APPENDIX D
NATURAL HERITAGE ASSESSMENT

Stantec

Memo

To:	Nicole McLellan Waterloo	From:	Kayla Ellis, Sean Spisani London, Stoney Creek
Project/File:	165640407	Date:	November 14, 2024

Reference: Greensville Drinking Water System - Natural Environment Technical Memo

Stantec has been retained by the City of Hamilton (the client) to conduct a natural heritage assessment to support the Schedule C Municipal Class Environmental Assessment (MCEA). The assessment addresses the Project Location plus 120-m Adjacent Lands (collectively referred to as the Study Area), which includes the Johnson Tew Park and surrounding community of Greensville (shown on **Figure 1, Attachment A**). This Technical Memo summarizes the desktop review, field investigations, and an analysis of relevant policies and legislation, impact assessment and mitigation recommendations.

Johston Tew Park includes open meadow habitat, a trail system, manicured areas and an arboretum (specimen tree plantings). The Study Area also includes residential properties, streets, and treed hedgerows. There are no drainage features or aquatic habitats in the Study Area.

1 Policy Overview

The legislation and policy documents discussed below were used to assess the natural heritage features and functions of the Study Area, and to determine authorization requirements for the project.

1.1 Migratory Birds Convention Act, 2002

The federal *Migratory Birds Convention Act, 1994* (MBCA) prohibits the killing or capturing of migratory birds, as well as the damage, destruction, removal, or disturbance of their nests. The *Migratory Birds Regulation, 2022* (MBR), further defines when nests of migratory bird species are protected, with special provisions in place for bird species that reuse their nests (e.g., Pileated Woodpecker, Great Blue Heron).

Most bird species in Canada are protected under the MBCA, as defined by Article I, which names the families and subfamilies of birds protected, and provides clarification of which species are included. In southern Ontario, migratory birds generally nest between March 31 and August 31. Environment and Climate Change Canada (ECCC) can issue permits allowing the destruction of nests for scientific, agricultural, or health and safety purposes. New development and site alterations do not qualify as a permitted activity under the MBCA and failure to comply with the MBCA/MBR could result in a charge.

1.2 Endangered Species Act, 2007

The Ontario *Endangered Species Act, 2007* (ESA) protects species designated as threatened, endangered, or extirpated on the Species at Risk in Ontario (SARO) list. The ESA prohibits the killing, harming, harassing, or possessing protected species, as well as prohibiting any damage or destruction to the habitat of the listed species. Listed species are referred to as species at risk (SAR) and are provided with general habitat protection under the ESA to protect areas that species depend on to carry out their life processes, such as reproduction, rearing, hibernation, migration or feeding. Some species are also protected by detailed habitat regulations that go beyond the general habitat protection to define the extent and character of protected habitats.

Activities that may impact a protected species or its habitat require the prior issuance of a permit from the Ministry of the Environment, Conservation and Parks (MECP), unless the activities are applicable under O. Reg. 242/08, O. Reg. 830/21, or O. Reg. 829/21. These regulations identify activities that are exempt from the permitting requirements of the ESA and are subject to rigorous controls outside the permit process, including registration of the activity and preparation of a mitigation plan. Activities that are not exempt under these regulations require a complete permit application process.

1.3 Conservation Authorities Act, 1990

The Ontario *Conservation Authorities Act, 1990* (CAA) provides for "the organization and delivery of programs and services that further the conservation, restoration, development and management of natural resources" in Ontario. Conservation Authorities are established under the CAA and have jurisdiction over a designated watershed or watersheds. The Hamilton Conservation Authority (HCA) is the responsible authority for the CAA in the project Study Area.

O.Reg. 41/24 of the CAA identifies prohibited activities, exemptions and permits for development activities within regulated areas which include hazardous lands (areas associated with flooding, erosion, dynamic beaches or unstable soil or bedrock), watercourses, and wetlands. Development activities are defined in the regulation, and include construction, site grading, and temporary and permanent stock piling of material. Prior to undertaking development activities in regulated areas, written approval (i.e., a Permit or a Letter of Permission) is required from the HCA. Based on HCA's online regulated areas map tool (https://conservationhamilton.ca/regulated-areas-map-tool/), there are no regulated areas in the Study Area.

1.4 Fish and Wildlife Conservation Act

The Ontario *Fish and Wildlife Conservation Act, 1997* (FWCA) provides protection of wildlife in Ontario including fish, furbearing mammals, game wildlife and specially protected wildlife through regulations for hunting, trapping, and fishing practices. Game and specially protected mammals, birds, reptiles, amphibians, and invertebrates are listed on Schedules 1-11 of the FWCA. Definitions provided for hunting include capturing or harassing wildlife (Section 5) and would include activities that collect or handle wildlife for inventories or other scientific purposes, or to relocate wildlife out of harm's way (e.g., during construction activities), including individuals and eggs. Sections 7 and 8 also provide protection for nest and eggs of specified bird species including raptors, and dens of bears and furbearing animals, and beaver damns. Under the FWCA, the Ministry of Natural Resources (MNR) has the authority to authorize activities that would otherwise be prohibited such as the safe capture of wildlife and removal of nests, dens, and dams, and impose conditions on an authorization.

1.5 Planning Act, 1990 / Provincial Planning Statement, 2024

The Provincial Planning Statement (PPS; MMAH 2024) was issued under Section 3 of the Planning Act, 1990 (PA) and came into effect in October 2024. The PA requires that decisions made by planning authorities are consistent with the policy statements, such as the PPS, which includes policies on development and land use patterns, resources and public health and safety. The PPS and supporting documents provide definitions and criteria for identifying and evaluating the significance of natural heritage features and their ecological functions, including:

- Significant wetlands, including coastal wetlands
- Significant Woodlands
- Significant Valleylands

- Significant Wildlife Habitat
- Significant Areas of Natural and Scientific Interest
- Significant habitat of endangered or threatened species
- Fish habitat

The PPS also requires natural heritage systems to be identified in various ecoregions, including Ecoregion 7E where the Study Area occurs. Furthermore, the diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features as listed under sections 4.1.1, 4.1.2 and 4.1.3 of the PPS.

Additionally, under sections 4.1.4-4.1.8 site alteration is not permitted within the following:

- Significant wetlands, including coastal wetlands
- Significant Woodlands
- Significant Valleylands
- Significant Wildlife Habitat
- Significant Areas of Natural and Scientific Interest
- Significant habitat of endangered or threatened species
- Fish habitat

This includes any adjacent lands listed in the aforementioned areas that have been evaluated and demonstrated that change could cause negative impacts to the ecological function of these features.

Supporting documents considered in this assessment include the Natural Heritage Reference Manual (NHRM; MNRF 2010), the Significant Wildlife Habitat Technical Guide (MNR 2000) and Ecoregion Criteria Schedule for 7E.

1.6 Niagara Escarpment Plan (2017)

The Greensville RSA is partially located within the Niagara Escarpment Plan (NEP), specifically within the Escarpment Rural Area, and is therefore subject to the policies of the NEP. The lands are designated as Minor Urban Centre, with underlying Escarpment Rural Area. The lands are located outside of the Niagara Escarpment Development Control Area; therefore, a Development Permit is not required for the proposed works. The policies of the NEP will still apply to the lands. The NEP seeks to protect the geologic feature of the Niagara Escarpment and lands in its vicinity.

1.7 Rural Hamilton Official Plan

The Study Area is in the Greensville Rural Settlement Area of the Rural Hamilton Official Plan (RHOP, City of Hamilton 2021). The Rural Hamilton Official Plan (RHOP, City of Hamilton 2021) “provides direction and guidance on the management of…[its] communities, land use change and physical development.” It implements the PPS (discussed above), including identification of a Natural Heritage System and protection requirements for key natural heritage features and in Core Areas. The RHOP maps the Natural Heritage

System including Cores Areas and Linkages on Schedule B. There are no Core Areas (such as significant woodlands or wetlands) or Linkages designated on Schedule B of the RHOP. The Study Area is in the Greenbelt Protected Countryside and Escarpment Rural Area of the Niagara Escarpment Plan (**Figure 1, Attachment A**). The Greenbelt Natural Heritage System is designated to the immediate south of the Study Area.

1.7.1 Mid-Spencer Creek/Greensville Rural Settlement Area Subwatershed Study

In 2016, the Mid-Spencer Creek/Greensville Rural Settlement Area Subwatershed Study was completed and recommended a Schedule C EA for a "municipal backup well" for Greensville DWS. In 2017, the City initiated a Schedule C Class EA for a municipal backup well supply for Greensville which was ultimately reported as the Greensville Backup Well Feasibility Study as a condition assessment of the system (2019) identified additional considerations and issues, and the City was interested in evaluating the feasibility of refurbishing the existing facility as well as additional alternatives and their relative life-cycle costs.

