



# **ENVIRONMENTAL IMPACT STUDY**

**336 KING STREET EAST  
CALEDON, ON**

**OCTOBER 2018**



# Environmental Impact Study

336 King Street East  
Caledon, ON

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October 2018

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## Table of Contents

1.0	INTRODUCTION .....	3
2.0	NATURAL HERITAGE PLANNING CONSIDERATIONS .....	4
2.1	TOWN OF CALEDON OFFICIAL PLAN .....	4
2.2	REGION OF PEEL OFFICIAL PLAN .....	4
2.3	TORONTO AND REGION CONSERVATION AUTHORITY .....	5
2.4	PROVINCIAL POLICY STATEMENT AND ASSOCIATED GUIDELINE DOCUMENTS .....	5
2.5	ONTARIO ENDANGERED SPECIES ACT .....	6
2.6	FEDERAL FISHERIES ACT .....	6
3.0	DATA COLLECTION APPROACH & METHODS .....	8
3.1	BACKGROUND REFERENCES .....	8
3.1.1	<i>Land Information Ontario Natural Features Summary</i> .....	8
3.1.2	<i>Natural Heritage Information Centre</i> .....	8
3.1.3	<i>Ontario Breeding Bird Atlas</i> .....	8
3.1.4	<i>Ontario Nature Reptile and Amphibian Atlas</i> .....	9
3.1.5	<i>Ontario Butterfly and Moth Atlases</i> .....	9
3.1.6	<i>Aquatic Ecology Background Information Sources</i> .....	10
3.1.7	<i>Ministry of Natural Resources and Forestry Consultation</i> .....	10
3.2	TECHNICAL METHODS AND FIELD STUDIES .....	10
3.2.1	VEGETATION AND ELC METHODS .....	11
4.0	BIOPHYSICAL CHARACTERIZATION .....	12
4.1	PHYSIOGRAPHY AND TOPOGRAPHY .....	12
4.2	LANDSCAPE ECOLOGY .....	12
4.3	VEGETATION .....	13
4.3.1	<i>Ecological Land Classification</i> .....	13
4.3.2	<i>Vascular Plants</i> .....	13
4.4	WILDLIFE .....	13
4.5	AQUATIC RESOURCES .....	13
5.0	ANALYSIS OF ECOLOGICAL AND NATURAL HERITAGE SIGNIFICANCE (PPS) .....	15
5.1	SIGNIFICANT WETLANDS .....	15
5.2	SIGNIFICANT COASTAL WETLANDS .....	15
5.3	SIGNIFICANT WOODLANDS .....	15
5.4	SIGNIFICANT VALLEYLANDS .....	16
5.5	SIGNIFICANT WILDLIFE HABITAT .....	17
5.6	FISH HABITAT .....	19
5.7	HABITAT OF ENDANGERED AND THREATENED SPECIES .....	19
5.8	AREAS OF NATURAL AND SCIENTIFIC INTEREST .....	19
5.9	SUMMARY OF NATURAL HERITAGE SYSTEM COMPONENTS SUBJECT TO IMPACT ASSESSMENT .....	20
6.0	PROPOSED DEVELOPMENT .....	21

7.0	IMPACT ASSESSMENT, AVOIDANCE AND MITIGATION MEASURES .....	22
7.1	SUMMARY OF PREDICTED DIRECT/INDIRECT EFFECTS .....	22
7.1.1	<i>Habitat of Threatened and Endangered Species</i> .....	22
7.1.2	<i>Significant Valleylands</i> .....	23
7.1.3	<i>Significant Wildlife Habitat</i> .....	23
7.1.4	<i>Fish Habitat</i> .....	24
7.1.5	<i>Unevaluated Wetlands</i> .....	24
7.2	INDIRECT EFFECTS DURING CONSTRUCTION .....	24
7.2.1	<i>Erosion and Sedimentation</i> .....	25
7.2.2	<i>Accidental Spills</i> .....	25
7.3	PONTENTIAL POST-CONSTRUCTION EFFECTS .....	26
7.3.1	<i>Effects on Water Quality</i> .....	26
7.3.2	<i>Public Access</i> .....	26
7.4	OTHER PREDICTED INDIRECT IMPACTS .....	26
7.4.1	<i>Recommended Measures to Avoid and Mitigate Potential Effects</i> .....	27
7.4.2	<i>Light and Noise Effects on Wildlife</i> .....	27
7.5	POTENTIAL FOR ENHANCEMENTS AND ECOLOGICAL BENEFITS .....	28
8.0	CONCLUSIONS .....	29
	REFERENCES AND BACKGROUND MATERIAL .....	30
	APPENDICES .....	32

## 1.0 INTRODUCTION

Savanta Inc. (Savanta) was retained by 336 Kings Ridge Inc. to complete a Scoped Environmental Impact Study (EIS) for the property located at 336 King Street East in Caledon, Ontario (herein referred to as the Subject Lands). The Subject Lands are legally described as part of Lot 8, Concession 7, and are bound by King Street East to the north, the Humber River to the south, Farmers Lane to the east and Old King Road to the west (**Figure 1, Appendix A**).

The Subject Lands are located in a residential neighbourhood and consist of one single-family home and residential property backing onto the Humber River. The applicant, 336 Kings Ridge Inc. intends to apply to the Town of Caledon, to redevelop the Subject Lands with residential townhome units. This Scoped EIS is required to assess the existing ecological features and functions found on the Subject Lands and to assess any potential impacts associated with the proposed development.

This EIS is a requirement of the municipal planning process and is intended to address the policies of the Region of Peel, the Town of Caledon and the Toronto and Region Conservation Authority (TRCA).

This scoped EIS includes the following components, as required by TRCA:

- A review of existing background information (e.g., Functional Servicing and Stormwater Management Reports), policies and legislation applicable to the Subject Lands in its regional context;
- A review of natural environmental databases;
- Integration of Species at Risk (SAR) information as provided by the MNR through a Request for Information;
- A field review and description of the natural environmental features and associated functions found on and adjacent to the Subject Lands through the completion of ecological surveys and inventories;
- An evaluation of the sensitivity of environmental features, and their biophysical and ecological functions on the Subject Lands;
- Description of potential impacts of the proposed development (during and post-construction) on natural heritage features and functions;
- Identification of potential avoidance and mitigation measures, and resulting residual impacts; and,
- Recommendations for conditions of approval, including monitoring, if appropriate.

## 2.0 NATURAL HERITAGE PLANNING CONSIDERATIONS

An assessment of the quality and extent of natural heritage features found on, or adjacent to, the Subject Lands and the potential impacts to these features from the proposed development was completed to address the natural heritage components of the following regulatory agencies, local and regional municipalities, and/or legislation:

- Town of Caledon Official Plan (2018);
- Region of Peel Official Plan (2016);
- Toronto and Region Conservation Authority legislation and policies;
- Provincial Policy Statement (PPS; MMAH 2014);
- *Endangered Species Act, 2007* (ESA); and
- *Fisheries Act* (R.S.C., 1985, c. F-14; DFO 2013).

The Subject Lands are located outside of the Greenbelt and the Oak Ridges Moraine Planning Areas.

### 2.1 Town of Caledon Official Plan

The Subject Lands are subject to the policies and designations defined within the Town of Caledon Official Plan (OP; 2018). The Subject Lands are located within the Bolton area, as depicted on Schedule A (Town of Caledon Land Use Plan). On Schedule C (Bolton Land Use Plan), the Subject Lands are identified as containing Low Density Residential and Environmental Policy Area (associated with the Humber River valleylands) land uses.

### 2.2 Region of Peel Official Plan

Schedule A (Core Areas of the Greenland System in Peel) of the Region of Peel OP (2016) shows that there are no Core Areas of the Greenland System found on the Subject Lands (**Figure 3, Appendix A**). However, Core Areas are identified upstream and downstream of the Subject Lands along the Humber River.

Section 2.3.2.2 of the Region of Peel OP defines Core Areas as containing one or more of the following features:

- Significant wetlands;
- Significant coastal wetlands;
- Core woodlands;
- Environmentally sensitive or significant areas;
- Provincial Life Science Areas of Natural and Scientific Interest;
- Significant habitats of threatened and endangered species;
- Escarpment Natural Areas of the Niagara Escarpment Plan; and
- Core valley and stream corridors.

Section 2.2 of the Region of Peel OP (2016) states that Natural Core Areas should be maintained and, where possible, ecological integrity should be improved or restored. The Region of Peel OP (2016) further states (section 2.3) that Core Areas contain “ecological features, forms and/or

functions that provide favourable conditions for uninterrupted natural systems and maximum biodiversity”. Development and site alteration are prohibited within Core Areas, although exceptions may be permitted in accordance with the Town of Caledon OP or in consultation with the Region, TRCA and other relevant agencies.

### 2.3 Toronto and Region Conservation Authority

TRCA conducts reviews of planning processes associated with future development of properties within its jurisdictional boundaries. In addition, TRCA provides planning and technical advice to planning authorities to assist them in fulfilling their responsibilities regarding natural hazards, natural heritage and other relevant policy areas pursuant to the *Planning Act*. In addition to their regulatory responsibilities, TRCA provides advice as both a watershed-based resource management agency and through planning advisory services.

TRCA administers the *Development, Interference with Wetlands, Alterations to Shorelines and Watercourses Regulation*, (O. Reg.) 166/06, which defines the areas of interest that allow TRCA to:

- Prohibit, regulate, or provide permission for straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream, watercourse or changing or interfering with a wetland; and
- Prohibit, regulate, or provide permission for development if the control of flooding, erosion, dynamic beaches, pollution or the conservation of land may be affected by the development.

### 2.4 Provincial Policy Statement and Associated Guideline Documents

The PPS (MMAH 2014) provides direction on matters of provincial interest related to land use planning and development. It "...supports a comprehensive, integrated and long-term approach to planning..." The PPS is to be read in its entirety and land use planners and decision-makers need to consider all relevant policies and how they work together.

This report addresses those policies that are specific to Natural Heritage (section 2.1) with some reference to other policies with relevance to Natural Heritage and impact assessment considerations and areas of overlap (e.g., those related to Efficient and Resilient Development and Land Use Patterns, section 1.1; Sewage, Water and Stormwater, section 1.6.6; Water, section 2.2; Natural Hazards, section 3.1).

Eight types of significant natural heritage features are defined in the PPS, as follows:

- Significant wetlands;
- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat (SWH);
- Fish habitat;
- Habitat of endangered and threatened species; and
- Significant areas of natural and scientific interest (ANSIs).

Development and site alteration shall not be permitted in significant wetlands or significant coastal wetlands. Development and site alteration shall not be permitted in significant woodlands, significant valleylands, SWH or significant ANSIs, unless it is demonstrated that there will be no negative impacts on the natural features or their ecological functions.

Development and site alteration shall not be permitted in the habitat of endangered and threatened species or in fish habitat, except in accordance with provincial and federal requirements. Development and site alteration may be permitted on lands adjacent to fish habitat provided it has been demonstrated that there will be no negative impacts on the natural feature or their ecological functions.

## 2.5 Ontario Endangered Species Act (ESA)

The provincial ESA was developed to:

- Identify SAR, based upon best available science;
- Protect SAR and their habitats and to promote the recovery of SAR; and
- Promote stewardship activities that would support those protection and recovery efforts.

The ESA protects all threatened, endangered and extirpated species listed on the Species at Risk in Ontario (SARO) list. These species are legally protected from harm or harassment and their associated habitats are legally protected from damage or destruction, as defined under the ESA.

## 2.6 Federal Fisheries Act

The federal Department of Fisheries and Oceans Canada (DFO) administers the federal *Fisheries Act* which defines fish habitat as “spawning grounds and any other areas including nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes”. Section 35.1 of the *Fisheries Act* prohibits serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery.

Serious harm to fish is defined as:

- “the death of fish;
- a permanent alteration to fish habitat of a spatial scale, duration or intensity that limits or diminishes the ability of fish to use such habitats as spawning grounds, or as nursery, rearing, or food supply areas, or as a migration corridor, or any other area in order to carry out one or more of their life processes;
- the destruction of fish habitat of a spatial scale, duration, or intensity that fish can no longer rely upon such habitats for use as spawning grounds, or as nursery, rearing, or food supply areas, or as a migration corridor, or any other area in order to carry out one or more of their life processes” (DFO 2013).

The federal *Fisheries Act* places the onus on the proponent to ensure that a project complies. The DFO website page “Self-Assessment: Does DFO need to review my project”, lists project activities and criteria where DFO review is not required (<http://www.dfo-mpo.gc.ca/pnw-ppw/index-eng.html>). Projects not meeting these criteria should be reviewed by DFO to determine



if they have potential to cause serious harm to fish. Serious harm may be authorized by DFO under Paragraph 35(2)(b) of the *Fisheries Act*.

### 3.0 DATA COLLECTION APPROACH & METHODS

#### 3.1 Background References

The following resources were reviewed for information relating to natural features and species that may be found on the Subject Lands:

- Land Information Ontario (LIO) database;
- Natural Heritage Information Centre (NHIC) database;
- Online wildlife atlas data;
- Aquatic SAR distribution maps; and
- Other sources (e.g., fisheries management plans).

The results of the background review are discussed in the following sections.

##### 3.1.1 Land Information Ontario Natural Features Summary

Based on the LIO geographic database, the Humber River flows along the western and southern portions of the Subject Lands (**Figures 2 and 3, Appendix A**). No other natural heritage features are identified on, adjacent to or within the general vicinity of the Subject Lands.

