AECOM

York & Valley Road (HD016) Booster Water Pumping Station – Municipal Class Environmental Assessment Addendum

Report

City of Hamilton

60656498

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Revision History

Revision Number	Date	Revised By	Revision Description
0	May 25, 2022	-	Draft Submitted to City of Hamilton
1	September 12, 2022	SZ	Final Submitted to City of Hamilton

Executive Summary

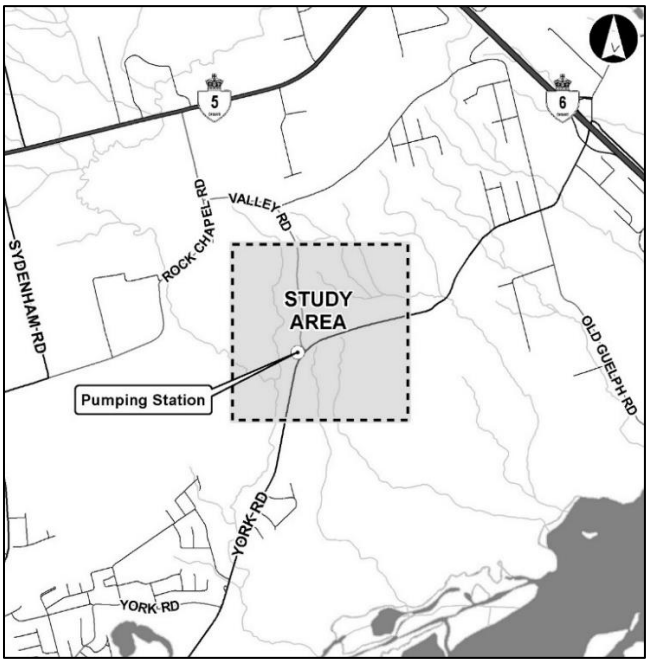
Introduction

The City of Hamilton (the City), through its consultant AECOM Canada Ltd. (AECOM) has completed a Municipal Class Environmental Assessment Addendum for the York & Valley Road (HD016) Booster Water Pumping Station for which approval was previously obtained through the City's 2006 Water and Wastewater Master Plan Municipal Class Environmental Assessment study.

Due to a lapse of time since filling the 2006 Water and Wastewater Master Plan study for public review, a Municipal Class Environmental Assessment Addendum has been completed to review the planning process followed, to ensure that the project and the mitigating measures are still valid given the current planning context.

The scope of the addendum only applies to what has changed from the original 2006 Municipal Class Environmental Assessment Master Plan which recommended pumping station capacity expansion within the existing pumping station's property footprint in association with a new watermain connection between the current pumping station and community of Waterdown. The Municipal Class Environmental Assessment Addendum focuses on the pumping station expansion component (not the watermain). The HD016 pumping station, as shown in **Figure ES-1**, is located adjacent to the Borer's Falls "Off Leash" Park at the intersection of York Road and Valley Road northeast of Dundas.

Figure ES-1: Study Area



Phase 1: Problem or Opportunity Statement

Phase 1 of the Municipal Class Environmental Assessment planning process requires the City to first document factors leading to the conclusion that the improvement is needed, and to develop a clear statement of the identified problems and opportunities to be investigated. The Problem or Opportunity for this study is presented below.

Problem

- Significant near and long-term growth is expected within the Waterdown settlement area. The City's 2006 Water and Wastewater Master Plan ("the Master Plan") followed the Municipal Class Environmental Assessment Master Plan Approach # 2 planning process and confirmed the need to increase the pumping capacity of the "York and Valley Road" Pumping Station (HD016) along with upgraded standby power to meet planned growth to 2031 and address security of supply.
- The proposed pumping station capacity increase was confirmed as a Schedule B Municipal Class Environmental Assessment project and was approved through the 2006 Water Master Plan. The 2006 Municipal Class Environmental Assessment recommended a firm capacity of 20.4 ML/d in 2031, however updated planning values estimate a required 28 ML/d firm capacity.
- The York and Valley Roads (HD016) Pumping Station is located adjacent to the Borer's Falls Off Leash Dog Park and requires careful consideration on how the proposed upgrades are designed and constructed. This considers that the "small dog" leash free area is part of the pumping station property, which is required to construct the proposed upgrades.
- Recognizing the Municipal Class Environmental Assessment manual 10 Year Lapse of Time and that construction has not started within 10 years of the Master Plan filing in 2006 the City is required to complete a Municipal Class Environmental Assessment Addendum that will include a review of the planning and design process of the pumping station upgrade project as presented in the 2006 Master Plan in light of what has changed since 2006.
- There are also operational concerns as the York and Valley Roads (HD016) Pumping Station is a critical to the Waterdown community and various pressure zones in the area. The City has also carried out condition assessments that have identified the need to update equipment assets within the existing facility.

- Proposed design approach will maintain operation through construction and will allow immediate upgrade of the system to maintain reliability of service and improve future accommodation of maintenance activities.

Opportunity

- Complete the Municipal Class Environmental Assessment Addendum planning process in consultation with key stakeholders, review agencies, Indigenous Communities and the public that will confirm the preferred solution and design concept for the proposed pumping station upgrades to meet the anticipated 2027 in-service date.
- Coordinate the HD016 Pumping Station planning and design process with the current City of Hamilton Waterdown Feedermain Twinning Municipal Class Environmental Assessment study (upgraded HD016 Pumping Station will include a chamber for new feedermain).

Phase 2: Alternative Solutions

The Water Servicing Alternatives from the original 2006 Master Plan for the Waterdown Servicing Area concluded W-WS-3: Upgrade pumping capacity at the existing HD016 pumping station and construct elevated storage as the preferred solution.

This addendum reviewed and evaluated the following new alternatives associated with W-WS-3:

- W-WS-3a: Upgrade pumping capacity with expansion of the building within existing City property limits (right-of-way)
- W-WS-3b: Upgrade pumping capacity with expansion on property to the northeast of the existing HD016 pumping station
- W-WS-3c: Upgrade pumping capacity with expansion on property to the east of the existing pumping station

Upgrade pumping capacity by expanding the HD016 pumping station within City property (W-WS-3a) was selected as the preliminary preferred solution based on the following key factors:

- Minimal vegetation and tree removal is anticipated
- No potential Species at Risk habitat within the limits of this siting option based on the desktop findings
- The upgrades to the existing HD016 Pumping Station site will not result in adverse impacts to built heritage resources or cultural heritage landscapes

- Lowest capital cost: Does not require the purchase of additional property or re-routing of critical watermains
- Schedule: provides the fastest in-service date for the pumping station and replacement of critical assets
- Lowest operation and maintenance cost by remaining at the existing site as one single station

A conceptual site plan layout of the preferred solution is shown in **Figure ES-2**. The preliminary preferred solution involves:

- Upgrades to the existing Pumping Station facility, including new valve chambers, primary electrical power and standby power generator
- Addition of a new building extension to accommodate the installation of new pumps, valves, and ancillary equipment for increased capacity
- Increasing the firm capacity from 18 ML/d to 28 ML/d for future demand
- Providing redundancy in pumping systems and connections for the proposed future feedermain
- Extension of the station yard to the south to accommodate additional equipment, valve chambers, and an improved access to the station

The preliminary estimated construction cost is $12M with an anticipated in-service date of 2027.

Figure ES-2: Preferred Alternative – Conceptual Site Plan Layout

3.2.1.2 Watercourses and Waterbodies

The Study Area is situated within the boundaries of the Borer's Creek subwatershed, under the jurisdiction of the Hamilton Conservation Authority, and the North Cootes Paradise watershed, under the jurisdiction of Conservation Halton.

The Study Area within the Borer's Creek subwatershed encompasses a portion of Hopkin's Creek, a tributary of Borer's Creek, as well as a portion of the main stem of Borer's Creek, both of which flow south and ultimately drain to Cootes Paradise (Hamilton Conservation Authority, 2009). In the Study Area, both watercourses occur within the Borer's Falls Conservation Area; however, neither watercourse intersects with any of the proposed alternative locations assessed as part of this study. At the time of publication, background information related to aquatic features within the Borer's Creek subwatershed has not been received from applicable agencies; however, according to Wood (2019), both Hopkin's Creek and Borer's Creek are considered fish habitat.

The Study Area within the North Cootes Paradise watershed includes tributaries of Hickory Brook as well as two unnamed watercourses. All watercourses located within the Study Area ultimately drain to Cootes Paradise. Within the Study Area, only one of the unnamed watercourses, located immediately east of the York Road and Valley Road intersection, is located within the boundaries of the proposed alternative locations assessed as part of this study. All other mapped watercourses within the Study Area are located outside of the proposed footprint for each assessed alternative. According to Conservation Halton's online watershed mapping application, the unnamed watercourse which overlaps with the proposed alternatives W-WS-3b and W-WS-3c extends north of York Road, parallel to Valley Road, but does not connect upstream to another aquatic feature or watercourse beyond the proposed footprint of alternative W-WS-3b. At the time of publication, background information related to aquatic features within the North Cootes Paradise watershed has not been received from applicable agencies. Watercourses located in the Study Area are shown in **Figure 3-1**.

3.2.1.3 Fish and Fish Habitat

At the time of publication, background information related to fish community records for the Study Area have not been received from applicable agencies. Previous studies completed in the general vicinity of the Study Area indicate that 19 fish species have been recorded in watercourses generally associated with the Study Area (**Table 3-2**). Previously identified fish species generally consisted of small-bodied forage fish; however, records for some large-bodied game fish species such as Brown Trout (*Salmo trutta*), Largemouth Bass (*Micropterus salmoides*), Rainbow Trout (*Oncorhynchus myskiss*), and Smallmouth Bass (*Micropterus dolomieu*) were also identified at certain conservation authority sampling stations (Matrix Solutions Inc., 2022; Wood, 2019).

A review of Fisheries and Oceans Canada aquatic Species at Risk mapping, in addition to data presented in previously completed studies also identified six aquatic Species at Risk or Species of Conservation Concern including three fish species and three mussel species (Matrix Solutions Inc., 2022; Wood, 2019). These records are discussed further in **Section 3.2.1.5**.

Table 3-2: Fish Species Previously Identified within the Study Area [Note 1]

Common Name	Scientific Name	Hamilton Conservation Authority Jurisdiction	Conservation Halton Jurisdiction
Blacknose Dace	*Rhinichthys atratulus*	X	X
Brook Stickleback	*Culaea inconstans*	X	X
Brown Bullhead	*Ictalurus nebulosus*		X
Brown Trout	*Salmo Trutta*		X
Central Mudminnow	*Umbria limi*	X	
Common Carp	*Cyprinus carpio*		X
Common Shiner	*Luxilus cornutus*		X
Creek Chub	*Semotilus atromaculatus*	X	X
Fantail Darter	*Etheostoma flabellare*	X	
Fathead Minnow	*Pimephales promelas*	X	X
Finescale Dace	*Phoxinus neogaeus*		X
Johnny Darter	*Etheostoma nigrum*	X	
Largemouth Bass	*Micropterus salmoides*	X	X
Longnose Dace	*Rhinichthys cataractae*	X	
Pumpkinseed	*Lepomis gibbosus*		X
Rainbow Darter	*Etheostoma caeruleum*	X	
Rainbow Trout	*Oncorhynchus mykiss*	X	X
Smallmouth Bass	*Micropterus dolomieu*	X	
White Sucker	*Catostomus commersonii*	X	X

Note: 1. Adapted from Wood, 2019

3.2.1.4 Vegetation Communities and Plants

The Study Area is in the Haldimand Clay Plain physiographic region and the Lake Erie Lowland Ecoregion (Ecoregion 7E). The Ecoregion is part of the Mixedwood Plains Ecozone, which extends from Windsor to Toronto and includes the Niagara Region. The Lake Erie Lowland Ecoregion is underlain by carbonate-rich, Paleozoic bedrock, and is dominated by a variety of deep glacial deposits (Marshall and Schut, 1999). Clayey gleysolic and grey brown luvisolic soils are dominant, and soils of the Haldimand Clay Plain physiographic region are characterized by heavy texture and poor drainage (Marshall and Schut, 1999; Chapman and Putnam, 1984).

Forests in this Ecoregion are sparse due to agricultural and urban development and typically include widespread sugar maple (*Acer saccharum*), white ash (*Fraxinus americana*), eastern hemlock (*Tsuga canadensis*) or eastern white pine (*Pinus strobus*) with species characteristic of the Carolinian zone including tulip tree (*Liriodendron tulipifera*), American sycamore (*Platanus occidentalis*), Kentucky coffee-tree (*Gymnocladus dioicus*), various oaks (*Quercus* spp.) and hickories (*Carya* spp.) and common hackberry (*Celtis occidentalis*) (Crins *et al.*, 2009).

The surficial geology throughout much of the Ecoregion is underlain by limestone bedrock overlain by a calcareous mineral substrate. The ecoregion also contains glacial deposits including moraine deposits, drumlins and lacustrine deposits. The predominant substrates in the ecoregion include Gray Brown Luvisols (60%) and Gleysols (37%) (Crins *et al.*, 2009).

The *Baseline Desktop Natural Environment Review (Phase 1) Waterdown Trunk Watermain Twinning City of Hamilton, Ontario* (Wood, 2019) and mapping data from Halton Region Conservation Authority documented the majority of vegetation communities within the Study Area. Vegetation communities are summarized in **Table 3-3** and have been incorporated with results from Ecological Land Classification field investigations by AECOM which are outlined in **Section 3.2.2.2.** A number of Species of Conservation Concern and Species at Risk plant records in the vicinity of each alternative were identified through a review of the background information sources. These species are further discussed in **Sections 3.2.3** and **3.2.4**, respectively.

Table 3-3: Ecological Land Classification Communities within Study Area

Ecological Land Classification Code	Ecological Land Classification Name
CUT1	Mineral Cultural Thicket Ecosite
CUW1	Mineral Cultural Woodland Ecosite
CUM1-1	Dry- Moist Old Field Meadow Type
CUS	Cultural Savannah
MAM	Meadow Marsh
FOD2	Dry - Fresh Oak - Hardwood Non-Calcareous Shallow
MAM2-10	Mixed Forb Mineral Meadow Marsh Type
FOD7-5	Fresh – Moist Black Walnut Lowland Deciduous Forest Type
CUS1-1	Hawthorn Deciduous Savanna Type
FOD5-3	Dry – Fresh Sugar Maple – Oak Deciduous Forest Type
TAT1-4	Fresh – Moist Sugar Maple Calcareous Treed Talus Type
CUT1-1	Sumac Deciduous Shrub Thicket Type

Ecological Land Classification Code	Ecological Land Classification Name
FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type
MEFM1-1	Goldenrod Forb Meadow Type
CLT1-1	White Cedar Treed Calcareous Cliff Type
TPW1-1	Dry Black Oak – White Oak Tallgrass Woodland Type
FODM4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type
CLTC1-2	Sugar Maple – Ironwood – White Ash Treed Calcareous Cliff Type
MAS2-1	Cattail Mineral Shallow Marsh Type
CUT1-4	Gray Dogwood Deciduous Shrub Thicket Type
TAT1-4	Fresh – Moist Sugar Maple Calcareous Treed Talus Type

Of the vegetation communities within the larger Study Area, four were identified to be rare in Ontario as they are designated as S1-S3. These included: White Cedar Treed Carbonate Cliff Type (CLT1-1), Sugar Maple- Ironwood- White Ash Treed Calcareous Cliff Type (CLTC1-2), Fresh-Moist Black Maple Lowland Deciduous Forest Type (FOD7-5) and Fresh-Moist Sugar Maple Calcareous Treed Talus Type (TAT1-4). These communities will not be impacted as none of the alternatives fall within these rare vegetation communities.