Following the 2016 Mid-Spencer Creek / Greensville Rural Settlement Area Subwatershed Study, the City completed several studies and investigations and ultimately determined that the intent of the 2016 study recommendation was to provide a more resilient water supply for the Greensville drinking water system and the 36 residential connections along the Harvest Road Water Supply System. Therefore, while the 2016 study specifically recommends a "backup well", the City determined through engineering consultations that resiliency for the existing system could be provided through other means that could balance short- and long-term impacts on the environment and neighbouring residents, life-cycle costs, and operations burden - such as a trucked water connection and/or water storage such as a buried reservoir. Therefore, the approach to this MCEA was to identify the preferred alternative servicing scenario that could provide "backup supply" but not specifically to identify an alternative with a "backup well".

2 Background Review

Stantec completed a background review to identify records of designated natural areas and features, and records of Species at Risk (SAR) and Species of Conservation Concern (SOCC).

2.1 Natural Areas and Features

Sources reviewed include:

- Natural Heritage Information Centre (NHIC) (MNR 2024a)
- Ontario GeoHub Land Information Ontario (LIO) database (MNR 2024b)
- Rural Settlement Area of the Rural Hamilton Official Plan (City of Hamilton 2021)
- Greensville Backup Well Feasibility Study (Wood 2020)
- Mid-Spencer Creek / Greensville Rural Settlement Area Subwatershed Study (Aquafor Beech Ltd. / City of Hamilton 2016)

The background review did not identity records of natural heritage feature or areas (such as wetlands, woodlands, watercourses, valleylands, Significant Wildlife Habitat, or Areas of Natural and Scientific Interest) in the Study Area.

2.2 Species Records

For this assessment, SAR are defined as species that are listed as Endangered or Threatened on the Species at Risk in Ontario List. SOCC are defined as species that are classified as Special Concern provincially or federally or ranked as S1-S3 in the Ministry of Natural Resources (MNR) Natural Heritage Information Centre (NHIC) database.

Sources reviewed include:

- Natural Heritage Information Centre (NHIC) (MNR 2024a)
- Ontario GeoHub Land Information Ontario (LIO) database (MNR 2024b)
- eBird (eBird 2024)
- iNaturalist (iNaturalist 2024)
- Ontario Breeding Bird Atlas (Cadman et al 2007)
- Atlas of Mammals of Ontario (Dobbyn 1994)
- Ontario Reptile and Amphibian Atlas (Ontario Nature 2020)
- Ontario Butterfly Atlas (Toronto Entomologist's Association 2019)
- Ontario Moth Atlas (Toronto Entomologist's Association 2019)
- Ontario Odonata Atlas Database (Ontario Odonata Atlas 2023)
- Google Earth (Google Earth 2024)
- Greensville Backup Well Feasibility Study (Wood 2020)
- Consultation with Hamilton Naturalist Club (HNC; personal communication 2024)
- Hamilton Natural Areas Inventory Project 3rd Edition (Schwetz 2014)

Records of SAR and SOCC are provided in Table 1 and Table 2 below. The background atlases do not provide exact locations of species occurrence, with accuracy ranging from 1 km^2 to 10 km^2. Therefore, the potential occurrence of species in the Study Area was determined using a combination of targeted field surveys and habitat assessments (see Section 3).

Correspondence with the NHC (2024) reported one SAR (Eastern Meadowlark) and one SOCC (Barn Swallow) from Johnson Tew Park (**Attachment B**). Eastern Meadowlark was noted to nest north of the Study Area, near the quarry, and Barn Swallow has noted to forage in the Study Area.

Table 1: Background Records of Species at Risk

Group	Common Name	Latin Name	S-rank	SARO Status	SARA Schedule [1]	Source
Amphibians	Unisexual Ambystoma (Jefferson Salamander dependent population)	Ambystoma hybrid pop.1	S2	END	END	Ontario Nature 2020
Amphibians	Jefferson Salamander	Ambystoma jeffersonianum	S2	END	END	Ontario Nature 2020
Birds	Eastern Meadowlark	Sturnella magna	S4B,S3N	THR	THR	MNR 2024a, Cadman et al 2007, eBird 2024, HNC 2024
Birds	Bank Swallow	Riparia riparia	S4B	THR	THR	Cadman et al 2007, eBird 2024
Birds	Bobolink	Dolichonyx oryzivorus	S4B	THR	THR	Cadman et al 2007, eBird 2024
Birds	Louisiana Waterthrush	Parkesia motacilla	S2B	THR	THR	MNR 2024a, Cadman et al 2007
Birds	Chimney Swift	Chaetura pelagica	S3B	THR	THR	Cadman et al 2007
Birds	Least Bittern	Ixobrychus exilis	S4B	THR	THR	Cadman et al 2007
Birds	Red-headed Woodpecker	Melanerpes erythrocephalus	S3	END	END	Cadman et al 2007
Birds	Prothonotary Warbler	Protonotaria citrea	S1B	END	END	Cadman et al 2007
Birds	Northern Bobwhite	Colinus virginianus	S1?	END	END	MNR 2024a
Mammals	Eastern Small-footed Myotis	Myotis leibii	S2S3	END		Dobbyn 1994
Mammals	Little Brown Myotis	Myotis lucifugus	S3	END	END	Dobbyn 1994
Mammals	Northern Myotis	Myotis septentrionalis	S3	END	END	Dobbyn 1994

Group	Common Name	Latin Name	S-rank	SARO Status	SARA Schedule [1]	Source
Mammals	Tricolored Bat	Perimyotis subflavus	S3?	END	END	Dobbyn 1994
Reptiles	Blanding's Turtle	Emydoidea blandingii	S3	THR	END	Ontario Nature 2020
Vascular Plants	Butternut	Juglans cinerea	S2?	END	END	MNR 2024a, iNaturalist 2024
Vascular Plants	American Chestnut	Castanea dentata	S1S2	END	END	MNR 2024a
Vascular Plants	Downy Yellow False Foxglove	Aureolaria virginica	S1	END	END	MNR 2024a
Vascular Plants	Red Mulberry	Morus rubra	S2	END	END	MNR 2024a

S1: Critically Imperiled—Critically imperiled in the province (often 5 or fewer occurrences)
S2: Imperiled—Imperiled in the province, very few populations (often 20 or fewer),
S3: Vulnerable—Vulnerable in the province, relatively few populations (often 80 or fewer)
S4: Apparently Secure—Uncommon but not rare
S5: Secure—Common, widespread, and abundant in the province
SX: Presumed extirpated
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
S#B- Breeding status rank
S#N- Non-Breeding status rank
?: Indicates uncertainty in the assigned rank
END: Endangered
THR: Threatened

Table 2: Background Records of Species at Risk

Group	Common Name	Latin Name	S-rank	SARO Status	SARA Schedule[1]	Source
Birds	Eastern Wood-pewee	Contopus virens	S4B	SC	SC	MNR 2024a, Cadman et al 2007, eBird 2024
Birds	Barn Swallow	Hirundo rustica	S4B	SC	THR	Cadman et al 2007, eBird 2024
Birds	Wood Thrush	Hylocichla mustelina	S4B	SC	THR	MNR 2024a, Cadman et al 2007
Birds	Grasshopper Sparrow	Ammodramus savannarum	S4B	SC		Cadman et al 2007
Birds	Golden-winged Warbler	Vermivora chrysoptera	S3B	SC	THR	Cadman et al 2007
Birds	White-eyed Vireo	Vireo griseus	S1B			MNR 2024a
Bryophytes	Alleghany Moss	Thamnobryum alleghaniense	S3			MNR 2024a
Insects	Double-striped Bluet	Enallagma basidens	S3			Ontario Odonata Atlas 2023
Insects	Arrowhead Spiketail	Cordulegaster obliqua	S3			Ontario Odonata Atlas 2023
Insects	Unicorn Clubtail	Arigomphus villosipes	S3			Ontario Odonata Atlas 2023
Insects	Pronghorn Clubtail	Phanogomphus graslinellus	S3			Ontario Odonata Atlas 2023
Insects	Painted Skimmer	Libellula semifasciata	S3			Ontario Odonata Atlas 2023
Insects	Oldwife Underwing Moth	Catocala palaeogama	S3			Toronto Entomologist's Association 2019
Insects	Penitent Underwing Moth	Catocala piatrix	S3			Toronto Entomologist's Association 2019
Insects	Sycamore Tussock Moth	Halysidota harrisii	S1S2			Toronto Entomologist's Association 2019
Insects	Hermit Sphinx Moth	Lintneria eremitus	S3			Toronto Entomologist's Association 2019
Insects	Black Dash	Euphyes conspicua	S3			Toronto Entomologist's Association 2019

