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Natural Sciences Report

CAWTHRA PHASE 3 TRUNK SEWER- BURNHAMTHORPE ROAD

for:

ARCADIS IBI GROUP

by:

LGL Limited
environmental research associates

JANUARY 2024

LGL FILE NO. TA9347

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1.0 INTRODUCTION

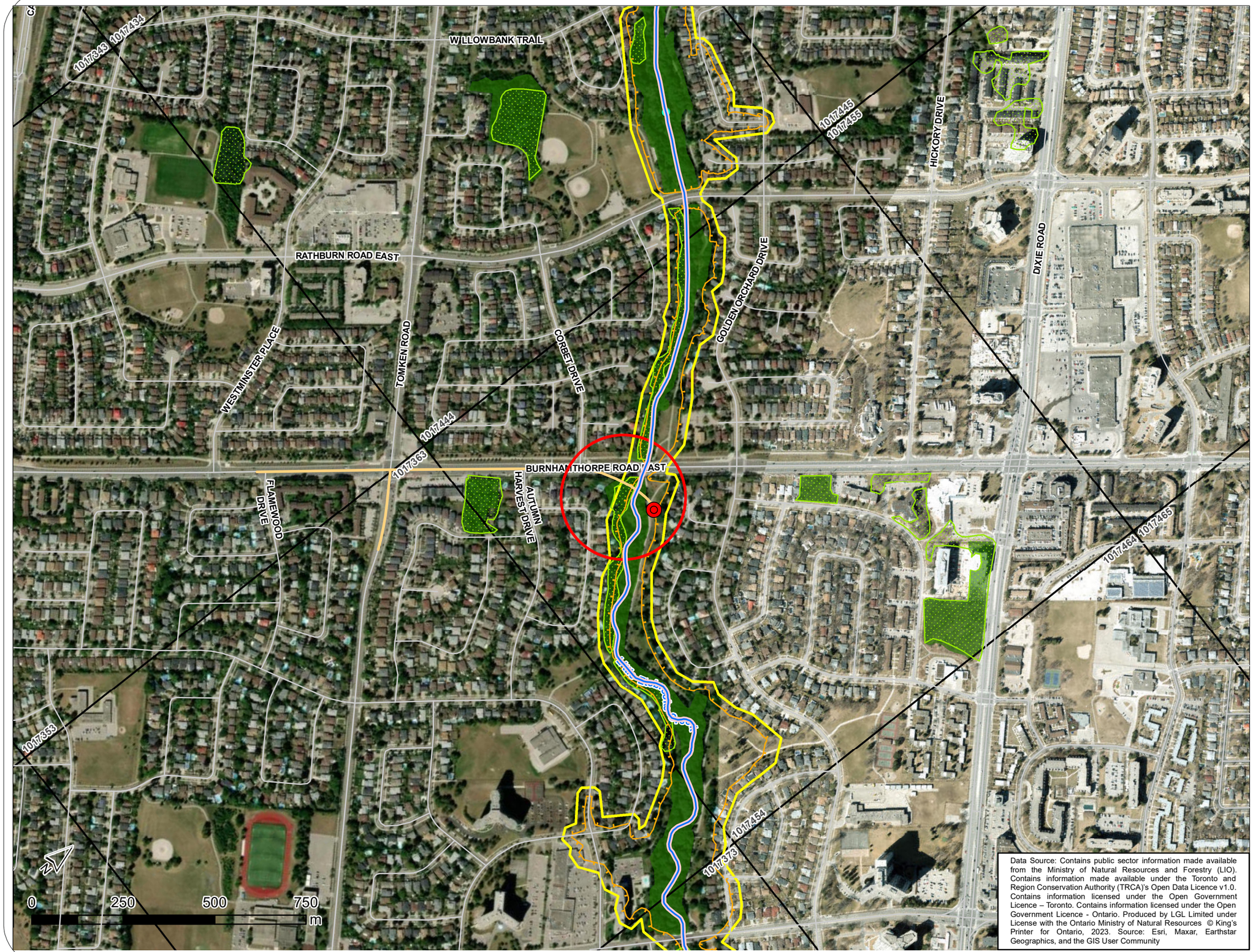
The Region of Peel is addressing wastewater conveyance in the region to support future requirements and provide flow diversion capability. LGL Limited (LGL) was retained by Arcadis IBI Group in support of the these works to conduct a natural heritage assessment at the proposed Shaft 3-5 location as part of the Schedule B Cawthra Phase 3 Trunk Sewer Class Environmental Assessment.

LGL has provided a Natural Sciences Report by completing a background review, field investigations and a species at risk screening to screen for environmental sensitivities. Preliminary recommendations for mitigation considerations and next steps are also provided. A detailed impact assessment has not been undertaken in this assessment.

1.1 PROJECT LOCATION

The Study Area as displayed in **Figure 1** is near the intersection of Little Etobicoke Creek and Burnhamthorpe Road East located in the City of Mississauga. LGL's focused scope is within the Shaft 3-5 area as outlined by IBI to LGL. In this area, lands are identified as natural heritage features.

The intent of this Natural Sciences Report is to describe existing natural heritage conditions within the Study Area through a combination of desktop review and field investigation including those which may constrain the installation of the proposed trunk sewer and shaft. The Study Area is defined as the Shaft 3-5 polygon and associated zone outlined by Arcadis IBI to LGL. The preferred alignment connection to Shaft 3-4 will be constructed using tunneling methodology and the disturbance area is shown in **Figure 2,** as provided by Arcadis IBI Group in December 2023. Background review gathered information in areas up to 120m from the defined Study Area limits.



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LEGEND

- Approximate Study Area
- Approximate Shaft 3-5 Location
- Approx. Proposed Trunk Sewer

Land Information Ontario

- Watercourse
- Warm Thermal Regime
- ARA Survey Point
- Wooded Area
- 1km^2 Grid Square

Toronto Region Conservation Authority (TRCA)

- Forest Land Use
- Regulated Area (2022)
- Floodline

Cawthra Phase 3 NSR
Natural Heritage Screening

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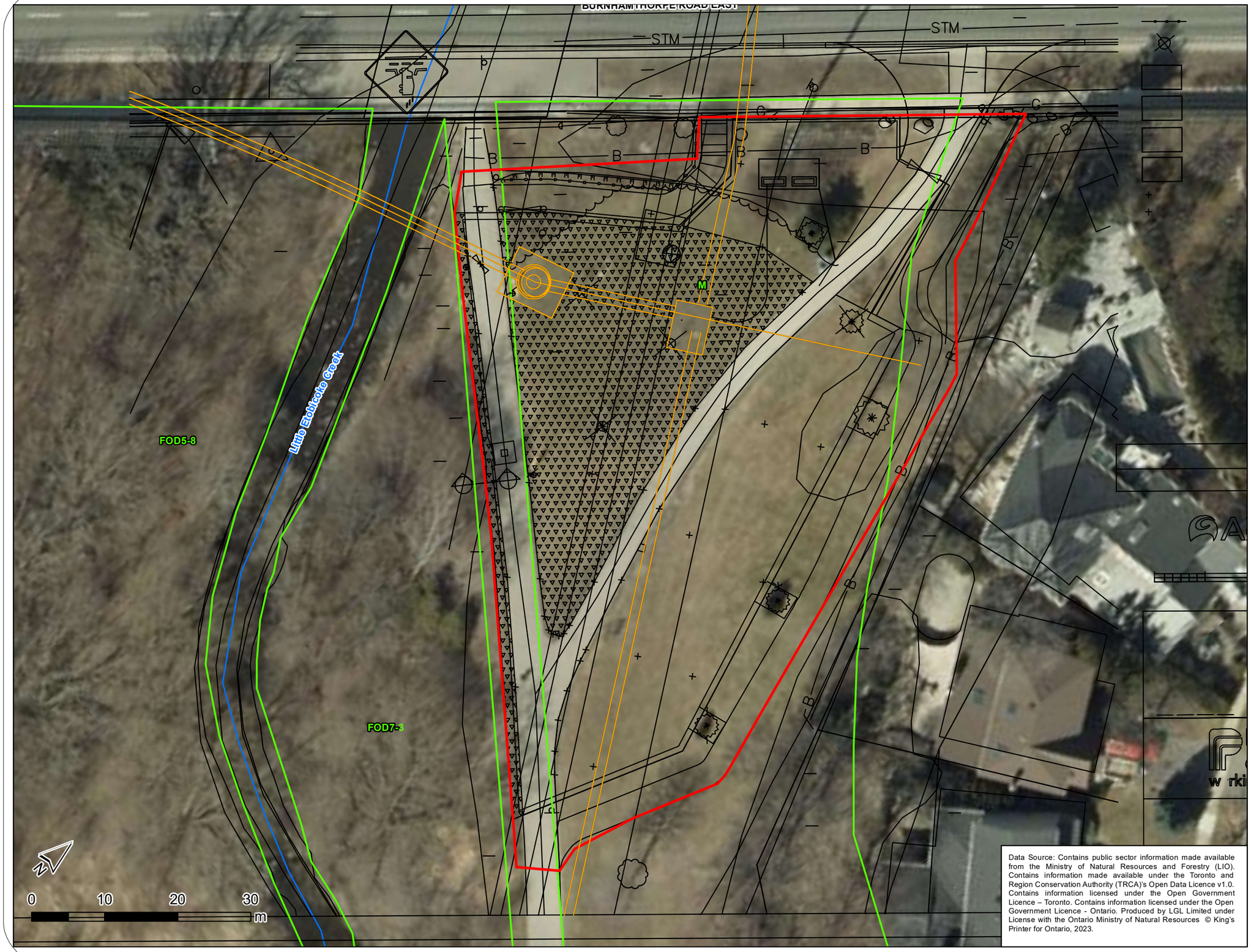
Project:	TA9347	**Figure:**	2
Date:	October, 2023	**Prepared By:**	VLG
Scale:	1:10,000	**Verified By:**	AHF



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LEGEND

- Pipe & Shaft Location
- Working Easement Limit
- ELC Community Boundary
- Site Plan
- Watercourse (LIO)

ELC Communities

FOD5-8: Dry-Fresh Sugar Maple Ash Deciduous Forest

FOD7-3: Fresh-Moist Willow Lowland Deciduous Forest

M: Manicured

Cawthra Phase 3 NSR

Disturbance Area

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Date:	January, 2024	**Prepared By:**	VLG
Scale:	1:500	**Verified By:**	BAP

2.0 RELEVANT POLICY AND LEGISLATION

2.1 FEDERAL FISHERIES ACT, DEPARTMENT OF FISHERIES AND OCEANS (DFO)

The project must comply with the fish and fish habitat protection provisions of the *Fisheries Act*. The Act applies to work being conducted in or near waterbodies that support commercial, recreational, or Aboriginal fisheries. The project is required to demonstrate compliance with the fish and fish habitat protection provisions of the *Fisheries Act* to avoid causing death of fish and harmful alteration, disruption, or destruction of fish habitat.

