHSW Monitoring Protocol.

Site 15: As at site 14, only differing in 4 CHSW aerial foraging

Daytime Chimney Observation Form

Province: Ontario

City: Hamilton

Site Name: Fruitland - Winona

Chimney Code:

GPS Coord. (UTMs or Lat/Long):

Observer Name: ~~D. Graham~~ N. KOPYSH.

Observer Address: Stantec Markham
300-675 Cochrane Dr West Tower

Telephone: 905-415-6417

E-mail: ~~don.graham~~@stantec.com
nicole.kopysh

Date (dd/mm/yy)	Observation start time (hh:mm)	Observation end time (hh:mm)	Visit #	Estimated # of birds using chimney
12/06/12	08:15	09:15	1	

Precipitation	Cloud	Wind	Temperature (°C)
None Trace Rain	1 2 3 4 5	0 1 2 3 4 5 6	20°C.

Additional Comments:

Wind (Beaufort Scale)	Cloud Cover
0 Calm, smoke rises vertically	**1** 0-25%
1 Light air movement, smoke drifts	**2** 25-50%
2 Slight breeze, wind felt on face	**3** 50-75%
3 Gentle breeze, small twigs move	**4** 75-100%
4 Moderate breeze, small branches move	**5** Fog
5 Fresh breeze, small trees sway	
6 Strong breeze, large branches in motion	

Station #

Entrances

Station #	Time (hh:mm)	# Birds	Time (hh:mm)	# Birds
24	08:15	Ø		
25	08:30	Ø		
26	08:45	Ø		
27	09:00	Ø		

Exits

Time (hh:mm)	# Birds	Time (hh:mm)	# Birds
08:15	Ø		
08:30	Ø		
08:45	Ø		
09:00	Ø		

Daytime Chimney Observation Form

Page 2

Entrances

Time (hh:mm)	# Birds	Time (hh:mm)	# Birds

Exits

Time (hh:mm)	# Birds	Time (hh:mm)	# Birds

Stantec Consulting Ltd.
1 – 70 Southgate Drive
Guelph, ON
Canada N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Birding Point Counts Survey Observation Form

Project Number: 160950443 Project Name: Scube parcels

Date: July 12, 2012 Field Personnel: D. Graham.

Weather Conditions:

TEMP (°C):	WIND:	CLOUD:	PPT:	PPT (in last 24 hrs):
16- 25	0-1	10%	None	None

GPS #: T

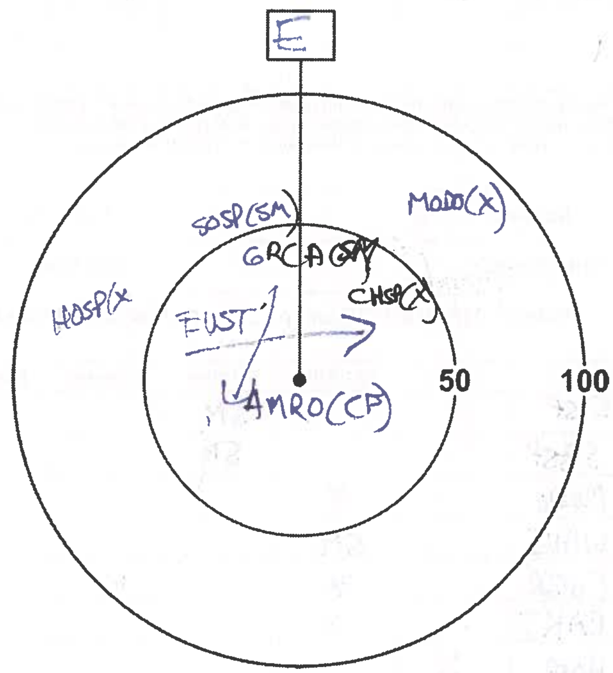
Station: 1 **Feature:** **UTM:** 607994 4785266

Start Time: 5^30 **End Time:** 5^35

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop residential

Species	<50m	50-100m	>100m	Flyovers	Height*
MODO		X			
SOSP		SM			
GRCA	SM				
CHSP	X				
EUST	X			✓	
AMRO	CF				
HOSP		X			

** Height of blade sweep varies from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page ___ of ___ Quality Control: This form is complete ❑ & legible ❑.

Signature: ______________ (Field Personnel) **Signature:** ______________ (Project Manager)

REV: 2011-05-04 / FORM 020

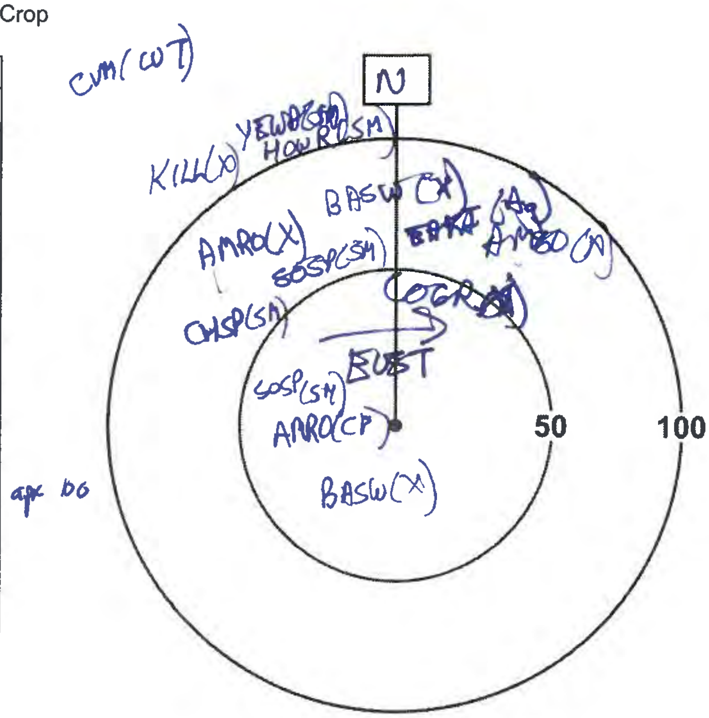
Station: 2 Feature: UTM: 608483 4784921

Start Time: 5 45 End Time: 5 50

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
YEWA			SM		
HOWR			SM		
KILL			X		
AMRO	CF	X			
CHSP		SM			
BASW	X	X		✓	
SOSP	SM	SM			
EAKI		Ag			
AMGO		X		✓	
COGR	X			✓	
EUST	X			✓	

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



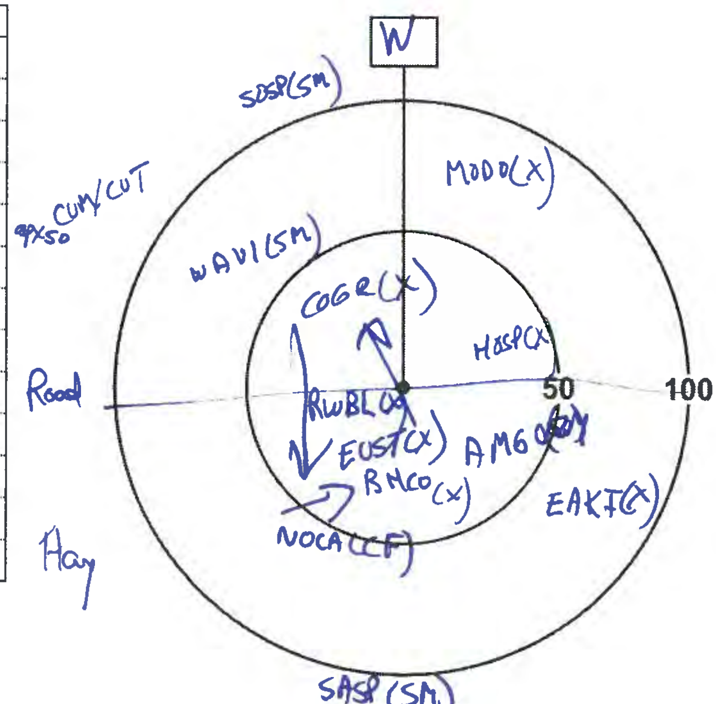
Station: 3 Feature: UTM: 608816 4785156

Start Time: 6 00 End Time: 6 10

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
SOSP			SM		
SASP			SM		
MODO		X			
WAVI		SM			
COGR		X		✓	
EAKI		X			
HOSP	X				
AMGO	SM				
RWBL	X			✓	
EUST	X				
BHCO	X				
NOCA		CF			

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page ___ of ___

Quality Control: This form is complete ❑ & legible ❑.

Signature: ____________ (Field Personnel)

Signature: ____________ (Project Manager)

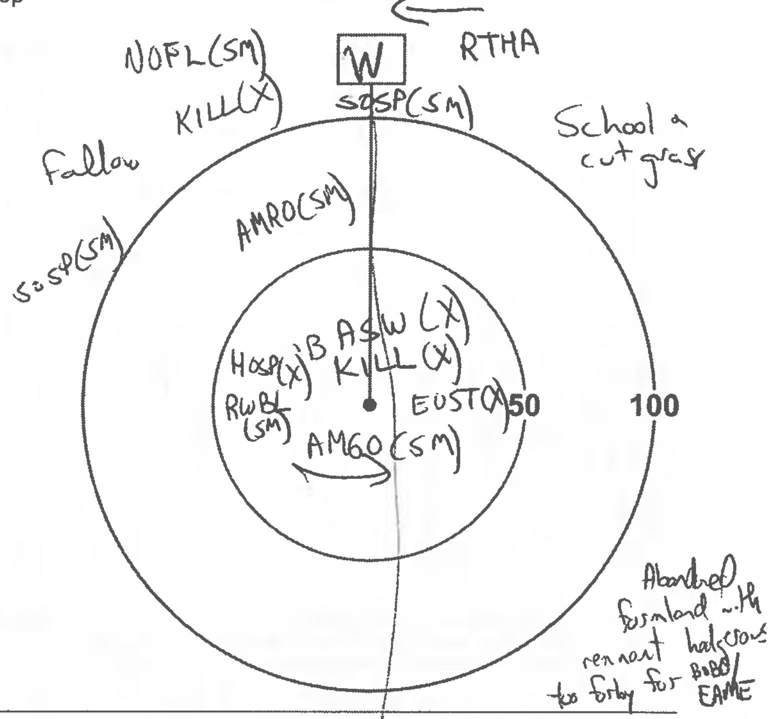
Station: 4 Feature: UTM: 608758 4785292

Start Time: 6 15 End Time: 6 20

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
RTHA			~~[illegible]~~ FY	✓	
NOFL			SM		
KILL	X		X		
SOSP			SM		
AMRO		SM			
BASW	3 X			✓	
HOSP	X				
RWBL	SM				
AMGO	SM				
EUST	X				

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



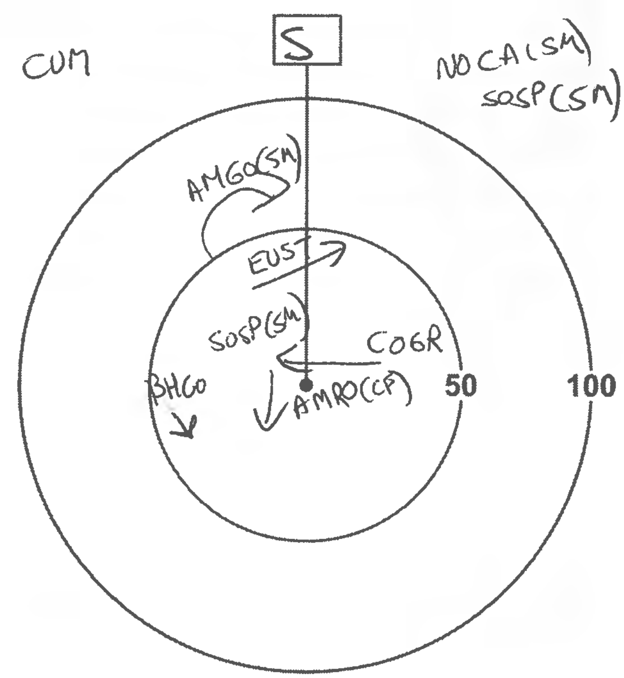
Station: 5 Feature: UTM: 608294 4785534

Start Time: 6 35 End Time: 6 40

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
NOCA			SM		
SOSP	SM		SM		
AMGO		SM			
EUST	X			✓	
COGR	X			✓	
AMRO	CF				
BHCO	X			✓	

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page ___ of ___

Signature: ____________________ (Field Personnel)

Quality Control: This form is complete ❑ & legible ❑.

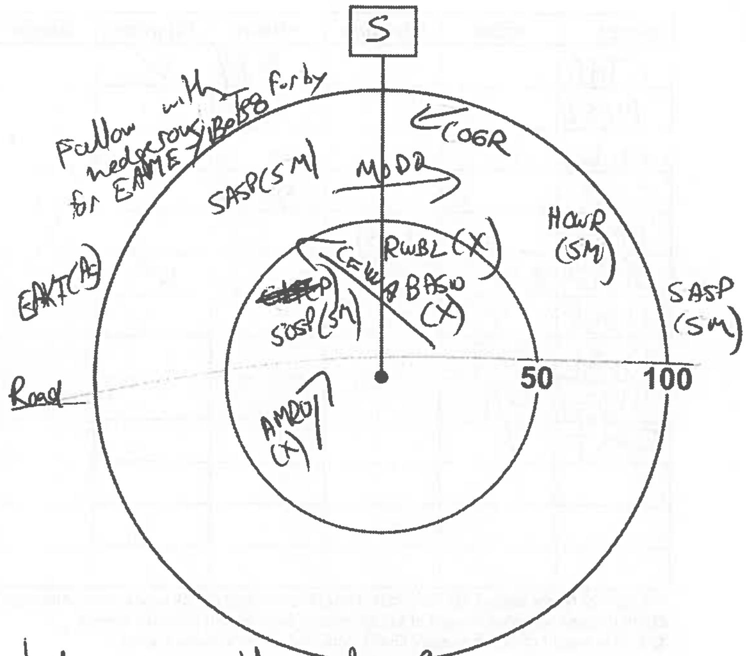
Signature: ____________________ (Project Manager)

Station: 6 **Feature:** **UTM:** 608587 4785464

Start Time: 6^{45} **End Time:** 6^{50}

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
EAKI			Ag		
SASP		SM	SM		
COGR		X		✓	
MODO		X		✓	
HOWR		SM			
RWBL	X				
CEWA	X			✓	
BASW	X			✓	
SOSP	SM				
AMRO	X				
~~EE~~					



* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

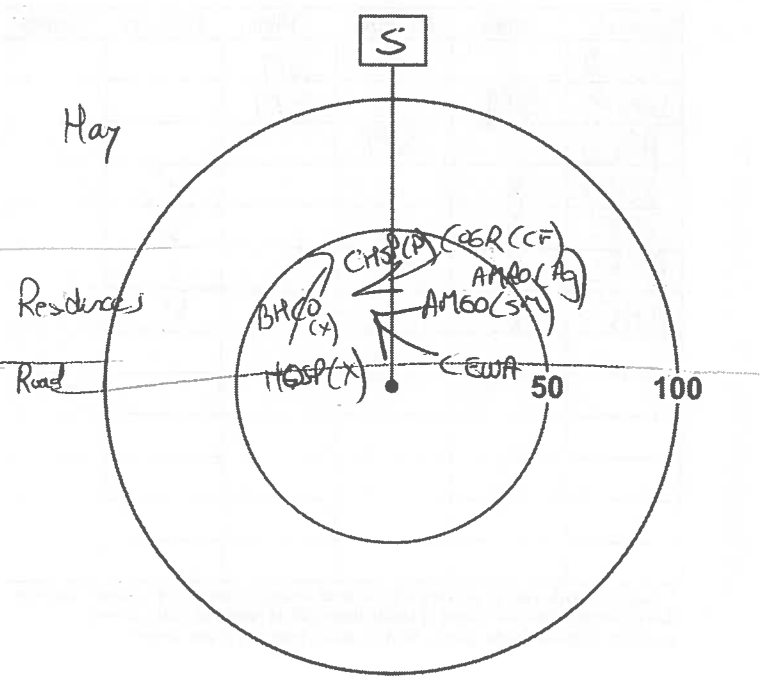
Butternut or hybrid butternut noted just north of study area @ old residence

Station: 7 **Feature:** **UTM:** 609246 4785339

Start Time: 6^{55} **End Time:** 7^{00}

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
COGR	CF				
AMRO	Ag				
AMGO	SM				
CEWA	X				
HOSP	X				
BHCO	X			✓	
CHSP	P				



* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

Page ___ of ___ Quality Control: This form is complete ❑ & legible ❑.