3.2.1.5 Species at Risk and Species of Conservation Concern

According to available species records, 33 Species at Risk and 37 Species of Conservation Concern were identified as potentially occurring within the vicinity of the Study Area (**Tables 3-4 and 3-5**). A screening to determine habitat suitability within the alternatives identified the W-WS-3a alternative did not contain suitable habitat for terrestrial Species at Risk or Species of Conservation Concern. Alternatives W-WS-3b and W-WS-3c were found to contain potential habitat for terrestrial Species at Risk as well as Species of Conservation Concern, these are discussed further in **Sections 3.2.3 and 3.2.4** respectively. Of the six aquatic Species at Risk or Species of Conservation Concern identified during background review (i.e., three fish species and three mussel species), only records for Lilliput (*Toxolasma parvum)* were identified in the vicinity of the York Road crossing of the unnamed watercourse associated with alternatives W-WS-3b and W-WS-3c. All other aquatic Species at Risk or Species of Conservation Concern records were identified as occurring within the larger Study Area, or are associated with Cootes Paradise Environmentally Significant Area, approximately 1.9 kilometre downstream of the Study Area.

Table 3-4: SAR Records Within the Vicinity of the Study Area

Taxon	Common Name	Scientific Name	S-Rank Note 1	Endangered Species Act Status Note 2	Committee on the Status of Endangered Wildlife in Canada Status Note 2	Source Note 3	Latest Year Note 4
Amphibian	Jefferson Salamander	*Ambystoma jeffersonianum*	S2	Endangered	Endangered	Ontario Reptile and Amphibian Atlas	2005
Bird	Bank Swallow	*Riparia*	S4B	Threatened	Threatened	Ontario Breeding Bird Atlas	N/A
Bird	Barn Swallow	*Hirundo rustica*	S5B	Threatened	Threatened	eBird, Natural Heritage Information Centre, Ontario Breeding Bird Atlas	2021
Bird	Bobolink	*Dolichonyx oryzivorus*	S4B	Threatened	Threatened	Natural Heritage Information Centre	N/A
Bird	Cerulean Warbler	*Setophaga cerulea*	S3B	Threatened	Endangered	Natural Heritage Information Centre	N/A
Bird	Chimney Swift	*Chaetura pelagica*	S4B,S4N	Threatened	Threatened	Ontario Breeding Bird Atlas	N/A
Bird	Eastern Meadowlark	*Sturnella magna*	S4B	Threatened	Threatened	Natural Heritage Information Centre, Ontario Breeding Bird Atlas	N/A
Bird	Golden Eagle	*Aquila chrysaetos*	S2B	Endangered	NAR	Matrix Solutions Inc. (2022)	N/A
Bird	Henslow's Sparrow	*Ammodramus henslowii*	SHB	Endangered	Endangered	Matrix Solutions Inc. (2022)	N/A
Bird	Least Bittern	*Ixobrychus exilis*	S4B	Threatened	Threatened	Natural Heritage Information Centre, Ontario Breeding Bird Atlas	N/A
Bird	Loggerhead Shrike	*Lanius ludovicianus*	S2B	Endangered	Endangered	Natural Heritage Information Centre	N/A
Bird	Louisiana Waterthrush	*Parkesia motacilla*	S3B	Threatened	Threatened	Natural Heritage Information Centre, Ontario Breeding Bird Atlas	N/A
Bird	Northern Bobwhite	*Colinus virginianus*	S1	Endangered	Endangered	Natural Heritage Information Centre	N/A
Bird	Piping Plover	*Charadrius melodus*	S1B	Endangered	Endangered	Matrix Solutions Inc. (2022)	N/A
Bird	Prothonotary Warbler	*Protonotaria citrea*	S1B	Endangered	Endangered	Ontario Breeding Bird Atlas	N/A
Bird	Red-headed Woodpecker	*Melanerpes erythrocephalus*	S4B	Endangered	Endangered	eBird, Ontario Breeding Bird Atlas	2021
Bird	Yellow-breasted Chat	*Icteria virens*	S1B	Endangered	Endangered	Natural Heritage Information Centre	N/A
Fish	American Eel	*Anguilla rostrata*	S1S2	Endangered	Threatened	Natural Heritage Information Centre (17NH8793), Matrix Solutions Inc. (2022)	N/A
Insects	Mottled Duskywing	*Erynnis martialis*	S2	Endangered	Endangered	Matrix Solutions Inc. (2022)	N/A
Mammal	Eastern small-footed myotis	*Myotis leibii*	S2S3	Endangered	0	Bat conservation International	N/A
Mammal	Little Brown Myotis	*Myotis lucifugus*	S3	Endangered	Endangered	Bat conservation International	N/A
Mammal	Northern Myotis	*Myotis septentrionalis*	S3	Endangered	Endangered	Bat conservation International	N/A
Mammal	Tricolored bat	*Perimyotis subflavus*	S3?	Endangered	Endangered	Bat conservation International	N/A
Mollusc	Eastern Pondmussel	*Ligumia nasuta*	S1	Endangered	Special Concern	Fisheries and Oceans Canada[5], Natural Heritage Information Centre (17NH8793), Wood (2020), Matrix Solutions Inc. (2022)	N/A
Mollusc	Lilliput	*Toxolasma parvum*	S1	Threatened	Endangered	Fisheries and Oceans Canada, Natural Heritage Information Centre (17NH8793), Wood (2020), Matrix Solutions Inc. (2022)	N/A
Plant	American Columbo	*Frasera caroliniensis*	S2	Endangered	Endangered	Natural Heritage Information Centre	N/A
Plant	Butternut	*Juglans cinerea*	S2?	Endangered	Endangered	Natural Heritage Information Centre, iNaturalist	2016
Plant	Eastern Flowering Dogwood	*Cornus florida*	S2?	Endangered	Endangered	Matrix Solutions Inc. (2022)	N/A
Plant	Hoary Mountain-mint	*Pycnanthemum incanum*	S1	Endangered	Endangered	Matrix Solutions Inc. (2022)	N/A
Plant	Red Mulberry	*Morus rubra*	S2	Endangered	Endangered	Natural Heritage Information Centre	N/A
Plant	Spotted Wintergreen	*Chimaphila maculata*	S2	Threatened	Threatened	Natural Heritage Information Centre	N/A

Taxon	Common Name	Scientific Name	S-Rank Note 1	Endangered Species Act Status Note 2	Committee on the Status of Endangered Wildlife in Canada Status Note 2	Source Note 3	Latest Year Note 4
Plant	White Wood Aster	*Eurybia divaricata*	S3	Threatened	Threatened	Natural Heritage Information Centre	N/A
Reptile	Blanding's Turtle	*Emydoidea blandingii*	S3	Threatened	Endangered	Ontario Reptile and Amphibian Atlas	2012

Note: 1. 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 nation or state/province.
SNR – Unranked—Province conservation status not yet assessed.
SU – Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA – Not Applicable —A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S# - Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
S#? – Inexact Rank.
S? – Not Ranked/ under review.
Breeding Status Qualifiers:
B – Breeding—Conservation status refers to the breeding population of the species in the province.
N – Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.

Note: 2. Special Concern: A species that may become Threatened or Endangered due to a combination of biological characteristics and identified threats.
Threatened: Any native species that, on the basis of the best available scientific evidence, is at risk of becoming Endangered throughout all or a large portion of its Ontario range if the limiting factors are not reversed.
Endangered: A species facing imminent extinction or extirpation in Ontario.

Note: 3. Natural Heritage Information Centre: https://geohub.lio.gov.on.ca/datasets/make-a-map-natural-heritage-areas
iNaturalist: https://www.inaturalist.org/observations
Ontario Reptile and Amphibian Atlas: https://ontarionature.org/programs/community-science/reptile-amphibian-atlas/
Fisheries and Oceans Canada: https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html
Ontario Butterfly Atlas: https://www.ontarioinsects.org/atlas/
Land Information Ontario: https://geohub.lio.gov.on.ca/
Bat conservation International: https://www.batcon.org/about-bats/bat-profiles/
eBird: https://ebird.org/explore

Note: 4. Records shown are within the past 20 years (2001 – 2021), or there is no associated date. Older records are considered historical and have been excluded.

Note: 5. Records identified in Fisheries and Oceans Canada Aquatic SAR Mapping outside of a 1 kilometre buffer encompassing the Study Area.

Table 3-5: Species of Conservation Concern Records Within the Vicinity of the Study Area

Taxon	Common Name	Scientific Name	S-Rank[1]	Endangered Species Act Status[2]	Committee on the Status of Endangered Wildlife in Canada Status[2]	Source[3]	Latest Year[4]
Amphibian	Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield population	*Pseudacris maculata pop. 1*	S4	NAR	Threatened	Matrix Solutions Inc. (2022)	2005
Bird	Bald Eagle	*Haliaeetus leucocephalus*	S2N,S4B	Special Concern	NAR	eBird, Natural Heritage Information Centre	2021
Bird	Black Tern	*Chlidonias niger*	S3B	Special Concern	NAR	Matrix Solutions Inc. (2022)	N/A
Bird	Canada Warbler	*Cardellina canadensis*	S4B	Special Concern	Threatened	Matrix Solutions Inc. (2022)	N/A
Bird	Common Nighthawk	*Chordeiles minor*	S4B	Special Concern	Special Concern	Matrix Solutions Inc. (2022)	N/A
Bird	Eastern Wood-Pewee	*Contopus virens*	S4B	Special Concern	Special Concern	eBird, Natural Heritage Information Centre, Ontario Breeding Bird Atlas	2021
Bird	Evening Grosbeak	*Coccothraustes vespertinus*	S4B	0	Special Concern	Matrix Solutions Inc. (2022)	2022
Bird	Golden-winged Warbler	*Vermivora chrysoptera*	S4B	Special Concern	Threatened	Ontario Breeding Bird Atlas	N/A
Bird	Grasshopper Sparrow	*Ammodramus savannarum*	S4B	Special Concern	Special Concern	Ontario Breeding Bird Atlas	N/A
Bird	Olive-sided Flycatcher	*Contopus cooperi*	S4B	Special Concern	Special Concern	Matrix Solutions Inc. (2022)	N/A
Bird	Peregrine Falcon	*Falco peregrinus*	S3B	Special Concern	NAR	Matrix Solutions Inc. (2022)	N/A
Bird	Prairie Warbler	*Setophaga discolor*	S3B	NAR	NAR	eBird	2021
Bird	Purple Martin	*Progne subis*	S3S4B	0	0	Ontario Breeding Bird Atlas	N/A
Bird	Rusty Blackbird	*Euphagus carolinus*	S4B	Special Concern	Special Concern	Matrix Solutions Inc. (2022)	N/A
Bird	Short-eared Owl	*Asio flammeus*	S2N, S4B	Special Concern	Special Concern	Matrix Solutions Inc. (2022)	N/A
Bird	Wood Thrush	*Hylocichla mustelina*	S4B	Special Concern	Threatened	eBird, Natural Heritage Information Centre, Ontario Breeding Bird Atlas	2018
Fish	Northern Brook Lamprey	*Ichthyomyzon fossor*	S3	Special Concern	Special Concern	Fisheries and Oceans Canada, Wood (2020), Matrix Solutions Inc. (2022)	N/A
Fish	Northern Sunfish (Great Lakes - Upper St. Lawrence populations)	*Lepomis peltastes pop. 2*	S3	Special Concern	Special Concern	Fisheries and Oceans Canada[5], Matrix Solutions Inc. (2022)	N/A
Insects	Black Dash	*Euphyes conspicua*	S3	0	0	OBA, iNaturalist	2006
Insects	Monarch	*Danaus plexippus*	S2N, S4B	Special Concern	Endangered	OBA, iNaturalist	2021
Insects	Unicorn Clubtail	*Arigomphus villosipes*	S3	0	0	Natural Heritage Information Centre	N/A
Lichen	A Lichen	*Caloplaca cirrochroa*	S1S2	0	0	Natural Heritage Information Centre	N/A
Mollusc	Mapleleaf mussel	*Quadrula*	S2	Special Concern	Special Concern	Fisheries and Oceans Canada[5], Wood (2020), Matrix Solutions Inc. (2022)	N/A
Plant	Eastern Green-violet	*Hybanthus concolor*	S2	0	0	Natural Heritage Information Centre	N/A
Plant	Eastern Few-Fruited Sedge	*Carex oligocarpa*	S3	0	0	Natural Heritage Information Centre	N/A
Plant	Honey locust	*Gleditsia triacanthos*	S2?	0	0	Natural Heritage Information Centre	N/A
Plant	Meadow Evening-primrose	*Oenothera pilosella*	S2	0	0	Natural Heritage Information Centre	N/A
Plant	Perfoliate Bellwort	*Uvularia perfoliata*	S1S2	0	0	Natural Heritage Information Centre	N/A
Plant	Pignut Hickory	*Carya glabra*	S3	0	0	Natural Heritage Information Centre	N/A

Taxon	Common Name	Scientific Name	S-Rank[1]	Endangered Species Act Status[2]	Committee on the Status of Endangered Wildlife in Canada Status[2]	Source[3]	Latest Year[4]
Plant	Southern Wildrice	*Zizania aquatica var. aquatica*	S3	0	0	Natural Heritage Information Centre	N/A
Plant	Tall Boneset	*Eupatorium altissimum*	S1	0	0	Natural Heritage Information Centre, iNaturalist	2021
Plant	Winged Loosestrife	*Lythrum alatum*	S3	0	0	Natural Heritage Information Centre	N/A
Reptile	Eastern Ribbonsnake	*Thamnophis sauritus*	S4	Special Concern	Special Concern	Matrix Solutions Inc. (2022)	2000
Reptile	Eastern Musk Turtle	*Sternotherus odoratus*	S3	Special Concern	Special Concern	Ontario Reptile and Amphibian Atlas	2001
Reptile	Northern Map Turtle	*Graptemys geographica*	S3	Special Concern	Special Concern	Ontario Reptile and Amphibian Atlas	2019
Reptile	Snapping Turtle	*Chelydra serpentina*	S4	Special Concern	Special Concern	Ontario Reptile and Amphibian Atlas, Natural Heritage Information Centre	2018

Notes: 1,2,3,4,5 Refer to definitions under Table 3-4.

