Brampton Transit

BUS MAINTENANCE & STORAGE FACILITY

Appendix B

Environmental Impact Study (EIS)

March 18, 2021

Prepared for

BRAMPTON Flower City
brampton.ca

Prepared by

IBI GROUP

ENVIRONMENTAL IMPACT STUDY

BRAMPTON TRANSIT BUS MAINTENANCE AND STORAGE FACILITY,
CITY OF BRAMPTON
TRANSIT PROJECT ASSESSMENT PROCESS

prepared for:

IBI

prepared by:

LGL LIMITED
environmental research associates

NOVEMBER 2020

ENVIRONMENTAL IMPACT STUDY

BRAMPTON TRANSIT BUS MAINTENANCE AND STORAGE FACILITY,
CITY OF BRAMPTON
TRANSIT PROJECT ASSESSMENT PROCESS

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NOVEMBER 2020

LGL Project # TA8943

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1.0 INTRODUCTION

The City of Brampton is undertaking a Transit Project Assessment Process (TPAP) as outlined in Ontario Regulation 231/08 for the proposed Brampton Transit maintenance facility located at 10192 Highway 50. The limits of the study are presented in **Figure 1**.

This study is being conducted by IBI Group on behalf of the City of Brampton. LGL Limited, as a sub-consultant to IBI Group, is providing natural heritage services. This Environmental Impact Study documents the natural heritage existing conditions information based on secondary sources and data collection during the fall of 2019 and summer of 2020. The potential effects of this project on natural heritage features, including environmental protection measures, are presented in this report. The impact assessment and mitigation is based on a review of the site plan prepared by IBI in August 2020.

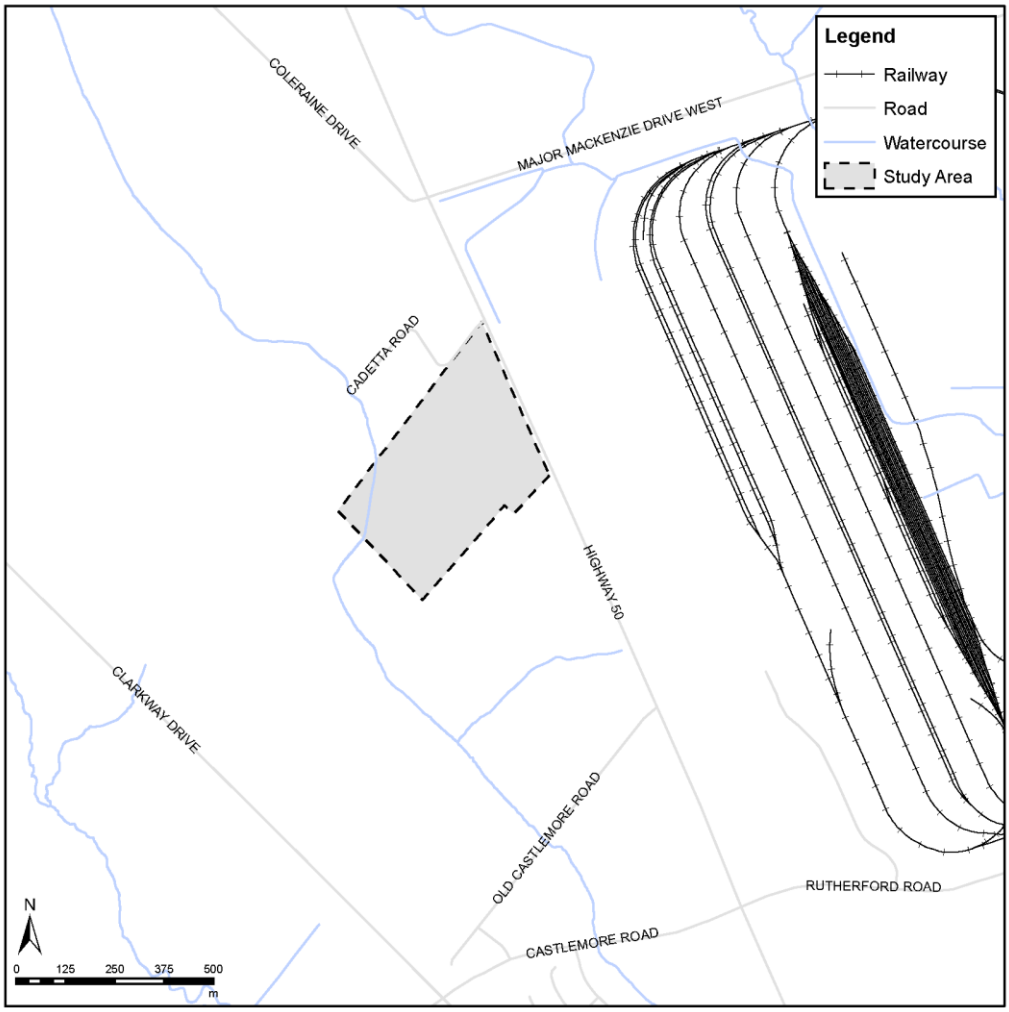

FIGURE 1. KEY PLAN

2.0 EXISTING CONDITIONS

The following discussion outlines the existing environmental conditions within the study area and identifies natural heritage areas and/or features of environmental sensitivity and/or significance. Information is based on secondary data sources and the field investigations undertaken during the fall of 2019 and summer 2020.

2.1 Physiography and Soils

The study area is located within the Iroquois Plain physiographic region in southern Ontario, a lowland region bordering Lake Ontario. The South Slope is an interlobate moraine characterized by scattered drumlins pointing directly up-slope, with streams, that have cut sharp valleys in till (Chapman and Putnam, 1984)

Soils surrounding the study area are classified as Peel clay and Bottomland.

2.1.1 Peel clay and Clay Loam

Peel clay soils are imperfectly drained and exhibit a smooth, gently sloping topography. These soil types consist of lacustrine clay over gritty clay or clay till, which can be up to one metre deep. Erosion is slight with these soil types.

2.2 Aquatic Habitats and Communities

2.2.1 Background

West Rainbow Creek, a tributary of the Humber River traverses the west limits of the study property. The study area lies within the Toronto and Region Conservation Authority (TRCA), the Ministry of Natural Resources and Forestry (MNRF) and the Ministry of the Environment, Conservation and Parks (MECP) – Aurora District Office jurisdiction. The watercourse and associated floodplain are within TRCA regulated areas (see **Figure 2** below). Any work within these areas require a permit from TRCA under *Ontario Regulation 166/06 Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation.*

FIGURE 2. TRCA REGULATION MAPPING (2020)

As per the report written by SLR Consulting for the Huntington Road Part A and Part B Langstaff Road to Nashville Road Schedule 'C' Environmental Assessment (2017) a study area adjacent to Huntington Road downstream of the proposed Brampton Transit Facility Property:

The fish present in the Study Area reflect typical cool / warmwater fish communities in southern Ontario. The communities are comprised of generalist and benthic feeding groups inclusive of cyprinid, stickleback, darter, bullhead and Catostomidae species. These fish are relatively tolerant of stresses associated with urbanization. None of the species captured during investigations are sensitive to habitat disturbance and poor water quality. None of these species depend on specialized spawning habitat.