The fish community of Little Etobicoke Creek has been characterized within the study area using records accessed from the Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF) Land Information Ontario (LIO) data and a review of aquatic habitat conditions on site was conducted by LGL during field investigations.

2.2 MIGRATORY BIRDS

The Migratory Birds Convention Act, 1994 (MBCA) protects birds through a broad prohibition on disturbing or destroying birds, nests and eggs, accompanies by a hunting and permitting regime set out in regulations. Generally, the MBCA states that a person who does not hold a permit authorizing one or more of the following activities or who is not authorized by the Regulation to carry out that activity must not:

(a) capture, kill, take, injure or harass a migratory bird;
(b) destroy, take or disturb an egg; or,
(c) damage, destroy, remove or disturb a nest, nest shelter, eider duck shelter or duck box.

Migratory birds have been identified within the project area through a review of secondary sources and available habitat and its condition was confirmed through field investigation.

2.3 PROVINCIAL POLICY STATEMENT

In 2022 the Ontario government initiated a review of The Provincial Policy Statement, 2020. The results of that review were posted on the Environmental Registry of Ontario for comment in April 2023. The policies specific to natural heritage were provided at a later date in June 2023 and remained largely unchanged from the 2020 policies. The Proposed Provincial Planning Statement, 2023 is now available and includes the following for management of resources (Chapter 4):

> *4.1 Natural Heritage*
>
> *Natural features and areas shall be protected for the long term.*
>
> *2. 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.*
>
> *3. Natural heritage systems shall be identified in Ecoregions 6E & 7E1, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas.*

4. Development and site alteration shall not be permitted in:

a) significant wetlands in Ecoregions 5E, 6E and 7E; and

b) significant coastal wetlands.

5. Development and site alteration shall not be permitted in:

a) significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;

b) significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);

c) significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron

and the St. Marys River);

d) significant wildlife habitat;

e) significant areas of natural and scientific interest; and

f) coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 4.1.4(b) unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

6. Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.

7. Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.

8. Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 4.1.4, 4.1.5, and 4.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

9. Nothing in policy 4.1 is intended to limit the ability of agricultural uses to continue.

4.2 Water

1. Planning authorities shall protect, improve or restore the quality and quantity of water by:

a) using the watershed as the ecologically meaningful scale for integrated and long-term planning, which can be a foundation for considering cumulative impacts of development;

b) minimizing potential negative impacts, including cross-jurisdictional and cross-watershed impacts;

c) identifying water resource systems;

d) maintaining linkages and functions of water resource systems;

e) implementing necessary restrictions on development and site alteration to:

1. protect drinking water supplies and designated vulnerable areas; and

2. protect, improve or restore vulnerable surface and ground water, and their hydrologic functions;

f) planning for efficient and sustainable use of water resources, through practices for water conservation and sustaining water quality; and

g) ensuring consideration of environmental lake capacity, where applicable.

2. Development and site alteration shall be restricted in or near sensitive surface water features and sensitive ground water features such that these features and their related hydrologic functions will be protected, improved or restored, which may require mitigative measures and/or alternative development approaches.

3. Municipalities are encouraged to undertake watershed planning to inform planning for sewage and water services and stormwater management, including low impact development, and the protection, improvement or restoration of the quality and quantity of water.

The PPS often includes policies related to environmental protection. Municipalities should consider these policies when conducting environmental assessments to ensure that potential environmental impacts are adequately addressed and mitigated.

2.3.1 Official Plans

2.3.1.1 Region of Peel Official Plan (2022)

The Region of Peel consists of the Town of Caledon, the City of Brampton, and the City of Mississauga. According to the Region of Peel Official Plan (OP) Schedule E-1, the Study Area is designated as part of the urban system in the Regional Structure.

The watercourse corridor in the Study Area is included in the Core Areas of the Greenlands System and as such, is subject to Policies of Section 2.14 of the Region of Peel OP including the following:

2.14.15 Prohibit development and site alteration within the Core Areas of the Greenlands System in Peel, except for:

a) forest, fish and wildlife management;

b) conservation and flood or erosion control projects, but only if they have been demonstrated to be necessary in the public interest and after all reasonable alternatives have been considered;

c) essential infrastructure exempted, pre-approved or authorized under environmental assessment process;

d) passive recreation;

e) minor development and minor site alteration;

2.14.16 Permit the exceptions set out in Policy 2.14.15 provided that:

a) the exceptions that are permitted in accordance with the policies in an approved local municipal official plan or the Niagara Escarpment Plan, where applicable;

b) any development and site alteration will not be permitted unless is has been demonstrated that there will be no negative impacts on the natural features and their ecological function and that:

i) there is no reasonable alternative location outside of the Core Area and the use, development or site alteration is direction away from the Core Area to the greatest extent possible;

ii) if avoidance of the Core Area is not possible, the impact to the Core Area feature is minimized; and,

iii) any impact to the Core Area or its functions is mitigated through restoration or enhancement to the greatest extent possible.

2.3.1.2 City of Mississauga Official Plan (2023)

Mapping from the City of Mississauga OP designates (Schedule 10) the land use within the Study Area as Greenlands within the watercourse corridor and as Low Density I residential in the areas adjacent to the watercourse. South of Burnhamthorpe Road the Study Area in the watercourse corridor is identified as a Significant Natural Area and Natural Green Space as part of the Natural Heritage System (Schedule 3). As such, the area is subject to policies under Section 6.3.23-6.3.37 of the City OP.

2.4 PROTECTION FOR SPECIES AT RISK

For the purpose of this study, Species at Risk (SAR) are defined as species listed as endangered (END), threatened (THR), or special concern (SC) under the provincial Endangered Species Act (ESA) and/or the federal Species at Risk Act (SARA).

The SARA enacts a broad prohibition against “killing, harming, harassing, capturing or taking an individual of a wildlife species that is listed as an extirpated species, an endangered species, or a threatened species”. Similarly, the SARA prohibits the destruction of the “residence” (e.g., den, nest, or other dwelling place) of species at risk. However, these prohibitions generally do not apply to species on provincial lands unless they are aquatic species or birds protected under the Migratory Birds Convention Act.

Under the ESA, species listed provincially as threatened, endangered or extirpated receive regulatory protection as individuals. The habitat of these species also receives protection to include:

- The area on which a species depends directly or indirectly to carry out its life processes (under clause 2(1)(b) of the Act, and commonly referred to as the general habitat of a species) or,
- The area prescribed for a species in a habitat regulation (under clause 2(1)(a) of the Act, and commonly referred to as the regulated habitat of a species). A habitat regulation may prescribe an area as the habitat of a species by describing the boundaries of the area, by describing the features of the area, or by describing the area in any other manner. Unlike

the general habitat of a species, a habitat regulation may include areas currently unoccupied by the species such as areas where the species formerly occurred or areas where there is the potential to re-establish the species (subsection 2(2)). These areas are commonly referred to as "recovery habitat". Regulated habitat may be smaller or larger than general habitat.

- Both general habitat and regulated habitat include places that the species uses as dens, nests, hibernacula or other residences.

Although habitat of special concern species does not receive regulatory protection under either the ESA, it is considered as provincially significant wildlife habitat (SWH) and thus be protected under municipal policy and the Provincial Policy Statement, 2020 (PPS).

2.5 TORONTO AND REGION CONSERVATION AUTHORITY

The Toronto and Region Conservation Authority (TRCA) administers the Ontario Regulation 166/06 *Toronto and Region Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*. This regulation establishes areas where development is subject to approvals by TRCA, to ensure the protection of public safety, property and watershed health. Additional policies on infrastructure may apply, and TRCA guidance documents may apply. The extent of the Study Area under TRCA regulation is shown in **Figure 1**.

Municipal infrastructure projects falling within the regulated areas may require an environmental impact assessment as part of the permitting process. This assessment would evaluate the potential impacts of the project on natural features, water resources, and the overall environment.

3.0 BACKGROUND REVIEW

Documentation of existing conditions included a desktop assessment of orthoimages and a review of background data from secondary sources to establish natural heritage conditions within the area. The review of existing background documentation and data layers included the following resources:

- Site orthophotography;
- GIS data layers obtained from the Ministry of Natural Resources (MNRF), Lands Information Ontario (LIO), City of Toronto (City) and the Toronto and Region Conservation Authority (TRCA);
- The Natural Heritage Information Centre (NHIC) database;
- Region of Peel Official Plan;
- City of Mississauga Official Plan;
- Background watershed and subwatershed studies;
- Toronto Region Conservation Authority (TRCA) mapping;
- Mapping of physiography and soils; and,
- Online wildlife databases (e-bird, Ontario Breeding Bird Atlas).

Secondary source information was compiled and analyzed to develop a general description of the terrestrial and aquatic ecosystems, vegetation and wildlife within the project area and to inform the Species at Risk Screening.

No background information on vegetation communities, flora or fauna was available through the TRCA mapping information.

The following subsections summarize the information for the project area pertaining to natural environment.

3.1 PHYSIOGRAPHY

A secondary source investigation was undertaken to identify physiography, bedrock, surficial geology, and soils within the study area.

The project area is located within the South Slope physiographic region. Chapman and Putnam (1984) describe the South Slope region as the southern slope of the Oak Ridges Moraine. It is variable in topography throughout the region, but the western portion through Mississauga is described as ground moraine with irregular knolls and hollows. Bedrock geology is upper ordovician in age and comprised of shale, limestone, dolostone, and siltstone (Ontario Geological Survey 1991).

Surficial geology in the Study Area through the Little Etobicoke Creek Valley is clay, silt, sand, gravel, and potential organic remnants from modern alluvial deposits, and further from the creek surficial geology consists of clay to silt textured till derived from glaciolacustrine deposits or shale (Ontario Geological Survey 2017).

3.2 DESIGNATED NATURAL AREAS

The Study Area was screened for any designations within various local, regional and provincial policies, the results of which are noted in the following sections.

3.2.1 Areas of Natural and Scientific Interest (ANSI)

Areas of Natural and Scientific Interest (ANSI) are determined by the MNRF. The agency defines ANSIs as “lands and waters with features that are important for natural heritage protection, appreciation, scientific study or education”.