##### 3.1.2 Natural Heritage Information Centre

The NHIC database (MNR 2018) was searched for records of provincially significant plants, vegetation communities and wildlife on, and in the vicinity of the Subject Lands. The database provides occurrence data by 1 km<sup>2</sup> area squares, with two squares overlapping at least a portion of the Subject Lands (17PJ0260 and 17PJ0259). Within these squares, the search revealed one record: Butternut (*Juglans cinerea*), listed as an Endangered species in Ontario (SARO) (**Table 1, Appendix B**). This record was not necessarily from the Subject Lands, but knowledge of Butternut in the area assisted in defining search effort for the botanical inventory on the Subject Lands.

##### 3.1.3 Ontario Breeding Bird Atlas

The Ontario Breeding Bird Atlas (OBBA) contains detailed information regarding the population and distribution status of bird species in Ontario (BSC 2006). The data is presented on 100 km<sup>2</sup> area squares with two squares overlapping a portion of the Subject Lands (17PJ06 and 17PJ05). It should be noted that the Subject Lands are a small component of the overall bird atlas squares, and therefore it is unlikely that all bird species identified within these squares are found within the Subject Lands. Habitat type, availability and size are all contributing factors in bird species presence and use.

A total of 115 species have been recorded in the atlas squares that overlap with the Subject Lands, with the following species of interest noted (**Table 2, Appendix B**):

- Species listed as Threatened or Endangered on the SARO list:
  - Chimney Swift (*Chaetura pelagica*);
  - Barn Swallow (*Hirundo rustica*);
  - Bobolink (*Dolichonyx oryzivorus*);
  - Eastern Meadowlark (*Sturnella magna*);
  - Bank Swallow (*Riparia riparia*); and
  - Acadian Flycatcher (*Empidonax virescens*).
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
  - Eastern Wood-Pewee (*Contopus virens*);
  - Wood Thrush (*Hylocichla mustelina*);
  - Short-eared Owl (*Asio flammeus*); and
  - Common Nighthawk (*Chordeiles minor*).

#### 3.1.4 Ontario Nature Reptile and Amphibian Atlas

The Ontario Reptile and Amphibian Atlas contains detailed information on the population and distribution status of Ontario reptiles and amphibians (Ontario Nature 2018). The data is presented on 100 km<sup>2</sup> area squares with two squares overlapping a portion of the Subject Lands (17PJ06 and 17PJ05). It should be noted that the Subject Lands are a small component of the overall atlas square, and therefore it is unlikely that all species identified within these squares are found within the Subject Lands. Habitat type, availability and size are all contributing factors in herpetofauna species presence and use.

A total of 19 species were recorded in the atlas squares that overlap with the Subject Lands, of which four are salamander species, eight are frog and toad species, three are turtle species and four are snake species. Of these species, the following species of interest are noted, as documented in **Table 3 (Appendix B)**:

- Species listed as Threatened or Endangered on the SARO list:
  - Blanding's Turtle (*Emydoidea blandingii*).
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
  - Snapping Turtle (*Chelydra serpentina*);
  - Eastern Ribbonsnake (*Thamnophis sauritus*);
  - Eastern Milksnake (*Lampropeltis triangulum*); and
  - Western Chorus Frog (Great Lakes/St. Lawrence-Canadian Shield Population) (*Pseudacris triseriata*).

#### 3.1.5 Ontario Butterfly and Moth Atlases

The Ontario Butterfly and Moth Atlases (Toronto Entomologists' Association 2018a and 2018b) contain detailed information on the population and distribution status of Ontario butterflies and moths. The data is presented on 100 km<sup>2</sup> area squares with two squares overlapping a portion of

the Subject Lands (17PJ06 and 17PJ05). It should be noted that the Subject Lands are a small component of the overall atlas square, and therefore it is unlikely that all butterfly and moth species identified in these squares are found within the Subject Lands. Habitat type, availability and size are all contributing factors in butterfly and moth species presence and use.

A total of 53 species have been recorded in the atlas squares that overlap with the Subject Lands. Of these species, one species listed as Special Concern on the SARO list was identified: Monarch (*Danaus plexippus*) (Table 4, Appendix B).

### 3.1.6 Aquatic Ecology Background Information Sources

Aquatic species at risk distribution mapping (DFO 2017) was reviewed to identify any known occurrences of aquatic species at risk, including fish and mussels, within the subwatershed where the Subject Lands are located. The Subject Lands are located on Map 11 (Ontario South West). No aquatic species at risk were identified on or within 120 m of the Subject Lands or within the subwatershed.

The Humber River Fisheries Management Plan (FMP; TRCA 2005) identifies that, historically, a total of 46 fish species were found within this general section of the Humber River, designated as an Intermediate Coldwater Riverine system. This included Redside Dace (*Clinostomus elongatus*; Endangered) and American Brook Lamprey (*Lethenteron appendix*; Special Concern), although these species were not identified on current aquatic species at risk mapping (DFO 2017).

### 3.1.7 Ministry of Natural Resources and Forestry Consultation

An Information Request Form (IRF) was submitted to the MNRF on July 10, 2018, requesting any information they have regarding SAR on or adjacent to the Subject Lands. A response was received from the MNRF on July 30, 2018 identifying the following SAR that could potentially occur on or within the vicinity of the Subject Lands:

- Eastern Small-footed Myotis (*Myotis leibii*) – Endangered in Ontario and Canada;
- Little Brown Myotis (*Myotis lucifugus*) – Endangered in Ontario and Canada;
- Northern Myotis (*Myotis septentrionalis*) – Endangered in Ontario and Canada; and
- Tri-colored Bat (*Perimyotis subflavus*) – Endangered in Ontario and Canada.

## 3.2 Technical Methods and Field Studies

To support this Scoped EIS, Savanta completed Ecological Land Classification (ELC), botanical inventories and incidental wildlife observations on the Subject Lands in July 2018 (Table 5, Appendix B). The technical methods for this study are described in the following section. Detailed wildlife studies were not undertaken given that the portion of the Subject Lands proposed for development consists entirely of a residential property. No development is proposed within the Humber River valleylands portion of the Subject Lands.

### 3.2.1 *Vegetation and ELC Methods*

Vegetation communities were first identified on aerial imagery and then verified in the field. Vegetation community types were confirmed, sampled and revised, if necessary, using the sampling protocol of the ELC for Southern Ontario (Lee et al. 1998). ELC was completed to the finest level of resolution (Vegetation Type) where feasible. Species names generally follow nomenclature from the Flora Ontario – Integrated Botanical Information System (FOIBIS; Newmaster and Ragupathy 2012).

The provincial status of all plant species and vegetation communities is based on NHIC (2016). Identification of potentially sensitive native plant species is based on their assigned coefficient of conservatism (CC) value, as determined by Oldham et al. (1995). This CC value, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to a specific natural habitat. Species with a CC value of 9 or 10 typically exhibit a high degree of fidelity to a narrow range of habitat parameters.

## 4.0 BIOPHYSICAL CHARACTERIZATION

### 4.1 Physiography and Topography

The Subject Lands consist of a residential lot with half of it occupied by a single-family dwelling and associated lawn, and the other half consisting of a deciduous forested community and a small portion of the Humber River. The forested half of the property is associated with the Humber River valleylands (**Figure 4, Appendix A**).

A geotechnical investigation was completed by D.S. Consultants Ltd. (2018a) to understand the surficial geology of the site. A total of four boreholes were completed on site to measure the soil conditions (type, moisture) on the Subject Lands. They found that the surficial geology below topsoil/pavement layers was dominated by a silty clay substance with moisture contents ranging between 18 and 22 percent. Three permanent monitoring wells were also installed on the Subject Lands; groundwater depths ranged from 1.0 to 5.6 m (elevations 219.5 and 224.7 meters above sea level; masl) in May 2018.

Further geotechnical analysis was completed on the Subject Lands by D.S. Consultants Ltd. to determine the long-term stable top of slope of the Humber River valley (D.S. Consultants Ltd. 2018b). The long-term stable top of slope, as determined by D.S. Consultants Ltd., and the staked top of slope, as staked by TRCA on January 25, 2018, are depicted in **Figure 5 (Appendix A)**.

### 4.2 Landscape Ecology

The Subject Lands occur within the Lake Simcoe-Rideau Eco-region 6E (specifically, eco-district 6E-7), which extends from Lake Huron to the Ottawa River, and includes most of the Lake Ontario shore and the Ontario portion of the St. Lawrence River Valley. Eco-region 6E falls within the Great Lakes-St. Lawrence forest region.

Consideration of the larger ecological matrix or landscape contributes to a better understanding of potential interactions between abiotic/biotic flows and exchanges. As depicted on **Figure 2 (Appendix A)**, the landscape surrounding the Subject Lands is a mixture of natural heritage features and residential communities. In terms of potential movement of organisms, matter and energy, the Humber River tributaries found throughout the greater landscape provide primary linkage features for wildlife and flora. The main Humber River crosses along the southern boundary of the Subject Lands, while two tributaries to the Humber River are located approximately 150 m west (upstream), and 200 m southeast of the Subject Lands. These tributaries to the Humber River may also provide important linkages to flora and fauna existing on the landscape.

The surrounding road networks may serve as a partial barrier to wildlife movement, including King Street East and Caledon King Townline South.

## 4.3 Vegetation

### 4.3.1 Ecological Land Classification

The Subject Lands are divided into a residential portion on the tableland and a naturally vegetated portion on the slope of the Humber River. At the back of the residence, the large lawn includes several flower beds with ornamental plants, as well as planted trees, such as Norway and Blue Spruce (*Picea abies* and *Picea pungens*). The Humber River valley slope is steep and densely wooded by a Fresh-Moist Manitoba Maple Deciduous Forest. Narrow areas of shoreline meadow marsh occur along the Humber River bank at the base of the slope. A small area assumed to be a seep, based on the presence of an abundance of Jewelweed (*Impatiens capensis*) is located near the top of bank (**Figure 5, Appendix A**).

ELC mapping of the Subject Lands is shown on **Figure 4 (Appendix A)**. A detailed list and description of ELC units is provided in **Table 6 (Appendix B)**. No provincially rare vegetation communities were present on the Subject Lands (NHIC 2016).

### 4.3.2 Vascular Plants

Botanical inventories completed on the Subject Lands identified a total of 58 species of vascular plants. Of that number, 25 (or 43%) are native and 33 (or 57%) are exotic. A full species list is included in **Table 7 (Appendix B)**.

The majority of the native species (96%) are ranked S5 (secure in Ontario). One species, Black Walnut (*Juglans nigra*), is ranked S4? (apparently secure in Ontario; NHIC 2016; ranking uncertain); it is also ranked as common by TRCA (2016). None of the species recorded on the Subject Lands had a co-efficient of conservation value of 9 or 10 (highest sensitivity) or of 7-8 (high sensitivity).

## 4.4 Wildlife

No wildlife was observed incidentally during the botanical survey in July 2018.

## 4.5 Aquatic Resources

No headwater drainage features were identified on the Subject Lands. The Humber River is located on the southern portion of the property. The Humber River Fisheries Management Plan (TRCA 2005) identifies the Humber River on the property as a fifth order stream, in the Upper Main subwatershed. This section of the watercourse is identified as having gradual slopes (0 % to 0.3%) with good riffle-pool morphology and sand/silt dominated stream beds. Fifth order watercourses also have a high percentage of woody riparian vegetation.

Figure 22 of the FMP identifies the watercourse on the Subject Lands as an Intermediate Coldwater Riverine system. The watercourse is known to receive groundwater inputs that contribute to baseflows. Historically, a total of 46 fish species have been identified within this general reach of the Humber River (designated as an Intermediate Coldwater Riverine system), including Redside Dace (*Clinostomus elongatus*; Endangered), Brook Trout (*Salvelinus*

*fontinalis*), Brown Trout (*Salmo trutta*), Atlantic Salmon (*Salmo salar*) and American Brook Lamprey (*Lethenteron appendix*; Special Concern). Aquatic SAR mapping (DFO 2017) showed no Redside Dace or other aquatic SAR are located within the boundaries of the Subject Lands.

One long-term TRCA aquatic sampling station is present downstream of the Subject Lands at HU026WM (TRCA 2005). Index of Biological Integrity (IBI) analysis identified this station as having fair (21-27) integrity (TRCA 2005). No further specific information was available for this sampling station.



## 5.0 ANALYSIS OF ECOLOGICAL AND NATURAL HERITAGE SIGNIFICANCE (PPS)

Eight types of significant natural heritage features are defined in the PPS, as follows:

- Significant wetlands;
- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat;
- Fish habitat;
- Habitat of endangered and threatened species; and
- Significant ANSIs.

The presence/absence of these elements on or adjacent to the Subject Lands is discussed in detail in the following sections. Where significant natural heritage features are present, the sensitivity of those features is also discussed.

### 5.1 Significant Wetlands

Within Ontario, Significant Wetlands are identified by the MNRF or by their designates. Other evaluated or unevaluated wetlands may be identified for conservation by the municipality or the conservation authority. No Significant Wetlands are present on or within 120 m of the Subject Lands.

An unevaluated wetland (MAM2-10) is located on the Subject Lands, within the valleyland associated with the Humber River.

### 5.2 Significant Coastal Wetlands

No Significant Coastal Wetlands were identified on, or adjacent to, the Subject Lands.

### 5.3 Significant Woodlands

Significant woodlands are identified by the planning authority using criteria established by the MNRF. The Region of Peel OP (2016) defines woodlands as:

*“ecosystems comprised of treed areas, woodlots, forested areas and the immediate biotic and abiotic environmental conditions on which they depend. Woodlands provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, the provision of clean air and the long-term storage of carbon, the provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include woodlots, cultural woodlands, cultural savannahs, plantations and forested areas and may also contain remnants of old growth forests.”*

To be identified as significant in Peel Region, woodlands must be greater than 0.5 ha and meet one or more of the following criteria (Region of Peel 2016):

- a) *“a tree crown cover of over 60% of the ground, determinable from aerial photography, or*
- b) *A tree crown cover of over 25% of the ground, determinable from aerial photography, together with on-ground stem estimates of at least:*
  - i. *1,000 trees of any size per hectare,*
  - ii. *750 trees measuring over 5 centimeters in diameter at breast height (1.37m), per hectare,*
  - iii. *250 trees measuring over 20 centimeters in diameter at breast height (1.37m), per hectare (densities based on the Forestry Act of Ontario 1998)*
- c) *And which have a minimum average width of 40 metres or more measured to crown edges.”*

The forested community found on the Subject Lands includes portions of a woodland totaling 0.75 ha in size running along the right bank of the Humber River. Therefore, the woodland meets the size criteria to be considered for significant, although none of the additional criteria are met, therefore, the woodland is not considered to be significant.