The food web structure within these systems is relatively simple; Creek Chub is likely the top predator (part piscivore) and feed on other insectivore and omnivore minnows. Species within these systems are both resident and migratory species. White Sucker was collected from Rainbow Creek, this is a migratory species which moves from lake to riverine environments to spawn. Fish collections indicate that the study area can support cool water species.

Table 1 provides a summary of the fish species that were noted in the SLR report as sampled by SLR and TRCA.

TABLE 1.
FISH SPECIES OF RAINBOW CREEK

Common Name	Scientific Name	SLR	TRCA
Brook Stickleback	*Culaea inconstans*	X	X
Brown Bullhead	*Ameiurus nebulosus*	X	X
Creek Chub	*Semotilus atromaculatus*	X	X
Fathead Minnow	*Pimephales promelas*		X
Green Sunfish	*Lepomis cyanellus*		X
Common Sunfish sp.	*Lepomis sp.*		X
Pumkinseed	*Lepomis gibbosus*		X
White Sucker	*Catostomus commersonii*	X	X

The Humber River Fish Management Plan (2005) completed by the MNRF/TRCA has classified the watercourse in the study area as "Small Riverine Warmwater" and characterizes these watercourses as:

This habitat type is comprised of watercourses having drainage areas less than 10 km^2. For the most part, this means first and second order tributaries draining from the Peel Plain, although there are some third order streams in this category. Due to the dominance of clay soils in the Peel Plain, infiltration rates are low, as are the rates of groundwater discharge to streams. As a result, many of these tributaries are either reduced to standing pools or completely dry up during the warmer summer months. A low baseflow and high average flow is also reflected in the low ratio of baseflow to average annual flow. Finally, water temperatures are likely to fluctuate and become quite warm during the summer.

2.2.2 Findings

West Rainbow Creek in the study area was assessed on November 13, 2019 with an air temperature of –4.0°C under sunny conditions. Snow cover and frozen conditions were present, but a visual survey confirmed that the channel was poorly defined through a 50 – 80 m wide corridor of grasses and cattails. During the spring freshet period, it appears that a defined channel approximately 1.0 – 3.0 wide through herbaceous vegetation flows through the site. Based on previous fisheries work conducted on this channel at Castlemore Road approximately 1 km downstream, it was confirmed that the channel is dry for most of the year and supports intermittent flows. A second field visit was undertaken on September 14, 2020 to confirm the findings of 2019 visit.

The riparian vegetation consists mainly of herbaceous species as well as cattails. The substrate throughout the study reach consists of fine materials such as silt and organic material. The Rainbow Creek Tributary generally consists of simple aquatic habitat and based on the fish sampling information provided in the SLR report, it is likely that a community of tolerant, warmwater forage fish species uses the channel seasonally based on the intermittent flow conditions.

Based on the Evaluation, Classification and Management of Headwater Drainage Features Guidelines (HDFG) completed by CVC and TRCA in 2014, the following assumptions can be made (**Table 2**):

TABLE 2.
SUMMARY OF FUNCTIONAL CLASSIFICATIONS AND MANAGEMENT

STEP 1	STEP 2	STEP 3	STEP 4	Management Recommendation
Hydrology Classification	**Riparian Classification**	**Fish and Fish Habitat Classification**	**Terrestrial Habitat Function**	**See flow chart below**
Contributing Functions - Ephemeral Provides ephemeral flow or water storage functions during and (for a short time) after spring freshet and following large rain events only	Important Functions Wetland and/or any of the riparian corridor categories (0-1.5 m, 1.5-10 m, or 10-30 m on either side of the feature)	Valued Functions - Seasonal habitat provided areas used for feeding, cover, refuge, migration and contributing habitat for species-at-risk	Valued Functions - General amphibian habitat: stepping stone habitat (stop over to higher quality habitat) or suitable for feeding or hydration for low mobility wildlife (i.e. amphibians). Wetland habitat occurs within the corridor, but no breeding amphibians are present.	CONSERVATION

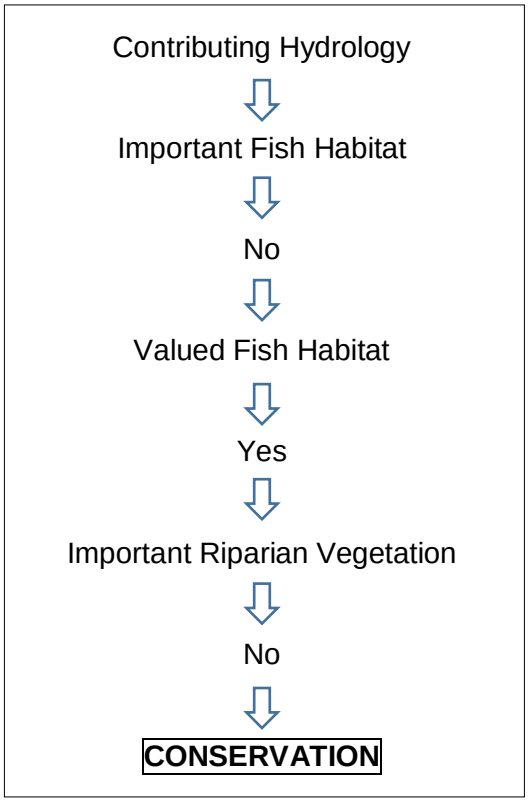

FIGURE 3. FLOW CHART PROVIDING DIRECTION ON MANAGEMENT OPTIONS

The management recommendation from the HDFG is Conservation – Valued Functions as indicated from **Figure 3** above. The following has been taken from the HDFG:

e.g. seasonal fish habitat with woody riparian cover; marshes with amphibian breeding habitat; or general amphibian habitat with woody riparian cover.

- *Maintain, relocate, and/or enhance drainage feature and its riparian zone corridor;*
- *If catchment drainage has been previously removed or will be removed due to diversion of stormwater flows, restore lost functions through enhanced lot level controls (i.e. restore original catchment using clean roof drainage), as feasible;*
- *Maintain or replace on-site flows using mitigation measures and/or wetland creation, if necessary;*
- *Maintain or replace external flows,*
- *Use natural channel design techniques to maintain or enhance overall productivity of the reach;*
- *Drainage feature must connect to downstream.*

It is not expected that the proposed site development will impact the watercourse or its associated riparian area. However, consideration for the quantity and quality of drainage and/or stormwater inputs should be implemented, and the function of the feature should be maintained through site controls and mitigation measures during construction. **Table 3** provides a summary of the management recommendations for features with a management recommendation of Conservation, from the HDFG.

TABLE 3.
SUMMARY OF MANAGEMENT RECOMMENDATION AND IMPLICATIONS FOR DEVELOPMENT PROPOSALS

Management Implications	Conservation
Must remain open	Yes
Relocate using natural channel design	May be considered, not preferred
Maintain or replicate groundwater or wetlands	Maintain or replicate, restore if possible
Maintain hydroperiod	Yes
Direct connection to downstream	Yes
Replicate function through enhanced lot level conveyance	N/A

2.3 Vegetation and Vegetation Communities

The geographical extent, composition, structure and function of the vegetation communities were identified through air photo interpretation and a field investigation. Air photos were interpreted to determine the limits and characteristics of the vegetation communities in the study area. Field investigations of the vegetation communities within the study area were undertaken on November 13, 2019 and September 14, 2020. The field investigations were carried out to ground truth the boundaries of the vegetation communities and to conduct botanical surveys.