Signature: ______ (Field Personnel) **Signature:** ______ (Project Manager)

REV: 2011-05-04 / FORM 020

Station: 8 Feature: UTM: 610065 4785097

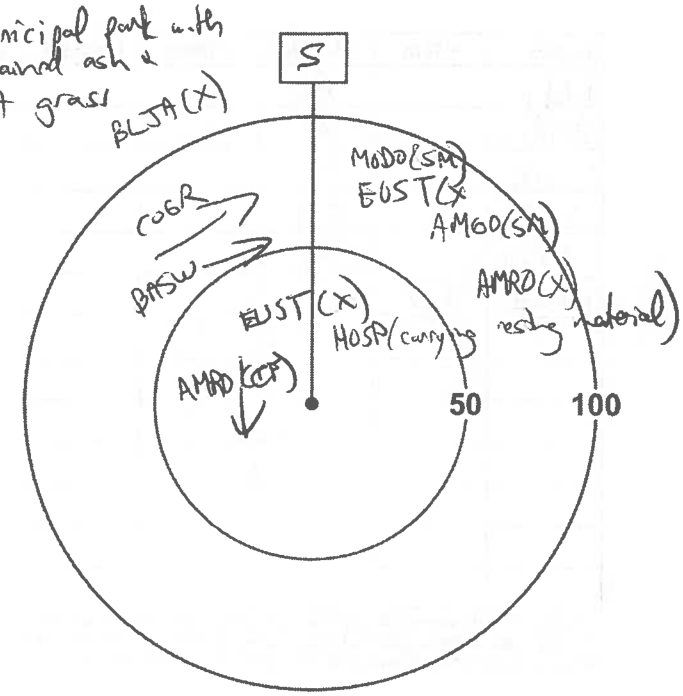
Start Time: 7[05] End Time: 7[10]

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
BLJA			X		
COGR		X		✓	
MODO		SM			
EUST	X	X			
AMGO		SM			
AMRO	CF	X			
HOSP	carrying	nesting	material		
BASW		X			

* Height of blade sweep will vary from project to project; check with project manager.
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

Municipal park with retained ash & cut grass



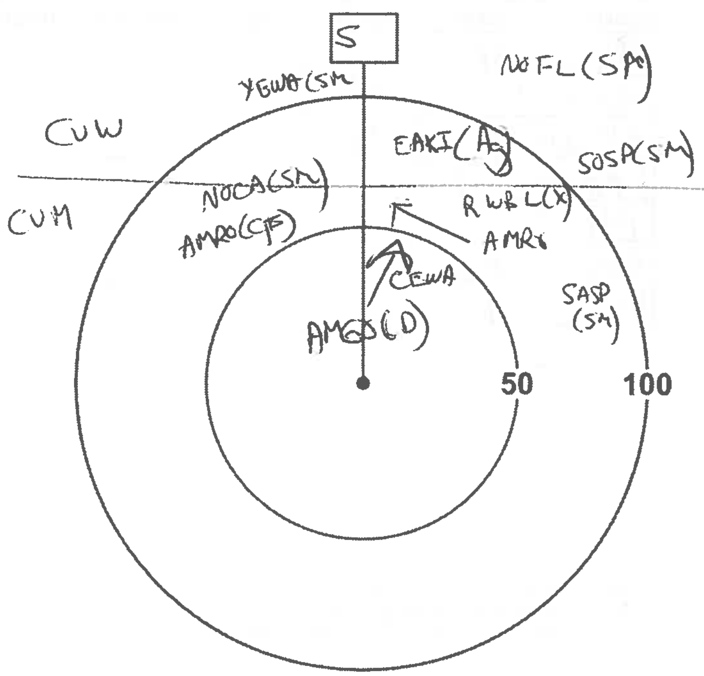
Station: 9 Feature: UTM: 610535 478553

Start Time: 7[20] End Time: 7[25]

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
YEWA			SM		
NOFL			SM		
EAKI		Ag			
SOSP			SM		
NOCA		SM			
AMRO		CF		✓	
CEWA	X				
AMGO	D				
SASP		SM			
RWBL		X			

* Height of blade sweep will vary from project to project; check with project manager.
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



Page ___ of ___

Quality Control: This form is complete ❑ & legible ❑.

Signature: ____________ (Field Personnel)

Signature: ____________ (Project Manager)

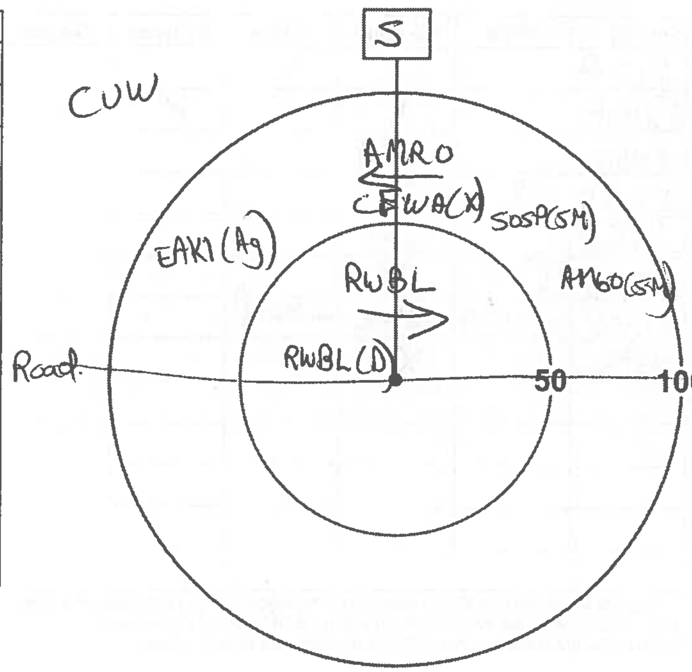
Station: 10 | Feature: | UTM: 610406 4785845

Start Time: 7³⁰ | End Time: 7³⁵

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
EAKI		Ag			
AMRO		X			
CEWA		X			
SOSP		SM			
AMGO		SM			
RWBL	D				

* Height of blade sweep will vary from project to project; check with project manager.
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



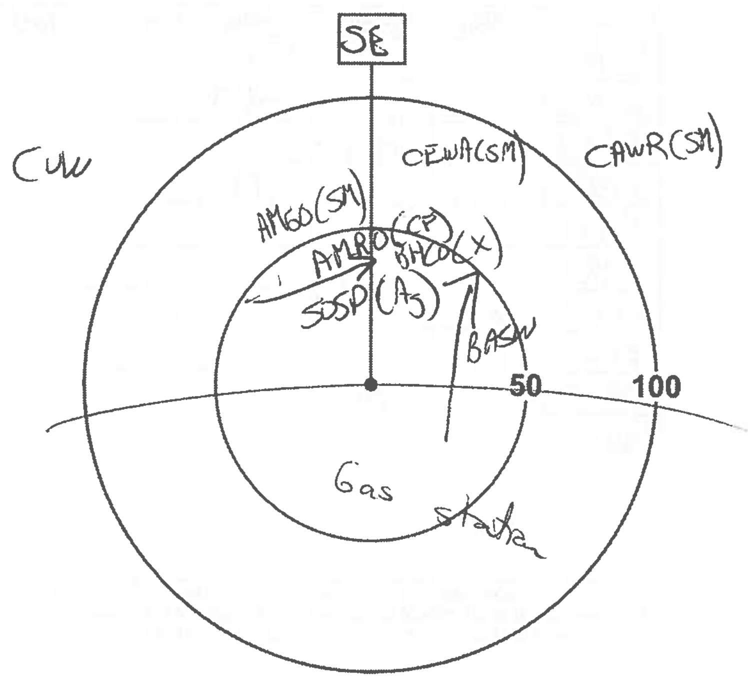
Station: 11 | Feature: | UTM: 610234 4785771

Start Time: 7⁴⁵ | End Time: 7⁵⁰

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
CAWR	SM				
CEWA		SM			
AMGO		SM			
AMRO	CF				
BHCO	X				
SOSP	Ag				
BASW	X			✓	

* Height of blade sweep will vary from project to project; check with project manager.
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page ___ of ___

Signature: ______________________ (Field Personnel)

Quality Control: This form is complete ❑ & legible ❑.

Signature: ______________________ (Project Manager)

Stantec Consulting Ltd.
1 – 70 Southgate Drive
Guelph, ON
Canada N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Birding Point Counts Survey Observation Form

Project Number: 160950443
Project Name: Scube Parcels
Date: July 12, 2012
Field Personnel:

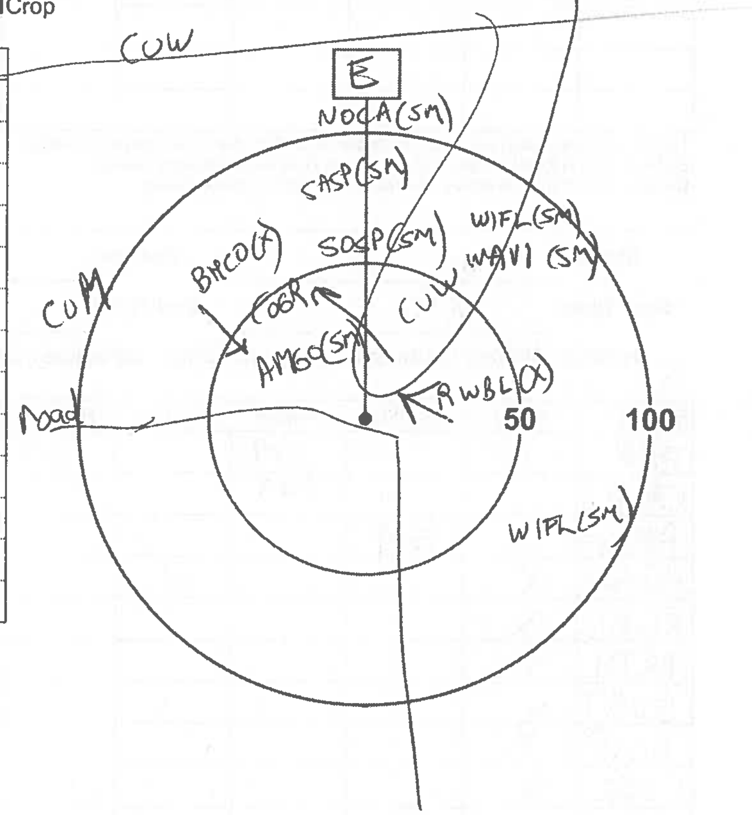
Weather Conditions:	TEMP (ºC):	WIND:	CLOUD:	PPT:	PPT (in last 24 hrs):
	16-25	0-1	10%	None	None

GPS #: T

Station: 12
Feature:
UTM: 610037 4785737
Start Time: 7:50
End Time: 7:55

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
NOCA			SM		
SASP		SM			
SOSP		SM		✓	
BHCO	X			✓	
COGR	X			✓	
AMGO	SM				
WIFL		SM			
WAVI		SM			
RWBL	X			✓	



* *Height of blade sweep varies from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

Page ___ of ___

Quality Control: This form is complete ❑ & legible ❑.

Signature: (Field Personnel)

Signature: (Project Manager)

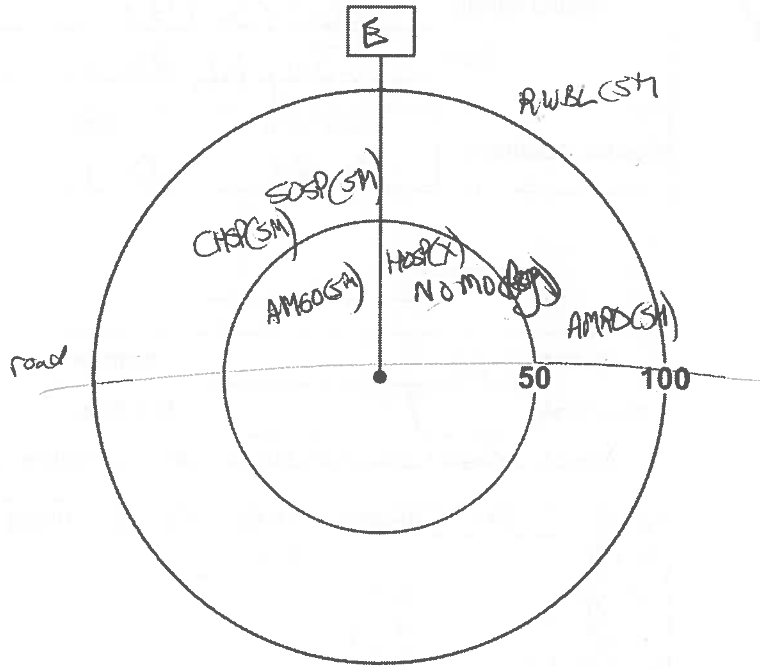
Station: 13 Feature: UTM: 610049 4785387

Start Time: 8:00 End Time:

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
RWBL			SM		
SOSP		SM			
CHSP		SM			
AMGO	SM				
HOSP	X				
NOMO	Ag				
AMRO		SM			

* Height of blade sweep will vary from project to project; check with project manager.
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



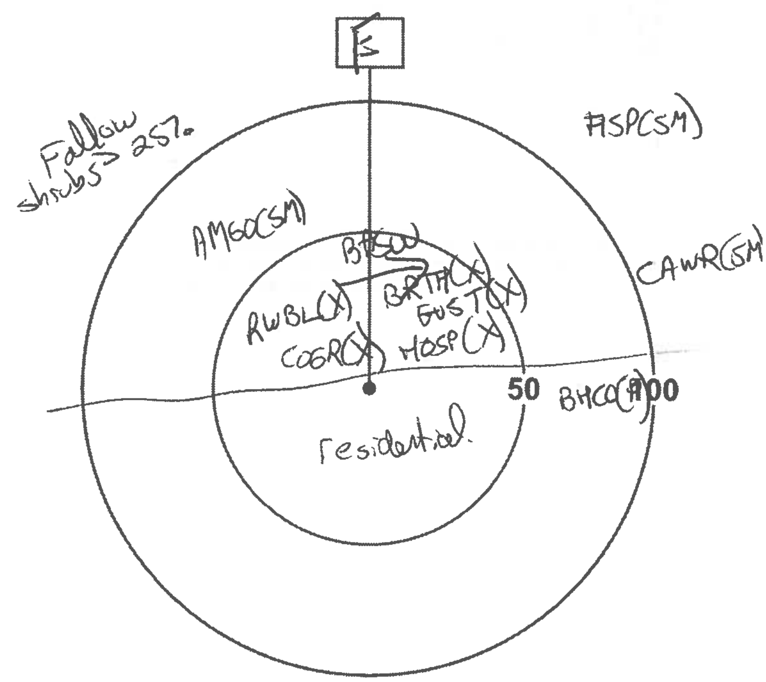
Station: 14 Feature: UTM: 609860 4785605

Start Time: 8:15 End Time: 8:20

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
FISP			SM		
CAWR			SM		
AMGO		SM			
BASW	X			✓	
RWBL	X				
BRTH	X				
EUST	X				
HOSP	X				
COGR	X				
BHCO		P			

* Height of blade sweep will vary from project to project; check with project manager.
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page ___ of ___ Quality Control: This form is complete ❑ & legible ❑.

Signature: Signature:

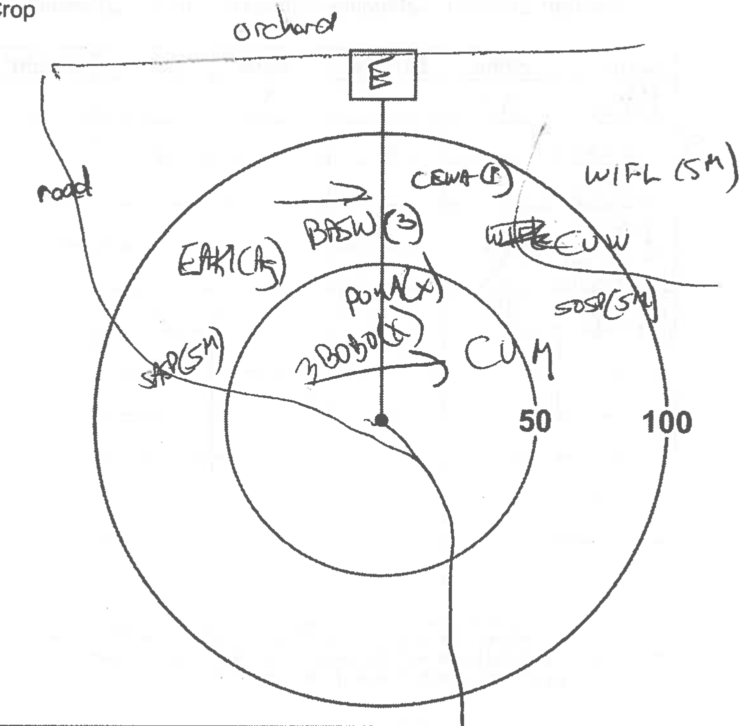
(Field Personnel) (Project Manager)

Station: 16 | Feature: | UTM: 608784 4785104

Start Time: 8:35 | End Time: 8:40

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
WIFL			SM		
CEWA		P			
BASW		X		✓	
PUMA	X			✓	
EAKI		Ag			
SASP		SM			
BOBO	3X			✓	
SOSP		SM			



* Height of blade sweep will vary from project to project; check with project manager.
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

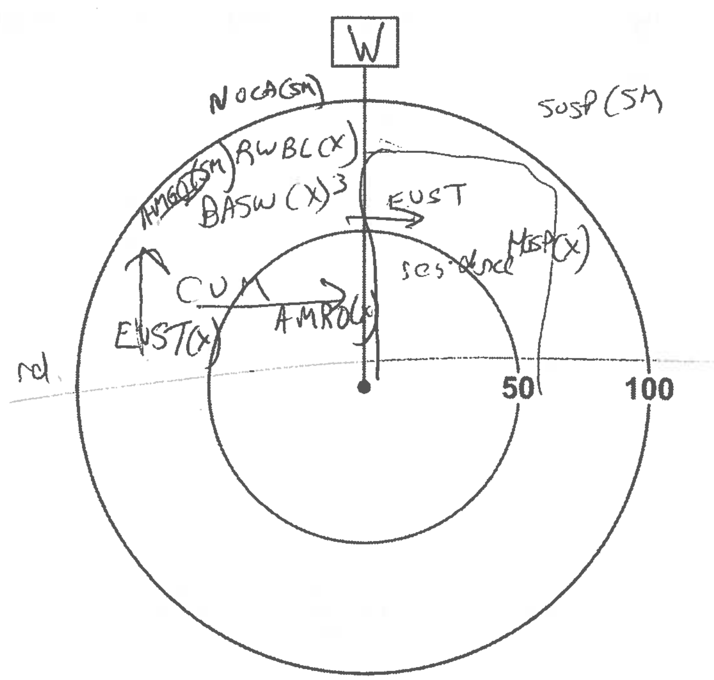
Incidental: BAOR

Station: 15 | Feature: | UTM: 610787 4785550

Start Time: 9:05 | End Time: 9:10

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
NOCA			SM		
RWBL		X			
BASW		X(3)			
AMGO		SM			
EUST		X			
AMRO	X				
HOSP		X			
SOSP			SM		



* Height of blade sweep will vary from project to project; check with project manager.
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

Page ___ of ___

Quality Control: This form is complete ❑ & legible ❑.