Records contained within the MNRF’s LIO database did not indicate the presence of any Life Science or Earth Science ANSIs within the study area.

3.2.2 Provincially Significant Wetlands

Wetland features were identified through available GIS data layers provided by MNRF through LIO. Three types of wetland features are identified in MNRF data layers: provincially significant wetlands (PSWs), unevaluated wetlands and other wetlands. The status of wetlands is determined through an evaluation according to the Ontario Wetland Evaluation System (OWES). PSWs are those for which an OWES evaluation has resulted in a score sufficient to qualify as a provincially significant feature. Unevaluated wetlands are wetland features that have not undergone an OWES evaluation, while those presented as evaluated or as ‘other’ wetlands are features where an OWES evaluation has been completed and the resulting score was insufficient to qualify as a provincially significant feature. Evaluated/other wetlands may be considered locally

significant wetlands.

No PSWs or other evaluated or unevaluated wetlands are identified within the study areas.

3.2.3 Woodlands and Valleylands

The City of Mississauga OP describes significant natural areas including woodlands and valleylands as fundamental to the natural heritage system. Significant woodland, valleyland and wildlife habitat are not specifically mapped in the Region of Peel OP or City of Mississauga OP. However, these features are considered part of the Natural Heritage System as Significant Natural Areas which do occur within the Study Area (see Section 2.5.2).

3.2.4 Vegetation and Vegetation Communities

An initial natural heritage screening was conducted to identify natural areas within the Study Area. The geographical extent, composition, structure, and function of the vegetation communities were reviewed through interpretation of current ariel imagery. Results of the screening identified a mixture of urban housing and manicured areas and the natural areas are largely comprised of the riparian vegetation of Little Etobicoke Creek which includes woodland.

3.2.5 Wildlife and Wildlife Habitat

A total of 148 bird species were identified in proximity to the Study Area through review of secondary sources. A list of wildlife species records compiled for the project is provided in **Appendix A**. Given that the data records incorporate areas outside of the immediate area, not all species listed necessarily occur within the Study Area. The intent of the wildlife list generated through desktop review was to identify species with potential to occur across the larger geographic setting, and in particular whether SAR are identified in local records. Of the bird species listed in **Appendix A**, 17 species are identified as SAR, 18 species are protected under the Fish and Wildlife Conservation Act (FWCA) and 121 species are protected under the MBCA.

3.2.6 Aquatic Habitat and Fisheries

They study area lies within the Etobicoke Creek watershed. The Etobicoke Creek watershed is predominantly composed of urban land use with rural land use limited to the northern portion of the watershed. Natural areas cover approximately 14% of the watershed. The watershed originates on the Oak Ridges Moraine and totals approximately 21 100 hectares (TRCA 2022).

Information obtained through the Land Information Ontario database indicates that Little Etobicoke Creek in the reach through the Study Area supports a warmwater thermal regime. Natural riparian buffers along Little Etobicoke Creek in the project area widen south of Burnhamthorpe Road. A fish inventory list for the ARA in the project area (AU-0003-ETO), as well as NHIC listed fish species is listed in **Table 1**. Little Etobicoke Creek is a tributary of Etobicoke Creek.

The ARA list and NHIC results outlines 16 possible species inhabiting the reach of Little Etobicoke Creek. These species are a mix of mainly coolwater and some warmwater baitfish species that are mostly intermediate to moderately tolerant (Eakins 2016).

Table 1 - Fish Species documented in Little Etobicoke Creek.

Common Name	**Scientific Name**	**Thermal Regime**	**Tolerance**	**SARA Status**	**SARO Status**	**Little Etobicoke Creek AU-0005-HUM (LIO Database)**	**NHIC (Square 1017554)**
Blacknose Dace	*Rhinichthys obtusus*	coolwater	intermediate		none	X	
Bluntnose Minnow	*Pimephales notatus*	warmwater	moderately tolerant		NAR	X	
Brook Stickleback	*Culaea inconstans*	coolwater	intermediate		none	X	
Common Shiner	*Luxilus cornutus*	coolwater	moderately tolerant		none	X	
Creek Chub	*Semotilus atromaculatus*	coolwater	intermediate		none	X	
Fathead Minnow	*Pimephales promelas*	warmwater	tolerant		none	X	
Finescale Dace	*Chrosomus neogaeus*	coolwater	intermediate		none	X	
*Goldfish	*Carassius auratus*	warmwater	tolerant		none	X	
Johnny Darter	*Etheostoma nigrum*	coolwater	moderately tolerant		none	X	
Longnose Dace	*Rhinichthys cataractae*	coolwater	moderately tolerant		none	X	
Pumpkinseed	*Lepomis gibbosus*	warmwater	intermediate		none	X	
Redside Dace	*Clinostmus elongatus*	coolwater	intolerant	END	END		X
Rock Bass	*Ambloplites rupestris*	coolwater	intolerant		none	X	
Threespine Stickleback	*Gasterosteus aculeatus*	coolwater	intermediate		none	X	
White Sucker	*Catostomus commersonii*	coolwater	generally tolerant, but moderately tolerant of turbidity		none	X	
Yellow Perch	*Perca flavescens*	coolwater	moderately tolerant		none	X	

[1] As documented in the Ontario Freshwater Fishes Life History Database. General reference to tolerance of turbidity, siltation, pollution, higher temperatures and DO fluctuations, (Eakins, R. J. 2014).

* invasive species

3.2.7 Species at Risk

The following sections summarize the record review results from sources that may report species at risk (SAR) records or habitat.

3.2.7.1 Department of Fisheries and Oceans

The Department of Fisheries and Oceans (DFO 2015) maintains the Aquatic Species at Risk Map which compiles critical habitat for aquatic species listed under the Species at Risk Act (SARA). The watercourse in the project area is not mapped as critical habitat.

3.2.7.2 MNRF Natural Heritage Information Centre

The MNRF maintains a database of SAR through the Natural Heritage Information Centre (NHIC) which organizes data into 1 km x 1 km grids. The NHIC database was screened for records of SAR. Those results are summarized below in **Table 2**.

Table 2 Results of NHIC Database search for records in Study Area

Common Name	Scientific Name	COSEWIC	SARO
Redside Dace	*Clinostomus elongatus*	END	END
Eastern Wood-pewee	*Contopus virens*	SC	SC
Chimney Swift	*Chaetura pelagica*	THR	THR
Red-headed Woodpecker	*Clinostomus elongatus*	END	END
Henslow's Sparrow	*Centronyx henslowii*	END	END

3.2.7.3 MECP Communications

Due to the conflicting information from NHIC and DFO about the presence of Redside Dace in the Study Area, further consultation with MECP was conducted on November 24, 2023 to confirm the status of Little Etobicoke Creek in the reach identified in the Study Area. It was confirmed that records of Redside Dace in this area are historical and Redside Dace are not currently present in Little Etobicoke Creek.

3.2.7.4 Screening of Species Databases

In addition to the birds identified in the NHIC database, a search of the Ontario Breeding Bird Atlas and eBird data in the vicinity of the Study Area showed records for Chimney Swift (*Chaetura pelagica*), Bank Swallow (*Riparia riparia*), Bobolink (*Dolichonyx oryzivorus*), and Eastern Meadowlark (*Sturnella magna*) which are threatened under the Endangered Species Act (ESA), Red-headed Woodpecker (*Melanerpes erythrocephalus*) and Henslow's Sparrow (*Ammodramus henslowii*) which are Endangered under the ESA, and special concern Bald Eagle (*Haliaeetus leucocephalus*), Peregrine Falcon (*Falco peregrinus*) Common Nighthawk (*Chordeiles minor*), Eastern Wood-pewee (*Contopus virens*), Wood Thrush (*Hylocichla mustelina*), Barn Swallow (*Hirundo rustica*), and Canada Warbler (*Cardellina pusilla*).

3.2.7.5 Species at Risk Screening

A screening of available habitat was completed for the project area in the context of the SAR records noted above. The results of the screening are provided in **Appendix C**.

4.0 EXISTING CONDITIONS

4.1 VEGETATION AND VEGETATION COMMUNITIES

A vegetation survey was conducted on September 27, 2023 to investigate the extent of the vegetation communities in the Study Area. Natural vegetation features identified within the study area were classified according to the Ecological Land Classification for Southern Ontario: First Approximation and Its Application (Lee et al. 1998). Plant species status was reviewed for Ontario (Oldham and Brinkner 2009) and for TRCA (2012). Vascular plant nomenclature follows Newmaster and Ragupathy (2012).

Vegetation communities adjacent to the river are mostly naturalized following disturbance and are dominated by non-native tree species. Vegetation communities are FOD7-3 and FOD5-8 adjacent to the watercourse and M set back from the watercourse. Vegetation communities identified herein are delineated in **Figure 3** and described in further detail in **Table 3** based on LGL field investigations.

Table 3 Summary of Ecological Land Classification Vegetation Communities.

ELC Code	ELC Vegetation Community	Species Association	Community Characteristics
TERRESTRIAL – ANTHROPOGENIC			
M	Manicured Lawn	Planted trees: Sugar Maple (Acer saccharum), White Spruce (Picea glauca), and Sycamore *(Platanus occidentalis*)	Maintained grasses with planted trees.
FOD	**DECIDUOUS FOREST**		
FOD7	**FRESH – MOIST LOWLAND DECIDUOUS FOREST**		
FOD7-3	Fresh-Moist Willow Lowland Deciduous Forest	**Canopy:** Manitoba Maple (*Acer negundo*) dominant. Sugar Maple (*Acer saccharum*), Willow (*Salix sp.*), and Black Walnut (*Juglans nigra*) also present. **Subcanopy:** Abundant White Ash (*Fraxinus americana*) and Common Buckthorn (*Rhamnus cathartica*).	Tree cover > 60%. Deciduous tree species >75% of canopy cover. Moist (4,5,6) to fresh (2,3) moisture regimes and well (3) to poor (6) soil drainage. Often resulting from cultural influence or disturbances. Typically associated with riparian zones and terraces, streams and river banks, and floodplains.
FOD5-8	Dry-Fresh Sugar Maple Ash Deciduous Forest	**Canopy:** Sugar Maple (*Acer saccharum*) dominant. **Subcanopy**: White Ash (*Fraxinus americana*) dominant.	Tree cover >60%. Deciduous tree species >75% of canopy cover. Typically on middle to upper slopes with suitable drainage. Disturbed sites tend to be relatively lacking in understory cover.