The vegetation communities were classified according to the *Ecological Land Classification for Southern Ontario: First Approximation and Its Application* (Lee *et al*. 1998). A plant list and a description of the general structure of vegetation communities were obtained during the field investigation. Plant species status was reviewed for Ontario (Oldham 2009), and Peel Region (Varga 2000 and Riley 1989). Vascular plant nomenclature follows Newmaster *et al*. (1998) with a few exceptions that have been updated to Newmaster *et al.* (2005).

2.3.1 Vegetation Communities

The study area is largely comprised of an agricultural field. Two Ecological Land Classification (ELC) vegetation community types were identified within the study limits during LGL's botanical survey. The community types include Reed Canary Grass Mineral Meadow Marsh (MAM2-2) and Dry-Moist Old Field Meadow (CUM1-1). All of the vegetation communities identified within the study area are considered widespread and common in Ontario and are secure globally. These communities are delineated in **Figure 4** and are described in **Table 4.**

The cultural meadow community is comprised of a high proportion of non-native, disturbance tolerant plant species that are well adapted to persist in areas that are regularly disturbed including species that are adapted to high light conditions, limited soil moisture and species that are tolerant of salt spray.

The meadow marsh community is associated with the riparian area of the watercourse in the study area. The marsh community is considered to be of moderate quality and supports a high diversity of native plant species than the cultural meadow community

2.3.2 Flora

A total of 35 plant species were recorded within the study area. Four of these plants could only be identified to genus and are not included in the following calculations. Of the 31 plants identified to species, 11 (35%) plant species identified are native to Ontario and 20 (65%) plant species are considered introduced and non-native to Ontario. A list of vascular plants is presented in **Appendix B.**

LEGEND

- Railway
- Watercourse
- Warm Thermal Regime
- Study Area
- Regulation Limit (TRCA)
- Waterbody
- Wetland Not Evaluated per OWES

Vegetation Communities

- Vegetation Community Boundary

Ag	Agricultural
CUM1-1	Dry-Moist Old Field Meadow Type
D	Disturbed
M	Manicured
MAM2-2	Reed-canary Grass Mineral Meadow Marsh Type

0 30 60 90 120
m

N

NATURAL HERITAGE

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Project:	TA8943	**Figure:**	2
Date:	March, 2020	**Prepared By:**	JJP
Scale:	1 : 3,500	**Checked By:**	LCO

TABLE 4.
SUMMARY OF ECOLOGICAL LAND CLASSIFICATION VEGETATION COMMUNITIES

ELC Code	Vegetation Type	Species Association	Community Characteristics
TERRESTRIAL – CULTURAL			
CUM	Cultural Meadow		
CUM1-1	Dry-Moist Old Field Meadow	**Emergent Trees/Shrubs:** includes Manitoba maple (*Acer negundo*), red ash (*Fraxinus pennsylvanica*), and common buckthorn (*Rhamnus cathartica*). **Ground cover:** includes Canada goldenrod (*Solidago canadensis*), awnless brome (*Bromus inermis* ssp. *inermis*), wild carrot (*Daucus carota*), and chicory (*Cichorium intybus*).	• Cultural communities (CU). • Tree cover and shrub cover < 25% (M). • Mineral soil (1). • This community can occur on a wide range of soil moisture regimes (Dry-Moist) (-1).
WETLAND			
MAM	Meadow Marsh		
MAM2-2	Reed-Canary Grass Mineral Meadow Marsh	**Emergent Trees/Shrubs:** includes willow species (*Salix* spp.) **Ground Cover:** includes reed-canary grass (*Phalaris arundiancea*), sedges (*Carex* spp.), and cattails (*Typha* spp.).	• Tree and shrub cover <25% with variable flooding regimes (water depth <2m) (MA). • Species less tolerant of prolonged flooding (MAM). • Mineral soil (2). • Reed-canary grass dominant (2).

2.3.3 Species at Risk

No plant species that are regulated under the Ontario *Endangered Species Act* or the Canada *Species at Risk Act* were encountered during LGL's botanical investigation within the subject area (those plant species regulated as Endangered, Threatened, or Special Concern). A description of provincial species ranks is provided in **Appendix B**. In addition, no plant species that are considered regionally or locally rare were identified within the study area.

2.4 Wildlife and Wildlife Habitat

Field investigations were conducted in the study area, located immediately west of Highway 50 and south of Cadetta Road on November 13, 2019 and September 14, 2020. The purpose of the field investigation was to document wildlife and wildlife habitat and to characterize the nature, extent, and significance of animal usage within the study limits. Direct observations, calls, tracks and scats were used to record wildlife present within the study area. It should be noted that field investigations were conducted in the fall/late fall and thus the species identified may not be representative of the wildlife community (e.g. breeding birds).

2.4.1 Wildlife Habitat

Wildlife and wildlife habitat were found to be distributed across the entire study area, however given the cleared landscape practices (agriculture) and disturbed nature of the study area, natural heritage features were generally considered marginal quality and restricted largely to a single feature. The feature which offers the highest quality wildlife habitat is the Tributary of Rainbow Creek and associated riparian area. The riparian habitat consisted largely of reed-canary grass and scattered trees.

Natural areas within the study area are generally fragmented from surrounding natural areas by the presence of roads, cleared agricultural lands and urban development. Habitats associated with the Tributary of Rainbow Creek north-south running riparian area is likely to provide locally important habitat connectivity, between natural habitat areas in the vicinity of the study area. These natural areas provide the most suitable wildlife habitat in the study area; however, only a low to moderately diverse assemblage of bird and mammal species were documented within these habitats. The weakly defined channel and associated aquatic vegetation associated with the watercourse have the potential to function as amphibian breeding habitat; however, its function is expected to be limited given the level of disturbance found across the study area.

2.4.2 Fauna

Based on LGL's field observations, eight species of wildlife were observed in the study area and the majority of these recordings came from mammalian signs or identification (through calls and sightings) of bird species. A summary of the wildlife species documented during LGL's field investigations is presented in **Table 5**.

Based on the habitat types present, additional mammal species which prefer open-country, forest, aquatic and anthropogenic habitats are expected to be found within the study area. Generally, the mammal species expected within the study area represent an assemblage that readily utilizes human influenced landscapes. Within the study area, a locally important mammal movement corridor was identified within the naturalized portion of the Tributary of Rainbow Creek. This corridor was identified as being locally significant as it provides opportunity for wildlife movement through natural areas in an otherwise highly fragmented/disturbed landscape.

Very few birds and bird species were noted during field investigations, likely a result of the time of year that surveys were conducted. Several Mourning Dove (*Zenaida macroura*) were observed perched in scattered trees and shrubs across the study area. A small flock of Black-capped Chickadee (*Poecile atricapillus*) were also noted to be foraging, generally along the riparian habitat associated with the Tributary of Rainbow Creek. Overall, habitats within the study area are expected to host a variety of bird species which occupy open-country/agricultural, aquatic, and bird species tolerant of anthropogenic influences.

Additional wildlife species which inhabit highly anthropogenic habitat types may be expected to be found within the study area. Targeted Bobolink (*Dolichonyx oryzivorus*) surveys were conducted by AECOM in 2011 (AECOM 2011). The results from these surveys found two Bobolink individuals identified within the study area and several more individuals on lands immediately adjacent.