Group	Common Name	Latin Name	S-rank	SARO Status	SARA Schedule[1]	Source
Insects	Monarch	Danaus plexippus	S2N,S4B	SC	SC	iNaturalist 2024, Toronto Entomologist's Association 2019
Insects	American Burying Beetle	Nicrophorus americanus	SH	EXP	EXP	MNR 2024a
Reptiles	Eastern Milksnake	Lampropeltis triangulum	S4	NAR	SC	MNR 2024a, Ontario Nature 2020
Reptiles	Timber Rattlesnake	Crotalus horridus	SX	EXP	EXP	MNR 2024a
Reptiles	Midland Painted Turtle	Chrysemys picta marginata	S4		SC	MNR 2024a, Ontario Nature 2020
Reptiles	Snapping Turtle	Chelydra serpentina	S4	SC		Ontario Nature 2020
Reptiles	Northern Map Turtle	Graptemys geographica	S3	SC	SC	Ontario Nature 2020
Reptiles	Eastern Musk Turtle	Sternotherus odoratus	S3	SC	SC	Ontario Nature 2020
Vascular Plants	Rue-anemone	Thalictrum thalictroides	S3			MNR 2024a
Vascular Plants	Perfoliate Bellwort	Uvularia perfoliata	S1S2			MNR 2024a

SC: Special Concern

3 Terrestrial Field Investigations

Field investigations were completed to document natural heritage features and species in the Study Area. Investigations were completed in the Study Area where property access was available (i.e., the City owned lands); private lands in the Study Area were assessed from the edge of the property. A summary of field investigations undertaken is provided in Table 3. Incidental observations of wildlife were recorded by sight, sound and other evidence during all field investigations.

Table 3: Summary of Field Investigations

Date (2024)	Purpose	Effort	Weather[1]	Personnel
June 11	• Breeding bird survey #1	6:50-7:40am	15°C, wind = 1, 10% cloud cover, no rain	S. Spisani
June 19	• Breeding bird survey #2	6:45-7:35am	20°C, wind = 1, 30% cloud cover, no rain	S. Spisani
July 2	• Vegetation community survey • Wildlife habitat assessment • Bat habitat assessment • Vascular plant inventory • Breeding bird survey #3	8:00-10:30am	22°C, wind = 1, 30% cloud cover, no rain	K. Ellis

Notes: 1 – Wind estimated using the Beaufort Wind Scale

3.1 Vegetation Communities

Vegetation community assessments were conducted using protocols outlined in the Ecological Land Classification (ELC) System for Southern Ontario (Lee et al. 1998). The 2008 ELC code updates were used to classify vegetation communities that were not listed in the 1998 manual. Vegetation assessments included a general description of the community, lists of the dominant species in the canopy, sub-canopy, shrub and ground layers, a soil description, and a detailed plant species list.

Vegetation communities and botanical species observed were reviewed to determine whether any of the communities were rare in the province, contained any provincially significant plant species, or had the potential to provide significant habitat for wildlife. Flora nomenclature was based on the list maintained by the NHIC (MNR 2024a).

The Study Area was comprised of paved recreational trails, mowed lawn, meadow, and planted landscape vegetation. Descriptions of vegetation communities identified in the Study Area are detailed in Table 4 below. Vegetation communities located within the Study Area are shown on **Figure 2, Attachment A**. Photos of the Project Location and Study Area are provided in **Attachment C**.

Table 4: Vegetation Communities in the Study Area

ELC TYPE	Community Description
Meadow (ME)	
Dry - Fresh Mixed Meadow Ecosite (MEMM3)	Mixed Meadow community surrounding the maintain parkland area. The community contains a mix of grass and wildflower species, primarily dominated by Canada goldenrod (*Solidago canadensis*) and Kentucky bluegrass (*Poa pratensis*).
Cultural	
Fencerow (TAGM5)	Treed Fencerows separating the residential communities from the adjacent park. This community is dominated by black walnut (*Juglans nigra*), Manitoba maple (*Acer negundo*) and staghorn sumac (*Rhus typhina*).
Constructed	
Parkland/Treed Pasture (CGL_2/TAGM4)	The CGL_2 community is comprised of mowed lawn, paved recreational trails, an arboretum and a maintained pollinator garden to the south.
Transportation (CVI)	Roadways, Cedar Avenue, Meldrum Avenue and Forest Avenue.
Residential (CVR)	Residential community surrounding the Site Boundary.
Residential/Fencerow (CVR/TAGM5)	Residential community surrounding the Site Boundary with treed fencerows. Tree species within the fencerow include: Norway Maple (*Acer platanoides*), paper birch (*Betula papyrifera*), honey locust (*Gleditsia triacanthos*), white spruce (*Picea glauca*), Austrian pine (*Pinus nigra*), and eastern white pine (*Pinus strobus*).

3.2 Flora

The following is a floristic summary for the Study Area based on a botanical assessments carried out in July 2024. A detailed list with all scientific plant names and species statuses is provided in **Attachment D**.

- A total of 72 species of vascular plants were recorded. This total includes taxa identified to species, subspecies (ssp.) and variation (var.) levels.
- 41 of the 75-recorded species are native to Ontario, while 31 are exotic species not native to Ontario.
- 30 native species have a provincial rank of S5, indicating they are common with a secure population in Ontario.
- 8 native species have a provincial rank of S4, indicating they are uncommon to common, but not rare in the province and populations are apparently secure. The majority of the S4 species observed in the Study Area were planted vegetation and not occurring naturally.
- Four locally rare and one locally uncommon plant species were observed in the Study Area:
    a. **Tulip Tree (rare)**– A tree was observed in the newly planted area in MEMM3 community. All observed trees were planted and do not occur naturally in the Study Area.
    b. **False Sunflower (rare)**– Plants were observed as part of the pollinator garden located to the south of the Study Area

c. **Northern Pin Oak (rare)** – A couple of trees were observed in the CGL_2/TAGM4 community and were planted as part of the arboretum.

d. **American Hazelnut (rare)** – Individuals were observed in the newly planted area in MEMM3 community. All observed individuals were planted and do not occur naturally in the Study Area.

e. New Jersey Tea (uncommon) – Plants were observed as part of the pollinator garden located to the south of the Study Area

- Three provincially rare plant species were observed in the Study Area:

  a. **Honey-locust (S2?)** – A couple of trees were observed in the CVR community on lawn adjacent to the TAGM5 community. These trees lack the thorns that would typically be found on naturally occurring wild Honey-locust. These trees were planted, and Honey-locust does not occur naturally in the Study Area.

  b. **Northern Pin Oak (S3)** – A couple of trees were observed in the CGL_2/TAGM4 community and were planted as part of the arboretum.

  c. **Grey-headed Prairie Coneflower (S3)** – Plants were observed as part of the pollinator garden located to the south of the Study Area.

- Two highly sensitive native plant species with a high coefficient of conservatism value of 8 (honey-locust, tulip tree) and three species with a coefficient of conservatism value of 9 (three-flowered avens, northern pin oak, grey-headed prairie coneflower) were observed in the Study Area. However, this has been determined to be either planted landscape trees within the arboretum or residential communities or part of the maintained pollinator garden.

3.3 Bats

A habitat assessment was conducted to identify candidate trees that may be suitable for bat maternity roosts in the Project Location plus 10 m (the area where indirection impacts to trees may reasonable occur). Trees > 8 cm diameter at breast height (dbh) were assessed to determine if they had suitable roost structures such as loose bark, cavities, or other structures as described the *Survey Protocol for Species at Risk Bats within Treed Habitats – Little Brown Myotis, Northern Myotis & Tri-Colored Bat* (MNRF 2017). Based on this criteria, no suitable bat maternity roost trees were identified.

3.4 Breeding Birds

Breeding bird surveys were conducted during early morning hours on three dates in June/July 2024. Surveys were conducted by traversing the Study Area on foot and recording all species of birds that were heard or seen within the parkland, meadow and hedgerow habitat. The highest level of breeding evidence was recorded for each species using the codes in the Ontario Breeding Bird Atlas (Cadman et al. 2007). Thirty-one species were recorded during breeding bird surveys (Table 5). Birds recorded in suitable breeding habitat were conservatively considered to be breeding in the Study Area, unless indicated as a foraging or flyover occurrence.