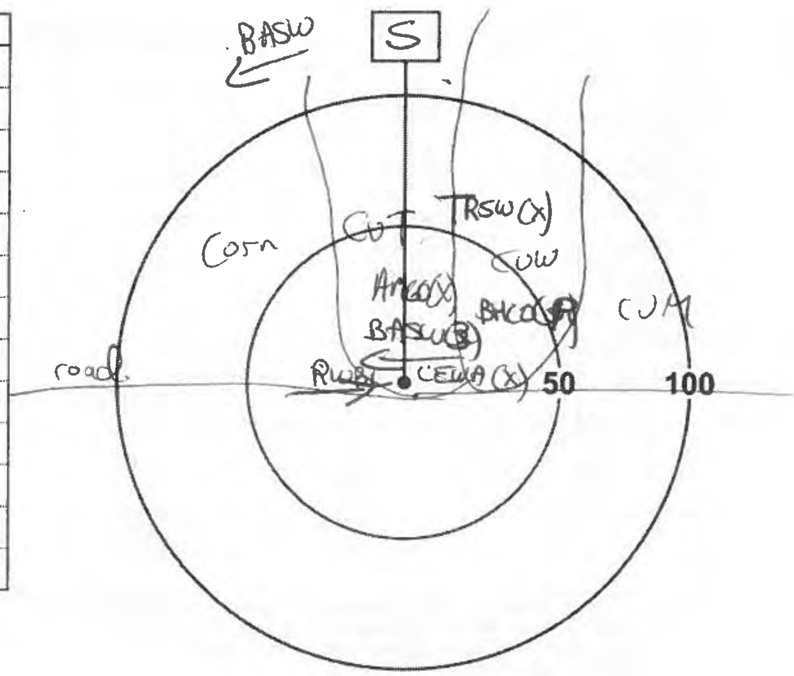
Signature: ____________________ (Field Personnel)

Signature: ____________________ (Project Manager)

REV: 2011-05-04 / FORM 020

Station: 17
Feature:
UTM: 611228 4785587
Start Time: 8 50
End Time: 8 55
Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

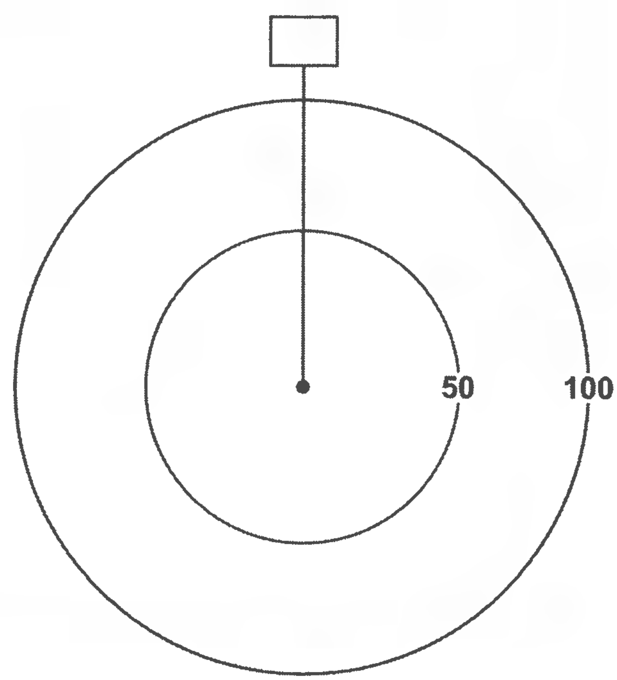
Species	<50m	50-100m	>100m	Flyovers	Height*
BASW	3X		X	✓✓✓✓	
TRSW		X		✓	
BHCO	P				
AMGO	X				
CEWA	X				
RWBL	X			✓	



* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

Station:
Feature:
UTM:
Start Time:
End Time:
Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*



* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

Page ___ of ___

Quality Control: This form is complete ❑ & legible ❑.

Signature: ______________________ (Field Personnel)

Signature: ______________________ (Project Manager)

Stantec

Stantec Consulting Ltd.
1 – 70 Southgate Drive
Guelph, ON
Canada N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Birding Point Counts Survey Observation Form

Project Number: 160950443

Project Name: HAMILTON – SCUBE

Date: JULY 4, 2012

Field Personnel: MICHAEL OLIVEIRA

Weather Conditions:	TEMP (°C):	WIND:	CLOUD:	PPT:	PPT (in last 24 hrs):
	19°C	1	20%	Ø	Ø

GPS #: T N/A

Station: 1

Feature:

UTM: 0607994 4785266

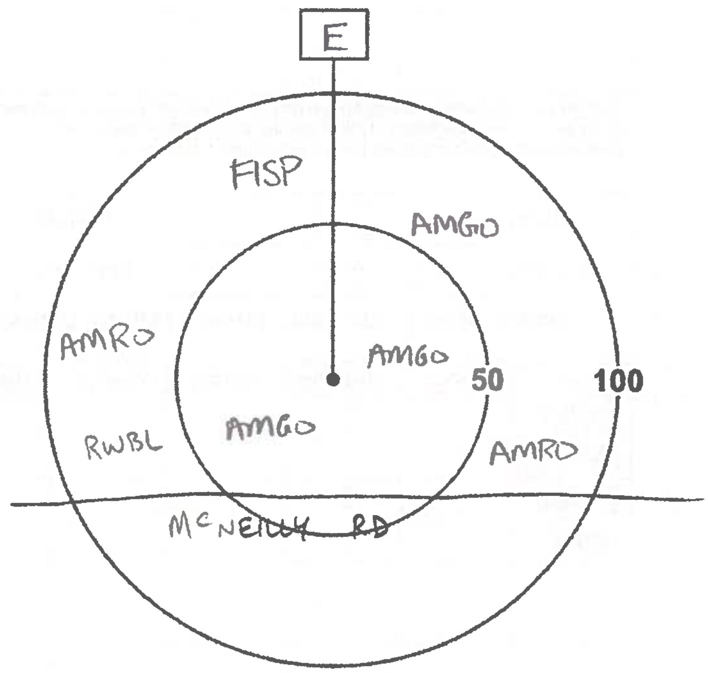
Start Time: 05:43

End Time: 05:48

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
AMGO	2	1			
AMRO		2			
FISP		1			
RWBL		1			

** Height of blade sweep varies from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page 1 of 9

Signature: (Field Personnel)

Quality Control: This form is complete ❑ & legible ❑.

Signature: (Project Manager)

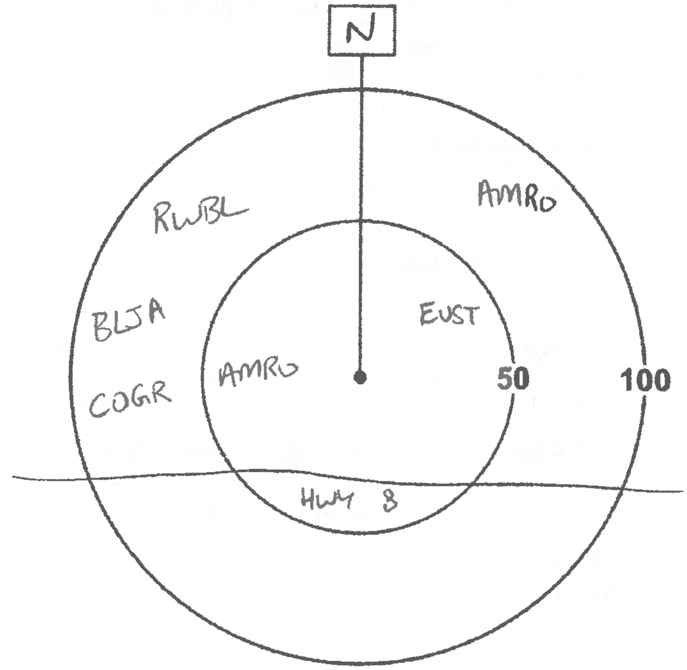
Station: 2 **Feature:** **UTM:** 0608483 4784921

Start Time: 05:57 **End Time:** 06:02

Habitat: ☐Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☐Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
AMRO	1	1			
RWBL		1			
BLJA		1			
COGR		1			
EUST	1				

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



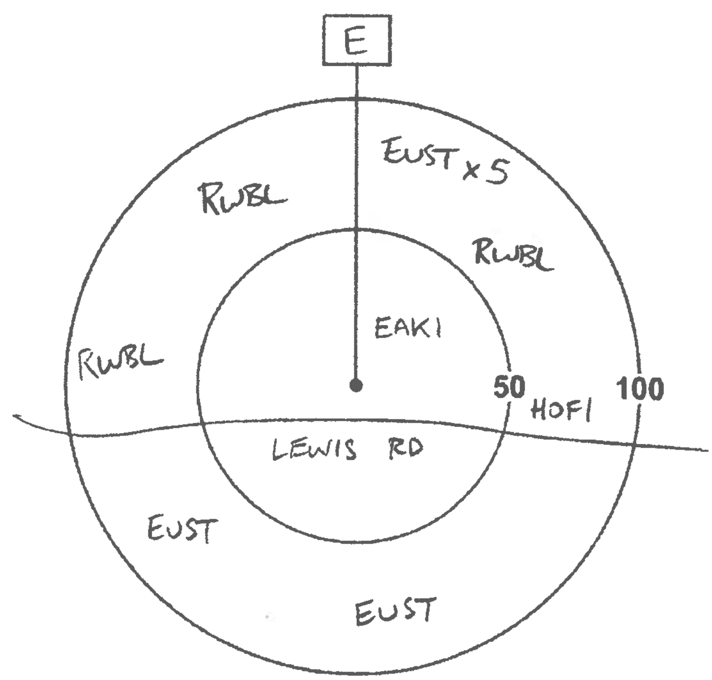
Station: 3 **Feature:** **UTM:** 0608813 4785148

Start Time: 6:09 **End Time:** 6:14

Habitat: ☐Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☐Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
EUST		7			
EAKI	1				
RWBL		3			
HOFI		1			

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page 2 of 9

Quality Control: This form is complete ☐ & legible ☐.

Signature: [signature] (Field Personnel)

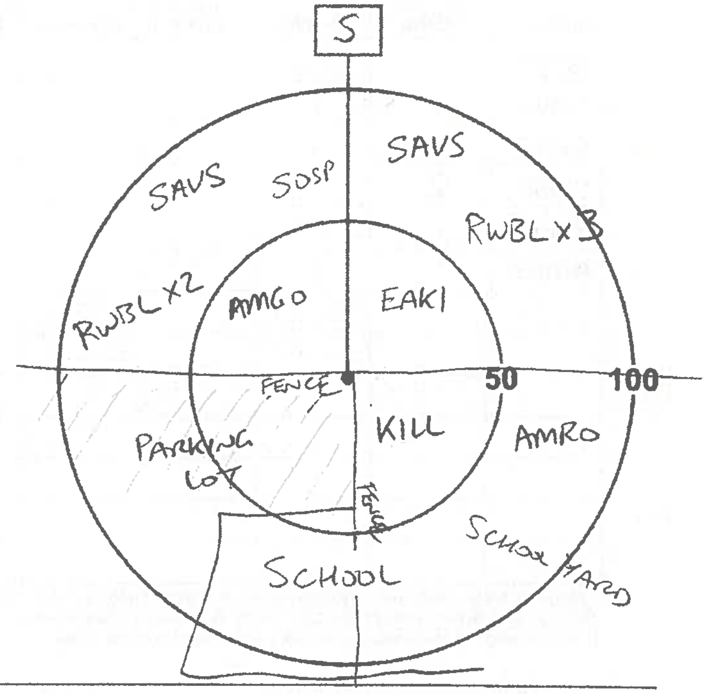
Signature: ________ (Project Manager)

Station: 4 Feature: UTM: 0608764 4785285

Start Time: 06:29 End Time: 06:34

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
AMGO	1				
SAVS		2			
KILL	1				
RWBL		5			
SOSP		1			
AMRO		1			
EAKI	1				



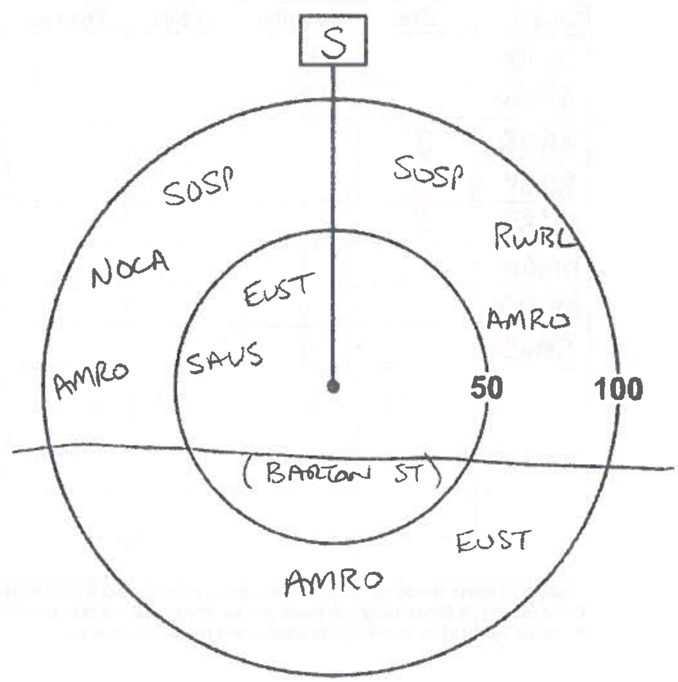
Height of blade sweep will vary from project to project; check with project manager.
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

Station: 5 Feature: UTM: 0608293 4785532

Start Time: 06:40 End Time: 06:45

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
EUST	1	1			
AMRO		3			
SOSP		2			
NOCA		1			
SAVS	1				
RWBL		1			



Height of blade sweep will vary from project to project; check with project manager.
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

Page 3 of 9

Quality Control: This form is complete ❑ & legible ❑.

Signature: [signature] (Field Personnel)

Signature: (Project Manager)

REV: 2011-05-04 / FORM 020

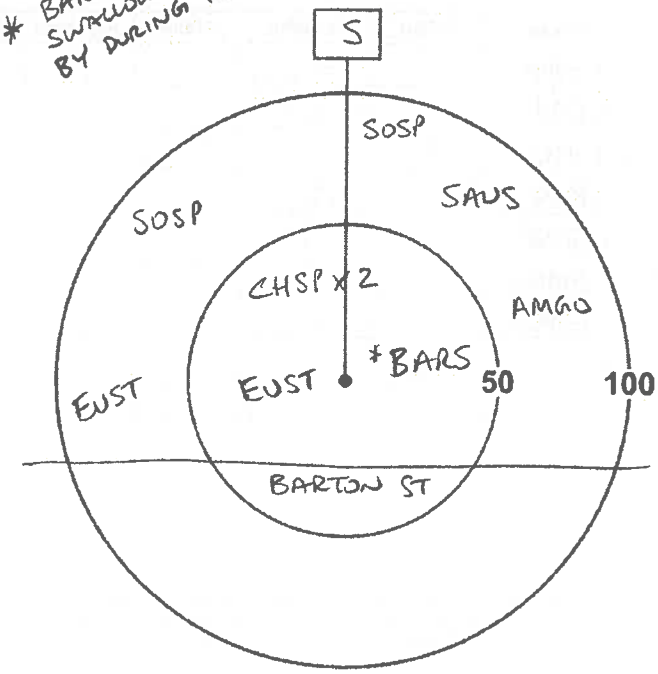
Station: 6 | Feature: | UTM: 0608587 4785464

Start Time: 06:51 | End Time: 06:56

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

① BARN SWALLOW FLEW BY DURING P.C.