No herpetofauna species were observed in the study area during field investigations. Based on the habitats present only species which are tolerant of highly disturbed habitat types would be found within the study area. With the exception of the potential amphibian breeding habitat identified above (Tributary of Rainbow Creek), no specialized herpetofauna habitat (e.g. hibernacula, egg laying sites, etc.) was identified within the study area.

TABLE 5.
WILDLIFE SPECIES DOCUMENTED WITHIN THE STUDY AREA

Wildlife	Scientific Name	Common Name	Recommended Species Status by Federal and Provincial Reviewers		Species Status under Federal and Provincial Legislation				Local Species Rank	Species presence determined by AECOM 2011
			COSEWIC	COSSARO	SARA	ESA	MBCA	FWCA		
Birds	*Falco sparverius*	American Kestrel					-	FWCA(P)	L4	
	Branta canadensis	Canada Goose					X	-	L5	
	Zenaida macroura	Mourning Dove					X	-	L5	
	Bombycilla cedrorum	Cedar Waxwing					X	-	L5	
	Poecile atricapiilla	Black-capped Chickadee					X	-	BSC/L5	
	Dolichonyx oryzivorous	Bobolink	THR	THR	THR	THR	X	-	BSC/L3	*
Mammals	*Blarina brevicauda*	Short-tailed Shrew					-	-	L4	
	Canis latrans	Coyote					-	Furbearing	L5	
	Procyon lotor	Raccoon					-	Furbearing	L5	

For definitions of acronyms and species ranks, refer to **Appendix C**.

Local Ranks:
BSC – Bird Studies Canada, Species of Conservation Priority.
TRCA – Toronto and Region Conservation Authority L Rank (1-5) – Sensitive Species include those ranked as L1 to L3.

2.4.3 Species at Risk

All recorded bird species are protected under the *Migratory Birds Convention Act* (MBCA). One bird species, the Bobolink, was previously documented within the study area and is recommended by Bird Studies Canada as priority species for conservation in Peel Region. Two of three species of mammal are offered protection under the *Fish and Wildlife Conservation Act* (FWCA). A single species, the Bobolink, is considered to be of regional concern (L2 or L3) by the TRCA (**Table 5**).

Background information indicated that of wildlife species recorded within the study area, a single species is regulated under Ontario *Endangered Species Act* (ESA). Based on the habitats present, there is also potential for species at risk bat species to be found within the study area. Further discussion on the potential for species at risk is discussed below.

As noted above, targeted Bobolink surveys were conducted by AECOM in 2011 (AECOM 2011); the result from these surveys found two Bobolink individuals identified within the study area and several more individuals on lands immediately adjacent. Bobolink is regulated as 'Threatened' under the ESA. Bobolinks are typically described as residents of grassland communities with an abundance of grass species that are typical of old fields. Bobolinks are also commonly associated with agricultural lands and meadows. Field investigations conducted by LGL (November 13, 2019) noted that agricultural lands associated with the records were now covered by row crop (soybean) and no longer suitable for this species.

There are currently four bat species regulated as 'Endangered' under the Ontario *Endangered Species Act, 2007* (ESA), including: eastern small-footed myotis; little brown myotis; northern myotis; and, tri-colored bat. The presence of mature trees indicates that each of these four species has the potential to be found within the vicinity of the study area. The ESA affords protection for both individuals of these species (subsection 9(1)) and their habitat (subsection 10(1)). Given that species-specific habitat regulations have not yet been developed for SAR bats, habitat is protected according to the general definition provided in the ESA. Specifically, according to section 2(1), the Act protects "an area, on which the species depends, directly or indirectly, to carry on its life processes, including processes such as reproduction, rearing, hibernation, migration or feeding". Mature trees which could contain suitable habitat for SAR bats were identified in association with the riparian habitat of the Tributary of Rainbow Creek.

2.5 Designated Natural Areas

Designated natural areas include areas identified for protection by the Ontario Ministry of Natural Resources and Forestry (OMNRF), TRCA, the Regional Municipality of Peel, and City of Brampton. A review of the OMNR Natural Heritage Information Centre (2020) indicates that there are no Provincially Significant Wetlands (PSWs), Areas of Natural and Scientific Interest (ANSIs), or Environmentally Sensitive Areas (ESAs) located within 120 m of the study area.

Region of Peel Official Plan, 2008

Based on a review of Schedule D (Natural Heritage Features and Area) of the City of Brampton Official Plan (2008), the riparian habitat associated of the watercourses in the study area is designated as 'Valleyland/Watercourse Corridor.'

3.0 IMPACT IDENTIFICATION ANALYSIS

Sections 3.0 and 4.0 provide an analysis of the potential impacts to the natural heritage features found within the study area and provide recommendations for mitigation and enhancement. The proposed developed overlaid with the natural heritage features within the study area is presented on **Figure 5**.

3.1 Aquatic Habitats and Communities

The proposed works on the subject property has the potential to affect fish habitat in West Rainbow Creek as a result of site grading and realignment of the channel. However, the realignment of the channel will not be considered under the scope of this document, as this will completed in Phase 2 of the Master Environmental Servicing Plan. A Master Environmental Servicing Plan (MESP) was completed by Savanta in May 2019 for the Rainbow Creek Corridor Landowners Group Inc. which addresses the realignment of the channel.

IBI Group has completed a Stormwater Management Report - Brampton Transit Satellite Yard in July 2020 to address stormwater management on the site. The report addresses issues related to:

- drainage patterns;
- water quality and quantity;
- sediment and erosion control;
- stormwater management pond;
- watercourse buffer; and
- water balance.

As described above, West Rainbow Creek supports a coolwater/warmwater fish community. No critical habitats or fish SAR have been identified in the study area. Significant impacts to West Rainbow Creek are not expected from the proposed development of the site. However, there is the potential for the following effects from the proposed improvements:

- temporary and/or permanent disruption of site-specific, direct habitat;
- changes to water quality and quantity;
- changes in water temperature; and
- barriers to fish passage.

3.2.1 Temporary Disruption or Permanent Loss of Site-Specific Habitat

There will be no temporary or permanent loss of fish or fish habitat from the proposed transit facility development. However, measures to control sediments and erosion, and the prevention of deleterious substances entering West Rainbow Creek will be required.

To reduce the potential for Harmful Alteration Disruption Disturbance (HADD) to fish and fish habitat, the following environmental protection measures will be implemented:

- work areas will be delineated with construction fencing to minimize the area of disturbance;
- appropriate sediment control structures will be installed prior to and maintained during construction to prevent entry of sediments into the watercourse;
- no construction machinery or vehicles are permitted to cross the watercourse at any time during construction, unless authorized by the permitting agencies;
- no equipment will be refuelled or storage of fuel within 30 m of the watercourse
- good housekeeping practices related to materials storage/stockpiling, equipment fuelling/ maintenance, etc. will be implemented during construction; and

LEGEND

- Proposed Design
- Watercourse
- Warm Thermal Regime
- Development Limit
- Regulation Limit (TRCA)
- Waterbody
- Wetland Not Evaluated per OWES

Vegetation Communities

- Vegetation Community Boundary

Ag	Agricultural
CUM1-1	Dry-Moist Old Field Meadow Type
D	Disturbed
M	Manicured
MAM2-2	Reed-canary Grass Mineral Meadow Marsh Type

Data Sources: Toronto and Region Conservation Authority & Ministry of Natural Resources and Forestry (LIO).