3.2.2 Field Investigations

Aquatic and terrestrial field investigations were completed on April 6, 2022 within 120 metres of the W-WS-3a, W-WS-3b, and W-WS-3c alternatives where permission to enter was available. The following aquatic and terrestrial investigations were undertaken:

- Fish Habitat Assessment
- Ecological Land Classification (Ecological Land Classification)
- Significant Wildlife Habitat Candidate and Species at Risk Habitat Screenings
- Incidental Wildlife Observations

The following sections summarizes the results of these investigations. Refer to **Appendix B** for the complete methods and results for the aquatic and terrestrial investigations.

3.2.2.1 Aquatic Habitat Assessment

On April 6, 2022, AECOM biologists conducted a fish habitat assessment to document the existing conditions of the unnamed watercourse crossing at York Road, associated with alternatives W-WS-3b and W-WS-3c (**Figure 3-1**). Although no aquatic resources were identified within the W-WS-3a alternative, stormwater drainage features within the boundary of the site were also documented.

Descriptions of the existing conditions documented during the April 6, 2022 field investigations at each of the three proposed alternative sites are presented below.

W-WS-3a

There were no aquatic features observed within the footprint of the existing HD016 pumping station, which consisted predominately of manicured lawn, a paved parking lot, and the pumping station building.

A shallow, poorly defined drainage swale was observed originating along the south side of Valley Road, immediately north of the HD016 pumping station entrance. The drainage swale collects and conveys surface runoff south along Valley Road and outlets to a second drainage conveyance along the west side of York Road. A crushed corrugated steel pipe culvert was observed under the entrance of the HD016 pumping station, while a functional 400 millimetres corrugated steel pipe culvert conveys drainage from the north side of Valley Road, along the west side of York Road. The corrugated steel pipe culvert under Valley Road was noted to be perched by approximately 0.2 metres on the downstream end and scouring was observed on both the upstream and downstream ends. The drainage conveyance along York Road

continued south through a vegetated, poorly defined swale, which crossed the entrance to the off-leash dog park through another 400 millimetres corrugated steel pipe culvert with rip-rap armoured abutments before leaving the Study Area. While scour channels, suggesting potentially substantial periodic flow, were noted throughout the drainage conveyances surrounding the existing HD016 pumping station footprint, no connection to a fish-bearing watercourse was noted and no fish habitat was observed onsite.

W-WS-3b

Alternative W-WS-3b is located north of York Road and east of Valley Road, to the northeast of the existing HD016 pumping station. Habitat within W-WS-3b consisted of open field, with meadow type vegetation and undulating topography. Due to limited site access, assessment of aquatic habitat within the vicinity of the alternative was limited to the road Right-of-Ways for Valley Road and York Road, respectively.

Along the north side of W-WS-3b, the assessed area is dominated by a large hill vegetated with various species of grasses and other meadow-type vegetation, Low-lying areas along the base of the hill form a drainage catchment which collects and conveys surface flow (i.e., rain and snowmelt) south toward York Road. A defined channel or surface water conveyance was not observed from the Valley Road Right-of-Way.

Along the south side of W-WS-3b, near Valley Road, the York Road Right-of-Way consisted of a patch of manicured lawn, which borders the open field to the north. East of Valley Road, the manicured lawn along the southern boundary of W-WS-3b transitioned to a shallow, vegetated swale which conveys surface drainage east. The drainage swale gradually deepened and became more entrenched before draining to an unnamed watercourse on the east side of W-WS-3b. The unnamed watercourse entered the York Road Right-of-Way via a corrugated steel pipe culvert draining the upland areas associated with W-WS-3b before continuing south, under York Road, into W-WS-3c.

Although the portion of the unnamed watercourse which passes through the Right-of-Way to the north of York Road showed evidence of channel forming flow (i.e., defined bed with scouring, defined banks with minor erosion, substrate sorting), the presence of a defined channel upstream of the York Road Right-of-Way, within W-WS-3b could not be determined due to limited access. Based on the channel form and structure immediately upstream of York Road and considering the absence of any substantial mapped feature within or upstream of W-WS-3b, it is likely that this area consists of low-lying land which collects and conveys surface drainage through diffuse flow pathways that become concentrated at or near the culvert draining the parcel.

No fish habitat was observed within the visible areas of W-WS-3b; however, based on the confirmed connection through York Road, W-WS-3b likely contributes surface flow and nutrients to downstream habitat within W-WS-3c.

W-WS-3c

Alternative W-WS-3c is located south of York Road and east of the existing HD016 pumping station. This area contains a mapped, unnamed watercourse with a confirmed upstream connection under York Road to alternative W-WS-3b.

Upstream of York Road, the unnamed watercourse entered the Right-of-Way via a corrugated steel pipe culvert draining the upland area associated with W-WS-3b. The channel meandered through approximately 20 metres of forested area along the south boundary of W-WS-3b before entering a 600 millimetres corrugated steel pipe culvert crossing under York Road. At the time of assessment, the channel had a wetted width of 0.2 metres and a wetted depth of between 0.01 and 0.03 metres with run, riffle, and pool morphology observed. The channel was noted to be in a low-flow condition at the time of assessment; however, during higher flows, the channel has a bankfull width of 1.5 metres and a bankfull depth of 0.6 metres. Substate through the assessed reach was dominated by muck with sand sub-dominant, and some cobble and boulder noted immediately upstream of the culvert inlet. Substantial overhead cover was provided by numerous riparian trees and shrubs, which form a thick canopy when leafed. Minimal instream cover was provided by emergent (possibly terrestrial) grasses and organic debris was also noted. Both banks were short, but steeply sloped with scour and erosion noted throughout. A drainage swale outlets to the channel along the left upstream bank, immediately upstream of the culvert inlet. This drainage swale conveys surface flows to the unnamed watercourse from along the boundary between the York Road Right-of-Way and the southern edge of W-WS-3b.

Downstream of York Road, the unnamed watercourse transitioned to a shallow, relatively straight, and poorly defined channel from the culvert outlet to approximately 20 metres downstream of the crossing. Along the south side of York Road, the embankment over the culvert outlet has failed and sloughed into a portion of the downstream channel. The bank failure has dislodged a portion of the culvert and has created a 0.5 metres perch. Water conveyed under York Road exits the culvert into a small drop pool under the bank failure, then continues downstream through the dislodged section of pipe. Immediately downstream of the dislodged piped, the channel had a wetted width of 1.0 metres and a wetted depth of 0.02 to 0.04 metres with run and pool morphology observed. The channel was noted to be in a low-flow condition at the time of assessment; however, during higher flows, the channel has a bankfull width of 2.5 metres and a bankfull depth of 0.4 metres. Substrate through the assessed reach was dominated by silt with sand sub-dominate and some gravel present, likely washed into the channel from the bank failure upstream. Both banks immediately downstream of the crossing were short and poorly defined. Very little instream cover was noted; however, some wood debris was observed within and immediately over the channel. Substantial canopy cover was provided by riparian trees characteristic of the deciduous

forest through which the channel flows. A vegetated drainage swale along the south side of York Road also provides input to the channel along the right upstream bank.

Within the approximately 20 metres of assessed reach downstream of the York Road crossing, a substantial portion of the channel has likely been impacted by the altered flow pattern resulting from the bank failure upstream. At approximately 20 metres downstream of the crossing, the channel appeared to drop significantly in elevation, suggesting a steep transitional section or fall / plunge pool may be present. Beginning approximately 20 metres downstream of the crossing, the channel appeared to resume a more typical structure with better defined banks and was generally wider; however, due to limited site access, potential downstream habitat could not be assessed.

Under current conditions, the bank failure and damaged culvert likely represent an impediment to upstream fish passage. Similarly, the un-assessed transitional section / plunge pool that appeared to be present approximately 20 metres downstream of the crossing may also represent an impediment to upstream fish passage but could not be confirmed at the time of assessment. Potential habitat beyond the assessed reach was not investigated; however, records for a Species at Risk mussel (i.e., Lilliput) have been identified within the unnamed watercourse in the vicinity of the York Road crossing, suggesting the potential for historic fish presence and habitat up to York Road. Based on the assessed reach, the channel through W-WS-3c likely contributes surface flow and nutrients downstream, while fish habitat may also be present further downstream of the York Road crossing (i.e., beyond 20 metres downstream of York Road).

3.2.2.2 Vegetation Communities and Plants

In order to acquire up-to-date information on the existing natural heritage conditions within the Study Area, field investigations were conducted on April 6, 2022 by AECOM ecologists. Field investigations were completed to supplement available background information.

Terrestrial Vegetation Communities

AECOM Ecologists conducted Ecological Land Classification surveys on April 6, 2022 to confirm vegetation communities identified through a review of background information, as well as identify new vegetation communities within each alternative. Vegetation communities delineated by AECOM Ecologists are shown in **Figure 3-2** and outlined in **Table 3-6** below**.**

The locations of the alternatives were within a fragmented landscape as a result of human influence. The W-WS-3a alternative consisted of manicured lawns with few scattered trees. The W-WS-3b alternative was within lands managed by the Royal Botanical Gardens. Previous consultation between Wood and Royal Botanical Gardens in 2019 outlined that meadow naturalization was undergoing in the area.

Figure 3-2: Ecological Land Classification

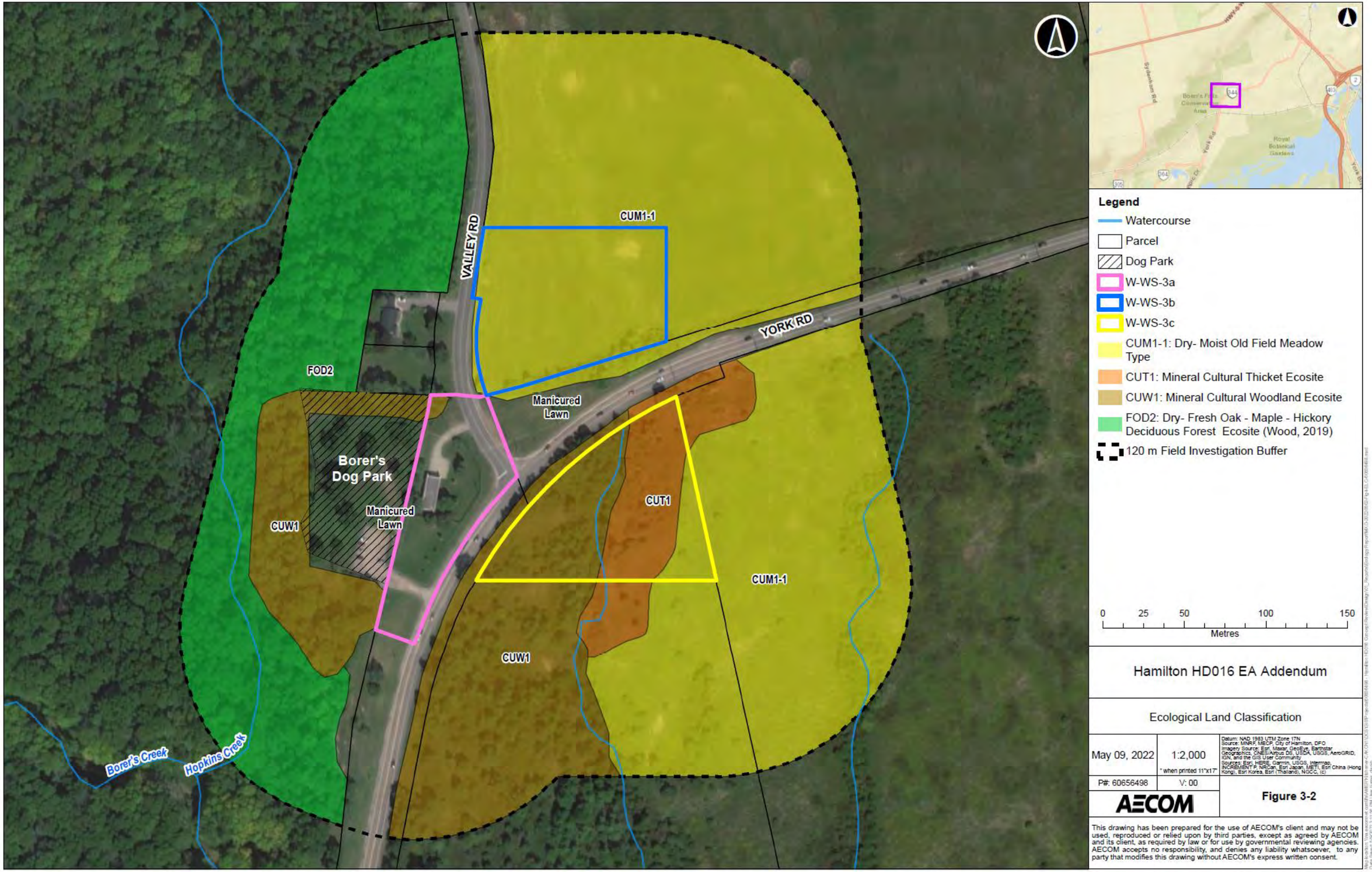


Table 3-6: Ecological Land Classification Communities within or adjacent to Alternatives

Alternatives	Ecological Land Classification Code	Ecological Land Classification Name	ELC Description	Amount of Vegetation Community within Alternative (ha)	Community Sensitivity
W-WS-3b	CUM1-1	Dry- Moist Old Field Meadow Type	The meadow lacked a defined canopy and subcanopy layer with few scattered trees which consisted of black walnut, white ash, Manitoba maple (*Acer negundo*) and cherry species (*Prunus sp.*). The understory was also ill-defined and consisted of some common buckthorn and gray dogwood (*Cornus racemosa*). The ground layer was abundant with smoothe brome grass (*Bromus inermis*), orchard grass (*Dactylis glomerata*) and yellow Indiangrass (*Sorghastrum nutans*).	1 ha	■ Co-efficient of Conservatism (average): 5.75 ■ Floristic Quality Index (average): 17.25 ■ Coefficient of Wetness (average): 4.6
W-WS-3c	CUT1	Mineral Cultural Thicket Ecosite	The thicket was densely comprised of common buckthorn and gray dogwood within the understory. The ground layer was vegetated with smoothe brome grass, other grass species, goldenrod species and aster species. The community lacked a well-defined canopy and subcanopy.W-WS-3c	0.4 ha	■ Co-efficient of Conservatism (average): 2.5 ■ Floristic Quality Index (average): 5 ■ Coefficient of Wetness (average):2
W-WS-3c	CUW1	Mineral Cultural Woodland Ecosite	The open canopy of tW-WS-3chis woodland community was abundant with black locust with occasional mature white pine (*Pinus strobus*). The subcanopy was comprised of black locust and ash species (*Fraxinus sp.*). The understory story was abundant with common buckthorn, gray dogwood and riverbank grape (*Vitis riparia*). The ground layer was comprised of smoothe brome grass, grass species, common teasel (*Dipsacus fullonum*) and aster species (*Symphyotrichum sp.*).	0.46 ha	■ Co-efficient of Conservatism (average): 4 ■ Floristic Quality Index (average): 10.58 ■ Coefficient of Wetness (average): 3.2
W-WS-3c	CUM1-1	Dry- Moist Old Field Meadow Type	The meadow within this alternative contained similar vegetation noted for W-WS-3b above.	0.12 ha	■ Co-efficient of Conservatism (average): 5.75 ■ Floristic Quality Index (average): 17.25 ■ Coefficient of Wetness (average): 4.6

Although AECOM did not have access to W-WS-3b during field investigations, roadside surveys observed that a Dry – Moist Old Field Meadow Type (CUM1-1) was present. The W-WS-3c alternative was also assessed from the road due to accessibility limitations. AECOM Ecologists confirmed the W-WS-3c alternative consisted of a Mineral Cultural Thicket Ecosite (CUT1), Dry – Moist Old Field Meadow Type (CUM1-1) and Mineral Cultural Woodland (CUW1).