The Region of Peel OP (Table 1 – Criteria and Thresholds for the Identification of Core, Natural Areas and Corridors and Potential Natural Areas and Corridors - Woodlands) definition of Core Woodlands is:

- *“Any urban woodland that at least four hectares in size; or,*
- *Any woodland greater than or equal to four hectares containing at least 0.5 ha of woodland in native trees older than 100 years and having late successional characteristics; or,*
- *Any woodland greater than or equal to four hectares that supports any of the following:*
  - *Any G1, G2, G3, S1, S2 or S3 plant or animal species or community as designated by NHIC; or,*
  - *Any species designated by COSEWIC or COSSARO as Threatened, Endangered or Special Concern; or,*
  - *The following forest communities: FOC1-2, FOM2-1, FOM2-2, FOM6-1, FOD1-1, FOD1-2, FOD1-4, FOD2-2, FOD2-3 or FOD6-2”.*

The forested community found on the Subject Lands is part of a woodland totaling only 0.75 ha therefore the size criteria are not met, and the woodland is not considered to be a core woodland.

## 5.4 Significant Valleylands

Significant valleylands are defined and designated by the planning authority. General guidelines for determining significance of these features are presented in MNR (2010) for Policy 2.1 of the

PPS. Recommended criteria for designating significant valleylands include prominence as a distinctive landform, degree of naturalness, and importance of its ecological functions, restoration potential, and historical and cultural values.

The Region of Peel OP (Table 2; Criteria and Thresholds for the Identification of Core Valley and Stream Corridors) defines Core Valley and Stream Corridors as the following:

- Main branches, major tributaries and watercourses having direct drainage to Lake Ontario; or,
- Other tributaries that contain either:
  - habitat of aquatic Endangered or Threatened species; or,
  - Watercourses that cross municipal boundaries and provide linkage to other Core Areas of the Greenlands System.
- Associated ravines within the Urban System meeting one of the following criteria:
  - Important ecological functions related to the valley landform;
  - Habitat for Endangered/Threatened species;
  - Linkage to other natural features of the Greenland System;
  - Flood and erosion hazards; or
  - Restoration Potential.

Based on the suggested criteria for determination of significance presented in MNR (2010) and the Region of Peel OP, the portion of the Humber River associated with the Subject Lands meets the criteria of a Core Valleyland. Therefore, significant valleylands occur on the Subject Lands and are defined by the identified top of bank staked by TRCA on January 25, 2018 (**Figure 5, Appendix A**).

## 5.5 Significant Wildlife Habitat

Significant wildlife habitat is one of the more complex natural heritage features to identify and evaluate. There are several provincial documents that discuss identifying and evaluating SWH including the Natural Heritage Reference Manual (NHRM; MNR 2010), the Significant Wildlife Habitat Technical Guide (MNR 2000), and the SWH Eco-Region Criterion Schedule (MNRF 2015). The Subject Lands are located in Eco-Region 6E and were therefore assessed using the 6E Criterion Schedule (MNRF 2015).

There are four general types of SWH:

- Seasonal concentration areas;
- Rare or specialized habitats;
- Habitat for species of conservation concern; and
- Animal movement corridors.

### Seasonal Concentration Areas

Seasonal concentration areas are those sites where large numbers of a species gather together at one time of the year, or where several species congregate. Seasonal concentration areas include deer yards, wintering sites for snakes, bats, raptors and turtles; waterfowl staging and molting areas, bird nesting colonies, shorebird staging areas, and migratory stopover areas for passerines or butterflies.

### Rare or Specialized Habitats

Rare and specialized habitats are two separate components. Rare habitats are those with vegetation communities that are considered rare in the province. SRANKS are rarity rankings applied to species at the 'state', or in Canada at the provincial level, and are part of a system developed under the auspices of the Nature Conservancy (Arlington, VA). Community types with SRANKS of S1 to S3 (extremely rare to rare-uncommon in Ontario), as defined by the NHIC (2016), could qualify.

Specialized habitats are microhabitats that are critical to some wildlife species. The NHRM (MNR 2010) defines specialized habitats as those that provide for species with highly specific habitat requirements; areas with exceptionally high species diversity or community diversity; and areas that provide habitat that greatly enhances species' survival.

### Habitat for Species of Conservation Concern

Species of conservation concern include those species that are provincially rare (S1 to S3) and species listed as Special Concern on the SARO list. Several specialized wildlife habitats are also included in this SWH category, including terrestrial crayfish habitat and significant breeding habitats for marsh, open country and early successional bird species.

Habitats of species of conservation concern do not include habitats of species designated as Endangered or Threatened species on the SARO list. Endangered and Threatened species are discussed in section 5.7.

### Animal Movement Corridors

Animal movement corridors are areas that are traditionally used by wildlife to move from one habitat to another. This is usually in response to different seasonal habitat requirements. This can include trails used by deer to move to wintering areas and areas used by amphibians to move between breeding and summering habitat.

**Table 8 (Appendix B)** discusses all SWH types relevant to the Subject Lands based on ecological data collected during inventories completed during the 2018 site investigations. Although one seep was confirmed on the Subject Lands, no associated headwater drainage features were identified, therefore SWH criteria are not met.

Due to the scoped nature of the EIS, the following candidate SWH types have been identified on the Subject Lands:

- Bat Maternity Colony SWH (within the FOD7-6 vegetation community);
- Turtle Overwintering Area SWH (within the Humber River);
- Reptile Hibernacula SWH; and
- Special Concern and Rare Wildlife Species for Eastern Wood-Pewee and Wood Thrush (within the FOD7-6 vegetation community).

Candidate SWH associated with the Humber River valleylands is identified on **Figure 5 (Appendix A)**. Given that detailed wildlife studies were not completed within the valleylands, which are outside the proposed development area, these areas remain identified as candidate SWH, since wildlife species criteria have not been confirmed.

## 5.6 Fish Habitat

Fish habitat, as defined in the federal *Fisheries Act*, c. F-14, means “spawning grounds and nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly in order to carry out their life processes”. Fish, as defined in S.2 of the *Fisheries Act*, c. F-14, includes “parts of fish, shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals” (DFO 2013).

The portion of the Humber River found on the Subject Lands provides direct fish habitat to cold-water fisheries. No headwater drainage features were noted on the Subject Lands.

## 5.7 Habitat of Endangered and Threatened Species

SAR and their habitats are considered provincially sensitive information. No Endangered or Threatened species were identified within the Subject Lands during ecological investigations. No SAR habitat was identified within the proposed development area on the Subject Lands (i.e., within the existing residential portion of the property).

Four Endangered bat species, Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis and Tri-colored Bat, were identified by MNRF as having the potential to occur on, or adjacent to the Subject Lands, based on the presence of woodland habitat and known presence of these species in this area of Ontario. Detailed bat habitat studies were not completed within the woodland on the Subject Lands (given that it is located outside the proposed development on the tablelands), but there is potential that SAR bat species could use the area. Approval from MNRF may be required if proposed works could cause harm to any species protected under the ESA (2007).

## 5.8 Areas of Natural and Scientific Interest

No ANSIs were identified on, or within the vicinity of, the Subject Lands.

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## 5.9 Summary of Natural Heritage System Components Subject to Impact Assessment

The PPS defines the important features to consider in terms of impact assessment. For context, and to limit the potential for impacts more generally, the following aspects were considered in the impact assessment:

- Significant Valleylands;
- Habitat of Endangered and Threatened Species;
- Significant Wildlife Habitat:
  - Candidate bat maternity colonies;
  - Candidate turtle overwintering areas;
  - Candidate reptile hibernacula habitat; and
  - Candidate habitat for Species of Conservation Concern (Eastern Wood-Pewee and Wood Thrush),
- Fish Habitat; and
- Unevaluated Wetlands.

## 6.0 PROPOSED DEVELOPMENT

The proposed development as depicted on the Concept Site Plan (Kirkor Architects and Planners 2018) proposes 16 townhouse units on the existing residential tablelands portion of the Subject Lands (**Figure 5, Appendix A**). The proposed development will also include the addition of a roadway to access these residential units off of King Street East.

A 10m vegetated buffer from the staked top of bank on the southern portion of the Subject Lands has been incorporated into the Concept Site Plan, as shown on **Figure 5 (Appendix A)**.

A Functional Servicing Report (FSR) and Stormwater Management (SWM) Report was completed by Aplin & Martin Consultants (2018) to characterize the site and identify the servicing requirements. The SWM section of the report addressed quantity control, site-wide water balance, erosion control and quality control. The following key points are taken from the FSR and SWM Report:

- 100-year post-development flows will be controlled to the 10-year pre-development levels for the areas conveyed to the existing storm sewer network along King Street East. The Subject Lands will provide 93.1 m<sup>3</sup> of quantity storage in underground storage chambers under the proposed condominium laneway. A vertical vortex flow regulator is proposed downstream of the storage chambers;
- The retention of 5 mm events on the site results in retention of 12.3 m<sup>3</sup> and achieves erosion control criteria. An addition 6.3m<sup>3</sup> of infiltration will be achieved by placing 230 mm stone for infiltration under the storage chambers. Site water balance will be maintained post-development;
- A Jellyfish Unit (JF4-1-1) will be installed upstream of the rock pit to remove a minimum of 80% total suspended solids (TSS). A small portion of landscaped area will enter directly into the underground storage chambers without passing through the Jellyfish Unit. Quality control is not necessary since the landscaped areas are considered clean because their roughness naturally assists with sediment removal;
- The proposed townhouse development will discharge storm runoff through onsite storm sewers and an onsite detention system that will connect into the existing 450 mm diameter storm sewer within King Street East: and,
- The existing Humber River valley slopes (40%) were assessed as having medium soil erodibility due to their highly vegetated nature. The existing vegetation cover will help reduce erosion and sedimentation by slowing runoff. Further ESC measures to be installed and monitored during construction include: cut-off swales, silt fences, sediment traps and gravel mud mats.

DS Consultants Ltd. (2018a) indicate that there will be no major impacts to groundwater during construction of the development, although positive dewatering/groundwater control may be required in some locations.

## 7.0 IMPACT ASSESSMENT, AVOIDANCE AND MITIGATION MEASURES

This section of the EIS assesses the predicted impacts, mitigation and enhancement measures associated with the Concept Site Plan (Kirkor Architects and Planners 2018).

The range of potential impacts from proposed development can generally be divided into two categories: direct impacts, which are normally associated with the physical removal or alteration of natural features that could occur based upon a land use application, and indirect impacts, which may be changes or impacts (these could be minor or major) to less visible functions or pathways that could cause negative impacts to natural heritage features over time.

A detailed Impact Assessment, based on the Concept Site Plan (Kirkor Architects and Planners 2018) and supporting engineering details (Functioning Service and Stormwater Management Report, and Geotechnical Reports) is provided in **Table 9** along with recommendations for proposed mitigation. Impactors (i.e., potential sources of impact) are identified along with potential effects should no mitigation occur. Impact avoidance, mitigation and/or restoration measures are identified along with predicted net effects and monitoring measures. Key components of the Impact Assessment in **Table 9** are discussed in the following sections.

### 7.1 Summary of Predicted Direct/Indirect Effects

This assessment considers both potential direct and indirect effects based on the proposed Conceptual Site Plan (Kirkor Architects and Planners 2018).

#### 7.1.1 *Habitat of Threatened and Endangered Species*

No Endangered or Threatened species were identified on the Subject Lands during ecological investigations, although detailed wildlife studies were not undertaken within the Humber River valley, given that development is restricted, in the site plan, to the existing residential tablelands. Potential habitat of several SAR (i.e., Bitternut, Chimney Swift, Barn Swallow, Bank Swallow, Acadian Flycatcher and Blanding's Turtle) will be protected within the retained valleyland feature.

Four Endangered bat species, Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis and Tri-colored Bat, were also identified by MNRF as having the potential to occur on, or adjacent to the Subject Lands. No development will occur within the woodland and a 10 m setback from the staked top of bank (which extends beyond the woodland edge) has been incorporated into the development. However, the proposed Concept Site Plan (Kirkor Architects and Planners 2018) will result in removals of individual trees within the existing residential lawn area on the Subject Lands. These trees could potentially provide habitat for Endangered bat species, although that potential is limited given the nature of the residential area and abundance of high-quality woodland (approximately 60 ha) within a distance of 400 m from the Subject Lands. To avoid impacts on SAR bats, trees requiring removal within the residential area will be removed between October 31 and April 1, which is outside of the active roosting season. If the need arises to remove trees outside this window then bird nest and bat exit surveys will be completed 48, and 24 hours in advance of the tree removal, respectively. By implementing these measures, no contravention of Section 9 or Section 10 of the ESA, 2007 is anticipated to occur through activities related to this project.



### 7.1.2 Significant Valleylands

A 10 m setback from the staked top of bank will be used to protect the natural heritage features within the significant valleylands from direct disturbance from the proposed development (**Figure 5, Appendix A**). The existing setback area consists of residential manicured lawn. In order to enhance valleyland protection, the setback area will be enhanced with vegetation which focuses on ensuring soil stability.