0 30 60 90 120 m

N

PROPOSED DEVELOPMENT

LGL LIMITED
environmental research associates

Project:	TA8943	**Figure:**	5
Date:	September, 2020	**Prepared By:**	JJP
Scale:	1 : 3,500	**Checked By:**	LCO

- disturbed riparian areas will be vegetated and/or covered with an erosion control blanket as quickly as possible to stabilize the banks and minimize the potential for erosion and sedimentation.

These environmental protection measures will greatly reduce the potential adverse effects to fish and fish habitat resulting from construction activities.

3.2.2 Change to Water Quality

As per the Stormwater Management Report, water quality considerations will involve the following:

- *Water quality control is achieved through implementation of the SWM Pond, specifically through the Permanent Pool volume;*
- *To address erosion control for sites with a SWM Pond, extended detention of the 25 mm storm event is required for a period of 48 hours. The erosion control storage volume for the satellite yard was determined by multiplying a 25 mm rainfall depth across the entire site area;*
- *A SWM Pond is proposed in the southwest quadrant of the satellite yard to address water quantity, quality, and erosion control requirements for the site. Total pond volume is considered the sum of the Permanent Pool volume and the Active Storage volume, with Active Storage being the sum of the flood control and erosion control volumes. As such, the total required storage volume for the SWM Pond is 10,658 m^3.*
- *A 10 m buffer is provided for the site from the Regional flood line. The Regional flood line governs as it is wider than the mender belt width established in the Fluvial Geomorphological Assessment for Rainbow Creek (GeoMorphix, January 2020); and*
- *Water balance control is required for the proposed site. As stipulated by the MECP, the proposed design for the satellite yard must provide, at a minimum, on-site retention of all runoff from the first 5 mm of each rainfall event through infiltration, evapotranspiration, and/or stormwater reuse. As part of the proposed design, water balance control is achieved through ditch infiltration.*

3.2.3 Changes in Water Temperature

The thermal regime of a receiving watercourse may be altered by stormwater runoff from SWM ponds or removal of riparian vegetation that shades the watercourse. In the summer, runoff can become superheated through contact with paved surfaces prior to entering SWM ponds, which, when discharged to a receiving watercourse can result in increased stream temperatures. West Rainbow Creek supports ephemeral flows and is likely dry during the warmest periods of the year, flowing only during the spring period or periods of significant precipitation. As such, minimal or no impacts to water temperatures in West Rainbow Creek are expected from the proposed activities.

3.2.4 Barriers to Fish Passage

No barriers to fish passage will result from the proposed activities of the project.

3.2.5 Restoration/Enhancement

Significant restoration and/or enhancement to West Rainbow Creek will take place as a result of the channel realignment proposed in the MESP report prepared by Savanta. However, this is not considered a part of the scope of this project. As per the MESP aquatic habitat will be improved:

- *The main objectives of the natural corridor design are to restore and, where feasible enhance long-term channel form and function along the entire length of the channel, as well as to convey existing and future storm flows, while accommodating the constraints and considerations imposed by the proposed development and natural features. … improvements will be made to the*

aquatic habitat within Rainbow Creek through the proposed restoration and enhancement plan. These include the removal of known informal crossings in Segments 1 and 2 (and any currently unknown informal crossings in Segment 3) that could limit flows and fish passage overtime, improvements to riparian vegetation communities, installation of fish habitat features such as root wads, diversifying the flow regime throughout the realigned portion of Segment 1 by incorporating riffle, runs and pools into the watercourse design, improving overall water quality by removing inputs from active agricultural practices directly adjacent to the watercourse and increasing overall baseflow through the additional clean water inputs from roof drainage and SWM outlets.

3.4.6 Fisheries Act

In August, 2019 the provisions of the new amended *Fisheries Act* came into force including new protections for fish and fish habitat in the form of standards, codes of practice, and guidelines for projects near water. The modernized *Fisheries Act* will help:

- restore protections for fish and fish habitat;
- enhance marine protection and habitat restoration;
- improve management of projects;
- preserve independent inshore fisheries; and
- strengthen Indigenous role in project reviews, monitoring and policy development.

If measures outlined on the DFO website (https://www.dfo-mpo.gc.ca/pnw-ppe/reviews-revues/request-review-demande-d-examen-003-eng.html) to protect fish and fish habitat can be followed, no further review by DFO is required. These measures include:

- Prevent the death of fish;
- Maintain riparian vegetation;
- Carry out works, undertakings and activities on land;
- Maintain fish passage;
- Ensure proper sediment control; and
- Prevent entry of deleterious substances in water.

Following these measures prevents the 'harmful, alteration, disruption or destruction (HADD)' to fish or fish habitat from proposed activities. If further review is required, a Request for Review is to submitted and reviewed by DFO to determine next steps.

The proposed works identified as part of this project will meet the conditions listed above, namely by ensuring proper sediment and erosion control and preventing deleterious substances from entering the watercourse. No direct impacts to the fish or fish habitat of West Rainbow Creek are anticipated as a result of this project. The realignment of the watercourse will be completed as part of a separate project and will likely require further review by DFO at that time.

3.3 Vegetation and Vegetation Communities

The proposed construction of the transit facility has the potential to result in impacts to vegetation and vegetation communities. Effects on vegetation related to these modifications could include:

- displacement of / disturbance to vegetation and vegetation communities; and,
- displacement of rare, threatened or endangered vegetation or significant vegetation communities.

3.3.1 Displacement and/or Disturbance to Vegetation Communities/Vegetation

Clearing of vegetation will be required to accommodate the proposed transit facility. The propose construction will result in the removal of approximately 8.62 ha of naturalized and/or anthropogenic lands. The largest area of impact will be to lands that have been anthropogenically influenced, including agricultural lands and manicured areas. A total of 7.39 ha of anthropogenically influenced lands will be removed as a result of the proposed construction. In addition, a total of 1.23 ha of cultural meadow will be removed. **Table 6** provides a summary of the total area of vegetation communities that will be removed for the new transit maintenance facility.

TABLE 6.
IMPACTS TO VEGETATION COMMUNITIES WITHIN THE STUDY AREA

Vegetation Community	Total Area (ha) to be Impacted
Dry-Moist Old Field Meadow (CUM1-1)	1.23
Anthropogenic Lands (manicured and agricultural)	7.39
Total	**8.62**

Cultural Vegetation Communities
The proposed construction of the transit facility will result in the removal of approximately 1.23 ha of Dry-Moist Old Field Meadow. Overall, impacts resulting in the loss of vegetation within this community is considered to be minor. Cultural vegetation communities typically persist in areas that are regularly disturbed, and as a result, generally contain a high proportion of invasive and non-native plant species that are tolerant of these conditions.

Human Influenced Lands
As noted in **Table 6**, a total of 7.39 ha of anthropogenic lands will be removed as a result of the proposed transit facility. The overall significance of the impact to these lands is considered low.

3.3.2 Displacement of rare, threatened or endangered vegetation of significant vegetation

All of the vegetation communities identified within the study area are considered to be widespread and common in Ontario and secure globally. As a result, there will be no impacts on rare, threatened or endangered vegetation communities. As noted in **Section 2.3.3**, no plant species at risk were identified during LGL's botanical investigation.