A list of vascular plant species identified within each alternative is provided in Appendix D of the **Natural Environment Report (Appendix B).** A total of 45 plant species were recorded collectively for all alternatives, of which 18 (40%) were native and 21 (47%) were introduced. A total of 12 invasive species were identified. All of the identified vegetation communities within or immediately adjacent to the alternatives were of general low vegetation quality as evidenced by the Floristic Quality Index being less than a score of 19, and none of the vegetation communities were provincially significant. There were no Species at Risk, Species of Conservation Concern or Provincially Significant plant species recorded within any of the alternatives. Two species considered to be locally rare within the City of Hamilton were recorded, including red pine (*Pinus resinosa*) and yellow Indiangrass (*Sorghastrum nutans*). The red pine was planted within the manicured lawn of the W-WS-3a alternative and is not naturally occurring. Yellow Indiangrass was found within the Dry – Moist Old Field Meadow Type (CUM1-1) of W-WS-3b, where a meadow restoration is taking place. **Table 3-6** includes the community sensitivity and floristic assessments for each identified vegetation community.

3.2.2.3 Incidental Wildlife Observations

Incidental wildlife observations (**Table 3-7**) as well as the identification of preferred wildlife habitat conditions were documented during the field investigations conducted by AECOM Ecologists. The majority of species observations were considered common and tolerant of urban disturbances, and many bird species observed are also protected under the *Migratory Birds Convention Act*. Although the sites have been anthropogenically disturbed and fragmented, the vegetation present still provides potential nesting opportunities for migratory birds. Isolated trees, shrubs, vegetation communities and anthropogenic structures (e.g., buildings and bridges) can provide nesting habitat for migratory birds protected under the *Migratory Birds Convention Act*. Field investigations recorded three bird species protected under the *Migratory Birds Convention Act*: American robin (*Turdus migratorius*), northern cardinal (*Cardinalis cardinalis*) and song sparrow (*Melospiza melodia)*.

Table 3-7: Incidental Wildlife Observations

Taxon	Common Name	Scientific Name	S-Rank Note 1	*Endangered Species Act* Status Note 2	Committee on the Status of Endangered Wildlife in Canada Status Note 3	*Species at Risk Act* Schedule 1 Status Note 4	Alternative
Birds	American Robin	*Turdus migratorius*	S5B	N/A	N/A	N/A	W-WS-3b
Birds	Blue Jay	*Cyanocitta cristata*	S5	N/A	N/A	N/A	W-WS-3b
Birds	Northern Cardinal	*Cardinalis*	S5	N/A	N/A	N/A	W-WS-3b
Birds	Song Sparrow	*Melospiza melodia*	S5B	N/A	N/A	N/A	W-WS-3b, W-WS-3c
Mammals	Northern Raccoon	*Procyon lotor*	S5	N/A	N/A	N/A	W-WS-3c
Mammals	White-tailed Deer	*Odocoileus virginianus*	S5	N/A	N/A	N/A	W-WS-3b

Notes: 1, 2, 3 – refer to definitions under Table 3-4.

Note: 4. Species at Risk Act Schedule 1 Status:
The Species at Risk Act protects and ensures the recovery of Species at Risk listed on Schedule 1 as Extirpated, Endangered and Threatened, and their critical habitats at a federal level. Schedule 1 of the Species at Risk Act classifies Species at Risk as follows:
Extirpated – a wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild (Species at Risk Act Registry, 2012).
Endangered – a wildlife species that is facing imminent extirpation or extinction (Species at Risk Act Registry, 2012).
Threatened – a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction (Species at Risk Act Registry, 2012).
Special Concern – a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats (Species at Risk Act Registry, 2012).

3.2.3 Significant Wildlife Habitat Assessment

Significant Wildlife Habitat was limited within the alternatives due to fragmentation and human influence (i.e., manicured lawns). It was noted that the surrounding area consisted of a large range of unique and naturalized communities. Alternative W-WS-3a did not contain any Significant Wildlife Habitat; however, it is approximately 15 metres away from a confirmed Deer Wintering Area. Significant Wildlife Habitat within W-WS3b and W-WS3c were limited due to communities being disturbed and cultural in nature. The Significant Wildlife Habitat Assessment for each alternative is presented in **Table 3-8**.

Table 3-8: Significant Wildlife Habitat Assessment Summary for each Alternative

Significant Wildlife Habitat	W-WS-3a	W-WS-3b	W-WS-3c
Seasonal Concentration Areas	■ None	■ Candidate Migratory Butterfly Stopover Areas ■ Candidate Reptile Hibernaculum	■ Candidate Migratory Butterfly Stopover Areas ■ Candidate Reptile Hibernaculum
Rare Vegetation Communities or Specialized Habitats for Wildlife	■ None	■ None	■ None
Habitats for Species of Conservation Concern	■ None	■ Candidate habitat for: – Common Nighthawk – Grasshopper Sparrow – Short-eared Owl – Monarch	■ Candidate Shrub/Early Successional Bird Breeding Habitat ■ Candidate habitat for: – Common Nighthawk – Grasshopper Sparrow – Short-eared Owl – Golden-winged Warbler – Olive-sided Flycatcher – Monarch
Animal Movement Corridors	■ None	■ None	■ None

3.2.4 Species at Risk Habitat Assessment

A Species at Risk screening exercise was completed to determine the presence and potential impacts to SAR within each of the Alternatives. The Species at Risk Habitat

Assessment and screening exercise for each alternative is presented in Appendix E of the **Natural Environment Report** (**Appendix B**). No Species at Risk were found during field investigations. No Species at Risk habitat was identified within alternative W-WS-3a as the alternative was anthropogenically influenced and consisted of mowed lawn. The Mineral Cultural Meadow (CUM1-1) within W-WS-3b was identified as potentially suitable habitat for bobolink and eastern meadowlark. The vegetation communities at alternative W-WS-3c were more naturalized and possessed suitable habitat for bird and bat Species at Risk. Additionally, records for an aquatic Species at Risk Mussel (i.e., Lilliput) were identified as having the potential to occur within the unnamed watercourse associated with alternative W-WS-3c. **Table 3-9** below provides a summary of Species at Risk with medium probability of occurring within each Study Area. The remaining Species at Risk listed from **Table 3-4** were identified to have low probability of occurrence within the Study Area.

Table 3-9: Summary of Species at Risk with Medium Probability of Occurring in Each Alternative

W-WS-3a	W-WS-3b	W-WS-3c
■ None The alternative was located almost entirely within manicured lawn. The alternative overlaps slightly with a Mineral Cultural Woodland Ecosite (CUW1) that is unlikely to be affected within the alternative.	■ Bobolink ■ Eastern meadowlark The alternative was located within a Dry- Moist Old Field Meadow Type (CUM1). It may support breeding habitat for Species at Risk birds.	■ Bobolink ■ Eastern meadowlark ■ Loggerhead shrike ■ Red-headed Woodpecker ■ Eastern Small-footed Myotis ■ Little Brown Myotis ■ Northern Myotis ■ Tri-coloured bat ■ Lilliput The alternative is located within a Mineral Cultural Woodland Ecosite (CUW1), Mineral Cultural Thicket Ecosite (CUT1) and Dry- Moist Old Field Meadow Type (CUM1). It may support breeding habitat for Species at Risk birds and Species at Risk bats that roost in woodlands in the area that is known to grow in open habitat and roadside ditches.

3.2.5 Linkages

The Linkages are outside of the Study Area, as depicted in Schedule B of the Official Plans, and connect a Core Area north of the Study Area to a Core Area within the western portion of the Study Area at Rock Chapel Escarpment Areas of Natural and

Scientific Interest, west of York Road and Valley Road. This Rock Chapel Escarpment Area of Natural and Scientific Interest is contiguous with the Borers Falls Environmentally Significant Area and confirmed Deer Wintering Significant Wildlife Habitat. Towards the eastern portion of this Core Area, Ecological Land Classification on **Figure 3-2** demonstrated a more fragmented path with roads, manicured lawns, residential housing, Cultural Meadow, Cultural Woodland and Cultural Thicket. Outside of the Study Area, the Core Area that is contiguous with the Borers Falls Environmentally Significant Area continues and merges with the Cootes Paradise Environmentally Significant Area. The northwest corner of the Study Area includes a portion of the Cootes Paradise Environmentally Significant Area.

The potential Linkage within the Study Area is fragmented by residential land uses. Vegetation communities identified within the Study Area that were not identified in the Urban Hamilton Official Plan or Rural Hamilton Official Plan and which could be considered for inclusion into the Linkage feature are outlined below.

- **Cultural Communities (i.e., CUM1, CUT1, CUW1)**:
  Cultural vegetation communities, including Cultural Meadow (CUM1), Cultural Woodland (CUW1) and Cultural Thicket (CUT1), were identified throughout the Study Area (refer to **Figure 3-2**). These communities are fragmented by residential and agricultural lands uses. Cultural Meadows north east of York Road and Valley Road are undergoing meadow naturalization and may connect to the Cootes Paradise Environmentally Significant Area. Southeast of York Road and Valley Road Cultural Meadow adjacent to the Cultural Thicket and Cultural Woodland will likely transition to a thicket or wooded community if left undisturbed and may provide linkage opportunities for terrestrial wildlife such as medium-sized mammals (e.g., racoons, coyote) and larger mammals (i.e., deer). This vegetation also provides perching and nests habitat for birds.

The current condition of the potential linkages within the Study Area largely consist of regenerating cultural habitats or remnant natural vegetation communities that are degraded as evidenced by an abundance of non-native species observed during field investigations. The proposed linkage features provide supporting habitat to the nearby Core Areas by providing foraging, resting, or dispersal areas for wildlife in the Core Area. The results of the Linkage Assessment are provided in **Table 3-10.**

Table 3-10: Study Area Linkages Assessment Summary

Linkage Characteristic	W-WS-3a Linkage Potential	W-WS-3b Linkage Potential	W-WS-3c Linkage Potential
Ecological Function	■ Potential linkage is not likely as the alternative is within regularly mowed lawn, few scattered trees within the property may be used for limited local movement of terrestrial wildlife or provide breeding habitat.	■ The cultural vegetation communities are ecologically functional, providing breeding habitat or facilitates local movement of terrestrial wildlife. The cultural meadow could connect with the Cootes Paradise Environmentally Significant Area.	■ The cultural vegetation communities are ecologically functional, providing breeding habitat or facilitates local movement of terrestrial wildlife; however, movement corridors may not be of significant ecological value at this time.
Size and Scale	■ Potential linkage is not likely as the alternative is within regularly mowed lawn.	■ The potential linkage may be an appropriate scale to connect with the Cootes Paradise Environmentally Significant Area. The watercourse connects with Cootes Paradise Environmentally Significant Area.	■ The potential linkages may be an appropriate to scale to connect with Cootes Paradise Environmentally Significant Area, south of the Study Area. The watercourse connects with Cootes Paradise Environmentally Significant Area. The overall linkages provide alternative pathways to Core Areas that occur within and beyond the Study Area.
Redundancy	■ Potential linkage is not likely as the alternative is within regularly mowed lawn.	■ The alternative location may provide potential linkage pathways to Core Areas that occur within and beyond the Study Area.	■ The alternative location may provide potential linkage pathways to Core Areas that occur within and beyond the Study Area.
Stepping Stones	■ Potential linkage is not likely as the alternative is within regularly mowed lawn.	■ Linkages within the Study Area consisted of habitat patches that may provide temporary refuge and facilitate local movement. These habitat patches are mostly separated by residential properties and roads.	■ Linkages within the Study Area consisted of habitat patches that may provide temporary refuge and facilitate local movement. These habitat patches are mostly separated by residential properties and roads.
Ecological Appropriateness	■ The mapped linkage outside of the Study Area does not currently reflect a natural relationship between Core Areas being connected.	■ The mapped linkage outside of the Study Area does not currently reflect a natural relationship between Core Areas being connected.	■ The mapped linkage outside of the Study Area does not currently reflect a natural relationship between Core Areas being connected.
Suitability of the Path	■ Potential linkage is not likely as the alternative is within regularly mowed lawn.	■ Linkages provide opportunities for some species to move successfully; however, development may already impede less mobile species on a landscape level.	■ Linkages provide opportunities for some species to move successfully; however, development may already impede less mobile species on a landscape level.
Surrounding Land Uses	■ Surrounding land use includes properties with manicured lawns and roads that separates core areas, highly mobile wildlife may be able to disperse.	■ Surrounding land use includes properties with manicured lawns and roads that separates core areas, highly mobile wildlife may be able to disperse.	■ Surrounding land use includes properties with manicured lawns and roads that separates core areas, highly mobile wildlife may be able to disperse.
Connection to Landforms and Areas with High Restoration Potential	■ Land within the Study Area and on the greater landscape currently supporting agricultural activities are in the process of being restored or may be restored or rehabilitated to provide habitat for terrestrial wildlife in the future.	■ Land within the Study Area and on the greater landscape currently supporting agricultural activities are in the process of being restored or may be restored or rehabilitated to provide habitat for terrestrial wildlife in the future.	■ Land within the Study Area and on the greater landscape currently supporting agricultural activities are in the process of being restored or may be restored or rehabilitated to provide habitat for terrestrial wildlife in the future.
Connecting Core Areas	■ Alternative is adjacent a Core Area but potential linkage is not likely as the alternative is within regularly mowed lawn.	■ Potential Linkages in the Alternative provide access to the Core Areas associated with Significant Wildlife Habitat identified during Field Investigation.	■ Potential Linkages in the Alternative provide access to the Core Areas associated with Significant Wildlife Habitat identified during Field Investigation.
Water Features	■ Alternative is adjacent Core Area with a watercourse	■ The potential linkage may contain an unevaluated wetland.	■ The potential linkage contains a watercourse.

3.3 Land Use

3.3.1 Existing Land Use

The Study Area is located within the City of Hamilton Rural Official Plan area. Adjacent land uses around the station include:

- Single family residential to the north
- Royal Botanical Gardens lands – Barry Tract South / York Road Acreage Conservation Area to the northeast and southeast
- Borer's Falls "Off Leash" Park and Niagara Escarpment Development Control Area immediately to the west of the pumping station. The dog park includes a fenced area for both large dogs and smaller dogs

Ray Lowes side trail extends southerly from the current parking lot at Borer's Falls Dog Park where it provides access to the Borer's Falls Conservation Area.