The stable top of bank determined by D.S. Consultants Ltd. (2018b) is located within the proposed enhanced vegetated 10 m setback from the staked top of bank (**Figure 5, Appendix A**). The proposed development limit encroaches within two meters of the stable top of bank and 253 m<sup>2</sup> of the development is within 10 m of the stable top of bank. Encroachment within 10 m from the stable top of bank is not expected to have negative impacts on the existing natural heritage features associated with the valleylands. The proposed vegetation planting within the 10 m setback from the staked top of bank (in an area currently consisting of manicured lawn) will achieve a net ecological gain for the Subject Lands and assist in preventing impacts on the valleylands.

Potential indirect effects on the significant valleyland are addressed in section 7.2.

### 7.1.3 Significant Wildlife Habitat

The following candidate SWH types were identified on the Subject Lands:

- Candidate bat maternity colonies within the woodlot (FOD7-6);
- Candidate turtle overwintering habitat within the Humber River;
- Candidate reptile hibernacula within the valleylands; and
- Candidate habitat of Special Concern and provincially rare (S1-S3) species, including Eastern Wood-Pewee and Wood Thrush within the deciduous forest (FOD7-6).

All candidate SWH types were identified within the woodland (**Figure 5, Appendix A**). The woodland feature itself will not be directly altered and will be protected by the 10 m vegetated buffer applied to the staked top of bank. The woodland community and associated wildlife habitats will be therefore be protected from direct impacts (through avoidance) and from indirect impacts, in part through the implementation of the 10 m vegetated buffer discussed above.

Though not identified as a SWH type, the seep identified within the FOD7-6 vegetation community will be protected from direct disturbance since the development is 15 m away at the closest point and site water balance will be maintained pre- and post-development through use of infiltration measures. Indirect effects from site alteration may cause increased erosion/sedimentation and decreased water quality. These associated impacts can be mitigated through proper installation of erosion and sediment control measures.

No negative impacts to SWH are anticipated as a result of the proposed Site Plan.

#### 7.1.4 Fish Habitat

The Humber River is present on the southern portion of the Subject Lands and provides permanently flowing, direct fish habitat to cold-water fish assemblages. The watercourse is located within the significant valleyland on the Subject Lands.

No direct effects on fish habitat in the Humber River are anticipated to occur, since all development will be set back 10 m from the staked top of bank (which is located a minimum distance of approximately 35 m from the Humber River channel).

Potential indirect effects on fish habitat that could occur from the proposed development include:

- Impaired fish habitat and/or negative impacts on aquatic biota (e.g., fish and benthic invertebrates), including deteriorated health or mortality, due to erosion and sedimentation from site alteration and development; and
- Mortality or health impacts due to accidental spills of toxic materials during construction.

As noted in **Table 9**, avoidance and mitigation measures have been developed to prevent or minimize negative effects on fish and fish habitat. Key avoidance and mitigation measures to be implemented include:

- Preparation and implementation of an erosion and sedimentation control plan to minimize the potential for negative impacts (see section 7.2.1);
- Preparation and implementation of a spill prevention and response plan to prevent or minimize the potential for spills of potentially toxic materials during construction (see section 7.2.2); and
- Implementation of setbacks (10 m from the staked top of bank).

Provided the avoidance and mitigation recommended in this section and **Table 9** is implemented and any required permits or approvals are obtained, the effects on fish habitat are predicted to be avoided or mitigated in accordance with all regulatory requirements.

#### 7.1.5 Unevaluated Wetlands

One unevaluated wetland is associated with the floodplain forb mineral meadow marsh (MAM2-10) within the Humber River corridor. This wetland is protected under TRCA's policies (O. Reg. 166/06). This meadow marsh community occurs outside of the proposed development and site alteration footprint, as it is located at the toe of the slope adjacent to the watercourse and will be protected by the forested community. A site water balance has been completed and infiltration will match pre- and post-development. No direct removal of or impacts to the meadow marsh community will occur.

## 7.2 Indirect Effects During Construction

Indirect effects are those potential effects on the biophysical environment outside of the natural heritage feature that could potentially impact the feature. This could potentially include erosion

from the work area with associated sedimentation in watercourses, water management practices during construction and accidental spills. Each of these are discussed in the following sections.

### 7.2.1 *Erosion and Sedimentation*

Erosion and sedimentation from the disturbed work area associated with the proposed development could potentially result in adverse effects to water quality (e.g., increased turbidity) or sedimentation and associated effects on fish (e.g., injury or mortality due to suspended sediments or altered habitat use) or fish habitat (e.g., loss of interstitial spaces in rocky areas, smothering of aquatic vegetation and/or incubating eggs).

It is recommended that the contractor prepare and implement an Erosion and Sedimentation Control (ESC) Plan to minimize the potential for erosion and sedimentation from the construction site. The ESC Plan should be developed based on the guidance provided in the *Erosion and Sediment Control Guideline for Urban Construction* (GGHCA 2006). Basic elements of the plan should include consideration of:

- Construction phasing to minimize the amount of time soils are barren and therefore, more susceptible to erosion;
- Requirements and timing for rehabilitation of disturbed areas;
- Erosion prevention measures (e.g., hydroseeding, sodding, erosion control matting, tarping of stockpiles);
- Sedimentation control measures (e.g., silt fences); and
- Inspection and performance monitoring requirements and adaptive management considerations.

Implementation of an effective ESC Plan, incorporating both erosion and sedimentation controls, coupled with regular inspection and performance monitoring and implementation of any remedial actions necessary to ensure effective performance, is anticipated to be effective in preventing the movement of eroded soil particles off-site towards fish habitat in Humber River.

Overall, no negative effects to fish and fish habitat are predicted to occur as a result of erosion and sedimentation during construction, provided an effective ESC Plan, including monitoring and adaptive management, is implemented.

### 7.2.2 *Accidental Spills*

Accidental spills of potentially hazardous materials (e.g., fuel and oil from heavy equipment) could cause stress or injury to aquatic and terrestrial biota.

In order to mitigate the potential for adverse effects during construction, it is recommended that the contractor prepare a spill prevention and response plan to outline the material handling and storage protocols, mitigation measures (e.g., spill kits on-site), monitoring measures and spill response plans (i.e., emergency contact procedures, including Spills Action Centre, and response measures including containment and clean-up). Implementation of an effective spill prevention and response plan is anticipated to be effective in preventing adverse effects from accidental spills.

### 7.3 Potential Post-Construction Effects

No direct effects on the identified significant natural heritage features are anticipated to occur during the post-construction period, since there would be no requirement for any activity within the Humber River valleyland, where significant features are present. However, several potential indirect effects on the environment may occur during the post-construction period due to:

- Stormwater runoff from the development; and
- Public access to the Humber River valleylands.

These potential effects and recommended mitigation measures are discussed in the following sections.

#### 7.3.1 Effects on Water Quality

Some surface water on the Subject Lands may infiltrate through residential lawns and into the shallow groundwater flowing towards the Humber River, or will flow directly as overland runoff from landscaped areas into the adjacent valleyland. This runoff or infiltration water could potentially be impaired due to residential use of potential contaminants (e.g., lawn fertilizers) or other residential land-use activities (including accidental spills in rear yards). However, the 10m setback from the staked top of bank will assist in mitigating potential effects on surface water quality.

#### 7.3.2 Public Access

Increased accessibility to the Humber River valleylands has the potential to cause increased wildlife disturbance, increased potential for invasive species transport and water quality impairment due to soil disturbance. The 10 m vegetated setback from the staked top of bank will be the primary mitigation measure to prevent direct effects on the Humber River valleylands. In addition, native thorny plant material shrubs (i.e., Raspberry species – *Rubus sp.*) are recommended be installed throughout the vegetated buffer to deter public access into the valleyland and limit disturbance.

### 7.4 Other Potential Indirect Impacts

The proposed development in the principally open and already disturbed residential areas of the Subject Lands (i.e., dwelling and lawn) will limit the potential for direct and/or cumulative effects. Potential indirect impacts and resultant effects may include:

- Noise, vibration and lighting and potential effects on wildlife behaviour and/or reproductive success (i.e., during construction and post development);
- Localized micro-drainage changes that could cause localized ponding and inundation of rooting systems;
- Introduction of non-native plant species in the disturbed margins of the developed footprint, displacing some native flora;
- Stress/dieback of retained vegetation along developed edges (root/stem/crown impacts, sediment); and

- Impacts on wildlife and plant populations associated with anticipated increased human and pet impacts on retained natural areas (i.e., due to off-leash pet cats and dogs).

#### 7.4.1 *Recommended Measures to Avoid and Mitigate Potential Effects*

The extent to which construction will affect the edge conditions of the valleyland can be limited by the implementation of the following measures:

- Locate and flag development limits prior to construction;
- Pre-construction erection of erosion and sedimentation control fencing along confirmed protection edges; and
- Appropriate pre-construction briefing of site workers to advise regarding the sensitivity of the development edge conditions.

#### 7.4.2 *Light and Noise Effects on Wildlife*

Light can be a concern where it is directed towards a variety of natural features and functions. Primary sources for “new light” will be from road lighting. In particular, the use of larger light standards can be problematic by allowing light penetration into forested blocks, which could inhibit or affect wildlife use. The placement of rear lots close to natural areas can also introduce unwanted lighting.

To minimize light being directed into the adjacent ecological features, outdoor common area lighting within the parking area at the southern end of the proposed development should be located and directed away from the valleyland. To minimize impacts on birds, direct upward light should be eliminated, spill light should be minimized, and all lighting sources should illuminate only non-reflective surfaces (e.g., as per City of Toronto Green Development Standard 2007).

Noise from construction activities may result in wildlife avoidance of the edges abutting active work areas during the construction period. Where possible, construction activities should be timed outside of the nighttime and early morning periods during the bat and bird breeding seasons (typically May through July). Some localized movement of wildlife out of these edge areas may still occur during the construction phase. The wildlife in this area are already adjusted to a certain level of background noise and interference associated with existing residential development and its proximity to King Street East.

Following construction, increased noise in vicinity of the woodland community due to residential activities (e.g., lawn mowing, vehicle movement, etc.), and the potential for increased predation pressure from domestic cats allowed to roam free outdoors may occur. These risks are already present on these Subject Lands due to existing land-uses, but with increased residential density anticipated, it is worth noting that this may occur. Additional measures, including the distribution of educational materials (through brochures or within owner’s manuals upon purchase of the residence), will be used to educate residents of the importance of maintaining and protecting the NHS and its associated wildlife.

## 7.5 Potential for Enhancements and Ecological Benefits

The Concept Site Plan (Kirkor Architects and Planners, 2018) is designed to mitigate the impacts of the proposed redevelopment through the use of a 10 m enhanced vegetated setback to effectively buffer the Humber River valleyland and associated natural features. This buffer will protect and add value to ecological features and functions (including diversity of restored vegetation communities and specialized wildlife habitats). Native plantings of thorny plant material (i.e., Raspberry species – *Rubus sp.*) will be placed throughout the buffer to deter public entry into the valleyland.

This enhancement measure will provide mitigation for predicted development impacts and strategically amass valleyland vegetation around existing high-quality habitat adjacent to the Humber River.

**Table 9: Predicted Effects, Mitigation, Enhancement and Net Effects**

NATURAL HERITAGE FEATURES AND ASSOCIATED FUNCTIONS	SIGNIFICANT CHARACTERISTICS AND SENSITIVITY	IMPACTOR	PREDICTED EFFECTS	AVOIDANCE, MITIGATION AND/OR RESTORATION	NET EFFECTS	MONITORING AND MANAGEMENT
<b>PPS NATURAL HERITAGE FEATURES</b>						
1. <b>Significant Wetlands</b>	Not Present/not applicable	N/A	N/A	N/A	N/A	N/A
2. <b>Significant Coastal Wetlands</b>	Not Present/not applicable	N/A	N/A	N/A	N/A	N/A
3. <b>Significant Woodlands</b>	Not Present/not applicable	N/A	N/A	N/A	N/A	N/A
4. <b>Significant Valleylands</b>	<ul style="list-style-type: none"> <li>Significant Valleyland is identified within the Humber River Valley. The portion of the Humber River associated with the Subject Lands meets the criteria of a Core Valleyland.</li> </ul>	<ul style="list-style-type: none"> <li>The form and function of the Humber River Valley are not expected to sustain any direct effects associated with the proposed development, as the development footprint will be limited to 10 m from the staked top of bank.</li> <li>Construction activity (e.g., heavy equipment use, earth moving) could result in potential indirect impacts to the Significant Valleylands.</li> <li>Long-term presence of residents adjacent to the Significant Valleylands could result in increased disturbance due to human presence (e.g., pedestrian access, dumping, etc.).</li> </ul>	<ul style="list-style-type: none"> <li>No direct effects will occur to the valleyland features as they are outside of the development footprint. The valleyland is further protected by a 10 m vegetated buffer from the staked top of bank.</li> <li>Construction could potentially result in increased surface water runoff (and associated erosion of the valley slopes), erosion and sedimentation (with impacts on plants, wildlife and aquatic habitat and biota) and accidental spills.</li> <li>Negative effects on wildlife and wildlife habitat due to increased human presence and habitat alterations.</li> </ul>	<ul style="list-style-type: none"> <li>Erosion and sediment control measures should be installed at the edge of the development limit (i.e., 10 m from the staked top of bank) to protect the valleyland from increased erosion and soil mobility. Erosion and sedimentation control measures should not be removed until a minimum of 80% vegetative cover has been established within the 10 m buffer.</li> <li>Spill prevention and response measures will be implemented throughout the duration of construction to minimize the potential for accidental spills and ensure appropriate response to minimize negative impacts if spills do occur.</li> <li>The topographic relief and the proposed restoration plantings within the 10 m</li> </ul>	<ul style="list-style-type: none"> <li>No negative effects on the significant valleylands are anticipated to occur following the implementation of the identified avoidance, mitigation and restoration measures.</li> </ul>	<ul style="list-style-type: none"> <li>Construction monitoring to ensure the effectiveness and maintenance of the erosion and sediment control measures.</li> </ul>