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LEGEND

- Approximate Study Area
- Approximate Shaft Location
- Proposed Trunk Sewer (Approx.)
- ELC Community Boundary
- Watercourse (LIO)
- TRCA Regulation Limit (2022)

ELC Communities

FOD5-8: Dry-Fresh Sugar Maple Ash Deciduous Forest

FOD7-3: Fresh-Moist Willow Lowland Deciduous Forest

M: Manicured

Cawthra Phase 3 NSR

Existing Conditions

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Project:	TA9347	**Figure:**	3
Date:	November, 2023	**Prepared By:**	VLG
Scale:	1:1,500	**Verified By:**	BAP

4.1.1 Flora

A total of 42 vascular plant taxa were observed within the Study Area as shown in **Appendix B**. One of these plants was identified only to genus during the field visit and is excluded from further analysis. Seventeen of the total plants which represents 40% of the total flora are considered introduced and non-native to Ontario (indicated by a * in **Appendix B**). One species of conservation concern in the TRCA jursidication, Sycamore (*Platanus occidentalis*) was identified in the Study Area; however, it is a planted tree in the manicured park portion of the Study Area. None of the species identified are listed as SAR under the ESA.

4.2 AQUATIC HABITAT

Aquatic habitat was investigated on September 27, 2023, through a pedestrian survey. General habitat characteristics of the reach of Little Etobicoke Creek through the Study Area are described below.

Little Etobicoke Creek crosses under a full span bride at Burnhamthrope Road East in the center of the Study Area with, with flow moving towards the southeast. A paved trail (Applewood Trail) runs adjacent to Little Etobicoke Creek to the east and under the bridge. Habitat includes mainly run morphology upstream of Burnhamthorpe Road and riffle morphology downstream of Burnhamthorpe Road. The channel in the reach upstream of the bridge is approximately 10 m wetted and approximately 12 m bankfull. Depth was not measured but estimated at approximately 50 cm at the deepest area. Substrate in this area was cobble and silt. In the section downstream of the bridge the channel is approximately 10 m wetted and approximately 14 m bankfull. Depth was estimated at approximately 10 cm at the deepest area. Substrate in this area is mixture of cobble and boulders. Areas of eroding banks and bank undercutting are present in several areas. Vegetation in the valley is particularly well established on the west side of the creek as an established forest and cultural woodland is present on the east side of the creek. In stream shading is sparse, provided by overhanging trees and cultural meadow vegetation on banks. No fish were observed but suitable habitat is present.

4.2.1 Aquatic Species at Risk

No aquatic species at risk is shown on the Fisheries and Oceans Canada Aquatics Species at Risk mapping or through field investigations. However, review of the NHIC database found records for Redside Dace (Endangered) in Little Etobicoke Creek in the vicinity of the Study Area. Further email consultation with MECP confirmed no occurrence of Redside Dace within the Study Area. Therefore, no SAR aquatic habitat is identified for the Study Area.

4.3 WILDLIFE HABITAT AND COMMUNITIES

Wildlife data was collected on September 27, 2023 to document incidental wildlife and wildlife habitat. Direct observations, calls and tracks were used to record wildlife present within the study area. Formal wildlife surveys such as for breeding birds or anuran calling were not conducted as the field visit was completed out of season.

4.3.1 Incidental Wildlife

During the fall and spring surveys, evidence of wildlife, wildlife signs, and habitat were recorded. Migratory birds were observed in the Study Area. Little Etobicoke Creek likely functions as a movement corridor for many wildlife such as Raccoon (*Procyon lotor*), White-tailed Deer (*Odocoileus virginianus*) and Coyote (*Canis latrans*). There are no wetlands with potential amphibian breeding pools within the study area.

4.3.2 Wildlife Habitat

There is potential for bats to use the treed habitat surrounding Little Etobicoke Creek, and one potential bat roost tree was incidentally observed during field investigations. Should tree removals be required, a bat roost survey would assess whether trees on the subject lands could provide roost habitat to inform mitigation recommendations as a result. The woodlands likely provides habitat for other wildlife species such as mammals and breeding birds that are anticipated to be highly tolerant in an urban setting.

4.3.3 Significant Wildlife Habitat

The Significant Wildlife Habitat Technical Guide (MNR 2000) and the SWH Criteria Schedules for Ecoregion 7E (OMNRF 2015) were reviewed with an analysis to compare SWH criteria against the biophysical environment. Of the significant wildlife habitat types, there is the potential habitat for candidate Seasonal Concentration Area (Bat Maternity Colonies) in the treed areas along Little Etobicoke Creek. During wildlife field investigations suitable maternity roost trees are considered present; however, a full bat roost survey was not conducted.

There was no candidate or confirmed SWH in the category of Rare Vegetation Communities, Specialized Wildlife Habitat, Habitat of Species of Conservation Concern or Animal Movement Corridors identified in the study area.

4.4 SPECIES AT RISK

The provincial Endangered Species Act, 2007 (ESA) provides legislation to protect individuals and habitat of species at risk (SAR) in Ontario. The Committee on the Status of Species at Risk in Ontario (COSSARO) is an independent body that classifies native plants or animals in one of four categories (extirpated, endangered, threatened, special concern). Those species assessed as special concern do not receive species or habitat protection under the ESA; however, their management is encouraged in order to prevent them from becoming further at risk.

Migratory birds and aquatic SAR are also provided protection under the federal Species at Risk Act, 2002 (SARA). The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) provides advice to government on the status of wildlife species. Schedule 1 of the SARA is the official list of wildlife species at risk in Canada.

4.4.1 Species at Risk Screening

A screening of available habitat was completed for the project area in the context of the SAR records identified through review of secondary source data. The results of the screening are provided in **Appendix C**. One additional species, Butternut (*Juglans cinerea*) is considered in the

SAR screening that was not identified through desktop studies, due to a high potential for species presence based on habitat noted during field investigations.

Through a review of the species atlases, NHIC and online resources, 17 species were identified as END, THR and SC that require review for potential habitat or species to occur in the study area. Of these, ten species are listed as END or THR and nine of these had potential to occur in the study area. **Appendix C** provides the table summary of the rational for the Species at Risk screening that was undertaken and it provides a habitat description for each of these species. Although SAR may occur in the study area, the potential for a contravention to the Act depends on project construction details. Further studies and assessment would confirm the presence of these species.

Where there is potential for SAR to occur, further studies should be conducted to confirm species presence. This includes breeding bird surveys for SAR birds with habitat potential in the Study Area (Bald Eagle, Barn Swallow, Eastern Wood-pewee, Red-headed Woodpecker) and bat roost surveys for at risk bat species (Eastern Small-footed Myotis [*Myotis leibii*], Little Brown Myotis [*Myotis lucifugus*], Northern Myotis [*Myotis Septentrionalis*], and Tri-coloured Bat [*Perimyotis subflavus*]). Candidate maternal roost habitat for SAR bats is identified wherever suitable cavities are found in mature trees. Timing windows for vegetation removals should be considered for protected bird species and if trees proposed for removal have cavities. Given that there are trees identified for removal and pruning, a tree inventory would confirm tree species and identify tree protections required.

5.0 MITIGATION RECOMMENDATIONS

Preliminary recommendations are provided herein for consideration. Mitigation will need to be updated pending review of the final project activities and impacts.

Avoidance of negative impacts is the preferred approach from an ecological standpoint. However, where impacts cannot be avoided, mitigation measures should be implemented to reduce or minimize impacts on the natural heritage system form and functions. Considerations for mitigation and protection measures should include:

- Timing windows for vegetation removals to avoid sensitive bird breeding and potentially bat roosting timeframes including birthing, rearing, and roosting periods;
- Ensuring peak flows can be accommodated in watercourses;
- An Erosion and Sediment Control (ESC) Plan; and,
- Restoration plan where vegetation may be impacted.

5.1 TIMING WINDOWS

Timing windows are recommended for vegetation removals to avoid impacts to nesting birds and the potential for roosting bats. Additional work is needed to clarify the potential impacts to bat roosting habitat and the need for screening the project the MECP.

To avoid impacts to nesting birds, tree removals should be avoided from April 1 – late August. If timing windows cannot be adhered to, nest sweeps may be appropriate mitigation and the

proponent should ensure that guidance from Environment Canada is adhered to, available in *Guidelines to avoid harm to migratory birds*.

To avoid impacts to aquatic habitat, in or near water works should adhere to warmwater timing windows.

5.2 FISHERIES MITIGATION

Avoidance of in-water work is always preferred. The current plans to use tunneling solutions that avoids the need for in-water work is the preferred method.

Works and staging areas should maintain a setback from the watercourse of at least 15m, given the warmwater classification.

Works in or near the watercourse should adhere to *Measures to Avoid Harm to Fish*. If *Measures to Avoid Harm to Fish* cannot be adhered to, the project will require review by DFO.

5.3 EROSION AND SEDIMENT CONTROL PLAN

Soil disturbance associated with the proposed works within the study area may result in erosion of, and sedimentation to receiving watercourses located within the primary study area. Site-specific erosion and sedimentation control measures to be implemented prior to construction will be identified during detail design. Erosion and sedimentation control measures should include:

- minimizing the geographical extent and duration that disturbed soils remain exposed to the elements and re-establishing ground cover within 45 days of breaking ground;
- maintain overland flow patterns pre- and post-construction;
- implementing standard erosion and sedimentation control measures;
- applying conventional seed and mulch, tackifiers and/or erosion control blanket in areas of soil disturbance to provide adequate slope protection and long-term slope stabilization;
- delineating storage, stockpiling and staging areas prior to construction and inspecting these areas during construction; and,
- managing surface water outside of work areas to prevent surface water from coming in contact with exposed soils.

These temporary erosion and sedimentation control measures should be monitored during construction to ensure their effectiveness. Following construction, once disturbed areas have stabilized, the temporary erosion and sedimentation control measures can be removed. All disturbed areas should be stabilized to a like or better condition upon completion of the work. These environmental protection measures will greatly reduce the potential for soil erosion and impairment of water quality.

The following environmental protection measures should be considered during detail design and incorporated into the contract package and implemented during construction, where necessary for works within the regulated area of the creek:

- good housekeeping practices should be employed, and all construction operations should be controlled to prevent construction materials and debris from entering the nearby watercourses;
- the operation of equipment within watercourses or on watercourse banks should be prohibited;
- equipment refuelling, maintenance and repair should be conducted at least 30 m distance from the nearby watercourses and watercourse banks to prevent the entry of contaminants (including petroleum oil and lubricants) into the watercourses;
- construction materials, excess material, construction debris and empty containers should be stored at least 30 m from the nearby watercourses and watercourse banks to prevent their entry into the watercourses; and,
- a "Spill Response Plan" and the appropriate contingency materials to absorb or contain any petroleum products that may be accidentally discharged should be on the site at all times. In event of a spill, containment and clean-up should be completed quickly and effectively.
- Coordinate with TRCA for the restoration of disturbed creek bank following construction.