Species	<50m	50-100m	>100m	Flyovers	Height*
SOSP		2			
SAVS		1			
EUST	1	1			
CHSP	2				
BARS	1				
AMGO		1			



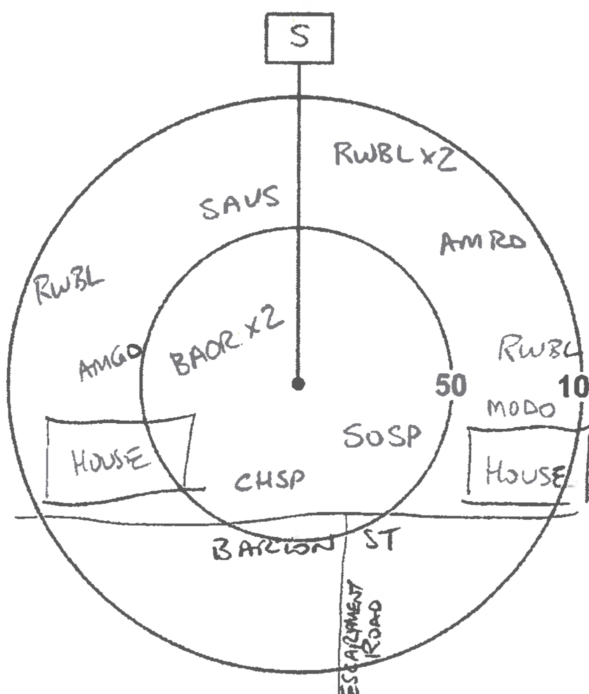
** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

Station: 7 | Feature: | UTM: 0609227 4785257

Start Time: 07:03 | End Time: 07:08

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
RWBL		4			
AMRO		1			
BAOR	2				
SOSP	1				
CHSP	1				
AMGO		1			
MODO		1			
SAVS		1			



** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

Page 4 of 9

Quality Control: This form is complete ❑ & legible ❑.

Signature: [signature] (Field Personnel)

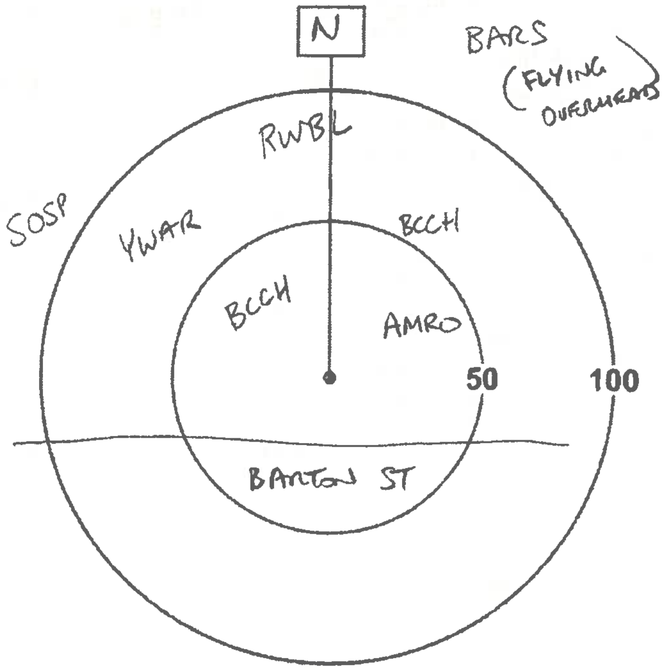
Signature: (Project Manager)

Station: 8 Feature: UTM: 0610089 4785167

Start Time: 07:16 End Time: 07:21

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
BCCH	1	1			
AMRO	1				
RWBL		1			
YWAR		1			
SOSP			1		
BARS			2		



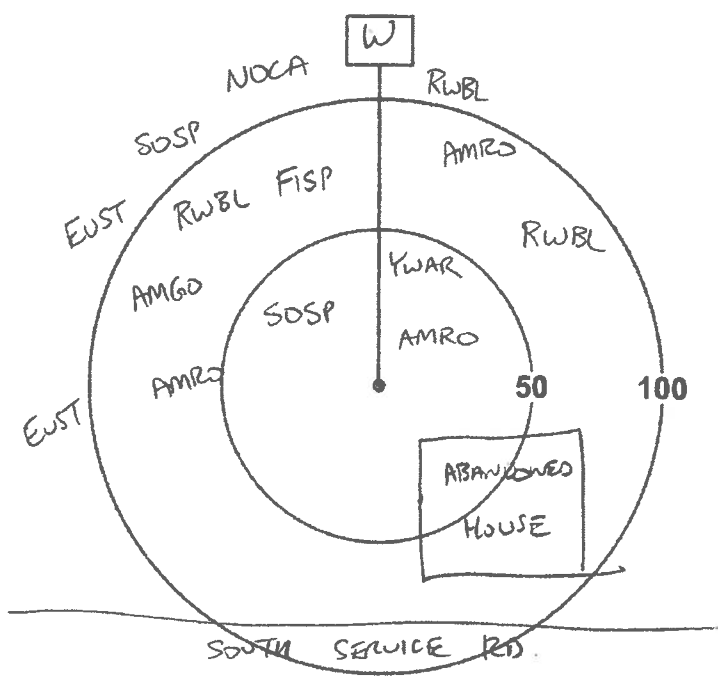
* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

Station: 11 Feature: UTM: 0610501 4785518

Start Time: 07:36 End Time: 07:41

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
EUST			2		
AMRO	1	2			
SOSP	1		1		
YWAR	1				
RWBL		2	1		
NOCA			1		
FISP		1			
AMGO		1			



* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

Page 5 of 9

Signature: [signature] (Field Personnel)

Quality Control: This form is complete ❑ & legible ❑.

Signature: (Project Manager)

REV: 2011-05-04 / FORM 020

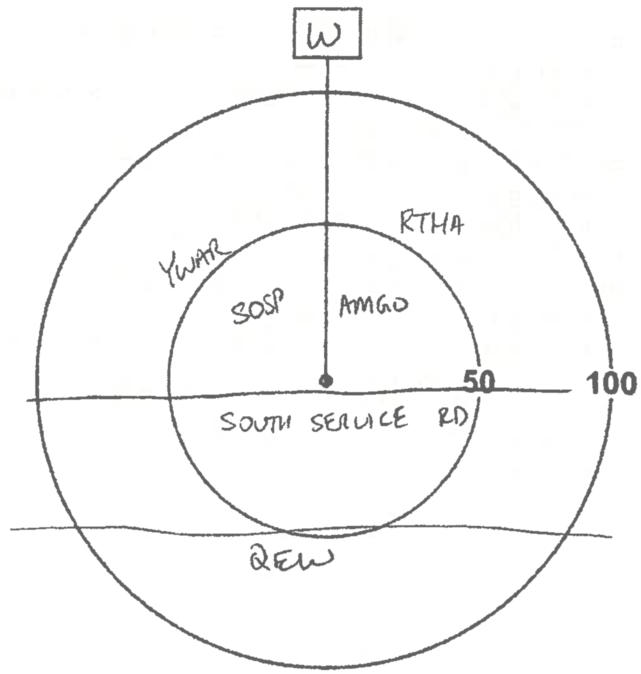
Station: 12 Feature: UTM: 0610405 4785844

Start Time: 07:46 End Time: 07:51

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
AMGO	1				
SOSP	1				
RTHA		1			
YWAR		1			

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



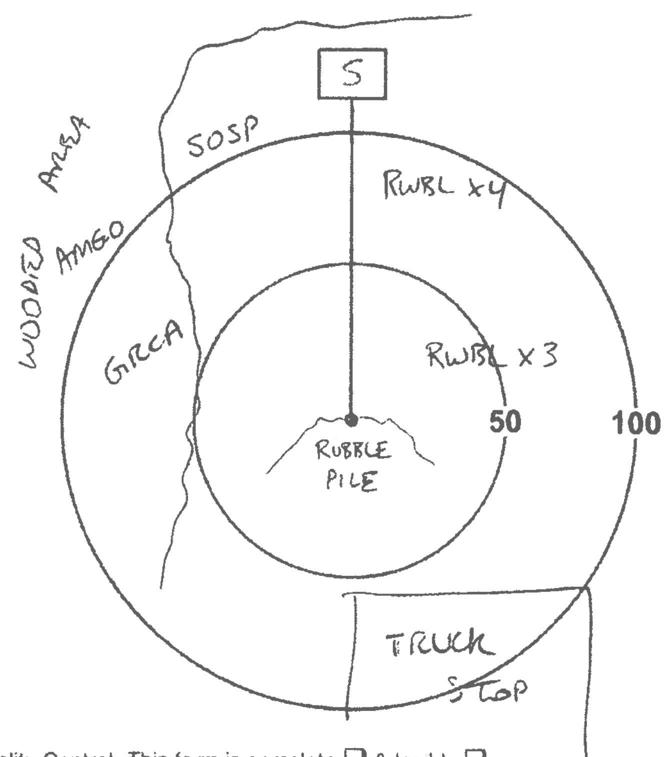
Station: 13 Feature: UTM: 0610234 4785765

Start Time: 08:00 End Time: 08:05

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
RWBL	3	4			
AMGO			1		
GRCA		1			
SOSP			1		

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page 6 of 9

Signature: (Field Personnel)

Quality Control: This form is complete ❑ & legible ❑.

Signature: (Project Manager)

REV: 2011-05-04 / FORM 020

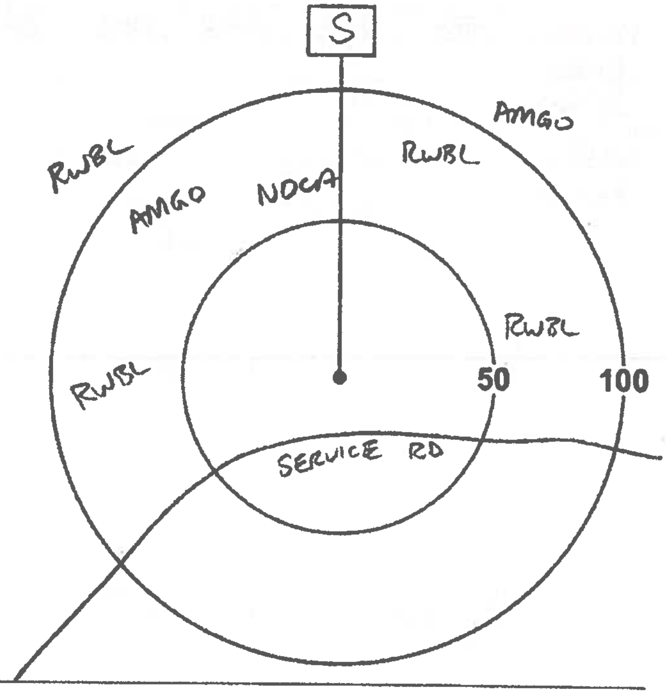
Station: 14 | Feature: | UTM: 0610034

Start Time: 08:09 | End Time: 08:14 | 4785729

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
RWBL		3	1		
NOCA		1			
AMGO		1	1		

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Station: 15 | Feature: | UTM: 0610047

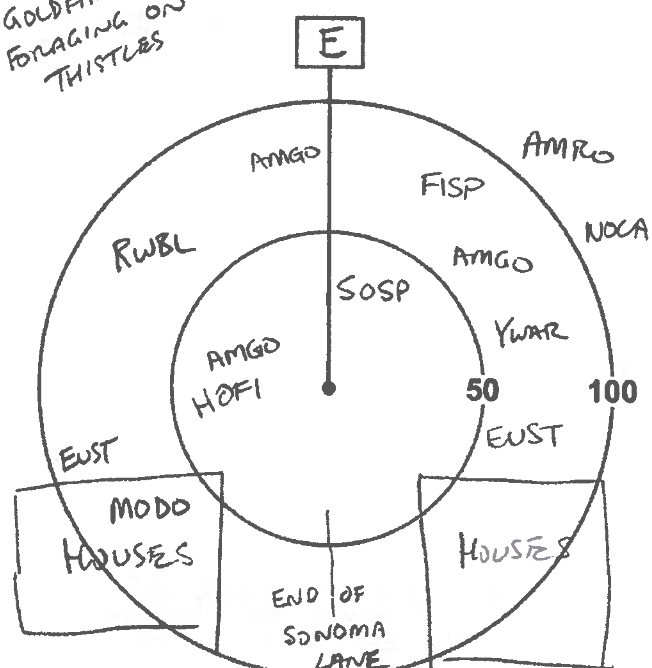
Start Time: 08:21 | End Time: 08:26 | 4785387

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
AMGO	1	2			
HOFI	1				
SOSP	1				
YWAR		1			
EUST		2			
AMRO			1		
NOCA			1		
FISP		1			
MODO		1			
RWBL		1			

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

GOLDFINCHES FORAGING ON THISTLES



Page 7 of 9

Signature: (Field Personnel)

Quality Control: This form is complete ❑ & legible ❑.

Signature: (Project Manager)

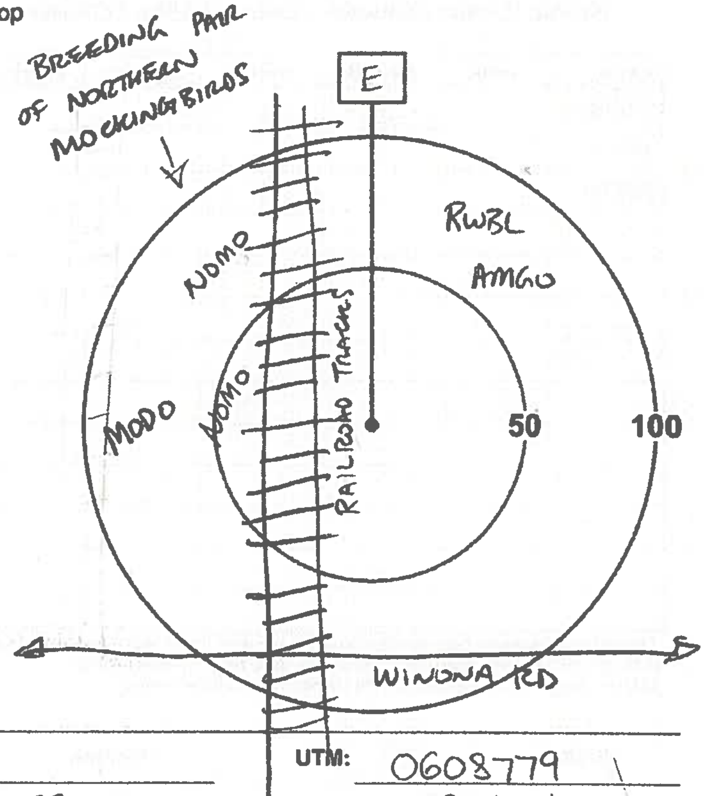
Station: 16 | Feature: | UTM: 0609848 4785592

Start Time: 08:36 | End Time: 08:41

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
RWBL		1			
AMGO		1			
NOMO	1	1			
MODO		1			

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



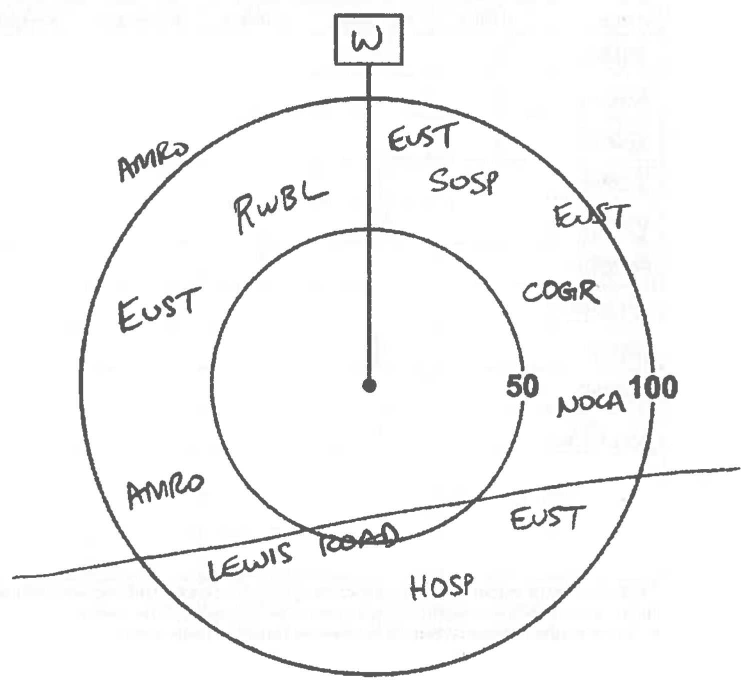
Station: 17 | Feature: | UTM: 0608779 4785104

Start Time: 08:53 | End Time: 08:58

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
EUST		4			
RWBL		1			
SOSP		1			
COGR		1			
NOCA		1			
AMRO		1	1		
HOSP		1			

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page 8 of 9 | Quality Control: This form is complete ❑ & legible ❑.