One SOCC bird was recorded (Barn Swallow), which was observed foraging in the Study Area (non-breeding). No SAR birds were recorded. As noted above (Section 2.2), NHC (2024) reported one SAR

(Eastern Meadowlark) from Johnson Tew Park, north of the Study Area, near the quarry; however, they noted it does not nest in the Project Location "because of [habitat] fragmentation" (**Attachment B**).

The bird list includes grassland species such as Eastern Kingbird, Eastern Bluebird, Savannah Sparrow and Field Sparrow; however, the Study Area does not support sufficient diversity of qualifying Open Country or Shrub Early Succession species indicated in the Ecoregion Criteria Schedule of 7e (MNRF 2015) to confirm the presence of Significant Wildlife Habitat. Johnson Tew Park has a number of bird nest boxes that are maintained by HNC and had active nests of Tree Swallow, and possibly Eastern Bluebird.

Table 5: Summary of Field Investigations

COMMON NAME	SCIENTIFIC NAME	S-Rank	Local ranking[1]	Breeding	Foraging/ Flyover
Mourning Dove	Zenaida macroura	S5	A	Probable	
Killdeer	Charadrius vociferus	S4B	A	Possible	
Ring-billed Gull	Larus delawarensis	S5	A		x
Turkey Vulture	Cathartes aura	S5B,S3N	U		x
Downy Woodpecker	Dryobates pubescens	S5	C	Possible	
Northern Flicker	Colaptes auratus	S5	C	Probable	
Eastern Kingbird	Tyrannus tyrannus	S4B	A	Probable	
Red-eyed Vireo	Vireo olivaceus	S5B	C	Possible	
Blue Jay	Cyanocitta cristata	S5	A	Probable	
American Crow	Corvus brachyrhynchos	S5	C	Possible	x
Tree Swallow	Tachycineta bicolor	S4S5B	A	Confirmed	x
Barn Swallow	Hirundo rustica	S4B	C		x
Black-capped Chickadee	Poecile atricapillus	S5	A	Probable	
Eastern Bluebird	Sialia sialis	S5B,S4N	U	Confirmed	
American Robin	Turdus migratorius	S5	A	Confirmed	
Northern Mockingbird	Mimus polyglottos	S4	U	Possible	
European Starling	Sturnus vulgaris	SNA	A	Possible	x
Cedar Waxwing	Bombycilla cedrorum	S5	C		x
House Sparrow	Passer domesticus	SNA	A	Probable	
House Finch	Haemorhous mexicanus	SNA	A	Probable	
American Goldfinch	Spinus tristis	S5	A	Probable	
Chipping Sparrow	Spizella passerina	S5B,S3N	A	Probable	
Field Sparrow	Spizella pusilla	S4B,S3N	C	Possible	
Savannah Sparrow	Passerculus sandwichensis	S5B,S3N	A	Possible	
Song Sparrow	Melospiza melodia	S5	A	Probable	
Baltimore Oriole	Icterus galbula	S4B	A	Possible	
Red-winged Blackbird	Agelaius phoeniceus	S5	A	Confirmed	
Brown-headed Cowbird	Molothrus ater	S5	A	Probable	
Common Grackle	Quiscalus quiscula	S5	A	Possible	
Northern Cardinal	Cardinalis cardinalis	S5	A	Probable	

COMMON NAME	SCIENTIFIC NAME	S-Rank	Local ranking[1]	Breeding	Foraging/ Flyover
Indigo Bunting	Passerina cyanea	S5B	C	Possible	

1-Local status determined using the Hamilton Natural Areas Inventory (Schwetz 2014); A=Abundant, C=Common, U=Uncommon, R=Rare

3.5 Incidental Wildlife

Wildlife (birds, reptiles, mammals, amphibians and insects) were noted incidentally during site investigations. Species, number, notes on habitat and behavior were recorded. The following species were observed on site during field investigations: cabbage white (*Pieris rapae*), red admiral (*Vanessa atalanta*), white-tailed deer (*Odocoileus virginianus*), eastern chipmunk (*Tamias striatus*), and meadow vole (*Microtus pennsylvanicus*). Additional observations have been provided by HNC and include active breeding of Tree Swallows and Eastern Bluebirds in the nest boxes, eastern cottontail (*Sylvilagus floridanus*) and red fox (*Vulpes vulpes*) (**Attachment B**). These species are provincially common (S5; MNR 2024a) and locally common (Schwetz 2014), except Eastern Bluebird which is locally uncommon (Schwetz 2014).

3.6 Habitat Assessment

A wildlife habitat assessment was conducted to identify suitable habitat in the Study Area for SAR and SOCC, and to determine the presence/ absence of Significant Wildlife Habitat.

3.6.1 SAR / SOCC

There were 20 SAR and 27 SOCC with records of occurrence in the Study Area (**Tables 1-2** above). A habitat assessment was conducted for each of these species to determine potential for them to occur in the Project Location and Study Area. A summary of the SAR and SOCC with suitable habitat in the Project Location and Study Area is provided below. Because targeted surveys for plants and breeding birds were completed, SAR and SOCC plants and birds that were not observed are excluded from the summary below.

SAR were not observed during field investigations and are considered absent from the Project Location. One SOCC was observed (Barn Swallow) foraging in the Study Area and the Project Location is suitable foraging habitat; however, breeding evidence was not recorded. Suitable habitat for one snake and three insect SOCC is also present in the Project Location (see below).

Suitable habitat for SAR includes:

- Endangered bats may use surrounding woodlands and hedgerows for maternity roosts; suitable maternity roost trees were not observed in the Project Location.

Suitable habitat for SOCC includes:

- Eastern Milksnake may occur in the meadow habitat especially adjacent to any old foundations where they may overwinter and/or seek shelter; suitable foundations were not observed in the Project Location and are unlike to occur in the Study Area, however snakes may occasionally use the meadow for foraging or movement.
- Barn Swallow was observed foraging in the Study Area, and the Project Location is suitable foraging habitat. Suitable nesting structures were absent from the Project Footprint. Structures in the Study Area were on private lands and were not accessible to search for nests.

- Monarch may breed in the meadow where Common Milkweed was observed.
- Oldwife Underwing Moth may occur in surrounding woodlands and hedgerows where larval host plants (hickory [*Carya* sp.] and walnut [*Juglans* sp.] are present; Black Walnut (*Juglans nigra*) was recorded in the Project Location.
- Penitent Underwing Moth may occur in surrounding woodlands and hedgerows where larval host plants of hickory (*Carya* sp.) and walnut (*Juglans* sp.) are present; Black Walnut was recorded in the Project Location.

3.6.2 Significant Wildlife Habitat

The Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (MNRF 2015) provide descriptions of wildlife habitats and guidance on criteria for determining the presence of candidate and confirmed wildlife habitats in four categories (**Tables 6-9**). Each of the habitat types was assessed to determine presence/absence of candidate Significant Wildlife Habitat. Results of the assessment are summarized for each in **Tables 6-9**. Results of targeted surveys discussed above were used in the assessment where appropriate.

Seasonal concentration areas are sites where large numbers of a species gather together at one time of the year, or where several species congregate. Only the best examples of these concentration areas are typically designated as Significant Wildlife Habitat. Review of the NHIC & LIO databases did not identify any confirmed seasonal concentration areas within the Study Area. The potential for seasonal concentration areas to occur in the Study Area is assessed in **Table 6**.

Table 6: Seasonal Concentration Areas

Habitat Type	Habitat Features	Candidate SWH in the Study Area
Bat hibernacula	Abandoned mine shafts, underground foundations, caves, and crevices	No crevices, caves or abandoned mines are located within the Study Area. **No candidate** habitat for bat hibernacula occurred within the Study Area.
Deer wintering congregation areas	Deer yards are mapped by MNRF.	No deer winter congregation areas were identified by the MNR within the Study Area. **No candidate** habitat for deer winter congregation areas occurs within the Study Area.
Colonially – nesting bird breeding habitat (bank and cliff)	Eroding banks, sandy hills, steep slopes, rock faces or piles	No eroding banks, sandy hills, borrow pits, steep slopes and sand piles were present within the Study Area. **No candidate** habitat for bank or cliff colonial nesting birds occurs within the Study Area.
Colonially – nesting bird breeding habitat (trees/shrubs)	Dead trees in large marshes and lakes, flooded timber, and shrubs, with nests of colonially nesting heron species.	No large stick nests were observed during Stantec surveys. **No candidate** habitat for tree/shrub colonial nesting birds occurred within the Study Area.