These environmental protection measures will greatly reduce the potential for impairment of surface water quality and will provide a contingency in the event of an unforeseen upset.

In addition to the above functions of ESC measures, erosion and sediment controls will also serve to isolate work areas from the risk of potential wildlife movement into working areas.

5.4 TREE AND VEGETATION REMOVAL/WILDLIFE HABITAT REMOVALS

Removal of vegetation and vegetation communities is largely coincident with areas identified for wildlife habitat.

Restoration and enhancement opportunities should be investigated during detail design to restore disturbed vegetation communities and associated wildlife habitat. This includes:

- Replacing or paying cash-in-lieu for trees regulated by the City in accordance with City specifications;
- Including a planting plan to the satisfaction of the City and TRCA; and,
- Planting areas disturbed by construction to the extent possible.

Tree removal and compensation should conform to the City of Mississauga by-law and relevant policies regarding tree compensation.

Environmental protection measures and special provisions should be included in the contract package to ensure that the extent of all vegetation removals within the study areas are minimized to the extent possible. Special provisions will describe the protective measures required to safeguard trees/vegetation from construction operations, equipment, and vehicles, and will cover the installation of protective barriers. Prior to construction, trees/ vegetation to be protected should be clearly identified in the field and protection barrier should be installed.

A wildlife encounter protocol should be developed to search for, safely and without harm capture wildlife (if possible) and relocate to suitable nearby habitat. Notifications of wildlife capture should be provided to the Region, City and MECP, as appropriate (depending on species status and governing policy). Handling of Species at Risk may require authorization under the ESA, and those requirements should be confirmed through MECP consultation.

5.5 MONITORING

Development and implementation of a monitoring plan is an additional method to ensure that mitigation and restoration efforts are effective. Performance and effectiveness monitoring may include:

- Monitoring success of restoration and landscape plantings and replacements as required, within the warranty period;
- Outfall monitoring should include assessing functionality and stability; and,
- A final report plan should be compiled which assesses whether the predicted impacts resulting from the proposed works have occurred or not, the extent of severity to which they occurred, whether the prescribed mitigation was successful to avoid or minimize predicted impacts, to identify if any unexpected negative impacts occurred, and to identify potential adaptive management.

6.0 SUMMARY OF SENSITIVITIES AND RECOMMENDATIONS

This report details environmental features and potential constraints in the Study Area, which guides potential permits and approvals that may be required for project implementation, in addition to future studies that may be required. A summary of these requirements and recommendations can be found in **Table 4.**

Little Etobicoke Creek which crosses through the Study Area provides fish habitat; therefore, the project cannot cause alteration, disruption, or destruction of habitat under the Federal Fisheries Act. *Measures to protect fish and fish habitat* must be adhered to, as outlined by the DFO at https://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures-eng.html.

The Study Area provides suitable habitat for MBCA regulated species and SAR birds, and habitat is present for SAR bats. Studies should be conducted in future project stages including breeding bird studies and a bat maternity roost tree study to further identify and refine species and habitat potential.

Tree removal and compensation should conform to the City of Mississauga Public Tree Protection by-law and relevant policies regarding tree compensation. A tree inventory should follow to characterize and assess impacts of the trees that have been identified in project plans for removal, and ensure protection of retained tree resources.

Mitigation strategies will be required to be implemented to minimize impact to natural features such as the implementation of timing windows for any vegetation removal, erosion and sediment controls to protect aquatic features, and tree protection buffers.

Table 4 Summary of Environmental Permits and Regulations Associated with Identified Natural Heritage Features

Legislation	Plan/Regulation/ By-law	Permit/Approval/Authorization	Approval Possibly Required		Recommended Next Steps
			Yes	No	
Federal Approvals					
Fisheries Act		Harmful, Alteration, Disruption, Destruction (HADD). DFO Review		Unlikely if Measures to Protect Fish and Fish Habitat are implemented as per DFO	Projects assumed to follow *Measures to protect fish and fish habitat*, and able to avoid a full Fisheries Act authorization. Will depend on final scope of work and impact assessment.
		Project Screening of Projects Near Water		Tunnelling methodology will eliminate in-stream impacts to fish habitat so DFO review will not be required.	None identified at this time sincein-steam works are not anticipated and it is assumed that the project will follow *Measures to protect fish and fish habitat*.
Migratory Birds Convention Act	n/a	Approvals/Authorizations not applicable. Project must abide by MBCA legislation.	The project must comply with the MBCA requirements. This is typically achieved through application of avoidance, such as timing windows.		Breeding bird surveys during the appropriate timing window to confirm species presence and to screen for species that may be SAR. Additional due diligence recommended to ensure project compliance.
Species at Risk Act	n/a	SARA permit		Unlikely	Not identified at this time. No aquatic SAR habitat identified that may trigger a SARA permit. No other triggers identified.
Provincial Approvals					
Ontario Water Resources Act	Ontario Regulation 387/04 (Water Taking and Transfer)	PTTW required for construction dewatering > 400,000L/day (see below).		n/a	Assumed addressed by others on project team.
Environmental Protection Act	Regulation 63/16 Registrations under Part II of the Act- Water Taking	Environmental Activity and Sector Registration EASR (Water taking for Construction Site Dewatering) required for groundwater taking between 50,000- 400,000 Litres on a single day under normal operation.		n/a	Assumed addressed by others on project team.
Conservation Authorities Act	Ontario Regulation (TRCA): Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses (O.Reg. 166/06); and associated TRCA policies applicable to infrastructure projects	A permit is required for the works within the Regulation Area. Regulated features include but are not limited to: watercourses, wetlands, valleylands (plus setbacks), hazardous lands, lands within 120m of Provincially Significant Wetlands, dynamic beach/waterfront (plus 30m).	Yes, likely		In areas under TRCA regulation, TRCA will likely require an Environment Impact Statement/Study in support of a TRCA permit application.
Endangered Species Act		Ministry of the Environment, Conservation and Parks (MECP) administers the Endangered Species Act, 2007 (ESA) in Ontario. Activities that require harm to a species at risk or its habitat may be eligible for exemption regulations.	Unknown at this time, potential identified		Due diligence recommended to ensure project compliance with the ESA. This should include wildlife surveys following the relevant protocols, particularly species and potential habitat for **SAR bats or birds** identified through the SAR screening.
Municipal Approvals					
City of Mississauga	Public Tree Protection By-law 0020-2022		Yes		Trees subject to bylaw protections. Compensation policies may apply.

7.0 REFERENCES

Chapman, L.J, and D.F Putnam. 1984. *The Physiography of Southern Ontario; Ontario Geological Survey, Special Volume 2.* 270p. Accompanied by Map P.2715 (coloured), scale 1:600 00.

City of Mississauga. 2023. City of Mississauga Official Plan. Available at: https://mississauga.ca/projects-and-strategies/strategies-and-plans/mississauga-official-plan/

Department of Fisheries and Oceans Canada (DFO). 2015. Distribution Maps for Aquatic Species at Risk. Available at: http://www.conservationontario.ca/projects/DFO/2015/Toronto%20and%20Region%20Conservation %20Authority_ENG_2015.zip

Eakins, R. J. 2012. Ontario Freshwater Fishes Life History Database. Version 4.24. On-line database (http://www.ontariofishes.ca), accessed 25 June 2014.

Toronto Region Conservation Authority. 2022. Watershed Features- Etobicoke and Mimico Creek. Retrieved from: https://trca.ca/conservation/watershed-management/etobicoke-mimico-creek/watershed-features/

Government of Canada. 2002. *Official List of Wildlife Species At Risk*. Species At Risk Act. Available at: http://www.sararegistry.gc.ca/sar/index/default_e.cfm

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. *Ecological Land Classification for Southern Ontario: First Approximation and Its Application*. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Department and Transfer Branch. SCSS Field Guide FG-02 North Bay, Ontario. 225 pp.

Ministry of Natural Resources and Forestry (MNRF). 2013. *Ontario Wetland Evaluation System. Southern Manual 3rd Edition, Version 3.2.* Available at: http://apps.mnr.gov.on.ca/public/files/er/stdprod_103924.pdf

Ministry of Natural Resources and Forestry (MNRF). 2015. Species At Risk Website as accessed at: http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/MNR_SAR_WHTS_RSK_MNTLN_EN.html

Newmaster, S.G. and S. Ragupathy, 2012. *Flora Ontario – Integrated Botanical Information System (FOIBIS), Phase I*. University of Guelph, Canada. Available at: http://www.uoguelph.ca/foibis/

Ontario Breeding Bird Atlas. (2001-2005). Atlas Data Summary. Website Retrieved from Ontario Breeding Bird Atlas (birdsontario.org).

Ontario Geological Survey. 1991. Map: *Bedrock Geology of Ontario, Southern Sheet*, scale 1:1 000 000. Available at: M2544: Bedrock geology of Ontario, southern sheet (gov.on.ca).

Ontario Geological Survey. 2017. *Surficial Geology of Southern Ontario*. Available at: OGSEarth (gov.on.ca).

Oldham, M.J. and S. Brinker. 2009. *Rare Vascular Plants of Ontario*. Fourth edition. Natural Heritage Information Centre, Ontario Ministry of Natural Resources. Peterborough, Ontario. 188 pp.

Region of Peel. 2022. Region of Peel Official Plan. Retrieved from: https://www.peelregion.ca/officialplan/download/_media/region-of-peel-official-plan-april2022.pdf

Riley, J.L. 1989. Regional Municipality of Peel. Distribution and Status of the Vascular Plants of Central Region. Ontario Ministry of Natural Resources. Richmond Hill, Ontario.

Toronto and Region Conservation Authority. 2008. Humber River Watershed Plan Pathways to a Healthy Humber.

Toronto and Region Conservation Authority. 2014. TRCA Environmental Impact Statement Guidelines. Retrieved from EIS_Guideline_-_Jan232015bp.pdf (trcaca.s3.ca-central-1.amazonaws.com)

Toronto and Region Conservation Authority (TRCA). 2023. Humber River Watershed. Retrieved from: Humber River - Toronto and Region Conservation Authority (TRCA)

Varga, S., D. Leadbeater, J. Webber, J. Kaiser, B. Crins, J. Kamstra, D. Banville, E. Ashley, G. Miller, C. Kingsley, C. Jacobsen, K. Mewa, L. Tebbym E, Mosley and E. Zajc. 2000. *Distribution and Status of the Vascular Plants of the Greater Toronto Area*. Ontario Ministry of Natural Resources. Aurora, Ontario. 103 pp.