Signature: [signature] (Field Personnel) | Signature: (Project Manager)

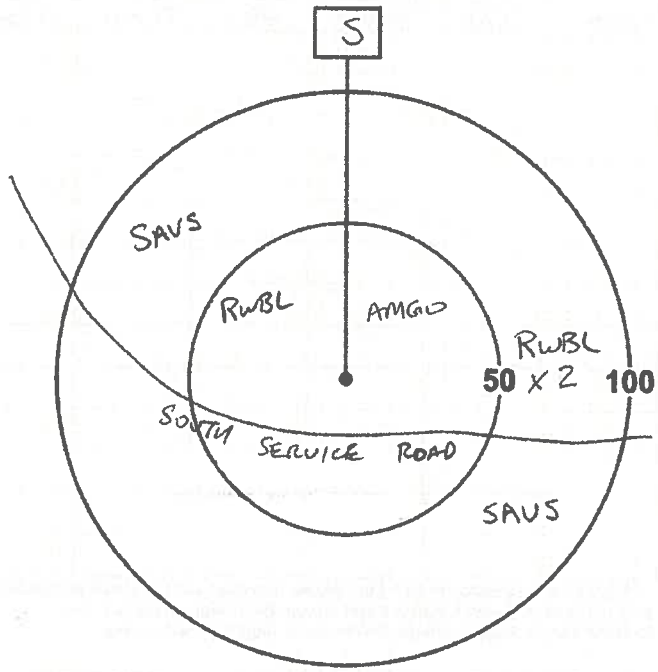
REV: 2011-05-04 / FORM 020

Station: 18 Feature: UTM: 0610793
Start Time: 09:08 End Time: 09:13 4785545

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
SAVS		2			
RWBL	1	2			
AMGO	1				

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

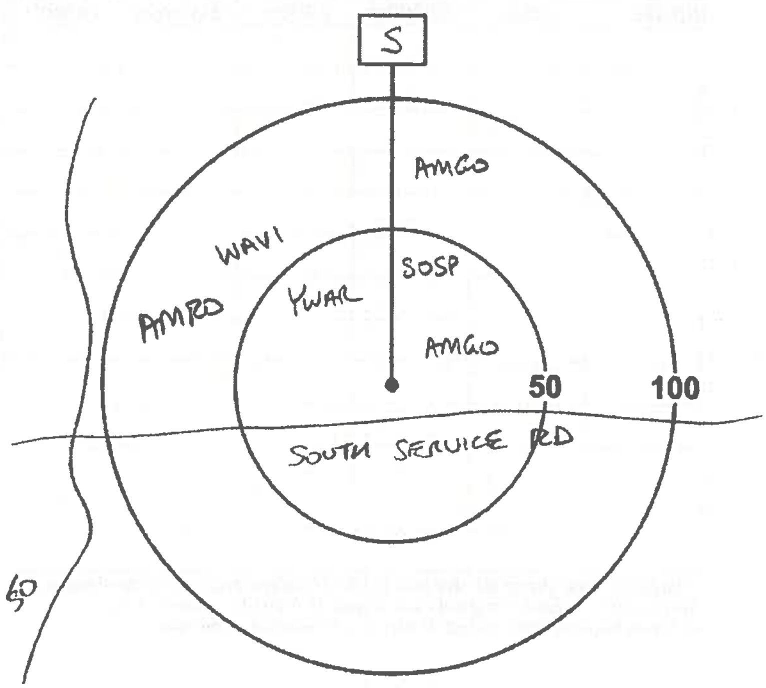


Station: 19 Feature: UTM: 0611221
Start Time: 09:35 End Time: 09:40 4785578

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
YWAR	1				
WAVI		1			
AMRO		1			
SOSP	1				
AMGO	1	1			

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page 9 of 9

Quality Control: This form is complete ❑ & legible ❑.

Signature: [signature] (Field Personnel)

Signature: (Project Manager)

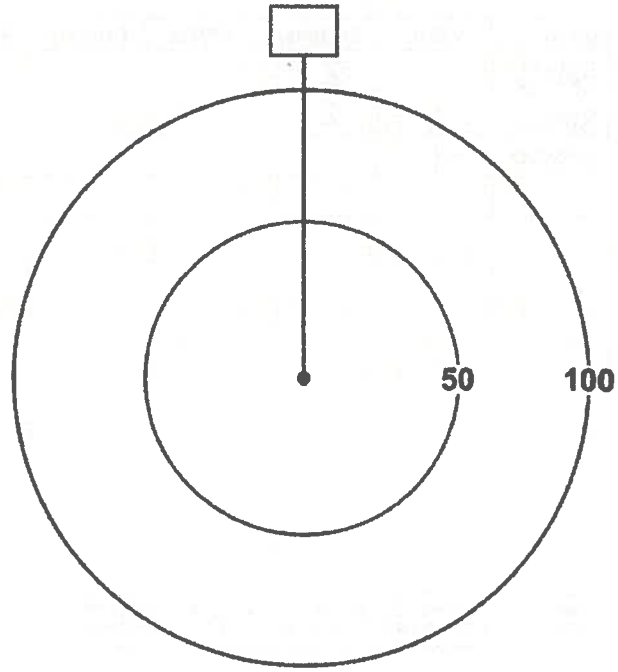
REV: 2011-05-04 / FORM 020

Station: ____________________ **Feature:** ____________________ **UTM:** ____________________

Start Time: ____________________ **End Time:** ____________________

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*



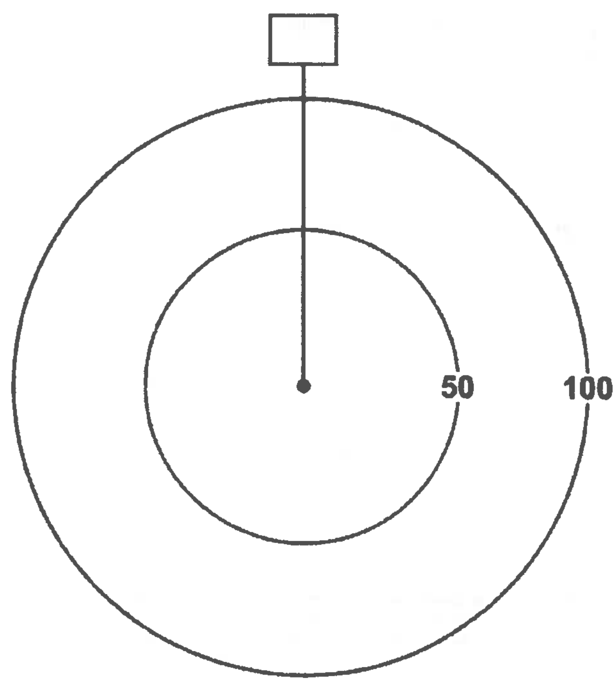
** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

Station: ____________________ **Feature:** ____________________ **UTM:** ____________________

Start Time: ____________________ **End Time:** ____________________

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*



** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

Page ___ of ___

Quality Control: This form is complete ❑ & legible ❑.

Signature: ______________________________
(Field Personnel)

Signature: ______________________________
(Project Manager)

Stantec

Stantec Consulting Ltd.
1 – 70 Southgate Drive
Guelph, ON
Canada N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Birding Point Counts Survey Observation Form

Project Number: 60950443

Project Name: Hamilton-SCUBE

Date: June 26, 2012

Field Personnel: N. Kopysh.

Weather Conditions:	TEMP (°C):	WIND:	CLOUD:	PPT:	PPT (in last 24 hrs):
	15°C to 20°C	0-1	20°	Ø	Ø

GPS #: T

Station: 11

Feature:

UTM: 0610535 4785535

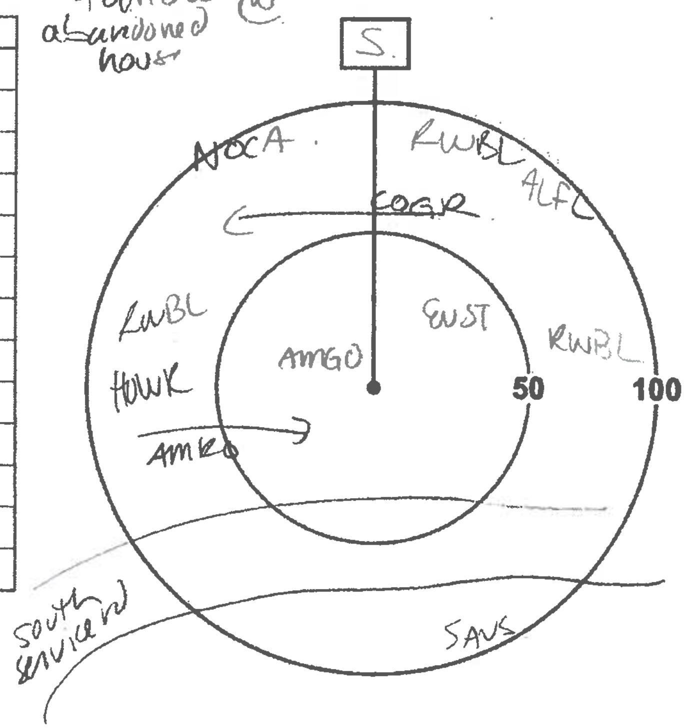
Start Time: 05:50

End Time: 05:55

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop fallow @ abandoned house @ on south service Rd

Species	<50m	50-100m	>100m	Flyovers	Height*
NOCA		1			
RWBL		3			
AMGO	1				
EUST.	1				
AMRO				1	
SAVS		1			
HOWR		1			

** Height of blade sweep varies from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



note: hwy + south service rd. noise

Page 1 of 5

Signature: NKopysh
(Field Personnel)

Quality Control: This form is complete ❑ & legible ❑.

Signature:
(Project Manager)

Station: 12 **Feature:** **UTM:** 0610406/4785845

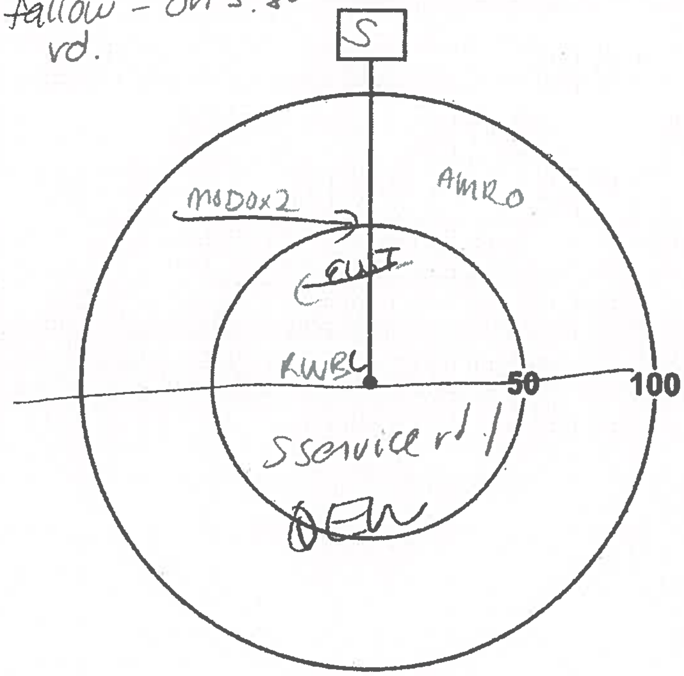
Start Time: 06:05 **End Time:** 06:10

note hwy noise

Habitat: ☐Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☐Crop

fallow – on S. service rd.

Species	<50m	50-100m	>100m	Flyovers	Height*
MODO				2	
AMRO		1			
EUST				1	
RWBL	1				



** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

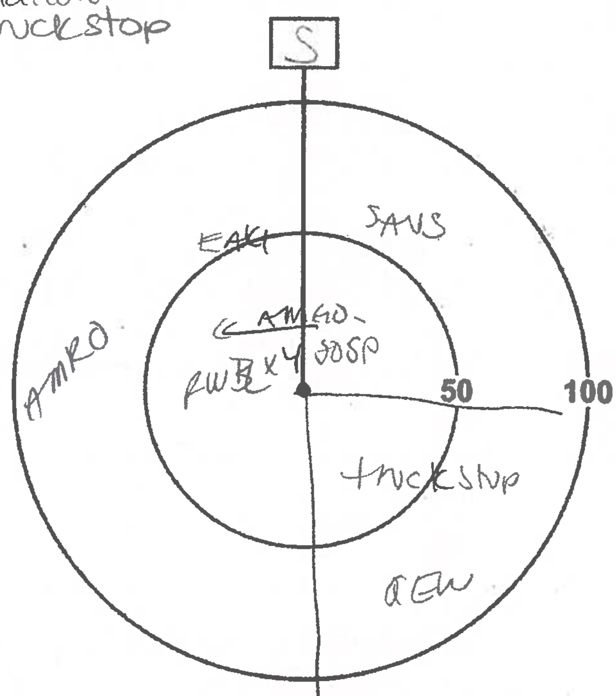
Station: 13 **Feature:** **UTM:** 0610234 4785771

Start Time: 06:14 **End Time:** 06:19

Habitat: ☐Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☐Crop

– fallow @truckstop

Species	<50m	50-100m	>100m	Flyovers	Height*
EAKI		1			
SAVS		1			
AMGO				1	
SOSP	1				
RWBL	4				
AMRO		1			



** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

Page ___ of ___

Quality Control: This form is complete ☐ & legible ☐.

Signature: ____________________ (Field Personnel)

Signature: ____________________ (Project Manager)

Station: 14. **Feature:** **UTM:** 610037 / 4785737

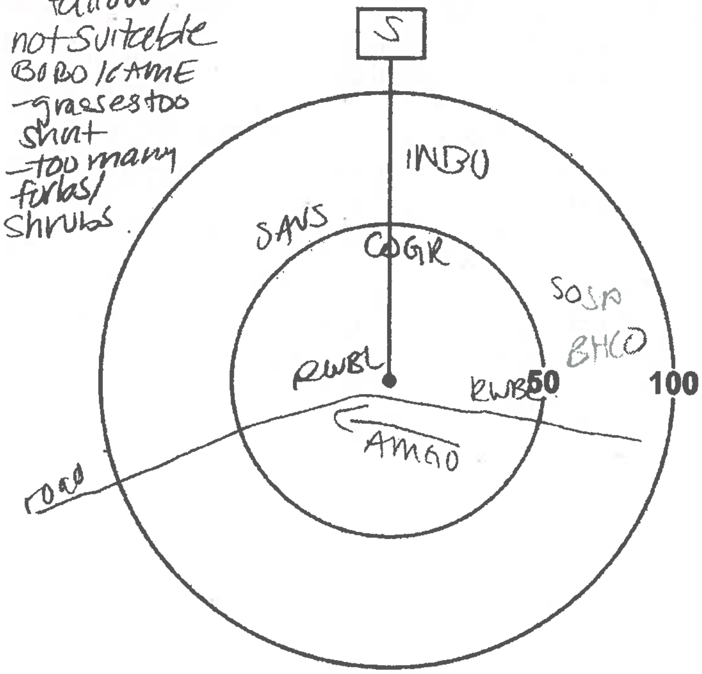
Start Time: 06.25 **End Time:** 06.30

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

fallow
not suitable
BOBO/EAME
-grasses too short
-too many forbs/shrubs

Species	<50m	50-100m	>100m	Flyovers	Height*
INBU		1			
SAVS		1			
COGR	1				
RWBL	2				
AMGO				1	
BHCO		1			

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



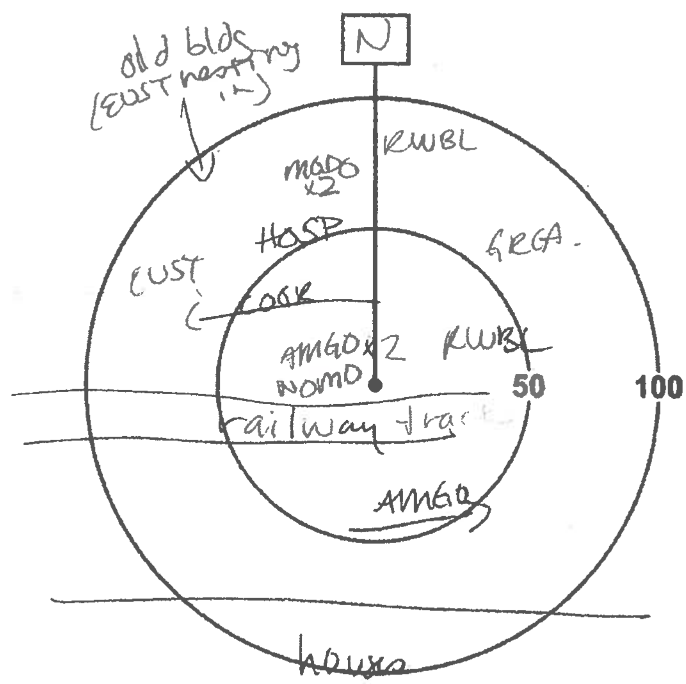
Station: 16 **Feature:** **UTM:** 0609860 4785605

Start Time: 06 38 **End Time:** 06:42

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
MODO		2			
RWBL	1	1			
HOSP		1			
EUST		1			
COGR				1	
AMGO	2			1	
NOMO	1				
GRCA		1			

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep



Page 2 of 5

Signature: [signature] (Field Personnel)

Quality Control: This form is complete ❑ & legible ❑.