3.3.2 Future Land Use

There are no known future land use changes around the station at this time.

3.4 Cultural Heritage Environment

3.4.1 Archaeological Resources

A Stage 1 archaeological assessment has been undertaken by Archeoworks Inc. in support of the City of Hamilton Waterdown Watermain Trunk Twinning Schedule B Municipal Class Environmental Assessment and Conceptual Design. This Stage 1 archaeological assessment includes the Study Area for this addendum.

A Stage 1 archaeological assessment consists of a review of geographic, land use and historical information for the property and the relevant surrounding area, and contacting MHSTCI to find out whether, or not, there are any known archaeological sites on or near the property. Its purpose is to identify areas of archaeological potential and further archaeological assessment (e.g. Stage 2-4) as necessary. The Stage 1 archaeological assessment is included in **Appendix C.**

The Stage 1 archaeological assessment report recommends that a Stage 2 archaeological assessment be completed in the areas identified as alternatives (refer to **Figure 6-1**, **Section 6.3**) in this addendum report. Upon selection of the preferred alternative, any construction activities which impact areas identified as having

archaeological potential must be subjected to a Stage 2 archaeological assessment. This will involve completion of a pedestrian or test pit survey at five-metre intervals in accordance with the standards set within Sections 2.1.1 and 2.1.2 of the 2011 Standards and Guidelines.

Should construction activities (e.g., staging areas, laydown areas, etc.) extend beyond the assessed limits documented in the Stage 1 archaeological assessment report, further archaeological investigation will be required to assess the archaeological potential of these lands.

3.4.2 Built Heritage Resources and Cultural Heritage Landscapes

A desktop review screening for built heritage resources (BHRs) and cultural heritage landscapes (CHLs) in the Study Area has been completed and is included in **Appendix D**. The desktop review identified four potential built heritage resources and two potential cultural heritage landscapes within the Study Area.

Based on the results of the desktop Cultural Heritage Screening Report, the following recommendations have been developed:

1. The three alternative solutions will not directly or indirectly impact any BHRs or CHLs. Therefore, no further heritage studies are required for this Project and all three of the alternative solutions described in **Section 6** are acceptable from a cultural heritage perspective.
2. Should the Study Area expand, or the footprints of the proposed alternative solution change, then a qualified heritage consultant should be retained to confirm impacts of the proposed work on known and potential BHRs resources and CHLs.

4. Planning Context

The following subsections outline the applicable provincial and municipal legislation and its relevance to this project that were not reviewed or in effect during the original 2006 Municipal Class Environmental Assessment Study:

- Provincial Policy Statement, 2020
- Niagara Escarpment Plan, 2017
- A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2020
- Greenbelt Plan, 2017
- City of Hamilton Urban and Rural Official Plans
- Source Protection Plans for the Halton Region Source Protection Area and the Hamilton Region Source Protection Area

4.1 Provincial Policy Statement

The 2020 Provincial Policy Statement provides provincial policy direction on matters related to land use planning and development that affect communities, such as ensuring the appropriate infrastructure is available to accommodate current and future needs. The Provincial Policy Statement applies to any land use planning decisions made under the Planning Act by municipal councils, local boards, planning boards, provincial ministers, provincial government and agency officials. Regional and municipal planning decisions are to be consistent with the policies of the Provincial Policy Statement.

The key sections of policies relevant to this addendum include:

- 1.1 Managing and Directing Land Use to Achieve Efficient and Resilient Development and Land Use Patterns
- 1.2 Coordination
- 1.6 Infrastructure and Public Service Facilities
- 2.1 Natural Heritage
- 2.6 Cultural Heritage and Archaeology
- 3.0 Protecting Public Health and Safety

Relevance to this study: Pursuant to Provincial Policy Statement policy 1.2.1, the Project is consistent with the Provincial Policy Statement through the implementation of a coordinated, integrated and comprehensive approach to dealing with infrastructure.

The HD016 Pumping Station will meet the current and projected needs for existing and future residents.

Subsection 1.6.6 of the Provincial Policy Statement outlines the policies for water. Policy 1.6.6.1 states "Planning for *sewage and water services* shall:

a) direct and accommodate expected growth or development in a manner that promotes the efficient use and optimization of existing:
    1. municipal sewage services and municipal water services; and
    2. private communal sewage services and private communal water services, where municipal sewage services and municipal water services are not available;
b) ensure that these systems are provided in a manner that:
    1. can be sustained by the water resources upon which such services rely;
    2. is feasible, financially viable and complies with all regulatory requirements; and
    3. protects human health and the natural environment;
c) promote water conservation and water use efficiency;
d) integrate servicing and land use considerations at all stages of the planning process; and
e) be in accordance with the servicing hierarchy outlined through policies 1.6.6.2, 1.6.6.3, 1.6.6.4 and 1.6.6.5."

Consistent with Provincial Policy Statement policy 1.6.6.1, this Municipal Class Environmental Assessment Addendum optimizes the existing Hamilton HD016 Pumping Station. Land use was a key factor considered when evaluating the alternatives, as well as feasibility, cost and compliance with regulatory requirements were also considered.

4.2 Niagara Escarpment Plan

The 2017 Niagara Escarpment Plan (April 5, 2021 Office Consolidation) serves as a framework of objectives and policies to balance development, protection, and the enjoyment of the landform. The Niagara Escarpment plan contains three parts:

- Part 1 provides a framework of objectives, designation criteria and policies for seven land use designations: Escarpment Natural Area, Escarpment Protection Area, Escarpment Rural Area, Minor Urban Centre, Urban Area, Escarpment Recreation Area and Mineral Resource Extraction Area.

- Part 2 consists of development criteria to be applied to all development within the area of the Niagara Escarpment Plan. Part 2.2.12 provides key infrastructure policies
- Part 3 provide a framework of objectives and policies for the Niagara Escarpment Parks and Open Space System

Relevance to this study: The Study Area is situated entirely within Niagara Escarpment Lands, and any development on these lands are subject to policies of the Niagara Escarpment Plan and Niagara Escarpment Planning and Development Act. The Study Area contains lands designated as Escarpment Natural Area, Escarpment Protection Area and Escarpment Rural Area.

Part 2.2.21 of the Niagara Escarpment Plan includes special provisions for the Pleasant View Survey Lands, which includes the Study Area. Pursuant to Part 2.2.21 essential utility facilities can be permitted, provided such uses do not conflict with Part 2 of the Niagara Escarpment Plan.

The preferred solution will be designed and implemented so it does not conflict with the Part 2 policies. The existing station is adjacent to the area subject to development control. As the proposed works will be confined to the right-of-way and/or the existing station property, no Development Permit from the Niagara Escarpment Commission is anticipated to be required.

4.3 A Place to Grow: Growth Plan for the Greater Golden Horseshoe

A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020) was established and approved under the Places to Grow Act, 2005. The Growth Plan's framework supports complete communities, which includes a strong economy, a clean and healthy environment, and social equity. Population and employment forecasts for all upper and single tier municipalities are set out in the Growth Plan in order to better coordinate planning and accommodate growth in complete communities within the Greater Golden Horseshoe.

The Greater Golden Horseshoe includes lands protected by the Niagara Escarpment Plan, Oak Ridges Moraine Conservation, and other natural areas in the Greenbelt area. The Growth Plan must be read in conjunction with these other plans.

Relevance to Study: The Study Area is located within the designated Greenbelt area. As per the Growth Plan, within the Greenbelt Area, policies of the Growth Plan that address the same, similar, related, or overlapping matters as the Greenbelt Plan, the

Oak Ridges Moraine Conservation Plan, or the Niagara Escarpment Plan do not apply within that part of the Greenbelt Area covered by the relevant plan except where the policies of this Plan, the Greenbelt Plan, the Oak Ridges Moraine Conservation Plan, or the Niagara Escarpment Plan provide otherwise.

Lands within Niagara Escarpment Plan designations, which includes the Study Area, are subject to policies of the Niagara Escarpment Plan (refer to **Section 4.2**).

4.4 Greenbelt Plan

The Greenbelt Plan (2017) provides policies that provide permanent protection to the agriculture land base and ecological features and function of the landscape from urbanization. It includes lands protected by the Niagara Escarpment Plan and the Oak Ridges Moraine Conservation Plan. The Plan contains land use designations that are divided into Protected Countryside lands and Urban River Valley lands. All infrastructure within Protected Countryside needs to meet one of the following two objectives:

- supports agriculture, recreation and tourism, Towns/Villages and Hamlets, resource use or the rural economic activity that exists and is permitted within the Greenbelt; or
- serves the significant growth and economic development expected in southern Ontario beyond the Greenbelt by providing for the General Policies for the appropriate infrastructure connections among urban centres and between these centres and Ontario's borders.

Relevance to this study: The Study Area contains lands designated as Protected Countryside which also overlap entirely with Niagara Escarpment Lands. Lands within Niagara Escarpment Plan designations are subject to policies of the Niagara Escarpment Plan and the Protected Countryside policies do not apply as such, the lands within the Study Area are subject to policies identified within **Section 4.2**.

4.5 City of Hamilton Official Plan

The City has two official plans for land use planning that provide guidelines for development:

1. Rural Hamilton Official Plan which applies to lands with the rural area of the City
2. Urban Hamilton Official Plan which applies to lands with the urban areas of the City.

The Rural Hamilton Official Plan (2012) contains Special Policy Areas where additional studies are required to determine land use or more detailed and specific policies are required.

The Official Plans and Niagara Escarpment Plan (**Section 4.2**) set out policies where development may be permitted in any land use designation, including Niagara Escarpment Areas. Development and site alteration is permitted where infrastructure projects are deemed necessary for public interest.

The City's Natural Heritage System is mapped on Schedule B of both Official Plans and is comprised of the Niagara Escarpment Plan area, Greenbelt Natural Heritage System, Greenbelt Protected Countryside and Core Areas within and outside of the Greenbelt Plan Area.

Relevance to this study: The majority of the Study Area lies within designated rural lands as per Schedule D of the Rural Hamilton Official Plan. The eastern portion of the Study Area that contains the alternatives known as W-WS-3b and W-WS-3c fall within the Pleasant View Special Policy Areas. According to Map A in Volume 3 of the Rural Hamilton Official Plan, this Special Policy Area is subject to policies in the provincial Niagara Escarpment Plan (**Section 4.2**).

A very small portion of the Study Area is within designated urban lands as per Schedule E-1 of the Urban Hamilton Official Plan. The Urban Hamilton Official Plan is applicable to lands within the Study area located south of the railway tracks.

While the Study Area contains a small portion of urban land, development or site alteration within any alternatives would occur on rural lands. As such, Rural Area General Provisions from Section 3.1 of the Rural Hamilton Official Plan outlines the following permitted use:

> ***3.1.1*** *c) Municipal infrastructure such as water system facilities, sanitary and storm water facilities, except for sanitary land fill sites, shall be permitted in all land use designations located in Rural Hamilton and shall comply with the policies of Sections C.3.4, Utilities and C.5., Infrastructure of this Plan. Where facilities exist, they shall be designated Utilities on Schedule D – Rural Land Use Designations and the maps for Rural Settlement Areas in Volume 2 of this Plan.*

AECOM has also prepared a Natural Environment Report for this Addendum (**Appendix B**), which is considered to be meeting the Urban Hamilton Official Plan and Rural Hamilton Official Plan policy requirements for preparing an Environmental Impact Statement and has been prepared in accordance with the Environmental Impact Statement Guidelines.

4.6 Source Protection Plans for the Halton Region and the Hamilton Region Source Protection Areas

Under the Clean Water Act, Conservation Halton and the Hamilton Conservation Authority together form the Halton-Hamilton Source Protection Region. The Source Protection Plans for the Halton Region Source Protection Area and the Hamilton Region Source Protection Area Version 3.3 (2017) sets out a framework of general policies and designate land uses and activities to protect existing and future municipal drinking water sources from significant threats based on prescribed and local threats. The Source Protection Plans also include monitoring policies to evaluate the implementation of significant threat policies. The Assessment Reports for each Source Protection Area support the Plans, which identify water quantity stresses and describe the threats to water quality. An Explanatory Document provides the rationale for each of the Plan's policies.

Relevance to this study: The Study Area is located within both the Halton Region Source Protection Area and the Hamilton Region Source Protection Area. The Study Area is partially located within a Highly Vulnerable Aquifer. No other vulnerable areas were identified in relation to this project.

5. Phase 1: Problem or Opportunity Statement

Phase 1 of the five-phase Municipal Class Environmental Assessment planning process requires the proponent of an undertaking (i.e. the City) to first document factors leading to the conclusion that the improvement is needed, and to develop a clear statement of the identified problems or opportunities to be addressed. As such, the problem or opportunity statement is the main starting point in the undertaking of a Municipal Class Environmental Assessment and becomes the central theme and integrating element of the Project. It also assists in setting the scope of the project.

The City's 2006 Master Plan identified the problem or opportunity statement as follows:

- The Province, through its Place to Grow document, has identified the need to accommodate growth within the City of Hamilton.
- Water and wastewater infrastructure upgrades will be required to service areas already approved for development as well as future residential and non-residential lands.
- Wastewater infrastructure upgrades will be required to address water quality concerns in Hamilton Harbour.
- Integration of planning, water/wastewater, transportation and stormwater processes will ensure implementation of a sustainable growth strategy and fulfill the City's goals identified in Vision 2020.

A new problem or opportunity statement has been developed specific to this addendum in order to accurately define the problems or opportunities associated with HD016 pumping station to be addressed and set the scope for the Project.

Problem

- Significant near and long-term growth is expected within the Waterdown settlement area. The City's 2006 Water and Wastewater Master Plan ("the Master Plan") followed the Municipal Class Environmental Assessment Master Plan Approach # 2 planning process and confirmed the need to increase the pumping capacity of the "York and Valley Road" Pumping Station (HD016) along with upgraded standby power to meet planned growth to 2031 and address security of supply
- The proposed pumping station capacity increase was confirmed as a Schedule B Municipal Class Environmental Assessment project and was approved through the 2006 Water Master Plan. The 2006 Municipal Class Environmental Assessment recommended a firm capacity of 20.4 ML/d in 2031, however updated planning values estimate a required 28 ML/d firm capacity

- The York and Valley Roads (HD016) Pumping Station is located adjacent to the Borer's Falls Off Leash Dog Park and requires careful consideration on how the proposed upgrades are designed and constructed. This considers that the "small dog" leash free area is part of the pumping station property, which is required to construct the proposed upgrades
- Recognizing the Municipal Class Environmental Assessment manual 10 Year Lapse of Time and that construction has not started within 10 years of the Master Plan filing in 2006 the City is required to complete a Municipal Class Environmental Assessment Addendum that will include a review of the planning and design process of the pumping station upgrade project as presented in the 2006 Master Plan in light of what has changed since 2006
- There are also operational concerns as the York and Valley Roads (HD016) Pumping Station is critical to the supply of water to the Waterdown community and various pressure zones in the area. The City has also carried out condition assessments that have identified the need to update equipment assets within the existing facility.
- Proposed design approach will maintain operation through construction and will allow immediate upgrade of the system to maintain reliability of service and improve future accommodation of maintenance activities.