3.4 Wildlife and Wildlife Habitat

The proposed construction of the transit facility has the potential to result in impacts to wildlife and wildlife habitat including:

- displacement of/disturbance to wildlife and wildlife habitat;
- barrier effects and interruptions to wildlife passage corridors;
- disturbance to wildlife from noise, light and visual intrusion;
- potential impacts to migratory birds; and,
- displacement of rare, threatened or endangered wildlife or significant wildlife habitat.

3.4.1 Displacement of Wildlife and Wildlife Habitat

The construction of the Highway 50 transit maintenance facility will impact primarily anthropogenic/manicured grass lands (7.39 ha) and old field meadow (1.23 ha), which typically only support non-sensitive wildlife or wildlife habitat with low habitat capabilities. The majority of species identified in habitats within or directly adjacent to the development area are tolerant of human disturbances/anthropogenic influences.

As noted above, habitats associated with the Tributary of Rainbow Creek riparian area are likely to provide the most suitable wildlife habitat in the study area; however, only a low to moderately diverse assemblage of bird and mammal species were documented within these habitats. This feature and associated natural areas will not be impacted by the construction of the Highway 50 transit maintenance facility, as such, its function as wildlife habitat will remain intact.

As a result of the proposed development within the Highway 50 transit maintenance facility, there is the potential for modest disturbance/destruction to wildlife and wildlife habitat. However, the proposed areas for development have been subject to extensive disturbance from existing infrastructure and land use. As such, the majority of species residing in habitats within or directly adjacent to the study area are generally tolerant of anthropogenic disturbances.

3.4.2 Barrier Effects on Wildlife Passage

No new barriers will be created as a result of the construction of the Highway 50 transit maintenance facility.

3.4.3 Wildlife/Vehicle Conflicts

No wildlife/vehicle conflicts will be created as a result of the construction of the Highway 50 transit maintenance facility.

3.4.4 Disturbance to Wildlife from Noise, Light and Visual Intrusion

Noise, light and visual intrusion have the potential to alter wildlife activities and patterns. Across the lands examined, wildlife has generally become acclimatized to the noise, light and visual conditions associated with the presence of local highways/roads and urban settings.Given that wildlife found within the study area are acclimatized to the presence of road infrastructure, disturbance to wildlife from any increase in noise light and visual intrusion potentially caused by the construction of the Highway 50 transit maintenance facility are not expected to have significant adverse effects. However, consideration for increased noise and light disturbance along the Tributary of Rainbow Creek corridor should be examined. Tree/shrubs plantings can be used to reduce noise/light disturbance and to increase natural

cover along this feature. Directional lighting should also be considered along this feature to reduce light pollution within the natural area associated with this watercourse.

Disturbance to wildlife through construction activities are considered to be temporary in nature and can be mitigated to some degree. Long-term negative effects on wildlife from construction noise, light, dust, etc., are not anticipated.

3.4.5 Potential Impacts to Migratory Birds

Several bird species identified within the study area are protected under the *Migratory Birds Convention Act* (MBCA). However, no nests of migratory birds were documented within the study area given the timing of field investigations. Migratory bird species may be expected to nest within habitats found across the study area. The MBCA prohibits the killing, capturing, injuring, taking or disturbing of migratory birds (including eggs) or damaging, destroying, removing or disturbing of nests. Although no nests of migratory birds were documented within the study area, evidence of bird nesting behaviour was identified within the vicinity of the proposed construction activities. All construction activities associated with the transit facility must be in compliance with the MBCA.

The study area falls within Environment Canada's Nesting Zone C2 (Nesting Period: April 1 to August 31). Consequently, to comply with the requirements of the MBCA, disturbance, clearing or disruption of vegetation, trees, or structures where birds may be nesting should be completed outside the nesting period. If any disruptive activities must be undertaken within the nesting period, a nest screening survey must be conducted by a qualified avian biologist to identify and locate active nests of species covered under the MBCA. If an active nest is located, a mitigation plan shall be developed.

3.4.6 Displacement of Rare, Threatened or Endangered Wildlife or Significant Wildlife Habitat

As noted above, two Bobolink individuals were identified within the study area and several more individuals on lands immediately adjacent by AECOM in 2011 (AECOM 2011). Bobolink and their habitat are regulated as 'Threatened' under the ESA. Bobolinks are typically described as residents of grassland communities with an abundance of grass species that are typical of old fields. Bobolinks are also commonly associated with agricultural lands and meadows. Field investigations conducted by LGL (November 13, 2019) noted that agricultural lands associated with the records were now covered by row crop (soybean) and no longer suitable for this species. Follow-up investigations in 2020 revealed agricultural fields contained row crop (wheat). Consequently, no impacts to this species are anticipated.

Bat species and their habitats are expected to experience minimal disturbance or removal. Only a handful of spruce trees will be removed which are not expected to provide habitat for bat species. Vegetation clearing should be avoided during the sensitive timing window for Bat Maternity Roosting. MECP has advised in other similar projects, no tree cutting should occur between April 1st to September 30th.

No rare species or significant wildlife habitat were documented within the study area, therefore; no impacts are anticipated to any SAR wildlife or SAR habitat. Further consultation with MECP will take place during detail design regarding any general habitat protection measures that will be required for the wildlife species at risk that are or have the potential to be located in the vicinity of the study area and are regulated as 'Endangered' or 'Threatened' under the ESA.

3.5 Designated Natural Areas

As noted in **Section 2.5**, there are no PSW's, ANSI's or ESA's within 120 m of the study area.

City of Brampton Official Plan
As noted in **Section 2.5,** the riparian habitat associated of the watercourses in the study area is designated as 'Valleyland/Watercourse Corridor' in the City of Brampton Official Plan. No impact to these areas is anticipated as a result of the proposed construction.

4.0 ENVIRONMENTAL PROTECTION MEASURES

The following environmental protection measures shall be implemented to minimize the effects of construction related impacts on the natural heritage features.

4.1 Soil and Water Contamination

Soil and water contamination can arise from fuel storage or re-fuelling and maintenance of vehicles on site. The following mitigation measures are recommended to prevent contamination from on-site use of hydrocarbons:

- an appropriate spill prevention, contamination and clean-up contingency plan for hydrocarbon products (petroleum, oil and lubricants) and other deleterious substances shall be put in place prior to work commencing;
- appropriate spill contamination and clean-up supplies shall be kept available on-site whenever the works are occurring;
- all personnel working on the project shall be familiar with implementing the spill clean-up plan and the deployment of spill response materials;
- all machinery used on-site shall be in good repair and free of excess oil and lubricants; and,
- machinery refuelling and maintenance shall be carried out using appropriate precautions to prevent spillage and in designated areas.

Existing contamination will be managed in accordance with applicable brownfield legislation under the *Environmental Protection Act* and its Regulations, including O. Reg. 153/04 (Records of Site Condition).

4.2 Invasive Species Management

Efforts should be made to prevent the spread of invasive species during construction both on and off site. Sanitation of construction equipment should be undertaken in accordance with the *Clean Equipment Protocol* (2013) and at a minimum should include sanitation of construction vehicles and equipment prior to leaving and moving to the next site. A cleaning station should be set up, so vehicles and equipment can be inspected and cleaned regularly.