Signature: (Project Manager)

REV: 2011-05-04 / FORM 020

Station: 15 **Feature:** **UTM:** 610049/ 4785387

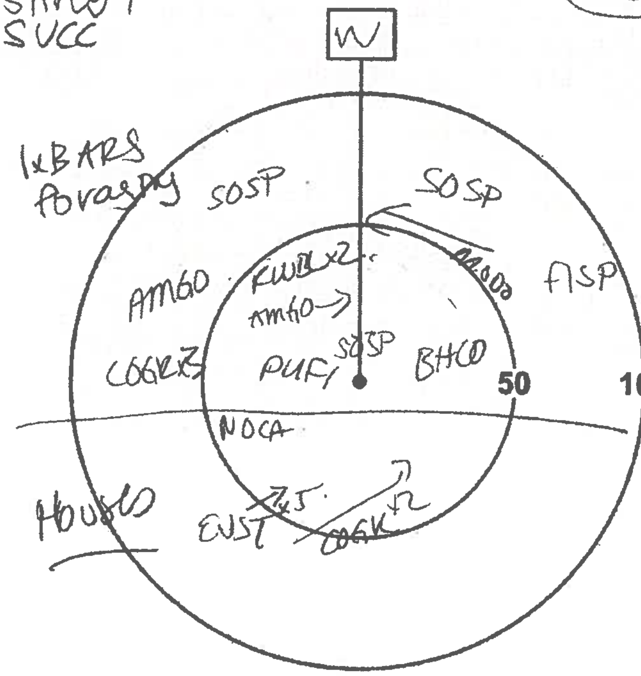
Start Time: 06:50 **End Time:** 06:55

1 BARS obs

Habitat: ☐Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☐Crop

shrub / succ

Species	<50m	50-100m	>100m	Flyovers	Height*
BARS			1		
SOSP	1	2			
AMGO	1	1			
COGR		3		2	
BHCO	1				
PUFI	1				
RWBL	2				
NOCA	1				
EUST	5				



* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

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Station: 8 **Feature:** **UTM:** 610065/ 4785097

Start Time: 07:04 **End Time:** 07:09

2 BARS obs

Habitat: ☐Forest / ☐Swamp / ☐Marsh / ☐Hay / ☐Pasture / ☐Crop

shrub/ cuw succ + old orchard?

Species	<50m	50-100m	>100m	Flyovers	Height*
FISP		1			
RWBL		1			
TRES	1				
AMGO	1				
AMRO	1				
EUST	2				
BARS				2	
BLJA		1			
HOSP	2				

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

Page ___ of ___

Quality Control: This form is complete ☐ & legible ☐.

Signature: ______________________ (Field Personnel)

Signature: ______________________ (Project Manager)

REV: 2011-05-04 / FORM 020

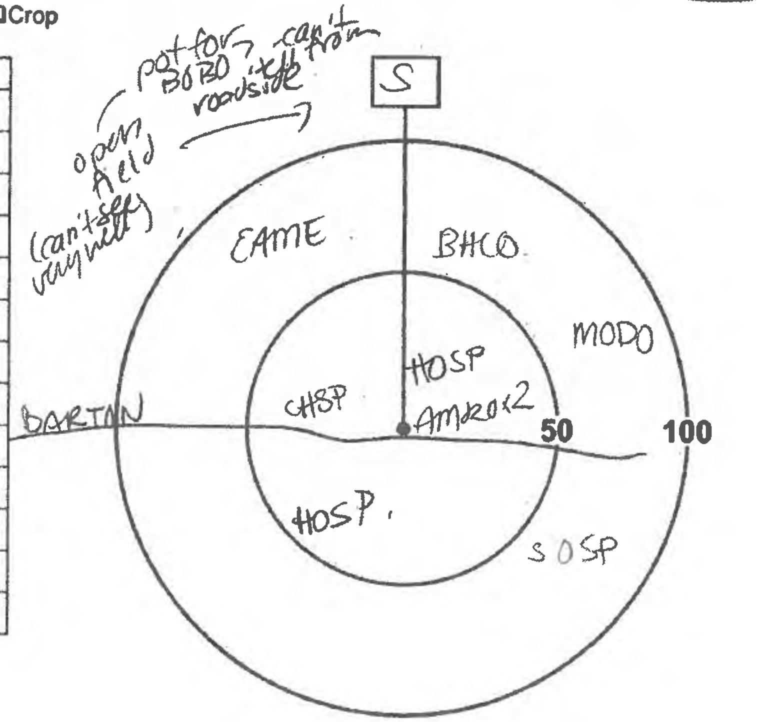
Station: 7 **Feature:** **UTM:** 609246 / 4785339 EAME

Start Time: 07:16 **End Time:** 07:21

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
EAME		1			
BHCO		1			
MODO		1			
HOSP	2				
CHSP	1				
AMRO	2				
SOSP		1			

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



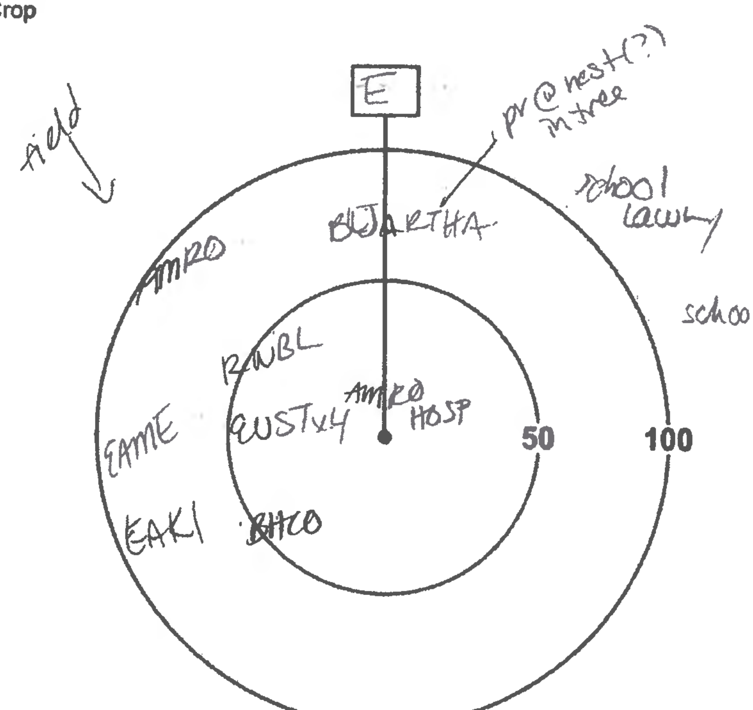
Station: 4 **Feature:** **UTM:** 0608758 / 4785292

Start Time: 07 27 **End Time:** 07:32

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
AMRO	1	1			
BLJA		1			
RTHA		1			
RWBL	1				
EUST	4				
HOSP	1				
BHCO	1				
EAKI		1			
EAME		1			

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



Page 3 of 5

Signature: M Kor
(Field Personnel)

Quality Control: This form is complete ❑ & legible ❑.

Signature:
(Project Manager)

Station: 3 Feature: UTM: 0608816 / 4785156.

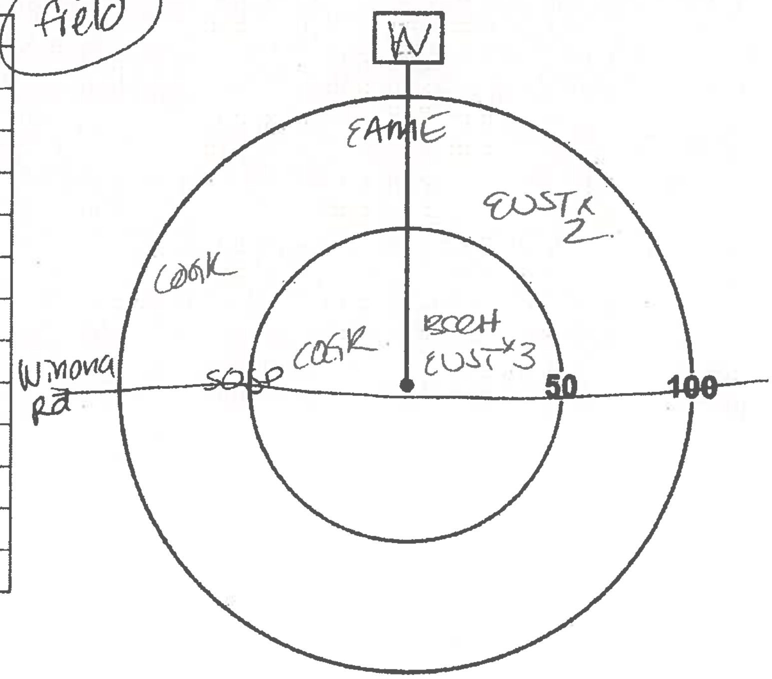
Start Time: 07:42 End Time: 07:47

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop open field

*EAME

Species	<50m	50-100m	>100m	Flyovers	Height*
EAME		1			
EUST	3	2			
BCCH	1				
COGR	1	1			
SOSP		1			

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



Station: 17 Feature: UTM: 0608784 4785104

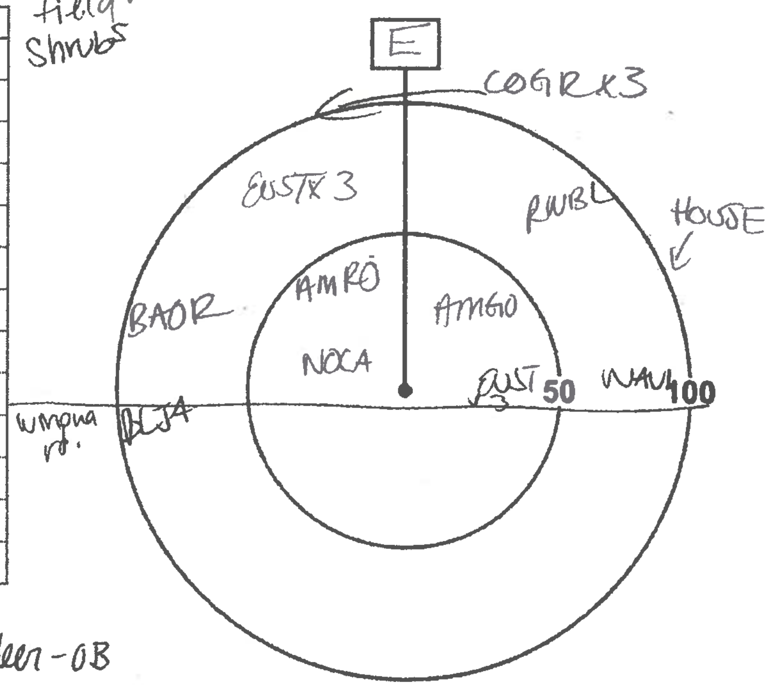
Start Time: 07:49 End Time: 07:54

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

field & shrubs

Species	<50m	50-100m	>100m	Flyovers	Height*
BAOR		1			
BLJA		1			
AMRO	1				
NOCA	1				
AMGO	1				
EUST	3	3			
RWBL	1				
WAVI		1			
COGR				3	

* *Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



-deer-OB

Page ___ of ___

Quality Control: This form is complete ❑ & legible ❑.

Signature: ______________________ (Field Personnel)

Signature: ______________________ (Project Manager)

REV: 2011-05-04 / FORM 020

Station: 5 Feature: . UTM: 0608294 4785534

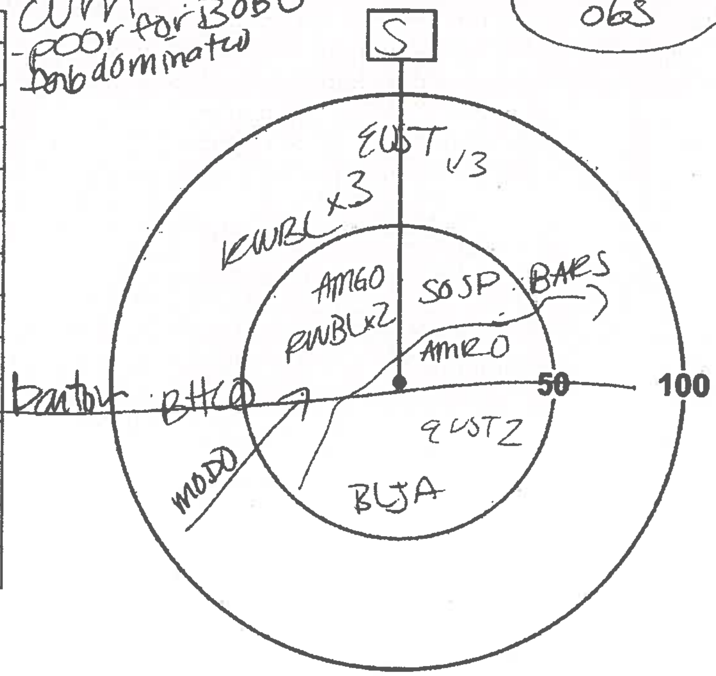
Start Time: 08:35 End Time: 08:40

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
EUST	2	3			
BARS				1	
RWBL	2	3			
AMGO	1				
SOSP	1				
AMRO	1				
MODO				1	
BHCO		1			
BLJA	1				

CUM - poor for BOBO ~~forb~~ dominated

*1 BARS obs



* Height of blade sweep will vary from project to project; check with project manager.
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

Station: 6 Feature: UTM:

Start Time: 08 45 End Time: 08:50

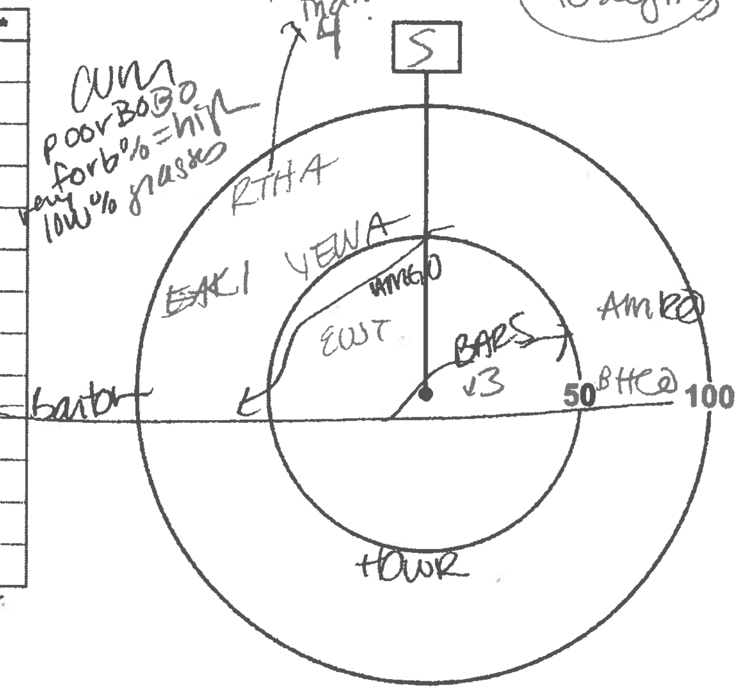
Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
RTHA		1			
YEWA		1			
EAKI		1			
AMGO				1	
EUST	1				
BARS				3	
AMRO		1			
BHCO		1			

likely same man from stn 4

*3 BARS foraging

CUM poor BOBO forb% = high very 100% grasses



* Height of blade sweep will vary from project to project; check with project manager.
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep

· cabbage white + sulphur butterflies

Page 4 of 5

Signature: [signature] (Field Personnel)

Quality Control: This form is complete ❑ & legible ❑.