NATURAL HERITAGE FEATURES AND ASSOCIATED FUNCTIONS	SIGNIFICANT CHARACTERISTICS AND SENSITIVITY	IMPACTOR	PREDICTED EFFECTS	AVOIDANCE, MITIGATION AND/OR RESTORATION	NET EFFECTS	MONITORING AND MANAGEMENT
				<p>buffer from the staked top of bank will discourage pedestrian access into the valley. Native species plantings (shrubs and trees) will be established within the vegetated buffer zones. Native thorny shrubs (i.e., raspberry species – <i>Rubus sp.</i>) will be installed throughout the vegetated buffer to discourage pedestrian access.</p>		
<p><b>5. Significant Wildlife Habitat</b></p>	<ul style="list-style-type: none"> <li>The following candidate SWH types are present within the Humber River valleylands on the Subject Lands:</li> <li>Bat Maternity Colonies;               <ul style="list-style-type: none"> <li>Turtle Overwintering Areas;</li> <li>Reptile Hibernacula: and,</li> <li>Special Concern and Rare Wildlife Species habitat (Eastern Wood-Pewee and Wood Thrush).</li> </ul> </li> <li>No SWH is present within the tablelands adjacent to the Humber River valleylands.</li> </ul>	<ul style="list-style-type: none"> <li>No direct impacts to Bat Maternity Colonies are expected since no tree removal will occur within the woodland and a 10 m setback will be maintained from the staked top of bank (which extends beyond the dripline edge).</li> <li>No direct impacts are anticipated on Turtle Wintering Areas or Reptile Hibernacula since these candidate SWH types are associated with the Humber River and will be protected from direct disturbance.</li> <li>No direct impacts to Eastern Wood-Pewee and Wood Thrush are anticipated; no tree removal will occur within the woodland and a 10 m setback will be maintained from the staked top of bank (which extends beyond the dripline edge).</li> </ul>	<ul style="list-style-type: none"> <li>Soil disturbance during construction can potentially cause soil compaction that reduces the pore space within soils, limiting what plant species are able to root in the substrate, and may result in colonization of invasive vegetation species in disturbed areas, with resulting effects on native vegetation species.</li> <li>Human presence and noise during construction can cause disturbance of wildlife patterns and behaviours (i.e., interferes with bird breeding calls) and may cause wildlife to temporarily vacate habitats in proximity to the construction area.</li> <li>Increased pedestrian usage over the long term could result in increased invasive species transport, degradation of surrounding vegetation and associated wildlife habitat, impacts on wildlife due to</li> </ul>	<ul style="list-style-type: none"> <li>The following avoidance and mitigation measures will be used to prevent potential negative effects on candidate SWH within the woodlands and Humber River;               <ul style="list-style-type: none"> <li>Tree protection fencing, and erosion and sediment control measures will be installed along the development limit to protect the integrity of the feature and eliminate excess disturbance from ground disturbance and dislodgement of sediment.</li> <li>Any noise associated with construction will be temporary and will have short-term impacts on wildlife behavior. The development limit will be within 10 m of the SWH. Existing wildlife in this area will be somewhat</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>No negative effects on the candidate SWH within the Humber River valleylands are anticipated to occur following the implementation of the identified avoidance, mitigation and restoration measures.</li> </ul>	<ul style="list-style-type: none"> <li>Construction monitoring to ensure the sediment control measures are functioning and maintained effectively.</li> </ul>



NATURAL HERITAGE FEATURES AND ASSOCIATED FUNCTIONS	SIGNIFICANT CHARACTERISTICS AND SENSITIVITY	IMPACTOR	PREDICTED EFFECTS	AVOIDANCE, MITIGATION AND/OR RESTORATION	NET EFFECTS	MONITORING AND MANAGEMENT
		<ul style="list-style-type: none"> <li>• Potential indirect impacts may occur due to:               <ul style="list-style-type: none"> <li>- Short-term impacts (i.e., related to construction activities);</li> <li>- Increased soil disturbance (e.g., soil compaction or erosion); and</li> <li>- Loud disturbances.</li> </ul> </li> <li>• Potential long-term impacts (i.e., related to residential use) may occur due to:               <ul style="list-style-type: none"> <li>- Increased pedestrian usage;</li> <li>- Introduction of pets;</li> <li>- Increased traffic; and</li> <li>- Increased lighting.</li> </ul> </li> </ul>	<p>introduction of pets (i.e. due to predation), potential injury or mortality of wildlife crossing roadways and increased road runoff and associated decreases in surface water quality.</p> <ul style="list-style-type: none"> <li>• Increased lighting as a result of residential development can disrupt wildlife behaviours (i.e., disturb day/night cycles) and negatively impact shade tolerant vegetation.</li> </ul>	<p>tolerant of anthropogenic disturbance due to existing noise from nearby roadways and residential area.</p> <ul style="list-style-type: none"> <li>• Native plantings (shrubs and trees) will be planted within vegetated buffer zones protecting the NHS. Native thorny plant material (i.e., Raspberry species – <i>Rubus spp.</i>) will be installed at strategic locations to discourage access into the NHS by humans and pets.</li> <li>• Low-radiance, directional lighting along the parking area will be directed away from the NHS to limit impacts to wildlife activity.</li> </ul>		
<p><b>6. Fish Habitat</b></p>	<ul style="list-style-type: none"> <li>• The Humber River, a permanent watercourse, flows along the southern portion of the Subject Lands. It is known to provide direct fish habitat for a sensitive cold-water fish community (TRCA 2005).</li> <li>• No headwater drainage features were identified on the Subject Lands during ecological studies.</li> </ul>	<ul style="list-style-type: none"> <li>• No direct impacts on fish habitat in the Humber River are anticipated to occur since the development will be set back</li> <li>• Stable top of slope analysis was completed by DS Consultants Ltd</li> <li>• The proposed development encroaches on the stable top of bank however no direct impacts to Humber River are anticipated at this time as it is within the valley and removed from the development footprint (see <b>Figure 4, Appendix A</b>).</li> </ul>	<ul style="list-style-type: none"> <li>• Erosion and sedimentation from the disturbed work area during construction could result in increased turbidity and suspended solids within the watercourse. The increased sediment load could cause negative effects on fish habitat (e.g., infilling of interstitial spaces in riffles, deposition of a thin layer of sediment over aquatic vegetation) and mortality, health effects or altered behaviour of aquatic biota (fish and benthic macroinvertebrates).</li> <li>• Accidental spills during construction could impair water quality and have negative</li> </ul>	<ul style="list-style-type: none"> <li>• No direct alteration of fish habitat in the Humber River will occur. The proposed development will be set back a minimum distance of approximately 35 m from direct fish habitat within the Humber River.</li> <li>• Erosion and sediment control measures will be used throughout construction to avoid/minimize the potential for negative effects on fish habitat.</li> <li>• Spill prevention and response measures will be implemented to prevent negative effects due to</li> </ul>	<ul style="list-style-type: none"> <li>• Potential for effects due to erosion and sedimentation and/or accidental spills during construction will be minimized.</li> <li>• The proposed setbacks, when combined with other mitigation measures, will prevent negative effects on riparian and valleyland habitat, and associated fish habitat functions, due to adjacent site alteration.</li> <li>• No net effects on fish habitat are anticipated due to changes in</li> </ul>	<ul style="list-style-type: none"> <li>• A construction monitoring program will be developed and implemented to ensure that the ESC measures are installed correctly and maintained in good working order throughout construction.</li> <li>• Monitoring of adherence to and effectiveness of the spill prevention and response measures is recommended throughout the construction period.</li> </ul>

NATURAL HERITAGE FEATURES AND ASSOCIATED FUNCTIONS	SIGNIFICANT CHARACTERISTICS AND SENSITIVITY	IMPACTOR	PREDICTED EFFECTS	AVOIDANCE, MITIGATION AND/OR RESTORATION	NET EFFECTS	MONITORING AND MANAGEMENT
		<ul style="list-style-type: none"> <li>The site water balance matches pre- and post-infiltration volumes as well as a retention volume of 20 m<sup>3</sup> on the Subject Land.</li> <li>Indirect impacts associated with site alteration and development include:</li> <li>Earthwork (e.g., grading, filling) and vegetation removal on the Subject Lands in proximity to the Humber Valley;</li> <li>Use of heavy equipment during construction and associated potential for accidental spills of potentially toxic materials (e.g., fuel, oil, hydraulic fluid);</li> <li>Changes in surface water runoff and groundwater infiltration due to increased imperviousness with potential alteration in surface water quality and quality in Humber River.</li> <li>Stormwater will be controlled for quality and quantity and will be discharged to the existing storm sewer network on King Street. No impacts due to stormwater management are anticipated.</li> </ul>	<p>effects on aquatic biota and vegetation.</p> <ul style="list-style-type: none"> <li>Alteration in water delivery (e.g., timing, volume of discharge) to the watercourse via surface and /or groundwater pathways due to changes in stormwater runoff and infiltration could potentially result in negative impacts on fish habitat.</li> <li>Pumping of groundwater from excavations may be required, depending on the depth of excavation and groundwater level at the time. If pumping is necessary, negative impacts to water quality and increased water quantity may occur. Increased erosion Humber River.</li> </ul>	<p>accidental spills during construction.</p> <ul style="list-style-type: none"> <li>Existing vegetation between the watercourse (FOD7-6, MAM2-10) and the site development will act as a barrier to help protect riparian and valleyland habitats, cool-water fish communities.</li> <li>Infiltration and stormwater management measures will be used to maintain site water balance to prevent negative impacts on groundwater delivery to the Humber River and negative impacts on the valley slope due to surface water runoff.</li> <li>Should pumping of groundwater be required during excavation, mitigation measures should be provided (e.g., sedimentation filter bags) to ensure that discharge quality criteria are met. Water should be discharged at the edge of the identified buffer areas to the Humber River with mitigation (e.g., rip rap pad) to ensure that discharge water does not erode the soils at the immediate discharge location. Implementation of effective mitigation is anticipated to prevent adverse effects on the watercourse.</li> </ul>	<p>surface water or groundwater conveyance and infiltration provided water balance is maintained.</p>	

NATURAL HERITAGE FEATURES AND ASSOCIATED FUNCTIONS	SIGNIFICANT CHARACTERISTICS AND SENSITIVITY	IMPACTOR	PREDICTED EFFECTS	AVOIDANCE, MITIGATION AND/OR RESTORATION	NET EFFECTS	MONITORING AND MANAGEMENT
<b>7. Habitat of Endangered and Threatened Species</b>	<ul style="list-style-type: none"> <li>Endangered and Threatened species are not known to occur on the Subject Lands, although detailed wildlife investigations were not completed within the Humber River valleylands, given that development will be restricted to the tablelands.</li> <li>Endangered bat species could potentially reside within the woodlands in the Humber River valleylands on the Subject Lands. Bats could also potentially use the scattered trees within the residential area on the Subject Lands. This potential is considered to be limited, given the disturbed residential nature of the area and the presence of high-quality roosting areas in adjacent natural features.</li> <li>Several other species at risk could also potentially reside within the woodlands. No species at risk use of the existing residential tablelands within the development limit is expected to occur.</li> </ul>	<ul style="list-style-type: none"> <li>Tree removal on the residential tablelands could result in impacts on Endangered bats.</li> <li>Development adjacent to the woodland could negatively impact Endangered bat species.</li> </ul>	<ul style="list-style-type: none"> <li>Tree removal on the residential tablelands could cause mortality of Endangered bats.</li> <li>Disturbance associated with construction could negatively impact Endangered bat species or habitat (e.g., adverse effects to edge trees being used for roosting).</li> </ul>	<ul style="list-style-type: none"> <li>Individual residential trees on the Subject Lands (outside the woodland) will be removed between October 31 and April 1, which is outside the active roosting season. If adherence to this timing constraint is not possible, bat surveys will be required a maximum of 24 hours prior to tree removal to confirm that bats are not actively using any tree proposal for removal.</li> <li>Development will be set back 10 m from the staked top of bank (which extends beyond the woodland dripline).</li> </ul>	<ul style="list-style-type: none"> <li>No negative effects on endangered or threatened species or their habitat are anticipated to occur following the implementation of the identified avoidance, mitigation and restoration measures.</li> </ul>	N/A
<b>8. Significant Areas of Natural and Scientific Interest</b>	Not present/not applicable	N/A	N/A	N/A	N/A	

NATURAL HERITAGE FEATURES AND ASSOCIATED FUNCTIONS	SIGNIFICANT CHARACTERISTICS AND SENSITIVITY	IMPACTOR	PREDICTED EFFECTS	AVOIDANCE, MITIGATION AND/OR RESTORATION	NET EFFECTS	MONITORING AND MANAGEMENT
<b>OTHER FEATURES AND FUNCTIONS</b>						
<b>1. Other Wetlands</b>	<ul style="list-style-type: none"> <li>MAM2-10 is an unevaluated meadow marsh wetland situated in the floodplain of the Humber River.</li> </ul>	<ul style="list-style-type: none"> <li>No direct impact will occur since development will be located outside the Humber River valleylands.</li> <li>Potential indirect impacts associated with development and site alteration may occur as a result of:               <ul style="list-style-type: none"> <li>- Development and site alteration adjacent to the valleyland;</li> <li>- Increased pedestrian use of the valleyland;</li> <li>- Changes in infiltration and stormwater runoff;</li> <li>- Increased lighting from residential development; and,</li> <li>- Construction activity adjacent to the valleyland.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Indirect impacts are similar to Significant Valleylands, Significant Wildlife Habitat and Fish Habitat.</li> </ul>	<ul style="list-style-type: none"> <li>MAM2-10 will be protected from direct disturbance.</li> <li>Mitigation identified in Significant Valleylands, Significant Wildlife Habitat and Fish Habitat rows will also prevent negative effects on the unevaluated wetland.</li> </ul>	<ul style="list-style-type: none"> <li>No negative impacts on the wetland are anticipated to occur following the implementation of the identified avoidance, mitigation and restoration measures.</li> </ul>	<ul style="list-style-type: none"> <li>Construction monitoring to ensure the effectiveness and maintenance of erosion and sediment control measures.</li> </ul>

## 8.0 CONCLUSIONS

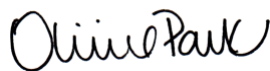
This Scoped EIS addresses the natural heritage features and associated functions currently found on and adjacent to the Subject Lands and assesses the potential impacts of the proposed redevelopment. The proposed Concept Site Plan (Kirkor Architects and Planners 2018), and the associated potential direct and indirect impacts are identified along with recommendations regarding mitigation and enhancement opportunities, as well as predicted residual effects.