Opportunity

- Complete the Municipal Class Environmental Assessment Addendum planning process in consultation with key stakeholders, review agencies, Indigenous Communities and the public that will confirm the preferred solution and design concept for the proposed pumping station upgrades to meet the anticipated 2027 in-service date
- Coordinate the HD016 Pumping Station planning and design process with the current City of Hamilton Waterdown Feedermain Twinning Municipal Class Environmental Assessment study (upgraded HD016 Pumping Station will include a chamber for new feedermain)
- Confirm preferred design approach that will maintain operation through construction and will allow immediate upgrade of the system to maintain reliability of service and improve future accommodation of maintenance

6. Phase 2: Alternative Solutions

6.1 Review of Original Municipal Class Environmental Assessment Alternative Solutions

Phase 2 of the Municipal Class Environmental Assessment process involves identifying and assessing alternative solutions. The Water Servicing Alternatives from the original 2006 Municipal Class Environmental Assessment Master Plan for the Waterdown Water Servicing (W-WS) Area included:

- W-WS-3: Upgrade pumping capacity at the existing HD016 pumping station, and construct elevated storage
- W-WS-4a: Upgrade pumping station capacity at the existing HD016 pumping station, and construct additional storage in the Kelly Street area
- W-WS-4b: Upgrade pumping capacity at the existing HD016 pumping station and construct new reservoir and pumping station in the Kelly Street area
- W-WS-5: Upgrade HD016 pumping station and construct new reservoir on-site
- W-WS-6: Expand HD016 pumping station and construct new pumping station and reservoir southwest of Waterdown

W-WS-3 was originally identified as the preferred solution based on the key rationale:

- It carries the lowest environmental impact of the alternatives considered
- It carries a smaller overall land requirement
- It is the most economical of the options considered
- The proposed elevated tanks provide increased security of supply, operation flexibility, and efficiency

This Municipal Class Environmental Assessment Addendum is reviewing and confirming W-WS-3 as the preferred solution. For this Municipal Class Environmental Assessment Addendum, more site specific analysis of alternatives (i.e. upgrade and expansion siting options) considering key environmental factors is being undertaken associated with W-WS-3 to demonstrate that all reasonable and feasible solutions for upgrading the pumping capacity at the existing HD016 pumping station have been considered. Additional square footage is required to accommodate the increase in capacity and to be able to meet relevant health and safety codes. The elevated storage tank associated with W-WS-3 has since been constructed and is not being considered in the alternatives.

For purposes of this Municipal Class Environmental Assessment Addendum, three sub alternatives to the preferred option have been evaluated:

- W-WS-3a: Upgrade pumping capacity with expansion within existing property limits at the existing HD016 pumping station
- W-WS-3b: Upgrade pumping capacity with expansion on property to the northeast of the existing HD016 pumping station
- W-WS-3c: Upgrade pumping capacity with expansion on property to the east of the existing HD016 pumping station

6.2 Evaluation Criteria and Methodology

To identify the recommended preferred solution, criteria were developed to evaluate the alternative solutions. **Table 6-1** identifies the criteria used to evaluate the above upgrade and expansion options.

Table 6-1: Evaluation Criteria

Category	Criteria
Land Use	Potential effects on existing or approved/planned land uses
	Potential for conforming with approved plans and policies
	Anticipated Site Plan approval and land acquisition considerations
Technical	Constructability
	Impact on operations and maintenance
	Access and maintenance
	Future infrastructure coordination opportunities or implementation risks
	Implementation timing-ability to meet fast in-service date
	Traffic impacts during construction
Natural Environment	Potential effects on terrestrial habitat and species
	Potential effects on aquatic habitat and species
	Potential effects on species at risk and Species at Risk habitat
	Potential effects on surface and groundwater
	Potential to encounter soil and water contamination
	Anticipated environmental permitting and approval considerations
Socio-Economic Environment	Disruption to residences, institutions, businesses, recreational facilities (e.g. dog park) during construction (noise, vibration, dust, access)

Category	Criteria
Climate Change	Potential carbon footprint (e.g. energy usage, use of construction materials, construction methods and operations).
	Potential resilience to extreme weather events
Cultural Heritage Environment	Potential effects on archaeological resources
	Potential effects on Built Heritage Resources and Cultural Heritage Landscapes
Cost	Cost of construction
	Cost of operations and maintenance

A comparative evaluation was completed for each alternative using the noted criteria. Alternatives were rated based on their potential constraints relative to the other alternatives as follows:

- High Constraints (Less Preferred)
- Medium Constrains (Moderately Preferred)
- Low Constraints (More Preferred)

The evaluation was completed using professional judgement and was informed through the existing conditions (**Section 3**). Input solicited from the public, agencies, stakeholders and Indigenous Communities was also considered and incorporated, as applicable.

6.3 Evaluation of Alternatives

Table 6-2 summarizes the evaluation that was completed for the upgrade and expansion options (**Figure 6-1**) evaluated through this addendum. The comparative evaluation was completed using professional judgement and has been informed through documentation of existing conditions. Input solicited from the public, agencies, stakeholders and Indigenous communities has also been considered and incorporated, as applicable.

Refer to **Appendix E** for the detailed evaluation table.

Table 6-2: Evaluation Summary

Evaluation Criteria	Option W-WS-3a	Option W-WS-3b	Option W-WS-3c	Summary of Constraint Ranking Rationale
Land Use ■ Potential effects on existing or approved/planned land uses ■ Potential for conforming with approved plans and policies ■ Anticipated Site Plan approval and Land Acquisition Considerations	Low Constraints (More Preferred)	Medium Constraints (Moderately Preferred)	Medium Constraints (Moderately Preferred)	■ Options W-WS-3b and W-WS-3c require displacement of conservation lands ■ All options are anticipated to conform with approved plans and policies and are subject to site plan approval ■ Option W-WS-3a will not require land acquisition while Options W-WS-3b and W-WS-3c require property to be purchased
Technical ■ Constructability ■ Impact on operations and maintenance ■ Access and maintenance ■ Future infrastructure coordination opportunities or implementation risks ■ Implementation timing-ability to meet fast in-service date ■ Traffic impacts during construction	Low Constraints (More Preferred)	High Constraints (Less Preferred)	High Constraints (Less Preferred)	■ Option W-WS-3a is a smaller area in terms of constructability compared to Options W-WS-3b and W-WS-3c (large open area). Options W-WS-3b and W-WS-3c will require re-routing of watermains ■ Option W-WS-3a results in one facility to operate while Options W-WS-3b and W-WS-3c result in two facilities to operate ■ All options will provide access and maintenance ■ All options provide potential coordination opportunities with future Waterdown Trunk Watermain Twinning Project ■ Option W-WS-3a has the fastest in-service date based on the ability to avoid purchase of land ■ All options have potential traffic impacts during construction
Natural Environment ■ Potential effects on terrestrial/aquatic habitat and species ■ Potential effects on Species at Risk and their habitat ■ Potential effects on surface and groundwater ■ Potential to encounter soil and water contamination ■ Anticipated environmental permitting and approval considerations	Low Constraints (More Preferred)	Medium Constraints (Moderately Preferred)	High Constraints (Less Preferred)	■ Option W-WS-3a consists of mowed lawn with scattered trees located largely within the Borer's Falls Dog Park ■ Option W-WS-3b is undergoing meadow naturalization and contains an unevaluated wetland and potential for candidate Significant Wildlife Habitat ■ Option W-WS-3c consists of a cultural woodland, cultural thicket and cultural meadow ■ and has potential to contain candidate Significant Wildlife Habitat ■ Option W-WS-3a is located contiguous with, but outside of the Hamilton Conservation Regulated Area. Options W-WS-3b and W-WS-3c are in the Halton Region Conservation Authority regulated area ■ Option W-WS-3a has no potential Species as Risk habitat within its boundary. There may be Species at Risk affected by the expansion of sites for Options W-WS-3b and W-WS-3c ■ Option W-WS-3a has more straight forward environmental permits and approvals compared to Options W-WS-3b and W-WS-3c
Socio-Economic Environment ■ Disruption to residences, institutions, businesses, recreational facilities (e.g., dog park) during construction (noise, vibration, dust, access)	High Constraints (Less Preferred)	Medium Constraints (Moderately Preferred)	Medium Constraints (Moderately Preferred)	■ Option W-WS-3a causes the most disruption with displacement of the small dog park area during and after construction ■ Similar level of disruption anticipated for Options W-WS-3b and W-WS-3c as these are conservation lands ■ Option W-WS-3b is located directly across from a residential property
Climate Change ■ Potential carbon footprint ■ Potential resilience to extreme weather events	Low Constraints (More Preferred)	Medium Constraints (Moderately Preferred)	Medium Constraints (Moderately Preferred)	■ Option W-WS-3a has the lowest potential carbon footprint due to combined / concentrated building space and less heating energy loss ■ All options will be designed for post disaster conditions and resilient to extreme weather events as per the City's standards

Evaluation Criteria	Option W-WS-3a	Option W-WS-3b	Option W-WS-3c	Summary of Constraint Ranking Rationale
Cultural Heritage Environment ■ Potential effects on archaeological resources ■ Potential effects on Built Heritage Resources and Cultural Heritage Landscapes	Medium Constraints (Moderately Preferred)	Medium Constraints (Moderately Preferred)	Medium Constraints (Moderately Preferred)	■ All options are equivalent – require Stage 2 archaeological assessment (and further assessments, if required) at the beginning of detailed design with no adverse impacts anticipated to Built Heritage Resources and Cultural Heritage Landscapes in the Study Area
Cost ■ Cost of construction ■ Cost of operations / maintenance	Low Constraints (More Preferred)	High Constraints (Less Preferred)	High Constraints (Less Preferred)	■ Option W-WS-3a has the lowest estimated overall cost of all upgrade and expansion siting options: – W-WS-3a: $12M (no property acquisition) – W-WS-3b: $16M (plus property acquisition) – W-WS-3c: $16M (plus property acquisition) ■ Option W-WS-3a has the lowest overall operation/maintenance cost compared to Options W-WS-3b and W-WS-3c
Overall Potential Constraint Ranking ■ High Constraints/Impacts = Less Preferred ■ Medium Constraints/Impacts = Moderately Preferred ■ Low Constraints/Impacts = More Preferred	**Low Constraints (More Preferred)**	**Medium Constraints (Moderately Preferred)**	**Medium Constraints (Moderately Preferred)**	■ The Preferred Solution is Option W-WS-3a: Upgrade pumping capacity with expansion within existing property limits at the existing HD016 pumping station

Figure 6-1: Alternatives

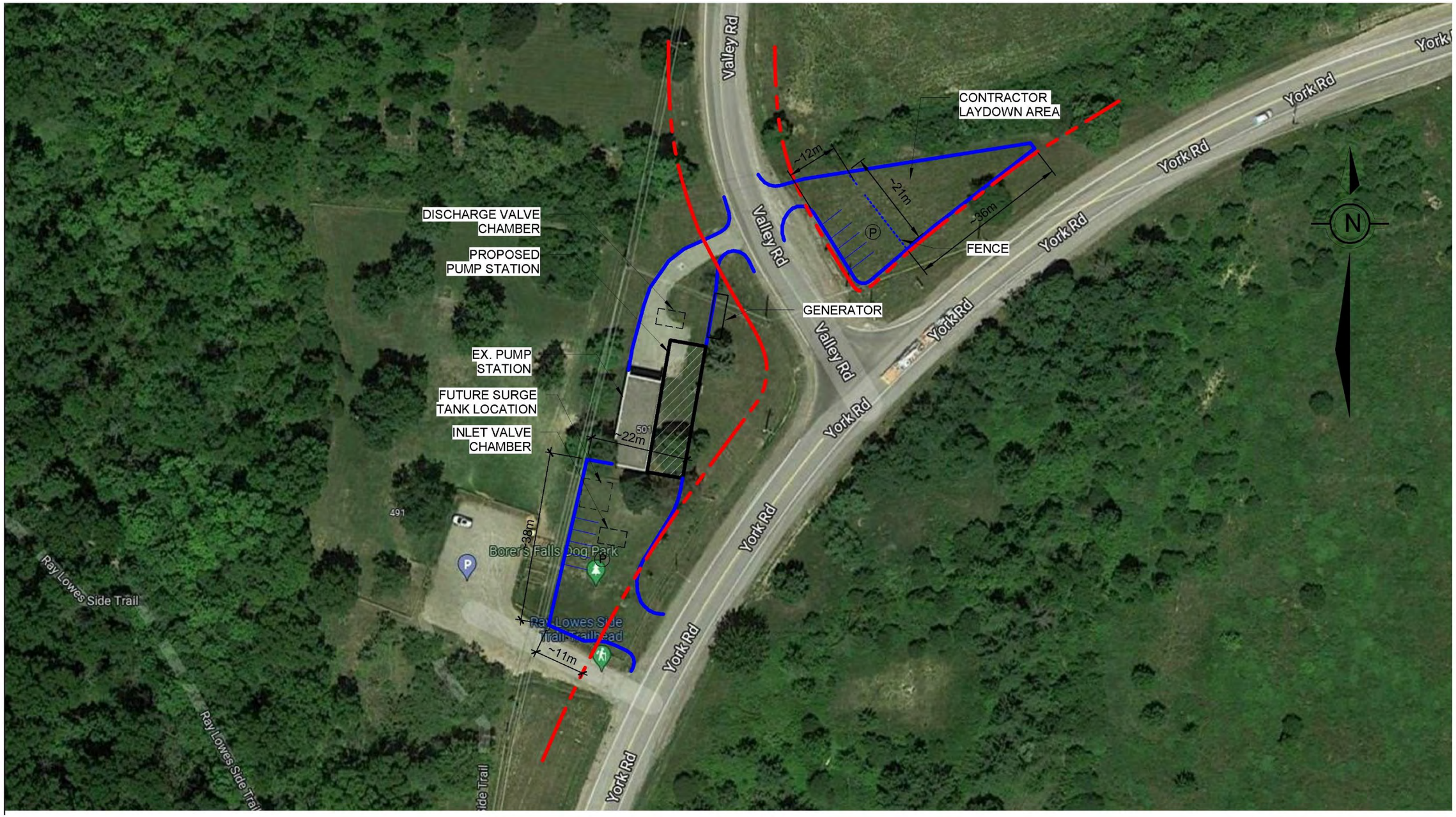
6.4 Preferred Solution and Rationale

Upgrade pumping capacity by expanding the HD016 pumping station within City property (W-WS-3a) was selected as the preliminary preferred solution based on the following key factors:

- Minimal vegetation and tree removal is anticipated
- No potential Species at Risk habitat within the limits of this siting option based on the desktop findings
- The upgrades to the existing HD016 Pumping Station site will not result in adverse impacts to built heritage resources or cultural heritage landscapes
- Lowest capital cost: Does not require the purchase of additional property or re-routing of critical watermains
- Schedule: provides the fastest in-service date for the pumping station and replacement of critical assets
- Lowest operation and maintenance cost by remaining at the existing site as one single station

A conceptual site plan layout of the preferred solution is shown in **Figure 6-2**. A description of the design components are described in **Section 7.**

Figure 6-2: Preferred Solution – Conceptual Site Layout



SITE PLAN

1 : 800

PROPERTY LINE

Comm. No. XXX

AECOM
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CITY OF HAMILTON
HD-016 BOOSTER PUMPING STATION
ISSUED FOR FINAL CONCEPTUAL DESIGN

Issued By: HN
Discipline: PROCESS
Date: 04/14/22
Sheet Name : SITE PLAN
PC / SI / CO
Drawn By: ML
Designed: HE
Drawing No.: P100
Checked: HE
Approved: HN

7. Preferred Undertaking – Project Description

7.1 Design Considerations

7.1.1 HD016 Pumping Station

7.1.1.1 Upgrades to Existing Pumping Station

The preliminary preferred solution involves upgrades to the existing Pumping Station facility, including new valve chambers, primary electrical power and standby power generator.