4.3 Erosion and Sediment Control

An effective Erosion and Sediment Control Plan (ESCP) will be developed prior to the start of construction in accordance with the requirements of the Erosion and Sediment Control Guideline for Urban Construction (GGHA CA 2006). The ESCP will prescribe a multi-barrier approach to prevent erosion during construction to deal with suspended sediment at the source and minimize sediment transport from leaving the construction site. Implementation of the ESCP during construction will mitigate the quality and quantity of runoff, and help to localize any potential areas of intense erosion and sedimentation. Inspection of the erosion and sediment control measures will be performed regularly in

accordance with the Erosion and Sediment Control Inspection Guide (GGHA CA 2008). Installation, maintenance and removal of the erosion and sediment control measures will be carried out in accordance with Ontario Provincial Standard Specification (OPSS) 805, Construction Specification for Temporary Erosion and Sediment Control Measures.

4.4 Earthworks

Urban development results in the excavation, storage/stockpiling and grading/spreading of soils at a construction site. Excess soil materials can also be generated that require management on or off-site and as such, a Soil Management Plan should be prepared. The Soil Management Plan will recommend appropriate post-construction soil quality and depth standards, identify soil management best practices; identify verification procedures and post-construction monitoring requirements. Excess soils generated at the construction site will be managed in accordance with the Management of Excess Soil: A Guide for Best Management Practices (MOECC 2016).

4.5 Construction Monitoring

Regular inspection and monitoring of environmental protection measures outlined above will be carried out during construction. Construction activities will be monitored to ensure that there are no impacts to natural heritage features or properties adjacent to the study area. When serious environmental concerns are identified, immediate notification to the following individuals will occur to correct the problem: the contractor responsible for activities on the site and the developer of the site.

The recommended monitoring tasks include:

- in consultation with contractors identify the location of areas for protection and ensure the installation of appropriate fencing for the protection of these areas;
- verify the placement and construction of sediment and erosion control measures as identified in the sediment and erosion control plan;
- undertake regular site inspections to monitor all erosion and sediment control measures and tree protection measures; and,
- site inspections shall consider the need to vegetate areas or exposed soil that may be prone to wind and/or water erosion.

5.0 CONCLUSION

This EIS has been prepared in support of the new transit maintenance facility on Highway 50 in the City of Brampton. Natural Heritage field investigations and a desktop review of relevant background documents have been completed. An assessment of impacts on natural heritage features within the study area was undertaken based on the site plan provided by IBI in August 2020. Environmental Protection Measures have been recommended in **Section 4.0**, to protect natural heritage features within the study area.

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APPENDIX A
VASCULAR PLANT LIST

Appendix A.
Vascular Plant List

	Scientific Name	Common Name	TRCA	GRank	SRank	MNR	COSEWIC	Peel	CUM1-1	MAM2-2
	POLYGONACEAE	**SMARTWEED FAMILY**								
*	*Rumex crispus*	curly-leaf dock	L+	G?	SE5			X	X	
	SALICACEAE	**WILLOW FAMILY**								
*	*Salix X rubens*	reddish willow	L+	HYB	SE4					X
	BRASSICACEAE	**MUSTARD FAMILY**								
*	*Thlaspi arvense*	field penny-cress	L+	G?	SE5			X	X	
	FABACEAE	**PEA FAMILY**								
*	*Lotus corniculatus*	bird's-foot trefoil	L+	G?	SE5			X	X	
*	*Trifolium hybridum ssp. elegans*	alsike clover	L+		SE5			X	X	
*	*Vicia cracca*	tufted vetch	L+	G?	SE5			X	X	
	LYTHRACEAE	**LOOSESTRIFE FAMILY**								
*	*Lythrum salicaria*	purple loosestrife	L+	G5	SE5			X		X
	RHAMNACEAE	**BUCKTHORN FAMILY**								
*	*Rhamnus cathartica*	common buckthorn	L+	G?	SE5			X	X	
	ACERACEAE	**MAPLE FAMILY**								
	Acer negundo	manitoba maple	L+?	G5	S5			X	X	
	APIACEAE	**PARSLEY FAMILY**								
*	*Daucus carota*	wild carrot	L+	G?	SE5			X	X	
	ASCLEPIADACEAE	**MILKWEED FAMILY**								
	Asclepias syriaca	common milkweed	L5	G5	S5			X	X	
	PLANTAGINACEAE	**PLANTAIN FAMILY**								
*	*Plantago lanceolata*	ribgrass	L+	G5	SE5			X	X	
*	*Plantago major*	common plantain	L+	G5	SE5			X	X	

Appendix A.
Vascular Plant List

	Scientific Name	Common Name	TRCA	GRank	SRank	MNR	COSEWIC	Peel	CUM1-1	MAM2-2
	OLEACEAE	**OLIVE FAMILY**								
	Fraxinus pennsylvanica	red ash	L5	G5	S5			X	X	
	DIPSACACEAE	**TEASEL FAMILY**								
*	*Dipsacus fullonum ssp. sylvestris*	wild teasel	L+	G?T?	SE5			X	X	
	ASTERACEAE	**ASTER FAMILY**								
*	*Arctium minus*	common burdock	L+	G?T?	SE5				X	
	Aster sp.	aster							X	X
	Bidens cernua	stick-tight	L5	G5	S5			X		X
*	*Cichorium intybus*	chicory	L+	G?	SE5			X	X	
*	*Cirsium arvense*	Canada thistle	L+	G?	SE5			X	X	
*	*Cirsium vulgare*	bull thistle	L+	G5	SE5			X	X	
	Eupatorium maculatum var. maculatum	spotted joe-pye-weed	L5	G5T5	S5			X		X
	Euthamia graminifolia	flat-topped bushy goldenrod		G5	S5				X	
*	*Matricaria maritima ssp. maritima*	seaside camomile		G5T?	SE?				X	
	Solidago canadensis	canada goldenrod	L5	G5	S5			X	X	X
*	*Taraxacum officinale*	common dandelion	L+	G5	SE5			X	X	
	CYPERACEAE	**SEDGE FAMILY**								
	Carex sp.	sedge								X
	Scirpus sp.	bulrush								X
	POACEAE	**GRASS FAMILY**								
*	*Bromus inermis ssp. inermis*	awnless brome	L+	G4G5T?	SE5			X	X	
*	*Dactylis glomerata*	orchard grass	L+	G?	SE5			X	X	

Appendix A.
Vascular Plant List

Scientific Name	Common Name	TRCA	GRank	SRank	MNR	COSEWIC	Peel	CUM1-1	MAM2-2
Phalaris arundinacea	reed canary grass	L+?	G5	S5			X	X	X
Phragmites australis	common reed	L+?	G5	S5			X	X	
Poa pratensis ssp. pratensis	Kentucky bluegrass	L+	G5T	S5			X	X	
TYPHACEAE	**CATTAIL FAMILY**								
Typha latifolia	broad-leaved cattail	L4	G5	S5			X		X
Typha sp.	cattail							X	

APPENDIX B
ACRONYMS AND DEFINITIONS USED IN SPECIES LISTS

Appendix B. Species Rank

SRANK	**Provincial Rank**
Provincial (or Sub-national) ranks are used by the Ontario Ministry of Natural Resources Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. 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. By comparing the global and provincial ranks, the status, rarity, and the urgency of conservation needs can be ascertained. The NHIC evaluates provincial ranks on a continual basis and produces updated lists at least annually.	
Short Form	**Definition**
S1	**Critically Imperiled** in Ontario because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation.
S2	**Imperiled** in Ontario because of rarity due to very restricted range, very few populations (often 20 or fewer occurrences) steep declines or other factors making it very vulnerable to extirpation.
S3	**Vulnerable** in Ontario due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4	**Apparently Secure**—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5	**Secure**—Common, widespread, and abundant in Ontario.
SX	**Presumed Extirpated** – Species or community is believed to be extirpated from Ontario.
SH	**Possibly Extirpated** – Species or community occurred historically in Ontario and there is some possibility that it may be rediscovered.
SNR	**Unranked**—Conservation status in Ontario not yet assessed
SU	**Unrankable**—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA	**Not Applicable** —A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S#	**Range Rank** —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

COSEWIC	**Committee on the Status of Endangered Wildlife in Canada**
The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the national status of wild species that are considered to be at risk in Canada.	
Status	**Definition**
Extinct (X)	A wildlife species that no longer exists.
Extirpated (XT)	A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species likely to become endangered if limiting factors are not reversed.
Special Concern (SC)	A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
Not at Risk (NAR)	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Data Deficient (DD)	A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.