Presently the Subject Lands are occupied by a residential dwelling on the northern half of the property, while the southern half is more naturalized and contains a deciduous forest community, a floodplain forb mineral meadow marsh and the Humber River. The proposed development area on the Subject Lands (i.e. within the existing residential area) is highly altered as it is presently occupied by residents. The Humber River valleylands are naturalized and contain a number of natural heritage features including significant valleylands, unevaluated wetland, candidate SWH, potential habitat for Endangered and Threatened species and fish habitat.

Direct impacts associated with the proposed development will be limited, given that the proposed residential development will be limited to the disturbed tableland areas of the existing residential dwelling. The development will be set back 10 m from the staked top of bank to avoid direct impacts on natural heritage features in the valleylands. Mitigation has been identified to prevent indirect negative effects during and post-construction. Considering the above, and as discussed within the accompanying Impact Assessment table, the development of the Subject Lands can be completed without negative impact on the natural heritage features and associated functions.

The conclusions and recommendations in this scoped EIS are based upon the conceptual level of development planning presented in this report.

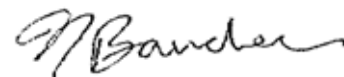
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**APPENDICES**



## **Appendix A – Figures**

Figure 1. Location of the Subject Lands

Figure 2. Landscape Setting

Figure 3. Designated Natural Heritage Features

Figure 4. Ecological Land Classification

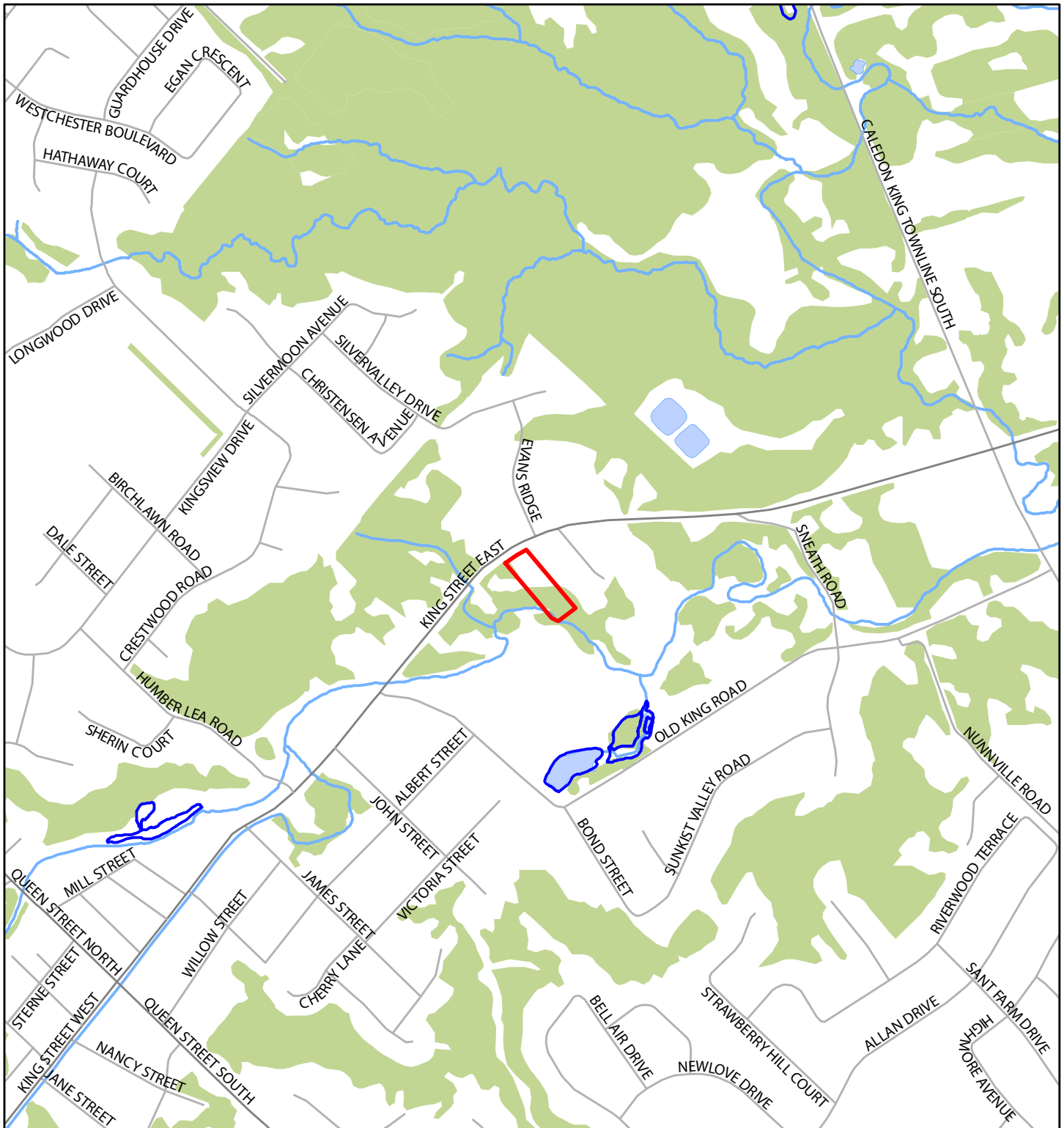
Figure 5. Ecological Constraints



336 King Street East Caledon

# Figure 1 Location of Subject Lands





336 King Street East Caledon

## Figure 2 Landscape Setting

- Subject Lands
- Waterbody (MNRF LIO)
- Watercourse (MNRF LIO)
- Woodland (MNRF LIO)
- Wetland not evaluated per OWES (MNRF LIO)

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0 100 Meters  
1:10,000



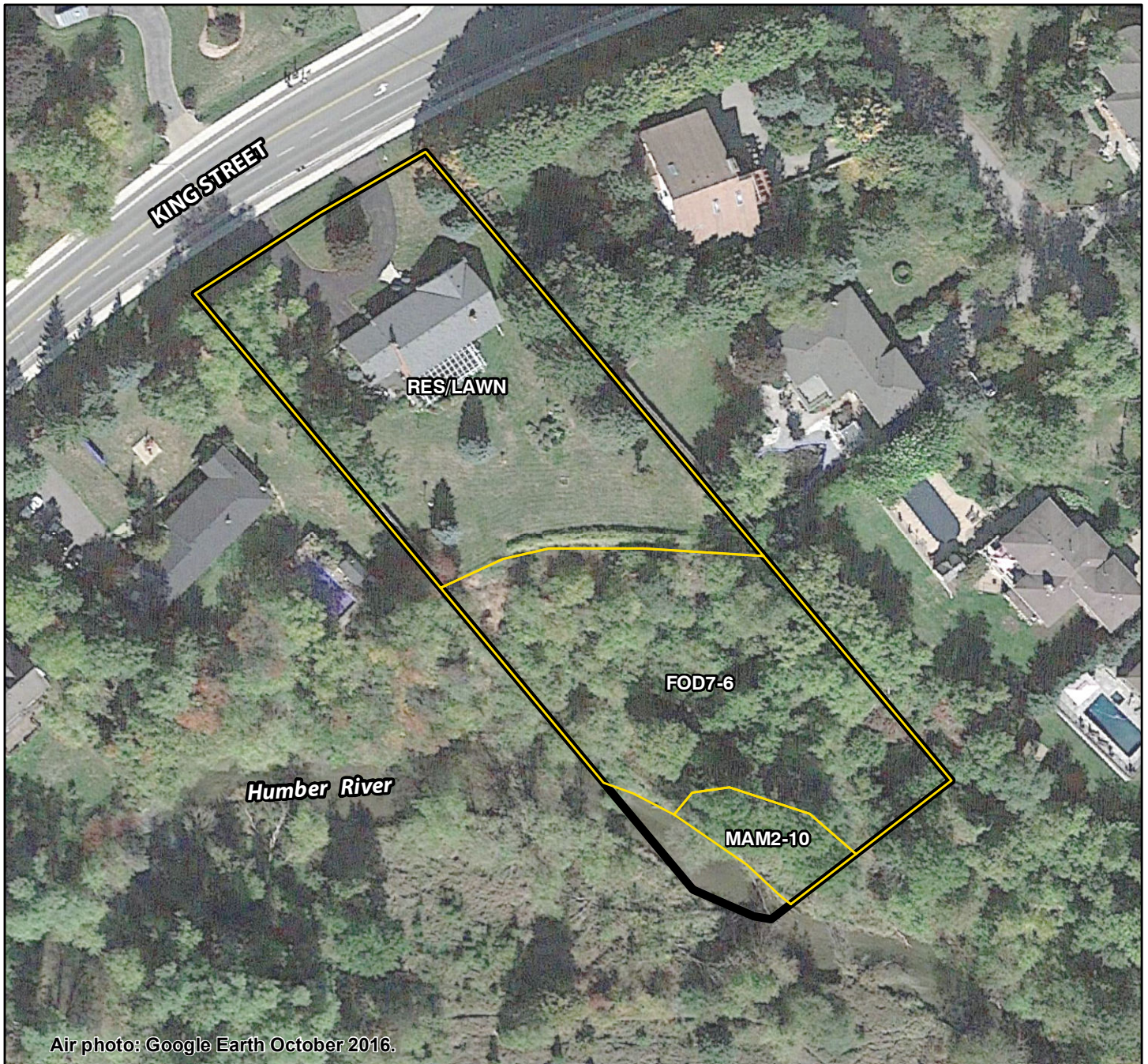


336 King Street East Caledon

## Figure 3 Designated Natural Heritage Features

- Subject Lands
- Core Areas of the Greenlands System (Peel Schedule A Nov 2013)
- Watercourse (MNRF LIO)
- Wetland not evaluated per OWES (MNRF LIO)







Air photo: Google Earth October 2016.

336 King Street East Caledon

## Figure 4 Ecological Land Classification

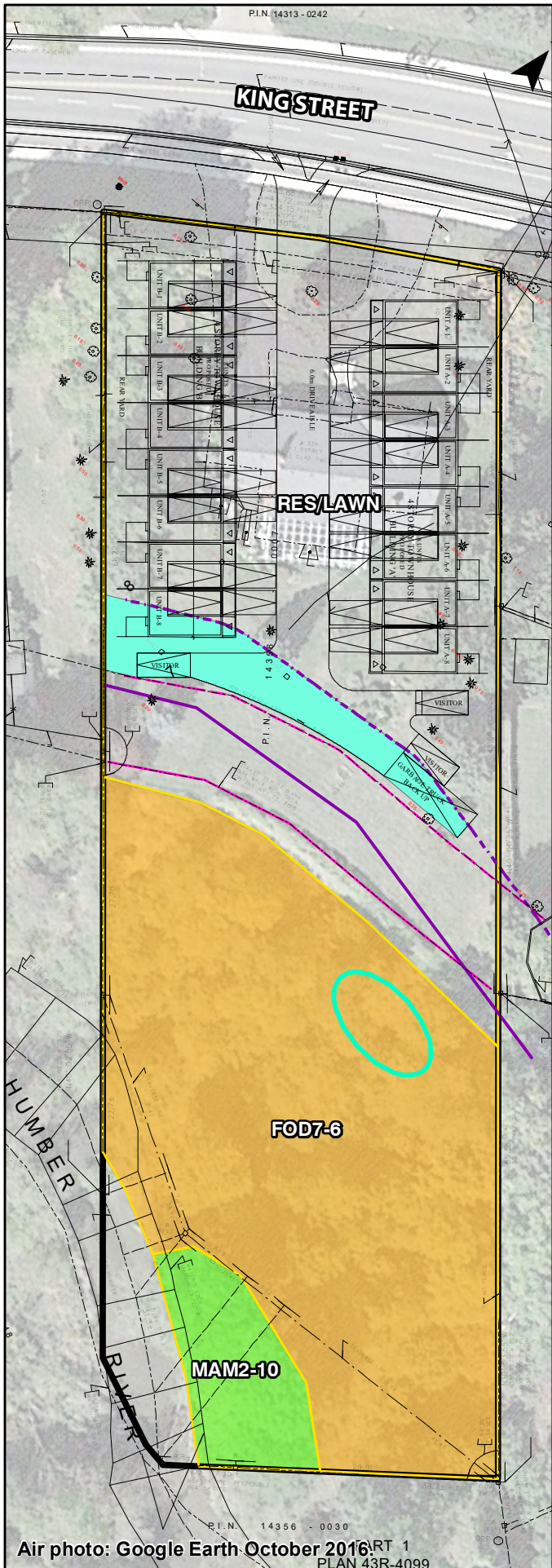
 Subject Lands  
 Ecological Land Classification

### ELC Legend

FOD-7-6, Fresh-Moist Manitoba Maple Deciduous Forest  
MAM2-10, Forb Mineral Meadow Marsh  
LAWN, Lawn  
RES, Residential