Habitat Type	Habitat Features	Candidate SWH in the Study Area
Colonially – nesting bird breeding habitat (ground)	Rock islands and peninsulas in a lake or large river	No rocky islands or peninsulas are present within the Study Area. **No candidate** habitat for ground colonial nesting birds occurred within the Study Area.
Waterfowl stopover and staging areas	Field with evidence of annual spring flooding from meltwater or runoff; aquatic habitats such as ponds, marshes, lakes, bays, and watercourses used during migration, including large marshy wetlands	No aquatic or wetland habitats are present within the Study Area. **No candidate** habitat for waterfowl stopover and staging areas within the Study Area
Shorebird migratory stopover area	Beaches and un-vegetated shorelines of lakes, rivers, and wetlands	No beaches or shoreline are present within the Study Area. **No candidate** habitat for waterfowl stopover and staging areas within the Study Area
Raptor wintering areas	Combination of fields and woodland (>20 ha)	**Present** -The Study Area contains a suitable amount of treed (TAG) and meadow (MEMM3) habitat
Bat maternity colonies	Mixed and deciduous forests and swamps with large diameter dead or dying trees with cavities	No suitable forested area with large diameter dead or dying trees with cavities observed within the Study Area **No candidate** bat maternity colonies within the Study Area
Reptile hibernacula	Rock piles or slopes, stone fences, crumbling foundations	No rock piles or slopes, stone fences, crumbling foundations observed within the Study Area **No candidate** reptile hibernacula within the Study Area
Turtle wintering area	Permanent waterbodies and large wetlands with sufficient depth and dissolved oxygen	No permanent waterbodies and large wetlands observed within the Study Area **No candidate** turtle wintering areas within the Study Area
Migratory butterfly stopover area	Meadows and forests that are a minimum of 10 ha and are located within 5km of Lake Erie or Lake Ontario	None - The Study Area is greater than 5km from Lake Ontario.
Landbird migratory stopover area	Woodlands of a minimum size located within 5km of Lake Erie or Lake Ontario	None - The Study Area is greater than 5km from Lake Ontario.

Rare or specialized habitats are defined as separate components of Significant Wildlife Habitat. Rare habitats are habitats with vegetation communities that are considered rare (S1-S3) in the province. These habitats are generally at risk and may support wildlife species that are considered significant. Specialized habitats are microhabitats that are critical to some wildlife species. Candidate rare or specialized habitats are discussed in **Table 7**.

Table 7: Rare or Specialized Habitats

Habitat Type	Habitat Features	Candidate SWH in the Study Area
Sand barren, alvar, cliffs and talus slopes	Sand barren, Alvar, Cliff and Talus ELC Community Classes, and other areas of exposed bed rock and patchy soil development, near vertical exposed bedrock and slopes of rock rubble	No sand barrens, alvar, cliffs and talus slopes were identified within the Study Area. **No candidate** wildlife habitat within the Study Area.
Prairie and savannah	Open canopy habitats (tree cover < 60%) dominated by prairie species	No prairie or savannah were identified within the Study Area. **No candidate** wildlife habitat within the Study Area.
Old growth forest	Relatively undisturbed, structurally complex; dominant trees > 100 years' old	No old growth forests were identified within the Study Area. **No candidate** wildlife habitat for old growth forests occurs within the Study Area.
Other rare vegetation communities	Vegetation communities ranked S1-S3 by the NHIC.	No rare vegetation communities were identified within the Study Area. **No candidate** wildlife habitat for rare vegetation communities occurs within the Study Area.
Waterfowl nesting areas	Upland habitats adjacent to wetlands (within 120m)	No upland habitats adjacent to wetlands occur within the Study Area. **No candidate** wildlife habitat for waterfowl nesting areas occurs within the Study Area.
Bald Eagle and Osprey nesting, foraging and perching habitat	Treed communities adjacent to rivers, lakes, ponds, and other wetlands with stick nests of Bald Eagle or Osprey	The Study area is not situated adjacent to waterbodies or wetlands. **No candidate** wildlife habitat for Bald Eagle and Osprey nesting, foraging and perching habitat occurs within the Study Area.
Woodland raptor nesting habitat	Forested ELC communities >30 ha with 10 ha of interior habitat	There is no interior habitat within the Study Area, and no stick nests were identified in woodland/forest communities during field surveys. **No candidate** wildlife habitat for woodland raptor nesting occurs within the Study Area.
Turtle nesting areas	Exposed soil, including sand and gravel in open sunny areas near wetlands	No ELC communities were identified within the Study Area that are generally associated with potential candidate wildlife habitat for turtle nesting areas.
Seeps, springs, and mineral licks	Any forested area with groundwater at surface within the headwaters of a stream or river system	No seeps or springs were observed within the Study Area.

Habitat Type	Habitat Features	Candidate SWH in the Study Area
Amphibian breeding habitat (woodland and wetland)	Treed uplands with vernal pools, and wetland ecosites	No upland habitat with vernal pools or wetlands were observed within the Study Area
Woodland area sensitive breeding bird habitat	Large mature forest stands, woodlots >30ha and >200m from the forest edge	No woodlots exceeded 30 ha in size within the Study Area. **No candidate** wildlife habitat for woodland area-sensitive breeding bird habitat occurs within the Study Area.

Habitat for species of conservation concern includes four types of species: those that are rare, those whose populations are significantly declining, those that have been identified as being at risk to certain common activities, and those with relatively large populations in Ontario compared to the remainder of the globe. Candidate habitats for species of conservation concern are discussed in **Table 8**.

Table 8: Habitat for Species of Conservation Concern

Habitat Type	Habitat Features	Candidate SWH in the Study Area
Open country bird breeding habitat	Large grasslands and fields (>30ha)	Breeding bird surveys did not record qualifying diversity of indicator species. **No candidate** wildlife habitat for open country breeding bird habitat occurs within the Study Area.
Shrub/early successional bird breeding habitat	Large shrub and thicket habitats (>10ha)	Breeding bird surveys did not record qualifying diversity of indicator species. **No candidate** wildlife habitat for shrub/early successional breeding bird habitat occurs within the Study Area.
Marsh bird breeding habitat	Wetlands with shallow water with emergent aquatic vegetation	No wetlands occur within the Study Area. **No candidate** wildlife habitat for marsh breeding birds occurs within the Study Area.
Terrestrial Crayfish	Wet meadows and edges of shallow marshes	No wetlands or wet meadows occur within the Study Area. No Terrestrial Crayfish chimneys were observed within the Study Area.

Animal movement corridors are distinct passageways or defined natural features that are used by wildlife to move between habitats, usually in response to seasonal requirements. Movement corridors are identified once the following seasonal concentration areas or specialized habitats are confirmed as SWH: amphibian breeding habitat and deer wintering habitat. Candidate animal movement corridors are discussed in **Table 9**.

Table 9: Summary of Animal Movement Corridors

Habitat Type	Habitat Features	Candidate SWH in the Study Area
Deer movement corridors	Associated with confirmed deer wintering habitat	No deer winter congregation areas were identified by the MNR within the Study Area. **No candidate** habitat for deer movement corridors occur within the Study Area.
Amphibian movement corridors	Associated with confirmed amphibian breeding habitat	No amphibian breeding habitat occurs within the Study Area, no potential for amphibian movement corridors

Special Concern and Rare Wildlife Species are species that are listed as S1-S3, Special concern provincially and federally or listed as endangered or threated federally. Species are discussed in **Table 10** and section 3.6.1.

Table 10: Summary of Special Concern and Rare Wildlife Species

Species	Habitat	Candidate SWH in the Study Area
Eastern Milksnake	Eastern Milksnake favours open woodlands, fields and farm buildings and are commonly associated with rural areas.	Suitable foraging habitat was observed in the Project Location. Suitable foundations for hibernation were not observed in the Project Location and are unlikely to occur in the Study Area.
Barn Swallow	Nest on walls or ledges of barns and other human-made structures such as bridges, culverts or other buildings; forages in open areas for flying insects	Barn Swallow was observed foraging in the Study Area, and the Project Location is suitable foraging habitat. Suitable nesting structures were absent from the Project Footprint. Structures in the Study Area were on private lands and were not accessible to search for nests.
Monarch	Forage and nest in open habitat (i.e., meadows, grasslands and pastures) with various milkweed species (Asclepias spp.) and/or wildflowers such as goldenrods (Solidago spp.), asters (Aster spp.) and yarrow (Achillea millefolium).	Monarch may breed in the meadow (MEMM3) where Common Milkweed is present.
Oldwife Underwing Moth	Forests, especially deciduous forests where hickory and walnut trees grow.	Oldwife Underwing Moth may occur in surrounding woodlands and hedgerows where larval host plants hickory and walnut are present; Black Walnut was recorded in the Project Location.
Penitent Underwing Moth	Forests, especially deciduous forests where hickory and walnut trees grow.	Penitent Underwing Moth may occur in surrounding woodlands and hedgerows where larval host plants hickory and walnut are present; Black Walnut was recorded in the Project Location.