Appendix A Background Wildlife Species List

Scientific Name	Common Name	eBird-Mississauga--Applewood Trail	eBird-Rathwood District Park	OBBA-Square 17PJ13	NHIC-Square 1017454	SARA	ESA	FWCA	MBCA	TRCA
Branta canadensis	Canada Goose	X		X					X	L5
Cygnus olor	Mute Swan			X					X	L+
Aix sponsa	Wood Duck			X					X	L4
Anas rubripes	American Black Duck	X		X					X	L3
Anas strepera	Gadwall			X					X	L4
Anas platyrhynchos	Mallard	X	X	X					X	L5
Lophodytes cucullatus	Hooded Merganser			X					X	L3
Mergus merganser	Common Merganser	X							X	L3
Phasianus colchicus	Ring-necked Pheasant			X				G		L+
Spinus tristis	American Goldfinch	X	X	X					X	L5
Meleagris gallopavo	Wild Turkey	X						G		L3
Gavia immer	Common Loon	X	X						X	
Phalacrocorax auritus	Double-crested Cormorant	X	X							L3
Ardea herodias	Great Blue Heron	X							X	L3
Ardea alba	Great Egret	X							X	L3
Butorides virescens	Green Heron	X		X						L4
Nycticorax nycticorax	Black-crowned Night Heron	X							X	L3
Cathartes aura	Turkey Vulture	X	X	X				P		L5
Haliaeetus leucocephalus	Bald Eagle	X					SC	P		
Circus cyaneus	Northern Harrier			X				P		L2
Accipiter cooperii	Cooper's Hawk	X	X	X				P		L4
Accipiter striatus	Sharp-shinned Hawk	X		X				P		L3
Buteo platypterus	Broad-winged Hawk	X						P		L2
Buteo jamaicensis	Red-tailed Hawk	X	X	X				P		L5
Falco sparverius	American Kestrel	X		X				P		L4
Falco columbarius	Merlin	X						P		L3

Scientific Name	Common Name	eBird-Mississauga--Applewood Trail	eBird-Rathwood District Park	OBBA-Square 17PJ13	NHIC-Square 1017454	SARA	ESA	FWCA	MBCA	TRCA
Falco peregrinus/anatum/tundrius	Peregrine Falcon	X		X			SC	P		L4
Porzana carolina	Sora			X					X	L3
Charadrius vociferus	Killdeer	X		X					X	L4
Actitis macularius	Spotted Sandpiper	X		X					X	L4
Bartramia longicauda	Upland Sandpiper			X					X	L2
Scolopax minor	American Woodcock	X		X					X	L3
Larus argentatus	Herring Gull	X							X	L4
Larus delawarensis	Ring-billed Gull	X	X						X	L4
Columba livia	Rock Pigeon	X	X	X						L+
Zenaida macroura	Mourning Dove	X	X	X					X	L5
Coccyzus erythropthalmus	Black-billed Cuckoo	X		X					X	L3
Coccyzus americanus	Yellow-billed Cuckoo	X		X					X	L3
Megascops asio	Eastern Screech-Owl	X		X				P		L4
Bubo virginianus	Great Horned Owl			X				P		L4
Strix varia	Barred Owl	X						P		L2
Chordeiles minor	Common Nighthawk			X		SC	SC		X	L3
Chaetura pelagica	Chimney Swift	X		X	X	THR	THR		X	L4
Archilochus colubris	Ruby-throated Hummingbird	X	X	X					X	L4
Megaceryle alcyon	Belted Kingfisher	X		X				P		L4
Melanerpes carolinus	Red-bellied Woodpecker	X	X	X					X	L4
Melanerpes erythrocephalus	Red-headed Woodpecker				X	END	END		X	L3
Sphyrapicus varius	Yellow-bellied Sapsucker	X	X	X					X	L3
Picoides pubescens	Downy Woodpecker	X	X	X					X	L5
Picoides villosus	Hairy Woodpecker	X	X	X					X	L4
Colaptes auratus	Northern Flicker	X	X	X					X	L4
Dryocopus pileatus	Pileated Woodpecker			X					X	L3

Scientific Name	Common Name	eBird-Mississauga--Applewood Trail	eBird-Rathwood District Park	OBBA-Square 17PJ13	NHIC-Square 1017454	SARA	ESA	FWCA	MBCA	TRCA
Contopus virens	Eastern Wood-Pewee	X	X	X	X	SC	SC		X	L4
Empidonax alnorum	Alder Flycatcher	X	X						X	L3
Empidonax minimus	Least Flycatcher	X		X					X	L4
Empidonax traillii	Willow Flycatcher	X		X					X	L4
Empidonax flaviventris	Yellow-bellied Flycatcher	X							X	
Sayornis phoebe	Eastern Phoebe	X	X	X					X	L5
Myiarchus crinitus	Great Crested Flycatcher	X		X					X	L4
Tyrannus tyrannus	Eastern Kingbird	X		X					X	L4
Vireo solitarius	Blue-headed vireo	X							X	L3
Vireo philadelphicus	Philadelphia Vireo	X							X	
Vireo olivaceus	Red-eyed Vireo	X	X	X					X	L4
Vireo gilvus	Warbling Vireo	X		X					X	L5
Cyanocitta cristata	Blue Jay	X	X	X				P		L5
Corvus brachyhrynchos	American Crow	X	X	X						L5
Corvus corax	Common Raven	X	X					P		L4
Eremophila alpestris	Horned Lark			X					X	L3
Progne subis	Purple Martin			X					X	L4
Tachycineta bicolor	Tree Swallow	X		X					X	L4
Stelgidopteryx serripennis	Northern Rough-winged Swallow	X		X					X	L4
Riparia riparia	Bank Swallow			X		THR	THR		X	L3
Petrochelidon pyrrhonota	Cliff Swallow			X					X	L5
Hirundo rustica	Barn Swallow	X	X	X		THR	SC		X	L4
Poecile atricapillus	Black-capped Chickadee	X	X	X					X	L5
Sitta canadensis	Red-breasted Nuthatch	X	X	X					X	L4
Sitta carolinensis	White-breasted Nuthatch	X	X	X					X	L4
Certhia americana	Brown Creeper	X	X	X					X	L4

Scientific Name	Common Name	eBird-Mississauga--Applewood Trail	eBird-Rathwood District Park	OBBA-Square 17PJ13	NHIC-Square 1017454	SARA	ESA	FWCA	MBCA	TRCA
Thryothorus ludovicianus	Carolina Wren	X		X					X	L4
Troglodytes aedon	House Wren	X	X	X					X	L5
Troglodytes hiemalis	Winter Wren	X	X						X	L3
Regulus satrapa	Golden-crowned Kinglet	X	X						X	L3
Regulus calendula	Ruby-crowned Kinglet	X	X						X	
Polioptila caerulea	Blue-gray Gnatcatcher	X		X					X	L4
Catharus guttatus	Hermit Thrush	X	X						X	L3
Catharus ustulatus	Swainson's Thrush	X	X						X	
Catharus fuscescens	Veery	X	X	X					X	L2
Hylocichla mustelina	Wood Thrush	X		X		THR	SC		X	L3
Turdus migratorius	American Robin	X	X	X					X	L5
Dumetella carolinensis	Gray Catbird	X	X	X					X	L4
Mimus polyglottos	Northern Mockingbird	X	X	X					X	L4
Toxostoma rufum	Brown Thrasher	X		X					X	L3
Sturnus vulgaris	European Starling	X	X	X						L+
Bombycilla cedrorum	Cedar Waxwing	X	X	X					X	L5
Vermivora Cyanoptera	Blue-winged Warbler	X							X	L3
Oreothylpis ruficapilla	Nashville Warbler	X		X					X	L3
Oreothlypis celata	Orange-crowned Warbler	X							X	
Oreothlypis peregrina	Tennessee Warbler	X							X	
Setophaga ruticilla	American Redstart	X	X	X					X	L4
Setophaga castanea	Bay-breasted Warbler	X							X	
Setophaga fusca	Blackburnian Warbler	X							X	L3
Setophaga striata	Blackpoll Warbler	X							X	
Setophaga caerulescens	Black-throated Blue Warbler	X							X	L3
Setophaga virens	Black-throated Green Warbler	X							X	L3

Scientific Name	Common Name	eBird-Mississauga--Applewood Trail	eBird-Rathwood District Park	OBBA-Square 17PJ13	NHIC-Square 1017454	SARA	ESA	FWCA	MBCA	TRCA
Setophaga tigrina	Cape May Warbler	X							X	
Setophaga pensylvanica	Chestnut-sided Warbler	X		X					X	L3
Setophaga magnolia	Magnolia Warbler	X		X					X	L3
Setophaga americana	Northern Parula	X							X	
Setophaga palmarum palmarum	Palm Warbler	X							X	
Setophaga pinus	Pine Warbler	X		X					X	L4
Setophaga petechia	Yellow Warbler	X	X	X					X	L5
Setophaga coronata	Yellow-rumped Warbler	X							X	L3
Mniotilta varia	Black-and-white Warbler	X							X	L2
Seiurus aurocapilla	Ovenbird	X		X					X	L2
Parkesia noveboracensis	Northern Waterthrush	X							X	L3
Geothlypis trichas	Common Yellowthroat	X		X					X	L4
Geothlypis philadelphia	Mourning Warbler	X		X					X	L3
Cardellina canadensis	Canada Warbler	X				THR	SC		X	L2
Cardellina pusilla	Wilson's Warbler	X							X	
Piranga olivacea	Scarlet Tanager	X		X					X	L3
Pipilo erythrophthalmus	Eastern Towhee	X	X	X					X	L3
Spizelloides arborea	American Tree Sparrow	X	X						X	
Spizella passerina	Chipping Sparrow	X	X	X					X	L5
Spizella pusilla	Field Sparrow	X		X					X	L4
Pooecetes gramineus	Vesper Sparrow			X					X	L3
Passerculus sandwichensis	Savannah Sparrow			X					X	L4
Ammodramus henslowii	Henslow's Sparrow				X	END	END		X	LX
Passerella iliaca	Fox Sparrow	X	X						X	
Melospiza lincolnii	Lincoln's Sparrow	X							X	
Melospiza melodia	Song Sparrow	X	X	X					X	L5