Signature: (Project Manager)

REV: 2011-05-04 / FORM 020

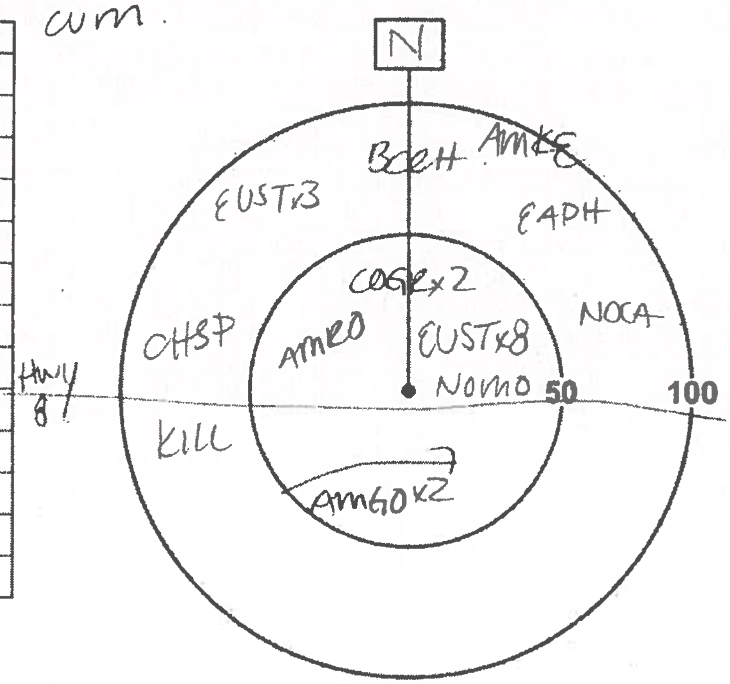
Station: 2 **Feature:** **UTM:** 608484

Start Time: 08:10 **End Time:** 08:15 4784922

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

cwm.

Species	<50m	50-100m	>100m	Flyovers	Height*
EUST	8	3			
BCCH		1			
AMKE		1			
EAPH		1			
NOCA		1			
NOMO	1				
COGR	2				
AMRO	1				
KILL		1			
AMGO				2	



** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

---

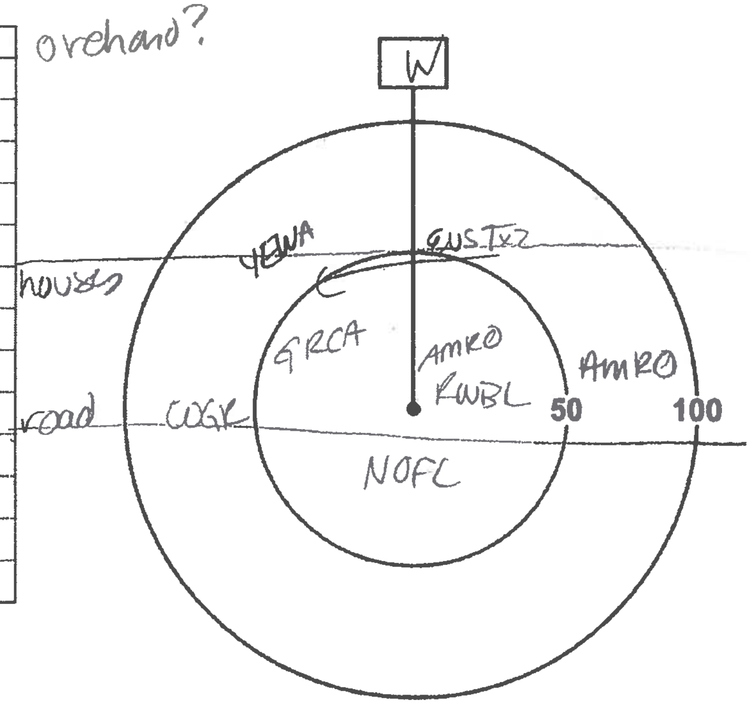
Station: 1 **Feature:** **UTM:** 0607994

Start Time: 08:20 **End Time:** 08:25 4785266

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

orchard?

Species	<50m	50-100m	>100m	Flyovers	Height*
NOFL	1				
GRCA	1				
AMRO	1	1			
RWBL	1				
COGR		1			
YENA		1			
EUST				2	



** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; **A**-Below height of blade sweep; **B**-At height of blade sweep;
C-Above height of blade sweep; **D**-Well above height of blade sweep

Page ___ of ___

Quality Control: This form is complete ❑ & legible ❑.

Signature: ______________ (Field Personnel)

Signature: ______________ (Project Manager)

REV: 2011-05-04 / FORM 020

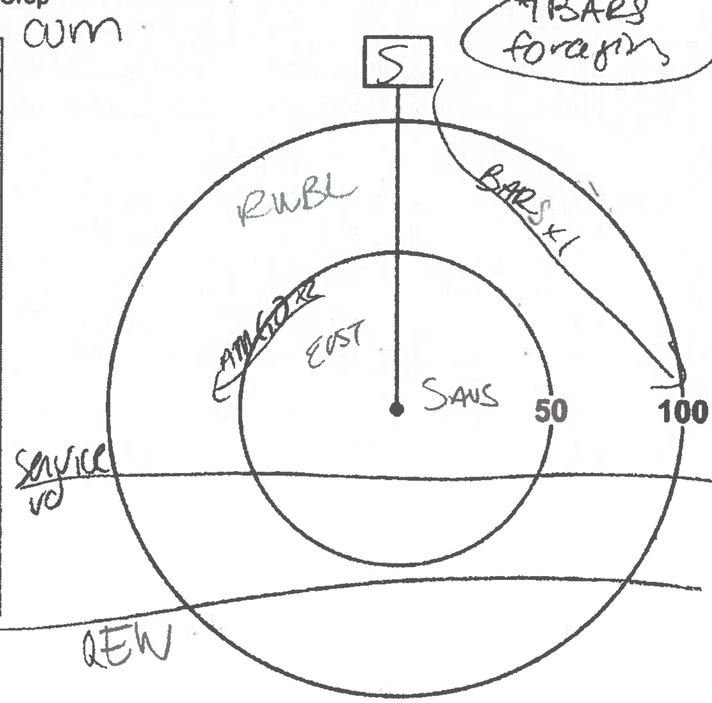
Station: 18
Feature:
UTM: 0610787 4785550

Start Time: 09:00
End Time: 09:05

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
RWBL		1			
BARS				1	
EUST	1				
AMGO				2	
SAUS	1				

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



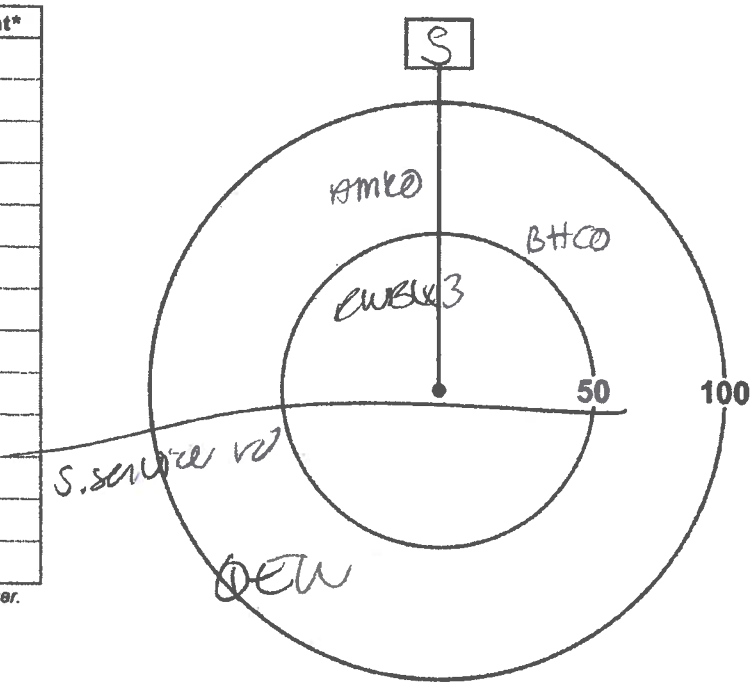
Station: 19
Feature:
UTM: 611228 / 4785587

Start Time: 09 10
End Time: 09 15

Habitat: ❑Forest / ❑Swamp / ❑Marsh / ❑Hay / ❑Pasture / ❑Crop

Species	<50m	50-100m	>100m	Flyovers	Height*
AMRO		1			
BHCO		1			
RWBL	3				

** Height of blade sweep will vary from project to project; check with project manager.*
O-On ground; A-Below height of blade sweep; B-At height of blade sweep;
C-Above height of blade sweep; D-Well above height of blade sweep



Page 5 of 5

Signature: [signature] (Field Personnel)

Quality Control: This form is complete ❑ & legible ❑.

Signature: (Project Manager)

Stantec

Stantec Consulting Ltd.
1 – 70 Southgate Drive
Guelph, ON
Canada N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Bobolink and Eastern Meadowlark Breeding Survey Form

Project Number: 160950443 Project Name: Scube parcels

Date: July 12, 2012 Field Personnel: D. Grahan

Weather Conditions:	TEMP (°C):	WIND:	CLOUD:	PPT:	PPT (in last 24 hrs):
	16-25	0-1	10%	None	None

Please mark transect location on map and indicate areas of species observations on map.

~~Transect~~ Stn No.: 3 Habitat:

Start Time: 5^45 End Time: 5^55

Start Point UTM: 608483, 4784921 End Point UTM: same

Species	Tally
Bobolink	∅
Eastern Meadowlark	∅

~~Transect~~ Station No.: 16 Habitat:

Start Time: 8^35 End Time: 8^40

Start Point UTM: 608784 4785104 End Point UTM:

Species	Tally
Bobolink	3 (Flyovers)
Eastern Meadowlark	∅

Pg. ___ of ___

Quality Control: This form is complete ☐ & legible ☐.

Signature: ____________________ (Field Personnel)

Signature: ____________________ (Project Manager)

REV: 2011-06-03 / FORM 014c

dsg g:\resource\internal info and teams\field forms\birds\breeding bird\form_014c_bobolink-and-eame_sar_breeding-survey.docx

Stantec
Stantec Consulting Ltd.
1 – 70 Southgate Drive
Guelph, ON
Canada N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Bobolink and Eastern Meadowlark Breeding Survey Form

Project Number: 160950443
Project Name: HAMILTON – SCUBE
Date: JULY 4 2012
Field Personnel: MICHAEL OLIVEIRA

Weather Conditions:

TEMP (°C):	WIND:	CLOUD:	PPT:	PPT (in last 24 hrs):
20°C	1-2	50%	Ø	Ø

Please mark transect location on map and indicate areas of species observations on map.

Transect No.: PT. #3
Habitat: OPEN FIELD
Start Time: 06:15
End Time: 06:25
Start Point UTM:
End Point UTM:

Species	Tally
Bobolink	Ø
Eastern Meadowlark	Ø

Transect No.:
Habitat:
Start Time:
End Time:
Start Point UTM:
End Point UTM:

Species	Tally
Bobolink	
Eastern Meadowlark	

Pg. 1 of 1

Signature: [signature] (Field Personnel)

Quality Control: This form is complete ☐ & legible ☐.

Signature: (Project Manager)

Stantec

Stantec Consulting Ltd.
1 – 70 Southgate Drive
Guelph, ON
Canada N1G 4P5
Tel: (519) 836-6050
Fax: (519) 836-2493

Bobolink and Eastern Meadowlark Breeding Survey Form

Project Number: 60950443 Project Name: Hamilton- Winona / SWBE

Date: June 26 2012 Field Personnel: N. KOPYSH

Weather Conditions:	TEMP (°C):	WIND:	CLOUD:	PPT:	PPT (in last 24 hrs):
	18°C.	0-1	20%	Ø	Ø

Please mark transect location on map and indicate areas of species observations on map.

Pt. Location ~~Transect~~ No.: 3 Habitat: open field

Start Time: 07:55 End Time: 08:05

Start Point UTM: End Point UTM:

Species	Tally
Bobolink	Ø
Eastern Meadowlark	1
*access by roadside only	

Pt. location ~~Transect~~ No.: 7 Habitat: open field (can't see well)

Start Time: 7:16 End Time: 7:21

Start Point UTM: 609246l, 4785339 End Point UTM:

Species	Tally
Bobolink	Ø
Eastern Meadowlark	1

- all other habitat in study area = marginal = CUM (forb dominated) or shrub/succ.
- field at stn 7 not well visible from road - potential?

Pg. ___ of ___ Quality Control: This form is complete ☐ & legible ☐.

Signature: ______________ (Field Personnel) Signature: ______________ (Project Manager)

Pt. location
~~Transect No.~~: 4

Habitat: Field

Start Time: 7[27]

End Time: 7[32]

Start Point UTM: 608758, 4785292

End Point UTM:

Species	Tally
Bobolink	Ø
Eastern Meadowlark	1

Pt. location
~~Transect No.~~: 3

Habitat: Open field

Start Time: 7[42]

End Time: 7[47]

Start Point UTM: 608816, 4785156

End Point UTM:

Species	Tally
Bobolink	Ø
Eastern Meadowlark	1

Transect No.:

Habitat:

Start Time:

End Time:

Start Point UTM:

End Point UTM:

Species	Tally
Bobolink	
Eastern Meadowlark	

Pg. ___ of ___

Quality Control: This form is complete ☐ & legible ☐.

Signature: ________________ (Field Personnel)

Signature: ________________ (Project Manager)

Chimney Assessment Form

Scube

Page 1

July 12, 2012 10:45 AM

Observer Details

Name D. Graham	Phone Number ( )	Email Address	
Street Address	City	Prov.	Postal Code

Building Details

Street Address 24 Victoria	City Winona	Prov. On.	Postal Code
Owner Name	Phone Number ( )	Email Address	

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ______

Chimney Details

Site Name
1

Chimney Code
SC - W1

GPS coordinates (DD.dddd):

Lat. 4785637 ° N

Long. 609801 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

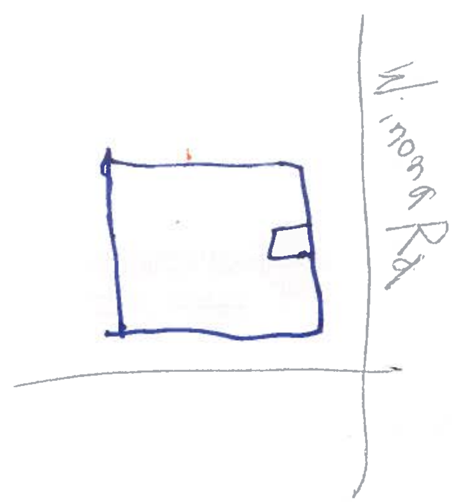
Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify: ______

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [ ] Cap
- [ ] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [x] Metal Liner
- [ ] Other, please specify: ______

Surrounding habitat (please check one):

- [ ] Residential
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [x] Other, please specify: Rural

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [x] Square → Width (cm): ______
- [ ] Rectangular → Width (cm): 40 Length (cm): 40

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Page 2

Chimney height above roofline (m): 2m	Number of Flues: 1	Colour of Chimney: Brown

Total Chimney Height (m) = 1 (Number of stories in building) × 3 m (approx height of one story) + 2 (Height above roofline (m)) = 5 m

If swifts are present, are they: ☐ Nesting ☐ Roosting ☐ Unknown

Additional Comments:

None

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McIlwraith Field Naturalists

Chimney Assessment Form

Page 1

Observer Details

Name	Phone Number ( )	Email Address	
Street Address	City	Prov.	Postal Code

Building Details

Street Address: 1220 Barton	City	Prov.	Postal Code
Owner Name	Phone Number ( )	Email Address	

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ______

Chimney Details

Site Name: 2

Chimney Code: SC-B-2

GPS coordinates (DD.dddd):

Lat. 4785369 ° N

Long. 609379 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify: ______

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.

If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [ ] Cap
- [x] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify: ______

Surrounding habitat (please check one):

- [x] Residential /Rural
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ______

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [x] Square → Width (cm): ______
- [ ] Rectangular → Width (cm): 40 Length (cm): 40

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Page 2

Chimney height above roofline (m): 1	Number of Flues: 1	Colour of Chimney: Beige

Total Chimney Height (m) = 1 (Number of stories in building) × 3 m (approx height of one story) + 1 (Height above roofline (m)) = 4 m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None

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Chimney Assessment Form

Page 1

Observer Details

Name	Phone Number ( )	Email Address	
Street Address	City	Prov.	Postal Code

Building Details

Street Address 1182 Barton	City	Prov.	Postal Code
Owner Name	Phone Number ( )	Email Address	

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ____

Chimney Details

Site Name: 3

Chimney Code: SC-B-3

GPS coordinates (DD.dddd):

Lat. 4785399 ° N

Long. 609098 ° W

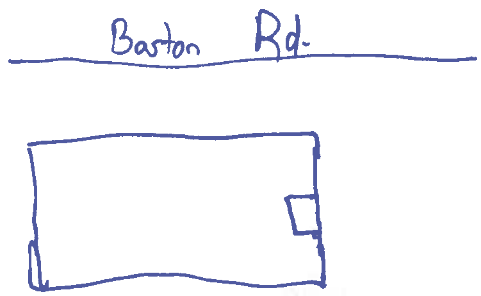
NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify: ____

If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [ ] Cap
- [x] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify: ____

Surrounding habitat (please check one):

- [x] Residential / Rural
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ____

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ____
- [x] Square → Width (cm): ____
- [ ] Rectangular → Width (cm): 40 Length (cm): 40

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Page 2

Chimney height above roofline (m): 1		Number of Flues: 1		Colour of Chimney: Brown	
Total Chimney Height (m) =	2 Number of stories in building	× 3 m (approx height of one story)	+ 1 Height above roofline (m)	= 7 m	
If swifts are present, are they:	☐ **Nesting**	☐ **Roosting**	☐ **Unknown**		

Additional Comments:

None

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Chimney Assessment Form

Page 1

Observer Details

Name	Phone Number ( )	Email Address	
Street Address	City	Prov.	Postal Code

Building Details

Street Address 292 Lewis	City	Prov.	Postal Code
Owner Name	Phone Number ( )	Email Address	

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ______

Chimney Details

Site Name 4	Chimney Code SC-L-4

GPS coordinates (DD.dddd):

Lat. 4785299 ° N

Long. 608803 ° W

Number of years active (if known):

NOTE: Chimney codes are created using the following scheme:

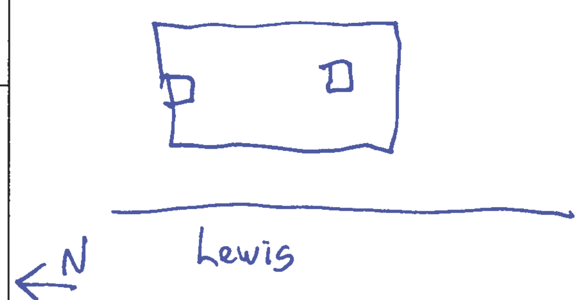
City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify: ______

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [x] Cap
- [x] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify: ______

Surrounding habitat (please check one):

- [x] Residential / rural
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ______

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [x] Square → Width (cm): ______
- [ ] Rectangular → Width (cm): 50 Length (cm): 50

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Page 2

Chimney height above roofline (m): 3	Number of Flues: 2	Colour of Chimney: Brown

Total Chimney Height (m) = 1 (Number of stories in building) × 3 m (approx height of one story) + 3 (Height above roofline (m)) = 6m m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None.