The firm capacity will be increased from 18 ML/d to 28 ML/d to address future demand.

The upgrades will provide redundancy in pumping systems and connections for the proposed future watermain.

7.1.1.1 Building Extension

There will be an addition of a new building extension to the south that will accommodate the installation of new pumps, valves, and ancillary equipment. The additional square footage is required to accommodate the increase in capacity and to be able to meet relevant health and safety codes.

7.1.1.2 Access

Extension of the station yard to the south will accommodate an improved access to the station. This will facilitate construction and allow for better vehicle access for operators, as well as emergency and maintenance vehicles.

7.1.2 Staging Considerations

The following are the main staging steps:

- Construction mobilization and set-up construction fences and access ways
- Installation of new electrical and back-up power
- Construction of the new building for extension of the pumping station with all new pumps and equipment installed
- Valve chambers installations and connection of existing watermains to the new pumping systems
- Start-up operation of the new pumping system
- Upgrades to the existing pumping system and piping and connect to the newly installed pumping system
- Install redundant watermains at a later phase of project

7.1.3 Property and Easement Requirements

No property or easements are anticipated to be required based on the project description. The extension of the station is within City owned lands. The City may also use the road allowance at the intersection of York Road and Valley Road for the contractor laydown area.

7.1.4 Climate Change Considerations

The proposed HD016 pumping station upgrades and expansion is sited outside of the regulated floodplain and within City owned lands.

The design of the upgrades and expansion should take into consideration key factors and climate change trends, such as building to withstand extreme precipitation and extreme heat. Energy efficient motors and building systems, including lighting will be selected for the design.

To minimize potential effects during construction, the idling of construction equipment will be avoided, and equipment will be in good working order to reduce inefficiencies in the operation of the equipment.

7.2 Cost Estimate

A high-level capital cost estimate was completed as part of the Municipal Class Environmental Assessment Addendum. The total required capital cost estimated to complete this project is $12M. The summary **Table 7-1** below provides a break down of the cost estimated for individual components of the project.

Table 7-1: HD016 Pumping Station Capital Cost Estimate

Description	Capital Cost Estimate
General, Site Works & Building	$3,000,000
Structural Concrete, Precast & Cast-in-Place	$1,600,000
Process Equipment, Piping	$3,500,000
Electrical, I&C	$3,900,000
Total Capital Cost Estimate	**$12,000,000**

7.3 Approvals and Permits

The anticipated permits and approvals required prior to construction are summarized in **Table 7-2**. Permitting requirements will be confirmed during the preliminary and detailed

design phase of the Project and where required, will require additional consultation with the applicable regulatory agencies.

Table 7-2: Anticipated Permits and Approvals

Permit / Approval	Timing
■ Site Plan approval and a building permit will be required for the upgrades and expansion of the HD016 Pumping Station.	Detailed Design
■ A Permit to Take Water under the Ontario Water Resources Act (OWRA) may be required. A Permit to Take Water is required for any water takings that exceed 50,000 Litres per day, except for certain water taking activities that have been prescribed by the Water Taking EASR Regulation – O. Reg. 63/16. These prescribed water-taking activities require registration in the Environmental Activity and Sector Registry (EASR) instead of a Permit to Take Water.	Detailed Design
■ A Drinking Water Works Permit Amendment from the Ministry of the Environment, Conservation and Parks (MECP) will be required for the upgrades and expansion of the HD016 Pumping Station. ■ It is recommended that the Proponent contact Environmental Permissions Branch at enviropermissions@ontario.ca or the MECP Hamilton District Office to discuss any amendments to the Drinking Water Works Permit that will be required for the upgrades and expansion of the HD016 Pumping Station.	Detailed Design
■ Excess Soil Reuse Planning Requirements are not anticipated, provided that the soil removals are less than 2,000 m3.	Not applicable
■ Electrical Safety Authority (ESA) plan review depending on the generator capacity (greater than 400 A service for a 3-phase unit).	Detailed Design
■ No permit required for terrestrial Species at Risk – there are no watercourses identified as habitat for aquatic SAR within 30 metres of the preferred alternative. ■ No permit required for terrestrial Species at Risk – Contravention of Species at Risk Act provided vegetation removal occurs outside of the Species at Risk breeding bird season (April 1 to August 31).	Not applicable
■ No permit required for migratory birds - Contravention of the Migratory Birds Convention Act is not anticipated provided vegetation removal occurs outside of the breeding bird season (April 1 to August 31).	Not applicable
■ Permits are not required from Fisheries and Oceans Canada as there are no watercourses within 30 metres of the preferred alternative.	Not applicable
■ No permits are anticipated under the Endangered Species Act as the preferred alternative is located within a manicured lawn with no potential to provide habitat for Species at Risk.	Not applicable
■ There are no permits to be obtained under the Provincial Policy Statement; however, mitigation measures and best management practices will reduce the likelihood of effects on identified candidate Species of Conservation Concern.	Detailed Design

Permit / Approval	Timing
■ There are no permits to be obtained under the Greenbelt Act; however, mitigation measures and best management practices will reduce the likelihood of effects on identified natural heritage features.	Detailed Design
■ There are no permits anticipated to be obtained under the Niagara Escarpment Plan; however, mitigation measures and best management practices will reduce the likelihood of or minimize effects on identified natural heritage features.	Detailed Design
■ Permit not anticipated to be required from Hamilton Conservation Authority – the HD016 pumping station is not within Regulated Area.	Not applicable
■ Approval not required under the Rural Hamilton Official Plan, 2012 and Urban Hamilton Official Plan, 2013 – however, development or site alteration must comply with policies in Chapter C of the Official Plans.	Detailed Design

7.4 Additional Future Work

Beyond the permits and approvals identified, the following additional future work should be completed during detailed design, where impacts are anticipated:

- If vegetation removal is to occur within the breeding bird season (April 1 to August 31), nest searches should be conducted by an experienced conductor no more than 48 hours prior to vegetation removal
- The need for a feature boundary staking of the Significant Woodland and Borer's Falls – Rock Chapel Environmentally Significant Area located within 15 metres of the southern most corner of the preferred alternative W-WS-3a should be confirmed during detail design with the City of Hamilton Natural Heritage Department based on a more refined construction footprint area. Given that the proposed works will be limited to the existing HD016 pumping station within City property, which includes the small dog park area, the Significant Woodland and Borer's Falls – Rock Chapel Environmentally Significant Area are not anticipated to be affected by construction works which will likely be more than 15 metres away from these natural features. However, if a feature boundary staking is confirmed to be required, a professional Ontario Land Surveyor (OLS) and Ecologist/Biologist are required to complete the feature boundary staking and are to be accompanied with the City of Hamilton Natural Heritage Planning staff and HCA, if available. The intent of this survey is to ground-truth the boundary of the Significant Woodland / of Borer's Falls – Rock Chapel Environmentally Significant Area in order to apply a 15 metres vegetation protection zone as accurately as possible

- Development of an Erosion and Sediment Control Plan should be prepared for the works which includes required monitoring of the protective measures
- A Spill Prevention and Contingency Plan should be developed and adhered to
- Onsite inspection to confirm the implementation of mitigation measures and any corrective action if required
- Tree Inventory in accordance with the City of Hamilton's tree by-laws to quantify and assess trees which might require removal or may be damaged. Tree Protection Plan and a Landscape Plan are required to be completed in accordance with the City of Hamilton's Tree Protection Guidelines (2010)
- Stage 2 archaeological assessment (and future assessments, as required) in accordance with the recommendations from the Stage 1 archaeological assessment (**Appendix C**)

7.5 Project Phasing

The proposed HD016 upgrades and expansion will consist of two major phases:

1. Upgrades to the existing HD016 pumping station complete with all systems equipment, valve chambers and other facility components
2. Install redundant suction and discharge watermains at a later stage in sequence

7.6 Co-ordination with Other Projects

The proposed HD016 Pumping Station expansion and upgrades will be coordinated with the Waterdown Trunk Watermain Twinning Municipal Class Environmental Assessment, where appropriate. For example, the stage 2 archaeological assessment for this work may be coordinated with the Waterdown Trunk Watermain Twinning Municipal Class Environmental Assessment.

7.7 Preliminary Project Schedule

Following approval of the Municipal Class Environmental Assessment Addendum phase, the City plans to proceed to the preliminary design and detailed design phases starting as early as Winter 2023, including securing permits and approvals.

Construction is anticipated to commence in 2025 with the HD016 Pumping Station online in 2027.

8. Potential Environmental Effects and Mitigation Measures

8.1 Potential Effects and Mitigation Measures

Based on the updated preferred solution (W-WS-3a), enhanced mitigation measures are needed to address both known and potential environmental effects. Potential effects related to the proposed upgrades and expansion will be limited to the duration and location of construction. Based on the preferred option and proposed construction techniques, construction is expected to have varied environmental effects. By incorporating proper best management practices and construction techniques, adverse construction related effects can be minimized. In order to address potential effects, the following approach was taken:

- **Avoidance:** The first priority is to prevent the occurrence of negative or adverse environmental effects associated with the upgrades and expansion of HD016
- **Mitigation:** Where adverse environmental effects cannot be avoided, it will be necessary to develop appropriate measures to eliminate, or reduce to some degree, the negative effects associated with the upgrades and expansion of HD016
- **Compensation:** In situations where appropriate mitigation measures are not available, or significant net adverse effects will remain following the application of mitigation measures, compensation measures may be required to counterbalance the negative effect through replacement in kind, or provision of a substitute or reimbursement. Compensation has not been identified for the project at this time

Based on the project description for the preferred option as described in **Section 7**, avoidance measures can be applied in many cases, thereby reducing the extent of potential adverse environmental effects requiring the application of mitigation measures. The mitigation measures summarized below (**Tables 8-1 and 8-2**) are specific to this addendum and are recommended to ensure that any short-term disturbances are managed efficiently through a variety of measures. These measures will be further confirmed and refined during the preliminary and detailed design phases of the Project.

Table 8-1: Potential Construction Related Impacts and Mitigation Measures

Indicator	Potential Impacts	Potential Mitigation
Socio-Economic Environment	■ Displacement of the small dog park area of the Borer's Falls off Leash Park	■ The small dog area of the Borer's Falls off Leash Park will be closed during construction while the upgrades and expansion are being completed ■ The large dog area of the Borer's Falls off Leash Park is not anticipated to be closed during construction for extended periods. ■ Permanent extension of the station yard to the south is required to accommodate additional equipment, valve chambers, and improved access to the station for operations and maintenance. As such, the existing small dog park area will be displaced. The City is currently reviewing opportunities to permanently relocate the small dog park to maintain this feature for park users. ■ General project information and updates will be provided through the City's website with advanced notification prior to construction anticipated to commence in 2025
Existing Utilities and Infrastructure	■ Potential need to relocate or protect existing utilities and infrastructure	■ Preliminary and detailed design will develop utility protection plans, and if necessary, relocation plans.
Excess Soil Management	■ Discharge of a contaminant into the natural environment	■ Adhere to Ministry of Environment, Conservation and Parks' regulation under the Environmental Protection Act, titled "On-Site and Excess Soil Management" (O. Reg. 406/19) which supports improved management of excess construction soil. New risk-based standards referenced by this regulation help to facilitate local beneficial reuse which in turn will reduce greenhouse gas emissions from soil transportation, while ensuring strong protection of human health and the environment. ■ These activities will be completed in accordance with the Ministry of Environment, Conservation and Parks' current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices" (2014) available online (http://www.ontario.ca/document/management-excess-soil-guide-best-management-practices). ■ All waste generated during construction must be disposed of in accordance with ministry requirements.
Control of Inadvertent Spills	■ Contamination of soils through spills and leaks	■ Contamination of soils through spills and leaks can be avoided by ensuring that fuel storage, refuelling and maintenance of construction equipment are handled properly and not allowed in or adjacent to watercourses. ■ Contingency plans will be prepared before construction begins for the control and clean-up of a spill, should one occur. ■ The Ministry of Environment, Conservation and Parks Spills Action Centre must be contacted if a spill occurs.
Vehicular Traffic, Travelling Public and Property Access	■ Traffic disruption ■ Traffic and access to properties during construction	■ Directly impacted property owners should be individually notified in advance of the construction schedule/duration. ■ General project information and updates will be provided through the City's website with advanced notification prior to construction anticipated to commence in 2025. ■ Provide construction Project Manager contact information.
Noise, Vibration and Dust	■ Dust emissions and vibration during construction ■ Disruption to surrounding residents	■ Prepare construction noise and vibration mitigation plan at detailed design, if required. ■ Construction operations will be restricted to the day shift (wherever possible). In addition, the Contractor will be required to adhere to local noise by-laws. ■ Employ Best Management Practices, including engine maintenance and use of non-chloride dust-suppressants be applied.
Climate Change	■ Carbon footprint and resilience to extreme weather events	■ To minimize potential effects during construction, the idling of construction equipment will be avoided, and equipment will be in good working order to reduce inefficiencies in the operation of the equipment. ■ Proposed HD016 Pumping Station expansion is sited outside of the regulated floodplain. ■ The design of the upgrades and expansion should take into consideration key factors and climate change trends such as building to withstand extreme precipitation and extreme heat.
Cultural Heritage Environment	■ Archaeological resources	■ A Stage 2 Archaeological Assessment (and further assessments, if recommended) will be undertaken as early as possible during detailed design and prior to any ground disturbing activities.