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- Subject Lands
- Ecological Land Classification
- Possible Seep Area
- Long Term Stable Top of Slope
- Long Term Stable Top of Slope 10 m setback
- Stable Top of Bank (Staked with TRCA January 25, 2018)
- Stable Top of Bank 10 m Setback
- Development Area Within Long Term Top of Slope 10 m Setback
- Candidate Significant Wildlife Habitat
- Unevaluated Wetland

**ELC Legend**

- FOD-7-6, Fresh-Moist Manitoba Maple Deciduous Forest
- MAM2-10, Forb Mineral Meadow Marsh
- LAWN, Lawn
- RES, Residential

Concept Site Plan: 336 Kings Ridge Inc.  
 Proposed Residential Development  
 KIRKOR ARCHITECTS + PLANNERS  
 File: 18018-siteplan.dwg  
 Date October 4, 2018

Averica Lands

Figure 5  
 Ecological Constraints



## **Appendix B - Tables**

Table 1. Natural Heritage Information Centre (NHIC) Data

Table 2. Ontario Breeding Bird Atlas (OBBA) Data

Table 3. Ontario Nature Herpetology Atlas

Table 4. Ontario Butterfly Atlas Data

Table 5. Savanta Field Studies and Natural Inventories (2018)

Table 6. Ecological Land Classification (ELC) Community Types

Table 7. Master Plant List

Table 8. Significant Wildlife Habitat (SWH) Assessment

Table 9. Predicted Effects, Mitigation, Enhancement and Net Effects (in text)

**Table 1: Natural Heritage Information Centre (NHIC) Data**

Common Name	Scientific Name	S-Rank	G-Rank	COSSARO	COSEWIC	Last Observed
Butternut	<i>Juglans cinerea</i>	S2?	G4	END	END	13-JUN-2002



**Table 2: Ontario Breeding Bird Atlas (OBBA) Data**

Common Name	Scientific Name	S-Rank	G-Rank	COSSARO	COSEWIC
Eastern Wood-Pewee	<i>Contopus virens</i>	S4B	G5	SC	SC
Wood Thrush	<i>Hylocichla mustelina</i>	S4B	G5	SC	THR
Chimney Swift	<i>Chaetura pelagica</i>	S4B, S4N	G5	THR	THR
Barn Swallow	<i>Hirundo rustica</i>	S4B	G5	THR	THR
Bobolink	<i>Dolichonyx oryzivorus</i>	S4B	G5	THR	THR
Eastern Meadowlark	<i>Sturnella magna</i>	S4B	G5	THR	THR
Short-eared Owl	<i>Asio flammeus</i>	S2N, S4B	G5	SC	SC
Common Nighthawk	<i>Chordeiles minor</i>	S4B	G5	SC	THR
Bank Swallow	<i>Riparia riparia</i>	S4B	G5	THR	THR
Acadian Flycatcher	<i>Empidonax virescens</i>	S2S3B	G5	END	END

**Table 3: Ontario Nature Herpetology Atlas Data**

Common Name	Scientific Name	S-Rank	G-Rank	COSSARO	COSEWIC	Last Observed
Snapping Turtle	<i>Chelydra serpentina</i>	S3	G5	SC	SC	04-MAY-2017
Eastern Milksnake	<i>Lampropeltis triangulum</i>	S3	G5	NAR	SC	12-JUN-2012
Eastern Ribbonsnake	<i>Thamnophis sauritus</i>	S3	G5	SC	SC	11-APR-1984
Blanding's Turtle	<i>Emydoidea blandingii</i>	S3	G4	THR	THR	06-JUL-2013
Western Chorus Frog (Great Lakes/St. Lawrence – Canadian Shield Population)	<i>Pseudacris triseriata</i>	S3	G5	NAR	THR	16-MAY-2011

**Table 4: Ontario Butterfly Atlas Data**

Common Name	Scientific Name	S-Rank	G-Rank	COSSARO	COSEWIC
Monarch	<i>Danaus plexippus</i>	S2N, S4B	G5	SC	END

Legend

COSSARO – Committee on Status of Species at Risk in Ontario  
 COSEWIC – Committees on Status of Endangered wildlife in Canada  
 END – Endangered  
 THR – Threatened  
 SC – Special Concern  
 NAR – Not at Risk

**Table 5: Savanta Field Studies and Natural Inventories (2018)**

FIELD DATE	NATURE OF INVESTIGATION	SURVEYOR(S)
July 26	<ul style="list-style-type: none"> <li>• Ecological Land Classification</li> <li>• Summer Botanical Survey</li> <li>• Site Reconnaissance</li> <li>• Incidental Wildlife Observations</li> </ul>	<ul style="list-style-type: none"> <li>• C. Zoladeski</li> </ul>

**Table 6: Ecological Land Classification (ELC) Community Types**

ELC TYPE	COMMUNITY DESCRIPTION	S-RANK / G-RANK (NHIC, 2016)
<b>FOREST</b>		
<b>Deciduous Forest</b>		
<b>FOD7-6*</b> Fresh-Moist Manitoba Maple Deciduous Forest	<ul style="list-style-type: none"> <li>• Dominated by Manitoba Maple (<i>Acer negundo</i>), with small representation of Green Ash (<i>Fraxinus pennsylvanica</i>) and Black Walnut (<i>Juglans nigra</i>), the latter mostly at the base of slope.</li> <li>• Tree canopy is generally closed to semi-open where shorter trees and saplings are abundant.</li> <li>• The herb layer is species rich but dominated mostly by exotic species. The main ones are Enchanter's Nightshade (<i>Circaea lutetiana</i>), Garlic Mustard (<i>Alliaria petiolata</i>), Dame's Rocket (<i>Hesperis matronalis</i>), Erect Hedge-parsley (<i>Torilis japonica</i>) and Ground Ivy (<i>Glechoma hederacea</i>).</li> </ul>	NA
<b>MARSH</b>		
<b>Meadow Marsh</b>		
<b>MAM2-10</b> Forb Mineral Meadow Marsh	<ul style="list-style-type: none"> <li>• Located within the Humber River floodplain, the meadow is partially shaded by trees.</li> <li>• A rich herbaceous community of many forbs and grasses from mesic-indicative to wetland species.</li> <li>• The dominants are: Awnless Brome (<i>Bromus inermis</i>), Jewelweed (<i>Impatiens capensis</i>), White Snakeroot (<i>Ageratina altissima</i>), Stinging Nettle (<i>Urtica dioica</i>) and Ground Ivy (<i>Glechoma hederacea</i>).</li> </ul>	S5

\*Denotes a type not listed in the Southern Ontario ELC Guide

Latin Name	Latin Synonym	Common Name	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status S-Rank	OMNR Status	COSEWIC Status	Global Status G-Rank	Local Status Area	Local Status Peel	Local Status TRCA	Local Status Peel	Authority
										Local Status Source	Varga 2005	TRCA April 2016		
<b>Pinaceae</b>														
<b>Pine Family</b>														
<i>Picea abies</i>		Norway Spruce		5	-1	SNA			G5		X	L+	I	(L) Karsten
<b>Aceraceae</b>														
<b>Maple Family</b>														
<i>Acer negundo</i>		Manitoba Maple	0	-2		S5			G5		X	L+?	X	L.
<b>Anacardiaceae</b>														
<b>Sumac or Cashew Family</b>														
<i>Rhus typhina</i>		Staghorn Sumac	1	5		S5			G5		X	L5	X	L.
<b>Apiaceae</b>														
<b>Carrot or Parsley Family</b>														
<i>Aegopodium podagraria</i>		Goutweed		0	-3	SNA			GNR		X	L+	I	L.
<i>Cicuta maculata</i>		Spotted Water-hemlock	6	-5		S5			G5		X	L5	X	L.
<i>Torilis japonica</i>		Erect Hedge-parsley		5	-3	SNA			GNR		X	L+	I	(Houtt.) DC.
<b>Asteraceae</b>														
<b>Composite or Aster Family</b>														
<i>Ageratina altissima</i>	<i>Eupatorium rugosum</i>	White Snakeroot	5	3		S5			G5		X	L5	X	Houtt.
<i>Bidens frondosa</i>		Devil's Beggaticks	3	-3		S5			G5		X	L5	X	L.
<i>Cirsium arvense</i>		Canada Thistle		3	-1	SNA			GNR		X	L+	I	(L) Scop.
<i>Cirsium vulgare</i>		Bull Thistle		4	-1	SNA			GNR		X	L+	I	(Sav.) Ten.
<i>Eutrochium maculatum</i> var. <i>maculatum</i>	<i>Eupatorium maculatum</i> var. <i>maculatum</i>	Spotted Joe Pye Weed	3	-5		S5			G5T5		X	L5	X	L.
<i>Lactuca serriola</i>		Prickly Lettuce		0	-1	SNA			GNR		X	L+	I	L.
<i>Solidago altissima</i>		Tall Goldenrod	1	3		S5			G5		X	L5	X	L.
<i>Sonchus arvensis</i> ssp. <i>arvensis</i>		Field Sow-thistle				SNA			GNR		X	L+	I	L.
<i>Sonchus asper</i>		Prickly Sow-thistle		0	-1	SNA			GNR		X	L+	I	(L.) Hill
<i>Symphoricarpon latiflorum</i>	<i>Aster lateriflorus</i>	Starved Aster	3	-2		S5			G5		X	L5	X	(L.) Britton
<i>Taraxacum officinale</i>		Common Dandelion		3	-2	SNA			G5		X	L+	I	G. Weber
<i>Tussilago farfara</i>		Colt's Foot		3	-2	SNR			GNR		X	L+	I	L.
<b>Balsaminaceae</b>														
<b>Touch-me-not Family</b>														
<i>Impatiens capensis</i>		Spotted Jewelweed	4	-3		S5			G5		X	L5	X	Meerb.
<b>Boraginaceae</b>														
<b>Borage Family</b>														
<i>Myosotis sylvatica</i>		Woodland Forget-me-not		5	-1	SNA			G5		X	L+	I	H. Hoffm.
<b>Brassicaceae</b>														
<b>Mustard Family</b>														
<i>Alliaria petiolata</i>	<i>Alliaria officinalis</i>	Garlic Mustard		0	-3	SNA			GNR		X	L+	I	(M. Bieb.) Cavara & Grande
<i>Hesperis matronalis</i>		Dame's Rocket		5	-3	SNA			G4G5		X	L+	I	L.
<b>Caprifoliaceae</b>														
<b>Honeysuckle Family</b>														
<i>Lonicera tatarica</i>		Tartarian Honeysuckle		3	-3	SNA			GNR		X	L+	I	L.
<b>Convolvulaceae</b>														
<b>Morning-glory Family</b>														
<i>Cuscuta groenovii</i>		Gronovius Dodder	4	-3		S5			G5		R5	L4	L	Willd. ex. Schultz
<b>Cucurbitaceae</b>														
<b>Gourd Family</b>														
<i>Echinocystis lobata</i>		Wild Mock-cucumber	3	-2		S5			G5		X	L5	X	(Michx.) Torr. & A. Gray
<b>Fabaceae</b>														
<b>Pea Family</b>														
<i>Securigera varia</i>	<i>Coronilla varia</i>	Common Crown-vetch		5	-2	SNA			GNR		X	L+	I	L.
<b>Juglandaceae</b>														
<b>Walnut Family</b>														
<i>Juglans nigra</i>		Black Walnut	5	3		S47			G5		X	L5	X	L.
<b>Lamiaceae</b>														
<b>Mint Family</b>														
<i>Glechoma hederacea</i>		Ground Ivy		5	-2	SNA			GNR		X	L+	I	L.
<i>Leonurus cardiaca</i>		Common Motherwort		5	-2	SNA			GNR		X	L+	I	L.
<i>Mentha arvensis</i>		Corn Mint	3	-3		S5			G5		X		X	L.
<i>Nepeta cataria</i>		Catnip		1	-2	SNA			GNR		X	L+	I	L.
<b>Lythraceae</b>														
<b>Loosestrife Family</b>														
<i>Lythrum salicaria</i>		Purple Loosestrife		-5	-3	SNA			G5		X	L+	I	L.
<i>Malva neglecta</i>		Dwarf Cheeseweed		5	-1	SNA			GNR		X	L+	I	Waltr.
<b>Oleaceae</b>														
<b>Olive Family</b>														
<i>Fraxinus pennsylvanica</i>		Red Ash	3	-3		S5			G5		X	L5	X	Marshall
<b>Onagraceae</b>														
<b>Evening-primrose Family</b>														
<i>Circaea lutetiana</i>	<i>Circaea canadensis</i> ssp. <i>canadensis</i>	Enchanter's Nightshade	3	3		S5			G5		X	L5	X	L.
<b>Oxalidaceae</b>														
<b>Wood Sorrel Family</b>														
<i>Oxalis stricta</i>		Upright Yellow Wood-sorrel	0	3		S5			G5		X	L5	X	L.
<b>Papaveraceae</b>														
<b>Poppy Family</b>														
<i>Cheilidonium majus</i>		Greater Celandine		5	-3	SNA			GNR		X	L+	I	L.
<b>Polygonaceae</b>														
<b>Smartweed Family</b>														
<i>Polygonum aviculare</i> ssp. <i>aviculare</i>		Prostrate Knotweed		1	-1	SNA			GNR		X	L+	I	L.
<b>Ranunculaceae</b>														
<b>Buttercup Family</b>														
<i>Thalictrum pubescens</i>		Tall Meadow-rue	5	-2		S5			G5		X	L5	X	Pursh
<b>Rhamnaceae</b>														
<b>Buckthorn Family</b>														
<i>Rhamnus cathartica</i>		Common Buckthorn		3	-3	SNA			GNR		X	L+	I	L.