4 Natural Heritage Summary

Natural heritage data was assessed to identify key natural heritage features and significant natural features and functions outlined in the RHOP (Section 1.6) and PPS (Section 1.5). The following key/significant features were identified:

- Suitable Habitat for SOCC (Eastern Milksnake, Barn Swallow, Monarch, Oldwife Underwing Moth and Penitent Underwing Moth)
- Candidate Significant Wildlife Habitat (Raptor Wintering Areas)

There were occurrences of SOCC plants (honey locust, northern pin oak and grey-headed prairie coneflower); however, these are planted occurrences and are not considered to indicate the presence of SWH.

The Study Area also provides breeding and foraging habitat for a variety of migratory birds that are protected by the MBCA (see Section 1.1) and is expected to support a variety of other common, urban tolerant wildlife such as white-tailed deer, red fox and eastern cottontail.

4.1 Mitigation Recommendations

The following standard mitigation measures and best practices are recommended to reduce potential impacts to natural heritage features during construction:

- Delineate the work areas with tree protection fencing prior to construction.
- Develop and implement an erosion and sediment control plan. Maintain the ESC measures until disturbed soils are secure and stable. Re-vegetate disturbed/exposed soil as soon as feasible.
- Wash, refuel and service equipment in designated areas, and have a spill management plan to address accidental spills. Check machinery regularly for fluid leaks.
- Implement a clean equipment protocol to prevent the introduction of invasive species.
- Avoid wildlife during construction by implementing timing restriction and visual searches (see below).

4.1.1 Invasive Species Management

As noted in **Section 3.2**, the Study Area contains non-native species, including several invasive species. Invasive plants identified in Johston Tew Park can be a threat to native plant communities and wildlife habitats. The following measures are recommended to manage invasive plants to improve ecological quality and function post-construction:

- Remove the following invasive species:
  - Garlic Mustard (Alliaria petiolata)
  - Dame's Rocket (Hesperis matronalis)
  - White Sweet-clover (Melilotus albus)
  - White Mulberry (Morus alba)
  - European Buckthorn (Rhamnus cathartica)
  - Purple Crown-vetch (Securigera varia)

- Herbaceous invasive plants should be controlled in all areas of temporary disturbance prior to restoration seeding and planting. Ongoing management of herbaceous invasives during vegetation establishment may be required.
- Targeted or spot removal of herbaceous invasives in established communities that will be undisturbed by construction is recommended where these species threaten existing vegetation or newly planted areas. Any application of an herbicide is to be conducted in accordance with all provincial and municipal regulations.
- Replace invasive species removals with native species.

4.2 Revegetation

Disturbed/exposed soil will revegetate to incorporate a variety of native species and that are suited to the site conditions, and plant material will be sourced locally if possible. Planting plans will include a variety of species that are beneficial to Monarch and other insects and wildlife, such as nectar-producing grassland species. Non-native invasive species will be excluded from planting plans

Vegetation inspection will be completed to document compliance with the planting plans (e.g., correct species and quantities were planted) and vegetation establishment. Adaptive management will be implemented if required due to poor survival of planted material, insufficient vegetation cover, and presence of invasive species in planted areas. Adaptive strategies may include supplemental plantings and/or control of unacceptable species.

4.2.1 Wildlife Avoidance

Timing restrictions are recommended to avoid disturbance to wildlife that may be using natural areas, including breeding birds and Monarch:

- To avoid nesting birds and contravention of the MBCA, removal of vegetation and structures with nests will avoid the period between **March 31** and **August 31**.

- Monarch larvae may be present between **April 1** and **September 30**, and vegetation removal should avoid this period if possible. If vegetation clearing will proceed when Monarch larvae may be present, milkweed plants will be inspected for Monarch larvae prior to their removal. If larvae are present, they will be moved to a location that is suitable and safe under the direction of a qualified professional. Monarch caterpillars will be moved to other milkweed plants; for other larval stages (i.e., eggs and chrysalis), entire milkweed plants will be transplanted.

- Oldwife Underwing Moth and Penitent Underwing Moth larvae may be present on host plants such as Black Walnut between approximately mid-spring and mid-summer; therefore, avoidance of the MBCA restricted period (March 31 and August 31) will also protect caterpillars.

Visual searches of work areas will be conducted before work commences each day to identify and avoid other wildlife. Visual searches will target vegetated areas and inspect machinery and equipment left in the work are overnight prior to starting equipment. If wildlife is encountered, work at that location will stop, and the animal(s) will be permitted reasonable time to leave the are on their own. Observations of SAR or SOCC will be reported to the MECP and MNR within 48 hours of the observation. Species at risk will not be harassed or moved in any way, unless they are in immediate danger.

4.3 Authorization Requirements

4.3.1 Endangered Species Act, 2007 Requirements

NHC (2024) reported one SAR (Eastern Meadowlark) from Johnson Tew Park, north of the Study Area, near the quarry; however, they noted it does not nest in the Project Location "because of [habitat] fragmentation" (**Attachment B**). Given that habitat in the Project Location is note suitable due to fragmentation (residential development and recreational park infrastructure), and Eastern Meadowlark was not recorded during breeding bird surveys, it is considered absent from the Study Area. As noted in above (Section 3.6.1), the other SAR identified in the background record review are considered absent from the Project Location.

4.3.2 Conservation Authorities Act, 1990

As noted above (Section 1.3), HCA's online regulated areas map tool (https://conservationhamilton.ca/regulated-areas-map-tool/) indicates there are no regulated areas in the Study Area.

Closing,

Stantec Consulting Ltd.

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Ecologist
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kayla.ellis@stantec.com

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Senior Ecologist
Phone: (905) 381-3223
sean.spisani@stantec.com

Attachments:

Attachment A Figures
Attachment B HNC Communication
Attachment C Photographic Log
Attachment D Vascular Plant List

5 References

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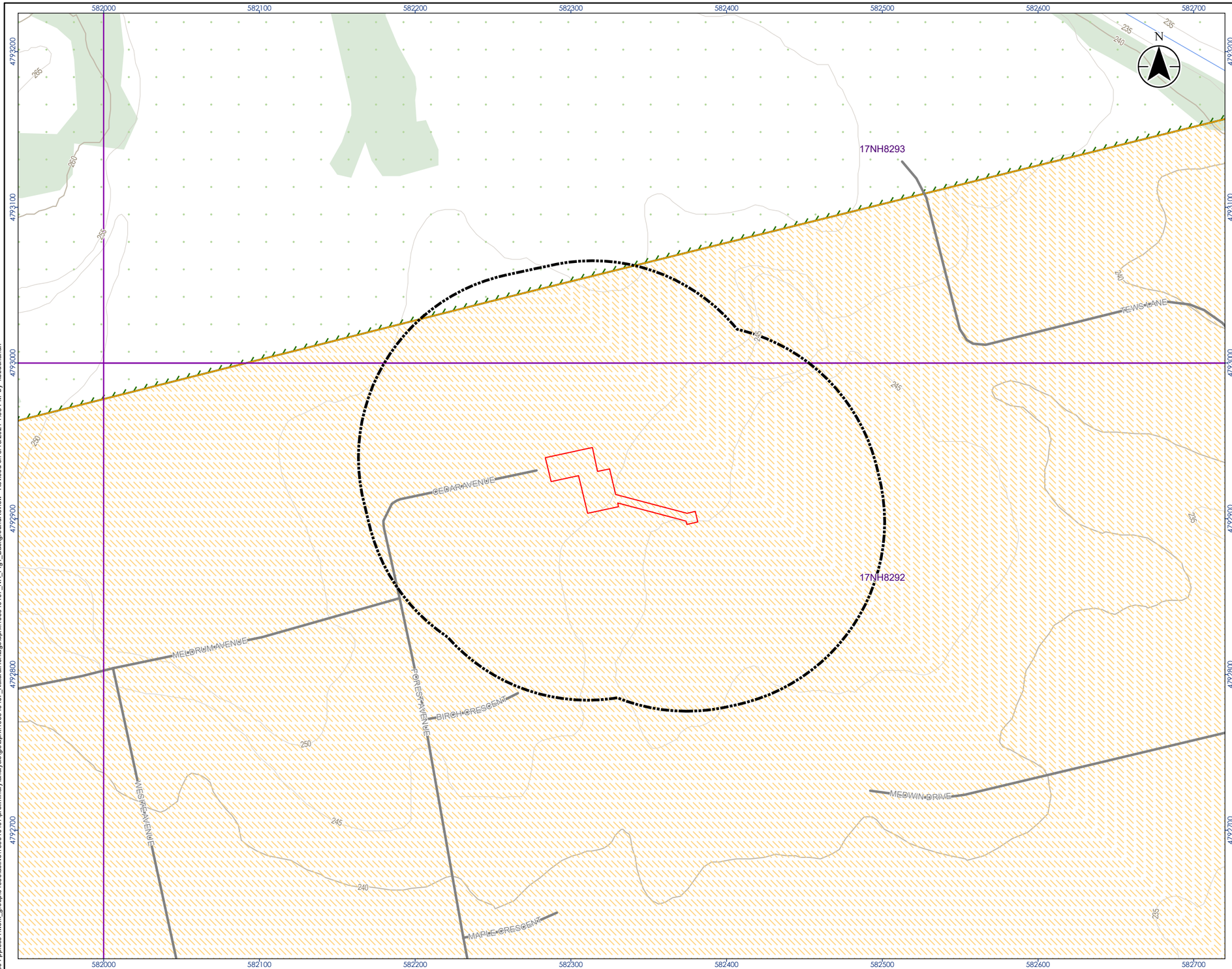
Attachment A Figures