COSSARO/OMNR	**Committee on the Status of Species at Risk in Ontario/Ontario Ministry of Natural Resources**
The Committee on the Status of Species at Risk in Ontario (COSSARO)/Ontario Ministry of Natural Resources (OMNR) assesses the provincial status of wild species that are considered to be at risk in Ontario.	
Status	**Definition**
Extinct (EXT)	A species that no longer exists anywhere.
Extirpated (EXP)	A species that no longer exists in the wild in Ontario but still occurs elsewhere.
Endangered (Regulated) (END–R)	A species facing imminent extinction or extirpation in Ontario which has be regulated under Ontario's *Endangered Species Act*.
Endangered (END)	A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's *Endangered Species Act*.
Threatened (THR)	A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
Special Concern (SC)	A species with characteristics that make it sensitive to human activities or natural events.
Not at Risk (NAR)	A species that has been evaluated and found to be not at risk.
Data Deficient (DD)	A species for which there is insufficient information for a provincial status recommendation.

Species Status under Federal Legislation

MBCA	**Migratory Birds Convention Act**
The Canada *Migratory Birds Convention Act* provides for the protection of migratory birds in Canada and the United States. The provisions of this Act are implemented through the Migratory Bird Regulations. Bird species that are regulated under the *Migratory Birds Convention Act* are noted in the applicable species lists.	

SARA	**Species at Risk Act**
The Canada *Species at Risk Act* provides a framework for actions across Canada to ensure the survival of wildlife species and the protection of our natural heritage. It sets out how to decide which species are a priority for action and what to do to protect a species. It identifies ways governments, organizations and individuals can work together, and it establishes penalties for a failure to obey the law. Regulated species are listed in Schedules 1, 2 and 3 of the Act.	
Schedule 1 SARA (1)	Species that are currently covered under the Act.
Schedule 2 SARA (2)	Species that are endangered or threatened that have not been re-assessed by COSEWIC for inclusion on Schedule 1.
Schedule 3 SARA (3)	Species that are of special concern that have not yet been re-assessed by COSEWIC for inclusion on Schedule 1.

Species Status under Provincial Legislation

ESA	**Endangered Species Act**	
The Ontario *Endangered Species Act* provides for the conservation, protection, restoration and propagation of species of fauna and flora of the Province of Ontario that are threatened with extinction. Regulated species are listed in Ontario Regulation 338.		
Schedule No.	**Short Form**	**Status**
Schedule 1 ESA (1)	EXT	The species of flora and fauna listed in Schedule 1 are declared to be threatened with extinction.
Schedule 2 ESA (2)	EXP	The species of flora and fauna listed in Schedule 2 are declared to be extirpated.
Schedule 3 ESA (3)	END	The species of flora and fauna listed in Schedule 3 are declared to be endangered.
Schedule 4 ESA (4)	THR	The species of flora and fauna listed in Schedule 4 are declared to be threatened.
Schedule 5 ESA (5)	SC	The species of flora and fauna listed in Schedule 5 are declared to be special concern.

FWCA	**Fish and Wildlife Conservation Act**	
The Ontario *Fish and Wildlife Conservation Act* outlines the restrictions for hunting, trapping and fishing; handling of live wildlife; sale, purchase and transport of wildlife; and, licences that can be secured under the Act. Under Schedules 1 to 11 of the Act, wildlife are grouped for the purpose of regulating these species. These schedules are further defined below. Note: where there is a conflict between this Act and the Ontario *Endangered Species Act*, the provision with the most protection will prevail (s. 2 of the *Fish and Wildlife Conservation Act*).		
Schedule No.	**Short Form**	**Status**
Schedule 1	Furbearing – M	The species of fauna listed in Schedule 1 are declared to be furbearing mammals.
Schedule 2	Game – M	The species of fauna listed in Schedule 2 are declared to be game mammals.
Schedule 3	Game – B	The species of fauna listed in Schedule 3 are declared to be game birds.
Schedule 4	Game – R	The species of fauna listed in Schedule 4 are declared to be game reptiles.
Schedule 5	Game – A	The species of fauna listed in Schedule 5 are declared to be game amphibians.
Schedule 6	Specially Protected – M	The species of fauna listed in Schedule 6 are declared to be specially protected mammals.
Schedule 7	Specially Protected – R	The species of fauna listed in Schedule 7 are declared to be specially protected birds (raptors).
Schedule 8	Specially Protected – B	The species of fauna listed in Schedule 8 are declared to be specially protected birds (other than raptors).
Schedule 9	Specially Protected – R	The species of fauna listed in Schedule 9 are declared to be specially protected reptiles.
Schedule 10	Specially Protected – A	The species of fauna listed in Schedule 10 are declared to be specially protected amphibians.

FWCA	Fish and Wildlife Conservation Act	
The Ontario *Fish and Wildlife Conservation Act* outlines the restrictions for hunting, trapping and fishing; handling of live wildlife; sale, purchase and transport of wildlife; and, licences that can be secured under the Act. Under Schedules 1 to 11 of the Act, wildlife are grouped for the purpose of regulating these species. These schedules are further defined below. Note: where there is a conflict between this Act and the Ontario *Endangered Species Act*, the provision with the most protection will prevail (s. 2 of the *Fish and Wildlife Conservation Act*).		
Schedule No.	**Short Form**	**Status**
Schedule 11	Specially Protected – I	The species of fauna listed in Schedule 11 are declared to be specially protected invertebrates.

Local Species Status

TRCA	Toronto and Region Conservation Authority
The TRCA assigns a level of conservation concern for flora and fauna (L1 to L5) in its watersheds (TRCA 2003). The L Rank is determined based on four factors: local occurrence, population trend, habitat dependence, and sensitivity to development.	
L-Rank	**Definition**
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 the 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 the 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 a native species and an exotic
L+?	Origin uncertain or disputed, i.e. may or may not be native.

Peel Region	
Rank	**Definition**
U	Uncommon
R1-R10	Rarity Status (1-10 - number of stations at which a locally rare species is found) (Varga et al. 2000)

BSC	Bird Studies Canada
The Bird Studies Canada *Conservation Priorities for the Birds of Southern Ontario* (1999), based on work completed by Bird Studies Canada, the Canadian Wildlife Service and the MNR identifies bird species of high conservation priority. This list was prepared to assist municipalities in identifying significant natural heritage features, through using the information regarding the presence of birds of conservation priority in their municipality. Birds of conservation priority have been noted (BSC) in the appropriate species lists.	