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Chimney Assessment Form

Page 1

Observer Details

Name	Phone Number ( )	Email Address	
Street Address	City	Prov.	Postal Code

Building Details

Street Address 1143 Hwy 8	City	Prov.	Postal Code
Owner Name	Phone Number ( )	Email Address	

Type of building (please check one):

- [ ] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [x] Other, please specify: Hotel

Chimney Details

Site Name: 5

Chimney Code: SC-8-5

GPS coordinates (DD.dddd):

Lat. 4784962 ° N

Long. 608720 ° W

Number of years active (if known):

NOTE: Chimney codes are created using the following scheme:

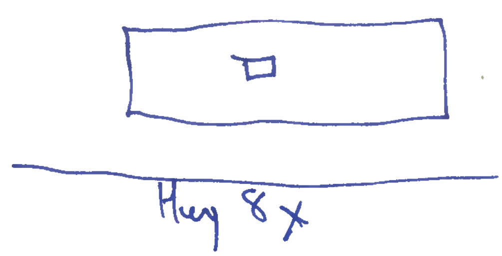
City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify:

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [x] Cap
- [x] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify:

Surrounding habitat (please check one):

- [x] Residential / rural
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify:

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm):
- [x] Square → Width (cm):
- [ ] Rectangular → Width (cm): 40 Length (cm): 40

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Page 2

<table>
<tr><td>Chimney height above roofline (m): 2</td><td>Number of Flues: 1</td><td colspan="2">Colour of Chimney: Brown</td></tr>
<tr><td colspan="4">Total Chimney Height (m) = 2 (Number of stories in building) × 3 m (approx height of one story) + 2 (Height above roofline (m)) = 8 m</td></tr>
<tr><td colspan="4">If swifts are present, are they: ☐ Nesting ☐ Roosting ☐ Unknown</td></tr>
<tr><td colspan="4">Additional Comments:
None</td></tr>
</table>

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McIlwraith Field Naturalists

Chimney Assessment Form

Page 1

Observer Details

Name	Phone Number	Email Address
	( )	

Street Address	City	Prov.	Postal Code

Building Details

Street Address	City	Prov.	Postal Code
1101 Hwy 8			

Owner Name	Phone Number	Email Address
	( )	

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ____________

Chimney Details

Site Name: 6

Chimney Code: SC-8-6

GPS coordinates (DD.dddd):

Lat. 4784905 ° N

Long. 608404 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

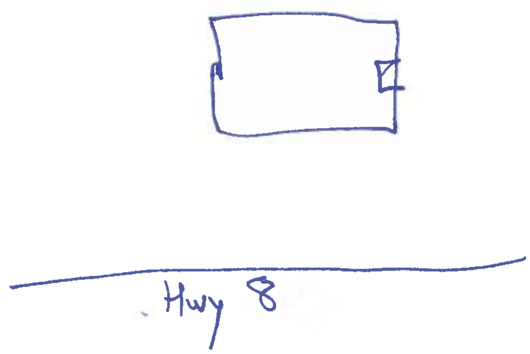
Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify: ____________

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [x] Cap
- [x] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify: ____________

Surrounding habitat (please check one):

- [x] Residential (rural)
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ____________

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [ ] Square → Width (cm): ______
- [x] Rectangular → Width (cm): 40 Length (cm): 60

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Chimney height above roofline (m): 0.5	Number of Flues: 1	Colour of Chimney: Brown

Total Chimney Height (m) = 2 (Number of stories in building) × 3 m (approx height of one story) + 0.5 (Height above roofline (m)) = 6.5 m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None

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Chimney Assessment Form

Page 1

Observer Details

Name	Phone Number	Email Address
	( )	

Street Address	City	Prov.	Postal Code

Building Details

Street Address	City	Prov.	Postal Code
1859 Hwy 8			

Owner Name	Phone Number	Email Address
	( )	

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ______

Chimney Details

Site Name: S 7

Chimney Code: SC-8-7

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

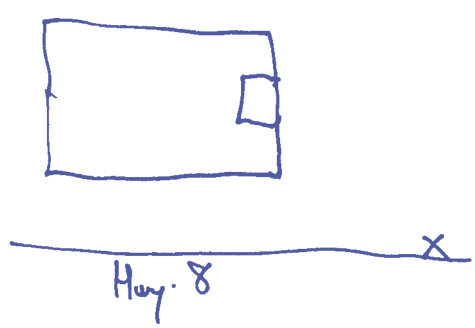
GPS coordinates (DD.dddd):

Lat. 4784859 ° N

Long. 608145 ° W

Number of years active (if known):

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



Chimney material (please check one):

- [x] Brick
- [ ] Stucco
- [ ] Concrete
- [ ] Stone
- [ ] Other, please specify: ______

If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [ ] Cap
- [ ] Terra Cotta Liner
- [ ] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify: No modifications

Surrounding habitat (please check one):

- [x] Residential rural
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ______

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [ ] Square → Width (cm): ______
- [x] Rectangular → Width (cm): 50 Length (cm): 100

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Page 2

Chimney height above roofline (m): 3	Number of Flues: 2	Colour of Chimney: Brown

Total Chimney Height (m) = 3 (Number of stories in building) × 3 m (approx height of one story) + 2 (Height above roofline (m)) = 11 m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments: None observed. 1st chimney in Scube parcels that looks suitable for chimney swift.

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Chimney Assessment Form

Page 1

Observer Details

Name	Phone Number	Email Address		
	( )			
Street Address	City	Prov.	Postal Code	

Building Details

Street Address	City	Prov.	Postal Code
220 McNeilly			

Owner Name	Phone Number	Email Address
	( )	

Type of building (please check one):

☑ House ☐ Church ☐ Store

☐ Lowrise Apartment ☐ School ☐ Factory

☐ Highrise Apartment ☐ Hospital ☐ Other, please specify: ____________

Chimney Details

Site Name: 8

Chimney Code: SC-M-8

GPS coordinates (DD.dddd):

Lat. 4784984 ° N

Long. 607878 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

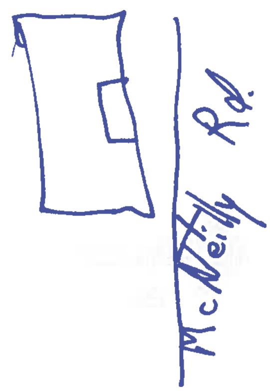
Chimney material (please check one):

☐ Brick ☑ Stucco

☐ Concrete ☐ Stone

☐ Other, please specify: ____________

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

☐ Cap ☑ Terra Cotta Liner

☐ Animal Guard ☐ Spark Protector

☐ Metal Liner ☐ Other, please specify: ____________

Surrounding habitat (please check one):

☑ Residential / rural ☐ Industrial

☐ Commercial ☐ Natural

☐ Other, please specify: ____________

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

☐ Round → Diameter (cm): ______

☐ Square → Width (cm): ______

☑ Rectangular → Width (cm): 150 Length (cm): 30

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Page 2

Chimney height above roofline (m): 1	Number of Flues: 4	Colour of Chimney: Beige

Total Chimney Height (m) = 1 (Number of stories in building) × 3 m (approx height of one story) + 1 (Height above roofline (m)) = 4 m

If swifts are present, are they: ☐ Nesting ☐ Roosting ☐ Unknown

Additional Comments:

None

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Chimney Assessment Form

Page 1

Observer Details

Name	Phone Number	Email Address	
	( )		
Street Address	**City**	**Prov.**	**Postal Code**

Building Details

Street Address	City	Prov.	Postal Code
252 Mc Neilly			
Owner Name	**Phone Number**	**Email Address**	
	( )		

Type of building (please check one):

- [x] House
- [ ] Church
- [ ] Store
- [ ] Lowrise Apartment
- [ ] School
- [ ] Factory
- [ ] Highrise Apartment
- [ ] Hospital
- [ ] Other, please specify: ______

Chimney Details

Site Name: 9

Chimney Code: SC-M-9

GPS coordinates (DD.dddd):

Lat. 4785167 ° N

Long. 607939 ° W

NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

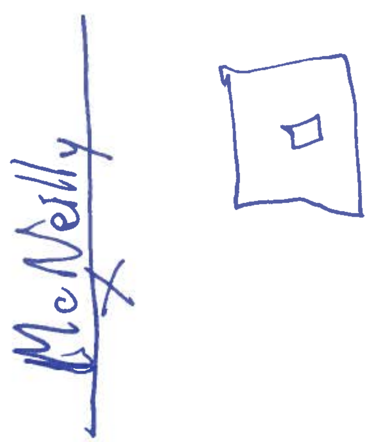
Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

Chimney material (please check one):

- [ ] Brick
- [ ] Stucco
- [x] Concrete
- [ ] Stone
- [ ] Other, please specify: ______

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- [ ] Cap
- [x] Terra Cotta Liner
- [x] Animal Guard
- [ ] Spark Protector
- [ ] Metal Liner
- [ ] Other, please specify: ______

Surrounding habitat (please check one):

- [x] Residential (rural)
- [ ] Industrial
- [ ] Commercial
- [ ] Natural
- [ ] Other, please specify: ______

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- [ ] Round → Diameter (cm): ______
- [x] Square → Width (cm): ______
- [ ] Rectangular → Width (cm): 40 Length (cm): 40

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements: **20cm x 9cm x 6cm (L x W x H)**

Chimney Assessment Form

Chimney height above roofline (m): 2	Number of Flues: 1	Colour of Chimney: Grey

Total Chimney Height (m) = 1 (Number of stories in building) × 3 m (approx height of one story) + 2 (Height above roofline (m)) = 5 m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None

Created by:

BIRD STUDIES CANADA / ÉTUDES D'OISEAUX CANADA
understand appreciate conserve / comprendre apprécier conserver

Canadian co-partner of / un partenaire canadien de
BirdLife INTERNATIONAL

In partnership with:

Ontario

The Ontario Trillium Foundation / La Fondation Trillium de l'Ontario

Environment Canada / Environnement Canada
Ontario Region / Région de l'Ontario

McIlwraith Field Naturalists

Chimney Assessment Form

Page 1

Observer Details

Name	Phone Number ( )	Email Address	
Street Address	City	Prov.	Postal Code

Building Details

Street Address 276 McNeilly	City	Prov.	Postal Code
Owner Name	Phone Number ( )	Email Address	

Type of building (please check one):

- ☐ House
- ☐ Church
- ☐ Store
- ☐ Lowrise Apartment
- ☐ School
- ☐ Factory
- ☐ Highrise Apartment
- ☐ Hospital
- ☐ Other, please specify: ______________

Chimney Details

Site Name: 10

Chimney Code: SC-M-10

GPS coordinates (DD.dddd):
Lat. 4785345 ° N
Long. 607989 ° W

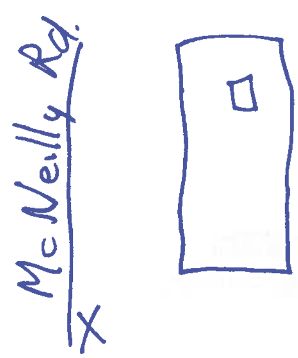
NOTE: Chimney codes are created using the following scheme:

City Initials - Site Initials - Chimney Number

Eg.	City Name	Site Name	No. of Chimneys	Code
	Port Rowan	Public Library	1	PR-PL-1
	London	141 Wortley	2	LO-141-1
				LO-141-2

Number of years active (if known):

If possible, please draw a picture of the chimney location on the building, including the position where the coordinates were taken.



Chimney material (please check one):

- ☑ Brick
- ☐ Stucco
- ☐ Concrete
- ☐ Stone
- ☐ Other, please specify: ______________

If the chimney is modified (cap, liner, etc.), please check the appropriate modification:

- ☐ Cap
- ☑ Terra Cotta Liner
- ☑ Animal Guard
- ☐ Spark Protector
- ☐ Metal Liner
- ☐ Other, please specify: ______________

Surrounding habitat (please check one):

- ☑ Residential / rural
- ☐ Industrial
- ☐ Commercial
- ☐ Natural
- ☐ Other, please specify: ______________

Please select the **SHAPE** of your chimney and provide the appropriate estimated measurements:

- ☐ Round → Diameter (cm): ______
- ☑ Square → Width (cm): ______
- ☐ Rectangular → Width (cm): 40 Length (cm): 40

NOTE: Measurements can sometimes be estimated by counting bricks. Standard bricks have the following measurements:
20cm x 9cm x 6cm (L x W x H)

Chimney Assessment Form

Chimney height above roofline (m): 0.5	Number of Flues: 1	Colour of Chimney: Brown

Total Chimney Height (m) = 1 (Number of stories in building) × 3 m (approx height of one story) + 0.5 (Height above roofline (m)) = 3.5 m

If swifts are present, are they: ☐ **Nesting** ☐ **Roosting** ☐ **Unknown**

Additional Comments:

None

Created by:

Canadian co-partner of
un partenaire canadien de

In partnership with:

CHSW 160950443 JULY 4, 2012 HAMILTON-SCUBE

TIME:	STATION:	UTM:	# OF SUITABLE CHIMNEYS	# CHSW OBSERVED:
10:35	1	0609819 4785639	Ø	Ø
10:52	2	0609305 4785335	Ø	Ø
11:08	3	0609056 4785414	Ø	Ø
11:26	4	0608835 4785328	Ø	Ø
11:43	5	0608591 4784942	Ø	Ø BARS (3)
11:58	6	0608322 4784897	Ø	Ø
12:15	7	0608135 4784860	Ø	Ø
12:30	8	0607825 4784837	Ø	Ø
12:45	9	0607909 4785077	Ø	Ø
13:00	10	0607970 4785277	Ø	Ø
13:15	11	0608046 4785539	Ø	Ø
13:30	12	0608636 4785483	Ø	Ø
13:47	13	0609256 4784859	Ø	Ø

CHSW 60950443 Hamilton-SCUBE
June 26 2012

Time	station	UTM	location	# suitable chimneys	# CHSW obs.
09:30	1 Winona Rd - Winona Equip	0609819 4785639		none - all = narrow, alum or capped	Ø
09:45	2 1216 Barton	0609305 / 4785335		none - new housing to north - no chimney to W - older houses - sml / capped	Ø
10:00	3 1178 Barton	0609056 / 4785414		none	Ø
10:15	4 school	0608835 4785328		houses across st none	Ø
(no other stns on Lewis - no other pot. structures - all visible from #4 stn).				#265 → lrg wide chimney - not visible if access	Ø
10:30	5 1123 Hwy 8	608591 / 4784942		#1123 has long narrow brick chimney @ 3 stacks (not apparent if access)	Ø
10:45	6 memphis fire BBQ	608322 / 4784897		none - capped / sml	Ø
11:00	7 Thai cuisine 1065 Hwy 8	0608135 / 4784860		? older house - 1059 Hwy 8 narrow long brick - no caps top not visible	Ø
11:15	8 201 mcneilly Rd	0607825 / 4784837		none Ø	Ø
11:30	9 235 mcneily Rd	0607909 4785077		Ø	Ø
11:45	10 263 mcneily Rd	0607970 4785277		none	Ø
12:00	11 297 mcneily (mcneily / Barton)	0608046 / 4785539		none	Ø

CHSW June 26 2012 Scube

Time	Station	UTM	# suitable chimneys	# CHSW observed
12^{15}	12 (1095 Boston)	608636 4785483	None	Ø
12^{30}	13 (1226 Hwy 8)	609256 4784859	None	Ø

APPENDIX D: Correspondence