Stantec

Legend

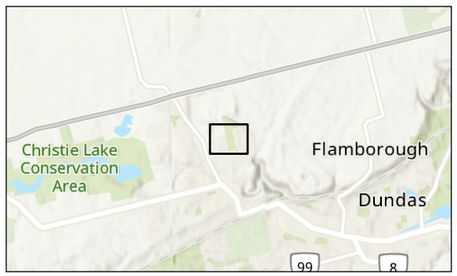
- Study Area (120 m)
- Project Footprint
- Minor Road
- Watercourse (Permanent)
- Contour (5 m Interval)
- Wooded Area
- Greenbelt - Protected Countryside
- Niagara Escarpment Plan - Escarpment Rural Area
- 1 km UTM Grid

0 50 100 m

1:2,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Key map credits: Esri, NASA, NGA, USGS, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS, NRCan, Parks Canada
3. Contains information licensed under the Open Government License - Canada and the Open Government License - Ontario.



Project Location
City of Hamilton

REV6
Prepared by kebuchanan on 2024-08-13
Technical Review by SS on 2024-08-13

Client/Project
CITY OF HAMILTON
GREENSVILLE WSS
MUNICIPAL CLASS EA

Figure No.
1

Title
Background Data

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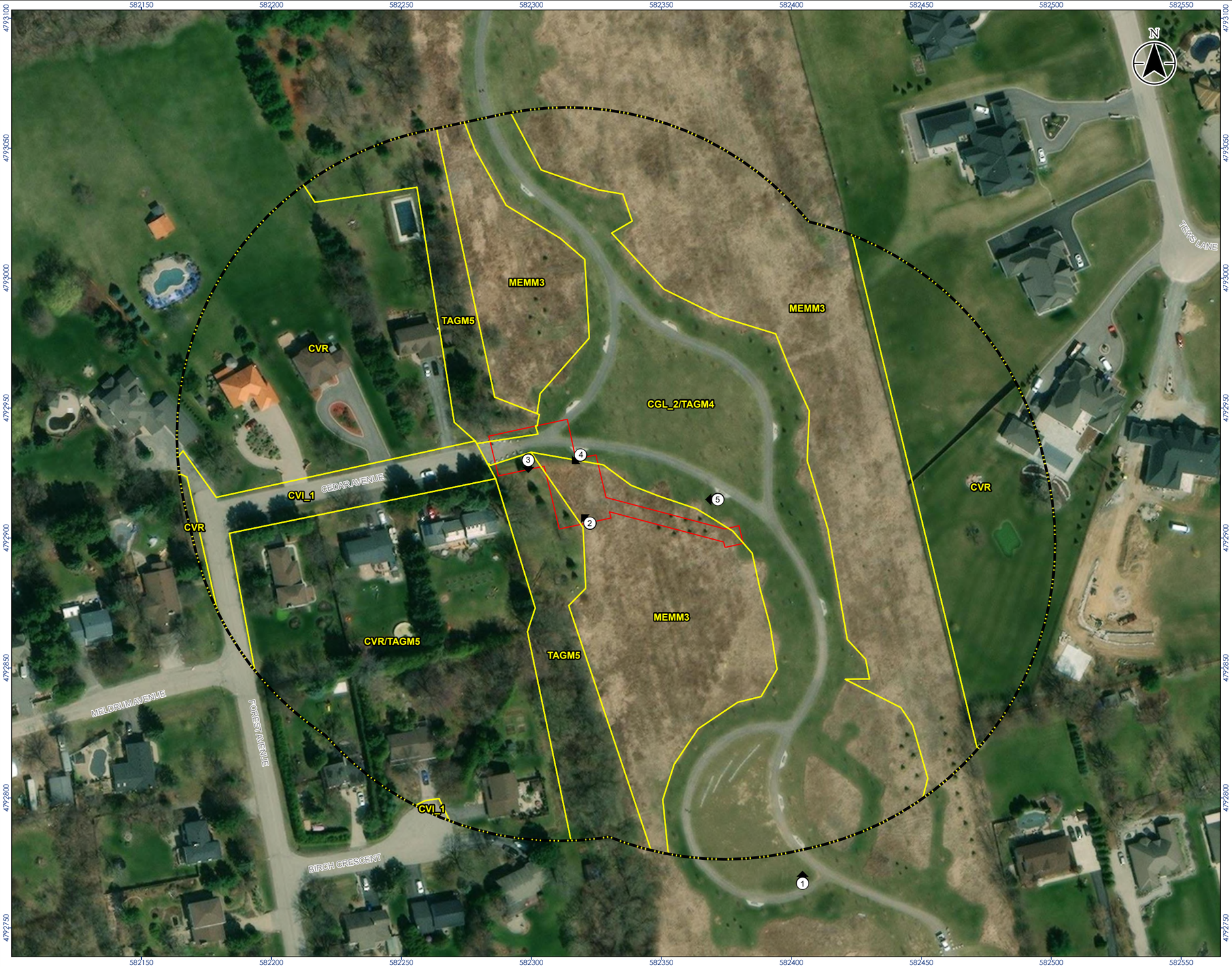


Stantec

Legend

- Study Area (120 m)
- Project Footprint
- Photo Location and Direction
- Ecological Land Classification (ELC)

ELC Key

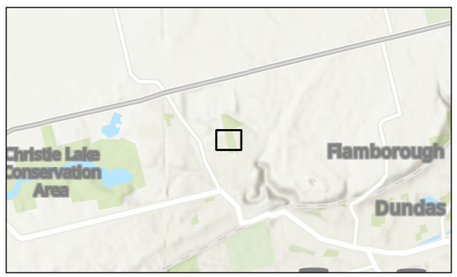
CGL_2	Parkland
CVI_1	Transportation
CVR	Residential
MEMM3	Dry - Fresh Mixed Meadow
TAGM4	Treed Pasture
TAGM5	Fencerow

0 50 100 m

1:1,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Key map credits: Esri, NASA, NGA, USGS, Town of Oakville, Maxar, Microsoft, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS, NRCan, Parks Canada
3. Contains information licensed under the Open Government License - Canada and the Open Government License - Ontario.



Project Location
City of Hamilton

REV6
Prepared by kebuchanan on 2024-08-12
Technical Review by SS on 2024-08-09

Client/Project
CITY OF HAMILTON
GREENSVILLE WSS
MUNICIPAL CLASS EA

Figure No.
2

Title
Ecological Land Classification

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Attachment B HNC Communication

Spisani, Sean

From: Jen Baker <land@hamiltonnature.org>
Sent: Thursday, July 18, 2024 8:25 AM
To: Ellis, Kayla
Cc: Spisani, Sean
Subject: Re: Johnson Tew Park records

Hi Kayla and Sean,

Thanks for reaching out about the studies being done at the park.

We don't have formal records, just sightings from Glenn Meldrum, listed below. If I hear of other records I'll pass them along.

I also wanted to pass on a suggestion for the City. It appears that a portion of valuable grassland will be removed with the addition of the proposed pump house. We're wondering if it be possible to acquire adjacent property that is owned by LaFarge at the north west end of the park? It was planted decades ago with mostly coniferous trees and is not part of the quarry operations. It would be great if this could be part of the project.

Records from Glenn Meldrum

I have recorded grass land birds including Eastern Meadowlarks that nest in Johnson Tew Park, as well as Eastern Kingbirds, Red-winged Blackbirds, Chipping, Savannah and Field Sparrows. Tree and Barn Swallows forage in the park as well. Eastern Meadowlarks do not nest in the proposed pump house area because of fragmentation. I have also noted deer, rabbits and foxes in the proposed pump house area.