Scientific Name	Common Name	eBird-Mississauga--Applewood Trail	eBird-Rathwood District Park	OBBA-Square 17PJ13	NHIC-Square 1017454	SARA	ESA	FWCA	MBCA	TRCA
Melospiza georgiana	Swamp Sparrow	X		X					X	L4
Zonotrichia leucophrys	White-crowned Sparrow	X							X	
Zonotrichia albicollis	White-throated Sparrow	X	X	X					X	L3
Junco hyemalis	Dark-eyed Junco	X	X						X	
Cardinalis cardinalis	Northern Cardinal	X	X	X					X	L5
Pheucticus ludovicianus	Rose-breasted Grosbeak	X		X					X	L4
Passerina cyanea	Indigo Bunting	X		X					X	L4
Dolichonyx oryzivorus	Bobolink			X		THR	THR		X	L3
Agelaius phoeniceus	Red-winged Blackbird	X	X	X						L5
Sturnella magna	Eastern Meadowlark			X		THR	THR		X	L3
Quiscalus quiscula	Common Grackle	X	X	X						L5
Molothrus ater	Brown-headed Cowbird	X	X	X						L5
Icterus galbula	Baltimore Oriole	X		X					X	L5
Icterus spurius	Orchard Oriole			X					X	L5
Haemorhous mexicanus	House Finch	X	X	X					X	L+
Haemorphous purpureus	Purple Finch	X							X	L4
Spinus pinus	Pine Siskin	X		X					X	L4
Passer domesticus	House Sparrow	X	X	X						L+

Appendix A Legend

ESA

Ontario Endangered Species Act, 2007

END-Endangered; a species facing imminent extinction or extirpation in Ontario which is **Appendix B** Wildlife Lista candidate for regulation under Ontario's ESA

EXP-Extirpated; a species that no longer exists in the wild in Ontario but exists elsewhere

THR-Threatened; a species that is at risk of becoming endangered in Ontario if limiting factors are not reversed

SC-Special Concern; a species with characteristics that make it sensitive to human activities or natural events

SARA

Species at Risk Act Schedule 1- official list of wildlife Species at Risk

THR-threatened; a wildlife species likely to become endangered if limiting factors are not reversed
END-endangered; a wildlife species facing imminent extirpation or extinction
EXT-extirpated; a species no longer existing in the wild in Canada but occurring elsewhere
SC-special concern; a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats

MBCA (Migratory Birds Convention Act)
X- Migrant species with afforded protection

FWCA (Fish and Wildlife Conservation Act)
P- protected species
G- game species
F- furbearing species

TRCA – Toronto and Region Conservation Authority
L5 - Able to withstand high levels of disturbance; generally secure throughout the jurisdiction, including the urban matrix. May be of very localized concern in highly degraded areas.
L4-Able to withstand some disturbance; generally secure in rural matrix; of concern in urban matrix.
L3-Able to withstand minor disturbance; generally secure in natural matrix; considered to be of regional concern.
L2-Unable to withstand disturbance; some criteria are very limiting factors; generally occur in high-quality natural areas, in natural matrix; probably rare in TRCA jurisdiction; of concern regionally.
L1-Unable to withstand disturbance; many criteria are limiting factors; generally occur in high-quality natural areas in natural matrix; almost certainly rare in TRCA jurisdiction; of concern regionally.
LX-Extirpated from our region with remote chance of rediscovery. Presumably highly sensitive.
LH-Hybrid between two native species. Usually not scored unless highly stable and behaves like a species (e.g. Equisetum x nelsonii)
L+ -Exotic. Not native to TRCA jurisdiction. Includes hybrids between native species and an exotic.
L+? -Origin uncertain or disputed, i.e. may or may not be native.

Appendix B Vascular Plant List

Appendix B: Vascular Plant List

Introduced	Scientific Name	Common Name	GRank	SRank	ESA	SARA	TRCA	Peel-Riley	Peel - Varga	FOD5-8	FOD7-3	M
	PINACEAE	**PINE FAMILY**										
	Picea glauca	white spruce	G5	S5			L3	X	R3			X
	Pinus strobus	eastern white pine	G5	S5			L4	X	X	X		
	CUPRESSACEAE	**CEDAR FAMILY**										
	Thuja occidentalis	eastern white cedar	G5	S5			L4	X	X	X	X	
	PLATANACEAE	**PLANE-TREE FAMILY**										
	Platanus occidentalis	sycamore	G5	S4			L1	X	R3			X
	ULMACEAE	**ELM FAMILY**										
	Celtis occidentalis	common hackberry	G5	S4						X	X	
	MORACEAE	**MULBERRY FAMILY**										
*	Morus alba	white mulberry	G?	SE5			L+	X	X		X	
	JUGLANDACEAE	**WALNUT FAMILY**										
	Juglans nigra	black walnut	G5	S4			L5	X Nat	X		X	
	FAGACEAE	**BEECH FAMILY**										
	Quercus macrocarpa	bur oak	G5	S5			L4	X	X	X		
	Quercus rubra	red oak	G5	S5			L4	X	X		X	
*	Alnus glutinosa	European black alder	G?	SE4			L+				X	
	TILIACEAE	**LINDEN FAMILY**										
	Tilia americana	basswood	G5	S5			L5	X	X	X		
	SALICACEAE	**WILLOW FAMILY**										
	Populus balsamifera ssp. balsamifera	balsam poplar	G5T?	S5			L5	X	X		X	
	Salix sp.	willow		?						X	X	
	ROSACEAE	**ROSE FAMILY**										
*	Prunus avium	sweet cherry	G?	SE4			L+	SR	XSR	X		
	Prunus virginiana var. virginiana	choke cherry	G5T?	S5			L5	X	X	X		
*	Rosa multiflora	multiflora rose	G?	SE4			L+	X	X	X	X	X
	FABACEAE	**PEA FAMILY**										
*	Robinia pseudo-acacia	black locust	G5	SE5			L+	X	X		X	
	ONAGRACEAE	**EVENING-PRIMROSE FAMILY**										
	Oenothera biennis	common evening-primrose	G5	S5			L5	X	U		X	
	CORNACEAE	**DOGWOOD FAMILY**										
	Cornus rugosa	round-leaved dogwood	G5	S5			L3	X	X		X	
	Cornus sericea ssp. sericea	red-osier dogwood	G5	S5			L5	X	X		X	
	CELASTRACEAE	**STAFF-TREE FAMILY**										
*	Euonymus europaea	spindle tree	G?	SE2			L+	X	X		X	
	RHAMNACEAE	**BUCKTHORN FAMILY**										
*	Rhamnus cathartica	common buckthorn	G?	SE5			L+	X	X	X	X	
	VITACEAE	**GRAPE FAMILY**										
	Parthenocissus quinquefolia	five-leaved Virginia-creeper	G5	S4?			L5			X		

	HIPPOCASTANACEAE	**BUCKEYE FAMILY**										
*	Aesculus hippocastanum	horse chestnut	G?	SE2			L+	X	X	X		
	ACERACEAE	**MAPLE FAMILY**										
*	Acer ginnala	amur maple	G?	SE1			L+		XSR		X	
	Acer negundo	manitoba maple	G5	S5			L+?	X	X		X	
	Acer saccharinum	silver maple	G5	S5			L4	X	X	X		
	Acer saccharum var. saccharum	sugar maple	G5T?	S5			L5	X	X		X	X
	APIACEAE	**PARSLEY FAMILY**										
*	Daucus carota	wild carrot	G?	SE5			L+	X	X		X	
	PLANTAGINACEAE	**PLANTAIN FAMILY**										
*	Plantago major	common plantain	G5	SE5			L+	X	X		X	
	OLEACEAE	**OLIVE FAMILY**										
	Fraxinus americana	white ash	G5	S5			L5	X	X	X	X	
	DIPSACACEAE	**TEASEL FAMILY**										
*	Dipsacus fullonum ssp. sylvestris	wild teasel	G?T?	SE5			L+	X	X		X	
	ASTERACEAE	**ASTER FAMILY**										
	Ambrosia artemisiifolia	common ragweed	G5	S5			L5	X	X		X	
*	Arctium lappa	great burdock	G?	SE5			L+	X	X		X	
*	Arctium minus	common burdock	G?T?	SE5			L+		X		X	
*	Cichorium intybus	chicory	G?	SE5			L+	X	X		X	
*	Cirsium arvense	Canada thistle	G?	SE5			L+	X	X		X	
	Solidago canadensis	canada goldenrod	G5	S5			L5	X	X		X	
	Symphyotrichum lanceolatum var. hesperium	panicled aster	G5T5?	S5							X	
	Symphyotrichum novae-angliae	New England aster	G5	S5			L5	X	X		X	
*	Taraxacum officinale	common dandelion	G5	SE5			L+	X	X		X	
	POACEAE	**GRASS FAMILY**										
	Phragmites australis	common reed	G5	S5			L+?	X	X		X	

Appendix A Legend:
x- indicates presence, * - indicates non-native
G-Rank (Global Rank): assigned by a consensus of the network of Conservation Data Centres (CDCs), scientific experts and The Nature Conservancy to designate a rarity rank based on the range-wide status of species, subspecies or variety, according to the following.
G1- extremely rare; usually 5 or fewer occurrences in the overall range or very few remaining individuals or because of some factor (s) making it especially vulnerable
G2-very rare; usually between 5 and 20 occurrences in the overall range or with many individuals in fewer occurrences or because of some factor (s) making it vulnerable to extinction
G3- rare to uncommon; usually between 20 and 100 occurrences; may have fewer occurrences but with a large number of individuals in some populations or may be susceptible to large-scale disturbances
G4-common; usually more than 100 occurrences, usually not susceptible to immediate threats
G5-very common; demonstrably secure under present conditions
GH-historic; no records in the past 20 years
GU-status uncertain; often because of low search effort or cryptic nature of species, more data needed
GX-globally extinct; no records despite specific searches
?-denotes inexact numeric rank
G- global rank has not been obtained from the Nature Conservancy

G?-unranked; or if following a ranking the rank is tentatively assigned
Q-denotes taxonomic status of species, subspecies or variety as questionable
T-denotes the rank applies to a subspecies or variety
S-Rank (Provincial or Subnational ranks): used by the Natural Heritage Information Centre to set protection priorities for rare species and natural communities. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.
SX-presumed extirpated; not located despite intensive searches
SH-historical; no known extant occurrences in past 20 years
S1-critically imperiled; typically 1 to 5 extant occurrences
S2-imperiled; typically 6 to 20 extant occurrences
S3-vulnerable; typically 21 to 80 extant occurrences
S4-apparently secure; uncommon but not rare; some cause for long-term concern; usually >80 extant occurrences
S5-secure; common, widespread and abundant
SNA-status not applicable; not a suitable target for conservation (e.g. non-native species)
SU-unrankable; insufficient information to rank confidently
SNR-not ranked
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Peel – species status as per Riley, J.L. 1989. Regional Municipality of Peel. Distribution and Status of the Vascular Plants of Central Region. Ontario Ministry of Natural Resources. Richmond Hill, Ontario. and Varga, S. et al. 2000. Regional Municipality of Peel. Distribution and Status of the Vascular Plants of the Greater Toronto Area.
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Appendix C Species at Risk Screening Table

Screening for Species at Risk with Potential to Occur in the Study Area.