Latin Name	Latin Synonym	Common Name	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status S-Rank	OMNR Status	COSEWIC Status	Global Status G-Rank	Local Status Area	Local Status Peel	Local Status TRCA	Local Status Peel	Authority
										Local Status Source	Varga 2005	TRCA April 2016		
<b>Rosaceae</b>			<b>Rose Family</b>											
<i>Crataegus monogyna</i>		English Hawthorn		5	-1	SNA			G5		X	L+	I	Jacq.
<i>Geum aleppicum</i>		Yellow Avens	2	-1		S5			G5		X	L5	X	Jacq.
<i>Geum canadense</i>		White Avens	3	0		S5			G5		X	L5	X	Jacq.
<i>Rubus occidentalis</i>		Black Raspberry	2	5		S5			G5		X	L5	X	L.
<b>Rubiaceae</b>			<b>Madder Family</b>											
<i>Galium mollugo</i>		White Bedstraw		5	-2	SNA			GNR		X	L+	I	L.
<b>Urticaceae</b>			<b>Nettle Family</b>											
<i>Laportea canadensis</i>		Wood Nettle	6	-3		S5			G5		X	L5	X	(L.) Wedd.
<i>Urtica dioica</i> ssp. <i>dioica</i>		European Stinging Nettle		-1	-1	SNA			G5T5?		XSR	L+	X	L.
<b>Verbenaceae</b>			<b>Vervain Family</b>											
<i>Verbena hastata</i>		Blue Vervain	4	-4		S5			G5		X	L5	X	L.
<b>Vitaceae</b>			<b>Grape Family</b>											
<i>Parthenocissus inserta</i>	<i>Parthenocissus vitacea</i>	Inserted Virginia-creeper	3	3		S5			G5		X	L5	X	(A. Kern.) Fritsch
<i>Vitis riparia</i>		Riverbank Grape	0	-2		S5			G5		X	L5	X	Michx.
<b>Poaceae</b>			<b>Grass Family</b>											
<i>Agrostis gigantea</i>		Redtop		0	-2	SNA			G4G5		X	L+	I	Roth
<i>Bromus inermis</i>		Awnless Brome		5	-3	SNA			G5TNR		X	L+	I	Leys.
<i>Dactylis glomerata</i>		Orchard Grass		3	-1	SNA			GNR		X	L+	I	L.
<i>Digitaria ischaemum</i>		Small Crabgrass		3	-1	SNA			GNR		X	L+	I	(Schreb. ex Schwein.) Schreb. ex Muelltenb.
<i>Festuca rubra</i> ssp. <i>rubra</i>		Red Fescue		1	-1	SNA			G5T5		X	L+	X	L.
<i>Glyceria maxima</i>		Sweet Manna Grass		-5	-1	SNA			GNR		X	L+	I	(Hartm.) F.O. Holmb.
<i>Lolium perenne</i>		English Rye Grass		3	-1	SNA			GNR		X	L+	I	L.
<i>Phalaris arundinacea</i> var. <i>arundinacea</i>	<i>Phalaris arundinacea</i>	Reed Canary Grass	0	-4		S5			GNR		X	L+?	X	L.
<i>Poa pratensis</i> ssp. <i>pratensis</i>		Kentucky Bluegrass	0	1		SNA			G5T5		X	L+	X	L.

**STATISTICS**

**Species Richness**

Total Number of Species:	58	
Native Species:	25	43%
Exotic Species:	33	57%
S1-S3 Species:	0	0%
S4 Species:	1	4%
S5 Species:	24	96%

**Floristic Quality Indices**

Mean Co-efficient of Conservatism (CC)	3.0	
CC 0 - 3 = lowest sensitivity	16	67%
CC 4 - 6 = moderate sensitivity	8	33%
CC 7 - 8 = high sensitivity	0	0%
CC 9 - 10 = highest sensitivity	0	0%
Floristic Quality Index (FQI)	15	

**Weedy and Invasive Species**

Mean Weediness Index:	-1.8	
-1 = low potential invasiveness	15	47%
-2 = moderate potential invasiveness	8	25%
-3 = high potential invasiveness	9	28%

**Wetland Species**

Mean Wetness Index	1.2	
upland	14	25%
facultative upland	15	27%
facultative	11	20%
facultative wetland	13	23%
obligate wetland	4	7%

**Table 8: Significant Wildlife Habitat Assessment (6E Ecoregion)**

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET <small>(MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)</small>	SWH TYPE PRESENT
<b>1. SEASONAL CONCENTRATION AREAS</b>					
Waterfowl Stopover and Staging Areas (terrestrial)	No – Eligible vegetation communities are absent from the Subject Lands	No	No	N/A	Not Present
Waterfowl Stopover and Staging Areas (aquatic)	No – Eligible vegetation communities are absent from the Subject Lands	No	No	N/A	Not Present
Shorebird Migratory Stopover Areas	Yes – MAM vegetation community is present on the Subject Lands	No – MAM vegetation community is a small feature associated with the Humber River that would not attract or support migratory shorebirds.	No	N/A	Not Present
Raptor Wintering Areas	No – While forested vegetation communities are present, no upland meadow vegetation communities are	No	No	N/A	Not Present



<b>SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE</b>	<b>ELC ECOSITE(S) PRESENT</b>	<b>HABITAT CRITERIA MET</b>	<b>TARGETED FIELD STUDIES REQUIRED</b>	<b>DEFINING CRITERIA MET</b> <small>(MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)</small>	<b>SWH TYPE PRESENT</b>
	present on the Subject Lands				
Bat Hibernacula	No – Cave ecosites are absent from the Subject Lands	No	No	N/A	Not Present
Bat Maternity Colonies	Yes – FOD vegetation community is present on the Subject Lands	Yes	No – Candidate habitat is present within the Subject Lands; however, all suitable habitat is located outside of the proposed development area	N/A	Candidate SWH present
Turtle Wintering Areas	Yes – MAM vegetation community is present on the Subject Lands adjacent to the Humber River	Yes – MAM wetland hydroperiod would not support suitable overwintering conditions (i.e., ice-free conditions in winter, deep muck layer); The Humber River is a continually flowing riverine system containing woody debris and silt sediment that may provide suitable habitat for overwintering turtles	No – All candidate habitat under this SWH type is located outside of the proposed development area, specifically within the Humber River	N/A	Candidate SWH present

<b>SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE</b>	<b>ELC ECOSITE(S) PRESENT</b>	<b>HABITAT CRITERIA MET</b>	<b>TARGETED FIELD STUDIES REQUIRED</b>	<b>DEFINING CRITERIA MET</b> <small>(MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)</small>	<b>SWH TYPE PRESENT</b>
Reptile Hibernacula	Yes – Ecosites are present on the Subject Lands	Yes – Small mammal burrows, potentially suitable for overwintering conditions, may be present along treed edges in the Humber River; no rock outcrops features were identified on the Subject Lands	No – All candidate habitat under this SWH type is located outside of the proposed development area, specifically within the Humber River natural heritage system	N/A	Candidate SWH Present
Colonial Bird Nesting Sites (bank/cliff)	No – Eligible vegetation communities are absent from the Subject Lands	No	No	N/A	Not Present
Colonial Bird Nesting Sites (tree/shrubs)	Yes – Eligible vegetation communities are absent from the Subject Lands	No	No	N/A	Not Present
Colonial Bird Nesting Sites (ground)	No – Eligible vegetation communities / islands / rocky outcrops are absent	No	No	N/A	Not Present

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET <small>(MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)</small>	SWH TYPE PRESENT
	from the Subject Lands				
Migratory Butterfly Stopover Areas	No – Eligible vegetation communities are absent from the Subject Lands and the site is greater than 5 km from Lake Ontario	No	No	N/A	Not Present
Migratory Landbird Stopover Areas	Yes – FOD vegetation community present on the Subject Lands	No – Subject Lands are greater than 5 km from Lake Ontario	No	N/A	Not Present
Deer Yarding Areas	No – Mapping from the MNRF LIO database does not depict any deer yarding areas on or adjacent to the Subject Lands	No	No	N/A	Not Present

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET <small>(MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)</small>	SWH TYPE PRESENT
Deer Winter Congregation Areas	No – Mapping from the MNRF LIO database does not depict any deer wintering areas on or adjacent to the Subject Lands	No	No	N/A	Not Present
<b>2. RARE VEGETATION COMMUNITIES OR SPECIALIZED HABITAT FOR WILDLIFE</b>					
<b>2a. Rare Vegetation Communities</b>					
Rare Vegetation Types (cliffs, talus slopes, sand barrens, alvars, old-growth forests, savannahs, and tallgrass prairies)	No	No	No	N/A	Not Present
Other Rare Vegetation Types (S1 to S3 communities)	No	No	No	N/A	Not Present
<b>2b. Specialized Wildlife Habitat</b>					
Waterfowl Nesting Area	Yes – MAM vegetation community is	No – Wetland is less than 0.5 ha in size	No	N/A	Not Present

<b>SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE</b>	<b>ELC ECOSITE(S) PRESENT</b>	<b>HABITAT CRITERIA MET</b>	<b>TARGETED FIELD STUDIES REQUIRED</b>	<b>DEFINING CRITERIA MET</b> <small>(MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)</small>	<b>SWH TYPE PRESENT</b>
	present on the Subject Lands				
Bald Eagle and Osprey Habitats	Yes – FOD vegetation community is present on the Subject Lands	No	No	N/A	Not Present
Woodland Raptor Nesting Habitat	Yes – FOD vegetation community is present on the Subject Lands	No – The forested vegetation community on the Subject Lands does not meet the minimum size criteria (>30 ha with a minimum of 10 ha interior habitat)	No	N/A	Not Present
Turtle Nesting Areas	No – Eligible vegetation communities are absent from the Subject Lands	No	No	N/A	Not Present
Seeps and Springs	Yes – Forested vegetation communities are present on the Subject Lands	No – Headwater drainage features are absent from the Subject Lands	No	No	Not Present

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET <small>(MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)</small>	SWH TYPE PRESENT
Woodland Amphibian Breeding Habitats (within or < 120m from woodland)	Yes – FOD vegetation community is present on the Subject Lands	No – Presence of wetland community (MA) adjacent to FOD vegetation community however size criteria not met (<25 average diameter), no pools within the FOD	No	N/A	Not Present
Wetland Amphibian Breeding Habitats (wetland >120m from woodland)	No – No wetland vegetation communities located >120 m from a woodland are present on the Subject Lands	No	No	N/A	Not Present
Woodland Area-Sensitive Bird Breeding Habitat	Yes – FOD vegetation community is present on the Subject Lands	No – FOD does not meet the minimum size criteria (>30 ha)	No	N/A	Not Present
<b>3. SPECIES OF CONSERVATION CONCERN</b>					
Marsh Bird Breeding Habitat	Yes – MAM vegetation communities are present on the Subject Lands.	No – MAM vegetation less than 0.5 ha in size and unable to support large numbers of marsh birds	No	N/A	Not Present

<b>SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE</b>	<b>ELC ECOSITE(S) PRESENT</b>	<b>HABITAT CRITERIA MET</b>	<b>TARGETED FIELD STUDIES REQUIRED</b>	<b>DEFINING CRITERIA MET</b> <small>(MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)</small>	<b>SWH TYPE PRESENT</b>
Open Country Bird Breeding Habitat	No – Eligible vegetation communities are absent on the Subject Lands	No	No	N/A	Not Present
Shrub/Early Successional Bird Breeding Habitat	No – Eligible vegetation communities are absent on the Subject Lands	No	No	N/A	Not Present
Terrestrial Crayfish	Yes – MAM vegetation community is present on the Subject Lands	Yes – no minimum size requirement	Yes – any observation of crayfish chimneys will be documented during botanical surveys	No terrestrial crayfish chimneys were identified on the Subject Lands	Not Present
<b>Special Concern and Rare Wildlife Species</b>					
(i) Eastern Wood-Pewee ( <i>Contopus virens</i> )	N/A	Yes – Forested vegetation community is present on and adjacent to the Subject Lands	No – Candidate habitat is present within the Subject Lands; however, all suitable habitat is located outside of	N/A	Candidate

SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET <small>(MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)</small>	SWH TYPE PRESENT
			the proposed development area		
(ii) Wood Thrush ( <i>Hylocichla mustelina</i> )	N/A	Yes – Forested vegetation community is present on and adjacent to the Subject Lands	No – Candidate habitat is present within the Subject Lands; however, all suitable habitat is located outside of the proposed development area	N/A	Candidate
(iii) Short-eared Owl ( <i>Asio flammeus</i> )	N/A	No – Grassland habitat is absent from the Subject Lands	No	N/A	Not Present
(iv) Snapping Turtle ( <i>Chelydra serpentina</i> )	N/A	Yes – MAM vegetation community would be unable to support overwintering Snapping Turtles. However, the Humber River is a continually flowing riverine system containing woody debris and silt sediment that may provide suitable habitat for overwintering turtles	No – All candidate habitat under this SWH type is located outside of the proposed development area, specifically within the Humber River	N/A	Not Present



SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET <small>(MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)</small>	SWH TYPE PRESENT
(v) Western Chorus Frog (Great Lakes/St. Lawrence – Canadian Shield Population) ( <i>Pseudacris triseriata</i> )	N/A	No – While forested wetland vegetation communities are present on the Subject Lands, no pools are present and cultural meadow or thicket communities are present for overwintering habitat	No	N/A	Not Present
(vi) Eastern Ribbonsnake ( <i>Thamnophis sauritus</i> )	N/A	No – No suitable hibernacula or swamp habitat on the Subject Lands	No	N/A	Not Present
(vii) Monarch ( <i>Danaus plexippus</i> )	N/A	No – No concentrations of Milkweed ( <i>Asclepias species</i> ) plants were found and no Monarch were observed during botanical surveys	No	N/A	Not Present
<b>4. ANIMAL MOVEMENT CORRIDORS</b>					
Amphibian Movement Corridors	N/A	No	No	N/A	Not Present