Table 8-2: Natural Environment Mitigation Measures

Indicator	Potential Mitigation
Vegetation Removal	■ Avoid vegetation and tree removal within the adjacent Mineral Cultural Woodland (CUW1) that is part of the Rock Chapel Escarpment Area of Natural and Scientific Interest and Borer's Falls Rock Chapel Environmentally Sensitive Area. ■ Construction vehicle access should be limited to existing roadways and construction paths, where feasible. ■ Construction fencing and silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint, prevent accidental damage or intrusion to adjacent Mineral Cultural Woodland (CUW1) and to reduce the risk of offsite sediment transport to adjacent natural features. ■ Temporarily disturbed areas will be re-vegetated using non-invasive, preferably native plantings and / or seed mix appropriate to the site conditions and adjacent vegetation communities. Seed mixes should contain flowering herbaceous plants to support foraging habitat for pollinators, as well as Common Milkweed for Monarchs, wherever feasible. ■ If applicable, removal of ash trees, or portions of ash trees, will be carried out in compliance with the Canada Food and Inspection Agency Directive 'D-03-08: Phytosanitary Requirements to Prevent the Introduction into and Spread within Canada of the emerald ash borer, *Agrilus planipennis (Fairmaire*). To comply with this Directive, all Ash trees requiring removal, including any wood, bark or chips, will be restricted from being transported outside of the emerald ash borer regulated areas of Canada. ■ A tree inventory and a Tree Protection Plan and a Landscape Plan are required to be completed in accordance with the City of Hamilton's Tree Protection Guidelines (2010). Any removed trees will be compensated for at a 1:1 ratio. The tree protection measures described in the Tree Protection Plan will be adhered to.
Wildlife and Wildlife Habitat, including Species at Risk	■ Vegetation removal (i.e., ground cover, shrub and trees) will occur outside of the breeding bird season of April 1 to August 31 of any year to avoid contravention of the Migratory Birds Convention Act. If this is not possible, a nest survey will be undertaken prior to required activities in simple habitat (i.e., mowed lawns). Nest searches by an experienced searcher are required and will be completed by a qualified Biologist no more than 48 hours prior to vegetation removal. If an active nest of a migratory bird is found outside of this nesting period it still must be avoided until young birds have fledged. ■ All stockpiled materials of soil, overburden or similar materials are to be maintained at a 70 degrees or less by sloping off stockpiles to creak a slot angle that will not support nesting breeding birds during the breeding bird season (April 1 to August 31). ■ Construction personnel will be trained in ways to prevent a wildlife encounter from occurring, including the following: – No personnel shall approach, feed or harass wildlife – Food waste will be properly stored and disposed of – Vehicles will yield to wildlife ■ If wildlife is encountered, measures will be implemented to avoid destruction, injury, or interference with the species, and / or its habitat. For example, construction activities will cease or be reduced, and wildlife will be encouraged to move offsite and away from the construction area on its own. A qualified Biologist will be contacted to define the appropriate buffer required from wildlife or to move the wildlife to a nearby suitable habitat outside of the construction site if necessary.
Sediment and Erosion Control Fencing	■ Mitigation measures should be implemented for erosion and sediment control to prevent sediment from entering neighbouring properties and natural areas during construction. The primary principles and practices associated with erosion prevention and management of sediment are to: 1. Minimize the duration of soil exposure 2. Retain existing vegetation, where feasible 3. Encourage re-vegetation 4. Divert runoff away from exposed soils 5. Keep runoff velocities low 6. Trap sediment as close to the source as possible ■ Details of the type and placement of sediment and erosion control to be used will be outlined in an *Erosion and Sediment Control Plan* to be drafted prior to construction.
Construction Vehicle Re-fueling Stations	■ Re-fueling stations should be located at least 30 metres away from wetlands, watercourses, waterbodies, or other site drainage features. ■ Re-fueling stations should be located within a centralized location on-site. ■ Re-fueling stations should be constructed in a manner to prevent soil and/or surface and groundwater contamination from any leaks or spills. ■ An emergency response kit should be made available at each re-fueling station in case of a spill. ■ All on-site crew members operating construction vehicles should be appropriately trained in handling a potential spill and have WHMIS Training. ■ All chemical transfer/maintenance should be conducted within the refueling station areas.
Soil and Water Contamination	■ A Spill Prevention and Contingency Plan will be developed and adhered to. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. ■ All machinery, construction equipment and vehicles arriving on-site should be in clean condition (e.g., free of fluid leaks, soils containing seeds of plant material from invasive species) and be inspected and washed in accordance with the Clean Equipment Protocol for Industry (Halloran et al., 2013) prior to arriving and leaving the construction site in order to prevent the spread of invasive species between locations.

8.2 Proposed Construction Monitoring

Contract tender documents will address mitigation in an explicit manner to ensure that compliance is maintained. The provision of an experienced field representative to review construction will ensure that the Project follows contract specifications and does not unnecessarily impact vegetation, the community or aquatic environment.

On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.

All erosion and sediment control measures should be inspected weekly, after every rainfall and significant snow melt event, and daily during periods of extended rain or snow melt.

All damaged erosion and sediment control measures will be repaired and/or replaced within 48 hours of the inspection.

8.3 Post-Construction Monitoring

Following construction, the operation of the proposed expansion and upgrades to the Hamilton HD016 pumping station is not expected to result in any negative impacts. Post construction monitoring will be required following construction to ensure that any disturbances have been properly restored (e.g. grading, seeding and planting). Post construction monitoring details will be developed during detailed design.

9. Consultation Summary

The following summarizes the methods of notification and consultation that have been undertaken to inform and engage interested and affected stakeholders, review agencies, Indigenous communities and members of the public to help inform the decision-making process.

9.1 Notifications

9.1.1 Notice of Addendum Commencement and Public Information Centre

The Notice of Commencement was first issued on March 31, 2022 introducing the project background, addendum process and details of the online Public Information Centre. The following describes the methods by which the notice was distributed:

- Advertised in the Dundas Star News and Flamborough Review on March 31, 2022 and April 7, 2022
- Published on the City's project webpage on April 1, 2022
- Issued to the study's contact list on April 1, 2022
- Hand delivered to residential property owners within the Study Area on April 20, 2022
- Signage posted in the Borer's Falls off Leash Park on April 20, 2022

Refer to **Appendix F** for a copy of the Notice of Addendum Commencement and Public Information Centre.

9.1.2 Notice of Addendum Completion

The Notice of Addendum Completion was first issued on September 15, 2022 and identified the preferred solution as it relates to the HD016 Booster Water Pumping Station and current environmental setting.

The notice specified where to access the addendum documentation during the 30 day comment period commencing on September 22, 2022 and ending on October 21, 2022 for public review and comment. The procedure for submitting comments and Section 16 Orders was also included in the notice. The following describes the methods by which the notice was distributed:

- Advertised in the Dundas Star News and Flamborough Review on September 15, 2022 and September 22, 2022

- Published on the City's project webpage
- Issued to the study's contact list
- Hand delivered to residential property owners within the Study Area

Refer to **Appendix F** for a copy of the Notice of Addendum Completion.

9.2 Public Consultation

9.2.1 Public Information Centre

An online Public Information Centre was held in place of holding an in-person event recognizing the current COVID-19 situation. A presentation was made available on the City's website for viewing starting on April 28, 2022. The last day to submit comments was on May 12, 2022.

The purpose of the online Public information Centre was to:

- Introduce the York & Valley Road (HD016) Booster Water Pumping Station Municipal Class Environmental Assessment Addendum Study
- Provide an overview of the Municipal Class Environmental Assessment Addendum planning process and current environmental setting
- Present the study's problem and opportunities and evaluation of alternative Water Pumping Station Upgrade and Expansion Options, including the preliminary preferred solution
- Explain how potential impacts to the community and environment will be addressed
- Present the Project schedule and next steps
- Gather feedback about the Project

No comments forms were submitted in response to the online Public Information Centre. A copy of the PIC presentation is included in **Appendix F**.

9.3 Agency and Stakeholder Consultation

The following key external agencies and stakeholders have been notified at key milestones over the course of this addendum:

- Niagara Escarpment Commission
- Ministry of the Environment, Conservation and Parks

- Ministry of Heritage, Sport, Tourism and Culture Industries
- Ministry of Northern Development, Mines, Natural Resources and Forestry
- Ministry of Municipal Affairs and Housing
- Infrastructure Ontario
- Ministry of Agriculture, Food and Rural Affairs
- Hamilton Conservation Authority
- Conservation Halton
- Royal Botanical Gardens
- Bruce Trail Conservancy
- Canadian Pacific Railway
- Canadian National Railway
- Utilities
- Property owners within the immediate Study Area limits

Refer to **Appendix G** for a copy of the external agency and stakeholder contacts notified for this addendum project. Councillors representing the Study Area were also kept informed of this project and engaged for feedback on the Project.

A meeting was held with Hamilton Conservation Authority on April 6, 2022. The purpose of the meeting was to introduce and share information about the Project. The meeting minutes are included in **Appendix G**.

Table 9-1 summarizes the incoming agency and stakeholder correspondence received. Refer to **Appendix G** for the complete consultation record.

Table 9-1: Key Agency and Stakeholder Correspondence

Agency / Stakeholder	Date	Summary of Correspondence	Study Team Response
Ministry of the Environment, Conservation and Parks	April 5, 2022	■ Provided updated list of Indigenous communities and the updated (February 2021) "Areas of Interest" document that provides guidance regarding the Ministry's interests with respect to the Class Environmental Assessment process	■ Indigenous Communities circulated a copy of all notices ■ A draft copy of the report will be issued to the Ministry prior to the filing of the final addendum report
Ministry of the Environment, Conservation and Parks	July 6, 2022	■ Provided comments on the draft addendum report circulated on June 9, 2022 ■ Comments received were related to Indigenous consultation and permits and approvals	■ The City will reach out to all communities previously engaged if there any substantial changes to the project/process or if they are applying for subsequent permits from the Ministry that may be of interest or concern to communities ■ Additional details have been added to the anticipated permits and approvals (**Table 7-2**). ■ The Ministry will be issued a copy of the Notice of Addendum Completion
Ministry of the Environment, Conservation and Parks	September 9, 2022	■ MECP confirmed no further comments at this time	■ Comment noted in the consultation record
Genesee & Wyoming Canada	April 6, 2022	■ Request to be removed from the contact list	■ Removed from distribution list
Hamilton Conservation Authority	April 7, 2022 and April 8, 2022	■ Provided information regarding the Hamilton Conservation regulatory area and contact for GIS staff if layers are being requested	■ Provided status update on the Project ■ The relocation of the small dog portion of the off leash park will be noted as a mitigating measure in the addendum report

Agency / Stakeholder	Date	Summary of Correspondence	Study Team Response
Hamilton Conservation Authority	April 22, 2022	■ Responded to the study team's inquiry about potential staging areas in lands leased by the Hamilton Conservation Authority ■ Confirmed preference to utilize lands along the road allowance ■ Requested additional information about the large dog park area if the lands along the road allowance were not a viable option ■ Advised there is not anything specifically listed in the lease agreement which would stop the City from using the large dog park space temporarily, as requested, provided it is restored to pre-existing, or better conditions, afterward	■ The staging area at this time is being planned to avoid using the large dog park, if possible
Ministry of Heritage, Sport, Tourism and Culture Industries	May 9, 2022	■ Requested the Project Information Form Number for the Stage 1 archaeological assessment being completed as part of the Watermain twinning Municipal Class Environmental Assessment	■ The Project Information Form Number for the stage 1 archaeological assessment report is PIF #: P029-1033-2022 ■ The report (**Appendix C**) is still in draft form at the time of this publication
Ministry of Heritage, Sport, Tourism and Culture Industries	July 8, 2022	■ Confirmed there were no comments on the draft addendum report circulated on June 9, 2022	■ The Ministry will be issued a copy of the Notice of Addendum Completion
Conservation Halton	May 27, 2022	■ Indicated that it does not appear that the project will affect the Conservation Halton regulated area ■ If there are any alterations to the current footprint of the proposed laydown area (e.g., extends further east), or if significant grading/fill storage is required, then Conservation Halton should be consulted to determine whether a permit is required	■ Conservation Halton will be issued a copy of the Notice of Addendum Completion ■ A Permit is not anticipated from Conservation Halton

9.4 Indigenous Community Consultation

The following Indigenous Communities and organizations were identified and notified as part of this Municipal Class Environmental Assessment Addendum study:

- Métis Nation of Ontario
- Mississaugas of the Credit First Nation
- Six Nations of the Grand River (Elected Council and Haudenosaunee Confederacy Chiefs Council with a copy to Haudenosaunee Development Institute)
- Nation Huronne-Wendat

Upon issuance of the Notice of Addendum Commencement and Public Information Centre, the City followed up with the identified Indigenous Communities via phone for those communities that did not respond to the initial notice to confirm receipt of the notice and ask if there were any questions regarding the Project. **Table 9-2** summarizes the incoming correspondence received from Indigenous Communities. Refer to **Appendix H** for the complete activity log and associated correspondence.

Table 9-2: Indigenous Community Correspondence

Indigenous Community/ Organization	Date and Method	Summary of Correspondence	Study Team Response
Six Nations of the Grand River	■ April 1, 2022 ■ Email	■ Confirmed receipt of the Notice of Addendum Commencement and Public Information Centre	■ Comments noted
Nation Huronne-Wendat	■ April 1, 2022 ■ Email	■ Requested a field monitor and confirmation of funding for participation in the stage 2 archaeological assessment	■ The City will follow up with Nation Huronne-Wendat's regarding participation in the stage 2 archaeological assessment prior to the initiation of the fieldwork
Haudenosaunee Confederacy Chiefs Council	■ April 11, 2022 Phone	■ Haudenosaunee Confederacy Chiefs Council expressed interest in participating in the stage 2 archaeological assessment	■ The City will follow up with Haudenosaunee Confederacy Chiefs Council regarding participation in the stage 2 archaeological assessment prior to the initiation of the fieldwork

The City will continue reaching out to all communities previously engaged if there any substantial changes to the project/process or if they are applying for subsequent permits from the Ministry of the Environment, Conservation and Parks that may be of interest or concern to the communities identified above.

10. Conclusions

This Municipal Class Environmental Assessment Addendum covers the processes required to ensure that the proposed York and Valley Road (HD)16) Booster Water Pumping Station upgrades and expansion meets the requirements of the Environmental Assessment Act. The preferred undertaking as described in **Section 7** resolves the problem and opportunity statement detailed in **Section 5.** The Municipal Class Environmental Assessment Addendum planning process has not identified any significant environmental concerns that cannot be addressed by incorporating best management practices and established mitigation measures during construction as identified in **Section 8**.

Subject to receiving Municipal Class Environmental Assessment Addendum clearance following the 30-day comment period and sign off from the Ministry of Environment, Conservation and Parks, the City will complete the preliminary and detailed design phases for the Project, which includes permitting-approvals and proceed to construction in 2025 with the station online in 2027.

This Municipal Class Environmental Assessment Addendum study was included as part of the July 6, 2022 Public Works Committee meeting agenda package, which recommended:

(a) That the General Manager, Public Works, be authorized and directed to file the Notice of Completion and issue the York and Valley (HD016) Booster Pumping Station Upgrades Schedule B Municipal Class Environmental Assessment Addendum for the mandatory 30-day review period; and,

(b) That upon completion of the 30-day agency and public review period, the General Manager, Public Works, be authorized and directed to proceed with the implementation of the preferred solution within the York and Valley (HD016) Booster Pumping Station Upgrades Schedule B Municipal Class Environmental Assessment Addendum Report funded from Project ID. No. 5141695883.

The above recommendations have been approved and the information received by City Council at its meeting held on Friday, July 8, 2022.