Thanks and please let me know if you have any questions.
Jen

On Tue, Jul 16, 2024 at 1:52 PM Ellis, Kayla <Kayla.Ellis@stantec.com> wrote:

> Hello Jen Baker,
>
> Merry Virtual Meet!
>
> Stantec is conducting ecological studies within the Johnson Tew Park on behalf of the City of Hamilton for upcoming infrastructure updates. I am reaching out on behalf of Sean Spisani, to see if you have any recent records from the area that can be shared? While on site I had a chat with Glen Meldrum, who mentioned there were some grassland birds in the area, but they were not found specifically within our Study Area during site visits.
>
> Could you kindly provide any records that may be helpful to inform our assessment?

Thank you,

Kayla Ellis B.E.S [they/she]

Terrestrial Ecologist, Certified Arborist

Mobile: 226 979-6972

Kayla.Ellis@stantec.com

Stantec-London, Ontario

Pride@Stantec

Stantec

Attachment C Photographic Log

Photo 1: Manicured lawn and wildflower garden

Photo 2: Specimen trees in Project Footprint

Photo 3: Specimen trees in Project Footprint

Photo 4: Meadow in Project Footprint

Photo 5: Manicured lawn and meadow in Study Area

Photo 6: Meadow in Study Area

Photo 7: Manicured arboretum in Study Area

Photo 8: Manicured arboretum and trail in Study Area

Photo 9: Manicured arboretum and trail in Study Area

Attachment D Vascular Plant List

VASCULAR PLANT LIST - Greensville Drinking Water System, Greensville ON

Plant species observed during June/July (2024) Field Investigations

SCIENTIFIC NAME	COMMON NAME	PROVINCIAL STATUS (S-RANK)	LOCAL RANK*	SARO STATUS	COSEWIC STATUS	COEFFICIENT OF CONSERVATISM	COEFFICIENT OF WETNESS	ELC COMMUNITY
GYMNOSPERMS (CONIFERS)								
Picea glauca	White Spruce	S5	I/N			6	3	CVR, TAGM5
Picea pungens	Blue Spruce	SNA	I				3	TAGM5
Pinus flexilis	Limber Pine	SNA						CGL_2
Pinus nigra	Austrian Pine	SNA	I				5	CVR
Pinus strobus	Eastern White Pine	S5				4	3	CVR, TAGM5
Thuja occidentalis	Eastern White Cedar	S5				4	-3	TAGM5
ANGIOSPERMS (DICOTS)								
Acer negundo	Manitoba Maple	S5				0	0	MEMM3, TAGM5
Acer platanoides	Norway Maple	SNA	I				5	CVR, TAGM5
Acer x freemanii	(Acer rubrum X Acer saccharinum)	SNA				6	-5	TAGM5
Alliaria petiolata	Garlic Mustard	SNA	I				0	TAGM5
Apocynum cannabinum	Hemp Dogbane	S5				3	0	MEMM3
Asclepias syriaca	Common Milkweed	S5				0	5	MEMM3
Betula papyrifera	Paper Birch	S5				2	3	CVR, TAGM5
Catalpa speciosa	Northern Catalpa	SNA	I				3	CGL_2
Ceanothus americanus	New Jersey Tea	S4	h			7	5	CGL_2
Cercidiphyllum japonicum	Katsura	SNA						CGL_2
Circaea canadensis	Broad-leaved Enchanter's Nightshade	S5				2	3	CGL_2
Clematis virginiana	Virginia Clematis	S5				3	0	MEMM3, TAGM5

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Coreopsis lanceolata	Lance-leaved Tickseed	S4				5	3	CGL_2
Cornus alternifolia	Alternate-leaved Dogwood	S5				6	3	TAGM5
Corylus americana	American Hazelnut	S5	H			5	3	MEMM3
Cotinus coggygria	European Smoketree	SNA	I				5	TAGM5
Echinacea purpurea	Eastern Purple Coneflower	SNA					5	CGL_2
Echinocystis lobata	Wild Cucumber	S5				3	-3	MEMM3
Erigeron annuus	Annual Fleabane	S5				0	3	MEMM3, TAGM5
Fragaria virginiana	Wild Strawberry	S5				2	3	CGL_2
Fraxinus americana	White Ash	S4				4	3	MEMM3
Geum triflorum	Three-flowered Avens	S4				9	3	CGL_2
Gleditsia triacanthos	Honey Locust	S2?	I			8	0	CVR
Heliopsis helianthoides	False Sunflower	S4S5	H			3	3	CGL_2
Hesperis matronalis	Dame's Rocket	SNA	I				3	TAGM5
Juglans nigra	Black Walnut	S4?				5	3	MEMM3, TAGM5
Lactuca serriola	Prickly Lettuce	SNA	I				3	MEMM3
Leucanthemum vulgare	Oxeye Daisy	SNA					5	MEMM3
Liquidambar styraciflua	Sweetgum	SNA					5	CGL_2
Liriodendron tulipifera	Tulip Tree	S4	H			8	3	MEMM3
Monarda fistulosa var. fistulosa	Wild Bergamot	S5				6	3	MEMM3
Melilotus albus	White Sweet-clover	SNA	I				3	MEMM3

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Monarda fistulosa	Wild Bergamot	S5				6	3	CGL_2
Morus alba	White Mulberry	SNA	I				0	MEMM3
Parthenocissus vitacea	Thicket Creeper	S5				4	3	TAGM5
Populus deltoides	Eastern Cottonwood	S5				4	0	TAGM5
Potentilla norvegica	Rough Cinquefoil	S5				0	0	MEMM3
Prunella vulgaris	Common Self-heal	S5				0	0	MEMM3
Prunus maackii	Amur Cherry	SNA						CGL_2
Prunus sargentii	Sargent's Cherry	SNA						CGL_2
Prunus serrulata	Kwanzan Cherry	SNA						CGL_2
Quercus ellipsoidalis	Northern Pin Oak	S3	H			9	5	CGL_2
Quercus rubra	Northern Red Oak	S5				6	3	TAGM5
Ratibida pinnata	Grey-headed Prairie Coneflower	S3				9	5	CGL_2
Rhamnus cathartica	European Buckthorn	SNA	I				0	TAGM5
Rhus typhina	Staghorn Sumac	S5				1	3	TAGM5
Rubus idaeus	Red Raspberry	S5				2	3	MEMM3
Rubus occidentalis	Black Raspberry	S5				2	5	TAGM5
Rumex crispus	Curled Dock	SNA	I				0	MEMM3
Securigera varia	Purple Crown-vetch	SNA	I				5	MEMM3

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Solidago canadensis	Canada Goldenrod	S5				1	3	MEMM3
Sorbus x hybrida	Oakleaf Mountain-ash	SNA						CGL_2
Styphnolobium japonicum	Pagoda Tree	SNA						CGL_2
Symphyotrichum novae-angliae	New England Aster	S5				2	-3	MEMM3
Syringa reticulata	Japanese Tree Lilac	SNA						CGL_2
Syringa reticulata ssp. pekinensis	Peking Tree Lilac	SNA						CGL_2
Tilia americana	Basswood	S5				4	3	MEMM3
Tilia tomentosa	Silver Linden	SNA						CGL_2
Trifolium repens	White Clover	SNA	I				3	MEMM3
Ulmus americana	White Elm	S5				3	-3	MEMM3
Verbena stricta	Hoary Vervain	S4				7	5	CGL_2
Vitis riparia	Riverbank Grape	S5				0	0	MEMM3, TAGM5
ANGIOSPERMS (MONOCOTS)								
Bromus inermis	Smooth Brome	SNA	I				5	MEMM3
Dactylis glomerata	Orchard Grass	SNA	I				3	MEMM3
Phalaris arundinacea	Reed Canarygrass	S5				0	-3	MEMM3
Phleum pratense	Common Timothy	SNA	I				3	MEMM3
Poa pratensis	Kentucky Bluegrass	S5	I			0	3	MEMM3

** Local rank: I = Invasive; H = rare / known from five or fewer sites; h = uncommon / known from 6-10 sites (Schwetz 2014)*

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FLORISTIC SUMMARY	TOTAL
Total Species	73
Native Species	42
Introduced (exotic) species	31
Species at Risk in Ontario (END, THR or SC)	0
Species at Risk in Canada (END, THR or SC)	0
Rare in Ontario (S1, S2 or S3)	3
Uncommon to common in Ontario (S4)	8
Common to very common in Ontario (S5)	31
Highly sensitive plant species with C value of 8, 9 or 10	5
Wetland Plant Species (-5, -4 or -3)	6