Group	Species	SARO Status	Data Source	Habitat Description	Habitat Potential within the Study Area	Recommendations
Bird	Bald Eagle (*Haliaeetus leucocephalus*)	Special Concern	eBird	In Ontario, bald eagle nests are typically found near the shorelines of lakes or large rivers, often on forested islands. The large, conspicuous nests are typically found in large super-canopy trees along water bodies.	Limited but potential habitat present. A mega-fauna that is often detected in citizen science such as e-Bird, no apparent records in the area.	Aquatic and terrestrial habitat is not considered particularly suitable for this species. They may be an occasional visitor or migrant through the area, but suitable breeding canopy trees or aquatic foraging habitat are absent.
Bird	Bank Swallow (Riparia riparia)	Threatened	OBBA	The bank swallow breeds in a variety of natural and anthropogenic habitats, including lake bluffs, stream and river banks, sand and gravel pits, and roadcuts. Nests are generally built in a vertical or near-vertical bank. Breeding sites are typically located near open foraging sites such as rivers, lakes, grasslands, agricultural fields, wetlands and riparian woods. Forested areas are generally avoided.	No suitable habitat.	None
Bird	Barn Swallow (*Hirundo rustica*)	Special Concern	OBBA, eBird	In Ontario, barn swallows breed in areas that contain a suitable nesting structure, open areas for foraging, and a body of water. This species nests in human made structures including barns, buildings, sheds, bridges, and culverts. Preferred foraging habitat includes grassy fields, pastures, agricultural cropland, lake, and river shorelines, cleared right-of-ways, and wetlands. Mud nests are fastened to vertical walls or built on a ledge underneath an overhang. Suitable nests from previous years are reused.	Suitable potential habitat amongst buildings and under bridge.	Breeding bird surveys, timing windows for disturbance to nests.
Bird	Bobolink (*Dolichonyx oryzivorus*)	Threatened	OBBA	In Ontario, bobolink breeds in grasslands or graminoid dominated hayfields with tall vegetation. Bobolink prefers grassland habitat with a forb component and a moderate litter layer. They are most abundant in established, but regularly maintained, hayfields, but also breed in lightly grazed pastures, old or fallow fields, cultural meadows and newly planted hayfields.	No suitable habitat.	None.
Bird	Canada Warbler (Cardellina canadensis)	Special Concern	eBird	Breeding habitat for Canada warbler consists of moist mixed forests with a well-developed shrubby understory. This includes low-lying areas such as cedar and alder swamps, and riparian thickets (McLaren 2007). It is also found in densely vegetated regenerating forest openings. Suitable habitat often contains a developed moss layer and an uneven forest floor. Nests are well concealed on or near the ground in dense shrub or fern cover, often in stumps, fallen logs, overhanging stream banks or mossy hummocks.	No suitable habitat.	None
Bird	Chimney Swift (*Chaetura pelagica*)	Threatened	NHIC, OBBA, eBird	In Ontario, chimney swift breeding habitat is varied and includes urban, suburban, rural, and wooded sites. They are most associated with towns and cities with large concentrations of chimneys. Preferred nesting sites are dark, sheltered spots with a vertical surface to which the bird can grip. Unused chimneys are the primary nesting and roosting structure, but other anthropogenic structures and large diameter cavity trees are also used.	Suitable potential habitat in chimneys adjacent to the project area. Trees within the creek valley are not considered suitable to support this species.	No further mitigation recommended.
Bird	Common Nighthawk (*Chordeiles minor*)	Special Concern	OBBA, eBird	Common nighthawks require areas with large open habitat. This includes farmland, open woodlands, clear cuts, burns, rock outcrops, alvars, bog ferns, prairies, gravel pits and gravel rooftops in cities.	No suitable habitat	None
Bird	Eastern Meadowlark (Sturnella magna)	Threatened	OBBA	In Ontario, the eastern meadowlark breeds in pastures, hayfields, meadows and old fields. Eastern meadowlark prefers moderately tall grasslands with abundant litter cover, high grass proportion, and a forb component. They prefer well drained sites or slopes, and sites with different cover layers.	No suitable habitat.	None

Group	Species	SARO Status	Data Source	Habitat Description	Habitat Potential within the Study Area	Recommendations
Bird	Eastern Wood-pewee (*Contopus virens*)	Special Concern	NHIC, OBBA, eBird	The eastern wood-pewee inhabits a wide variety of wooded upland and lowland habitats but is most commonly associated with the mid-canopy of forest clearings, and edge habitat in deciduous and mixed forests. It also occurs in anthropogenic habitats that provide an open forested aspect such as parks and suburban neighbourhoods. It prefers intermediate-age mature forest stands with little understory vegetation.	Habitat potential in woodland.	Breeding bird surveys and timing windows for vegetation removal.
Bird	Henslow's Sparrow (*Ammodramus henslowii*)	Endangered	NHIC	Henslow's sparrow breeds in large grasslands with low disturbance, such as lightly grazed and ungrazed pastures, fallow hayfields, grassy swales in open farmland, and wet meadows. Preferred habitat contains tall, dense grass cover, typically over 30 cm high, with a high percentage of ground cover, and a thick mat of dead plant material. Henslow's sparrow generally avoids areas with emergent woody shrubs or trees, and fence lines. Areas of standing water or ephemerally wet patches appear to be important. This species breeds more frequently in patches of habitat greater than 30 ha and preferably greater than 100 ha.	No suitable habitat.	None
Bird	Peregrine Falcon (Flaco peregrinus)	Special Concern	OBBA, eBird	Peregrine falcon breeds in areas containing suitable nesting locations and sufficient prey resources. Such habitat includes both natural locations containing cliff faces (heights of 50 - 200 m preferred) and also anthropogenic landscapes including urban centres containing tall buildings, open pit mines and quarries, and road cuts. Peregrine falcons nest on cliff ledges and crevices and building ledges. Nests consist of a simple scrape in the substrate.	No suitable habitat.	None
Bird	Red-headed Woodpecker (*Melanerpes erythrocephalus*)	Endangered	NHIC	The red-headed woodpecker breeds in open, deciduous woodlands or woodland edges and are often found in parks, cemeteries, golf courses, orchards and savannahs. They may also breed in forest clearings or open agricultural areas provided that large trees are available for nesting. They prefer forests with little or no understory vegetation. They are often associated with beech or oak forests, beaver ponds and swamp forests where snags are numerous. Nests are excavated in the trunks of large dead trees.	Limited but potential habitat present. NHIC record is likely dated, as the species has not been documented in this area in recent years.	Low likelihood of species presence; however, breeding bird surveys will inform required next steps.
Bird	Wood Thrush (*Hylocichla mustelina*)	Special Concern	OBBA, eBird	In Ontario, wood thrush breeds in moist, deciduous hardwood or mixed stands that are often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches. This species selects nesting sites with the following characteristics: lower elevations with trees less than16 m in height, a closed canopy cover (>70 %), a high variety of deciduous tree species, moderate subcanopy and shrub density, shade, fairly open forest floor, moist soil, and decaying leaf litter.	No suitable habitat.	None
Mammal	Eastern Small-footed Myotis (*Myotis leibii*)	Endangered	Bat Conservation International	This species is not known to roost within trees, but there is very little known about its roosting habits. The species generally roosts on the ground under rocks, in rock crevices, talus slopes and rock piles. It occasionally inhabits buildings. Areas near the entrances of caves or abandoned mines may be used for hibernaculum, where the conditions are drafty with low humidity, and may be subfreezing.	Rock pile roosting habitat is limited in the Study Area, however; suitable roost trees are present in forest.	Timing windows for impact to cavity trees to ensure project compliance with the ESA in all phases.
Mammal	Little Brown Myotis (*Myotis lucifugus*)	Endangered	Bat Conservation International	This species range is extensive and covers much of the province. They roost in natural and man-made structures. They require a number of large dead trees, in specific stages of decay and that project above the canopy in relatively open areas. May form nursery colonies in the attics of buildings within 1 km of water. Caves or abandoned mines may be used for hibernaculum, but high humidity and stable above freezing temperatures are required.	Suitable habitat and roost trees are present in forest.	Timing windows for impact to cavity trees to ensure project compliance with the ESA in all phases.
Mammal	Northern Myotis (*Myotis septentrionalis*)	Endangered	Bat Conservation International	In Ontario, this species range is extensive and covers much of the province. It will usually roost in hollows, crevices, and under loose bark of mature trees. Roosts may be established in the main trunk or a large branch of either living or dead trees. Caves or	Suitable habitat and roost trees are present in forest.	Timing windows for impact to cavity trees to ensure project compliance with the ESA in all phases.

Group	Species	SARO Status	Data Source	Habitat Description	Habitat Potential within the Study Area	Recommendations
				abandoned mines may be used for hibernaculum, but high humidity and stable above freezing temperatures are required.		project compliance with the ESA in all phases.
Mammal	Tri-coloured Bat (*Perimyotis subflavus*)	Endangered	Bat Conservation International	In Ontario, tri-colored bat may roost in foliage, in clumps of old leaves, hanging moss or squirrel nests. They are occasionally found in buildings although there are no records of this in Canada. They typically feed over aquatic areas with an affinity to large-bodied water and will likely roost in close proximity to these. Hibernation sites are found deep within caves or mines in areas of relatively warm temperatures. These bats have strong roost fidelity to their winter hibernation sites.	Suitable habitat and roost trees are present in forest.	Timing windows for impact to cavity trees to ensure project compliance with the ESA in all phases.
Plant	Butternut (*Juglans cinerea*)	Endangered	No species occurrence in background screening. Habitat Potential based on field investations.	This species generally grows in rich, moist, and well-drained soils often found along streams. IT may also be found in well-drained gravel sites, especially those made of up limestone. In Ontario, the species generally grows alone or in small groups in deciduous forests as well as in hedgerows.	Suitable habitat in woodland adjacent to creek.	If trees will be removed or are within 50 m of the project footprint a tree inventory is recommended.