BEACON ENVIRONMENTAL

GUIDING SOLUTIONS IN THE NATURAL ENVIRONMENT

Environmental Impact Study
51 & 57 Tannery Street & 208 Emby Drive Mississauga

Prepared For:

Nyx Capital Corp.

Prepared By:

Beacon Environmental Limited

Date: *Project:*

June 2018 **217069**

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1. Introduction

Beacon Environmental Limited (Beacon) was retained by Nyx Development Corp. to prepare an Environmental Impact Study (EIS) in support of a proposed re-development of three adjoining properties located at 55 and 57 Tannery Street and 208 Emby Drive in the City of Mississauga. The combined area of these properties is 1.85 ha. The location of the site, hereafter referred to as the subject property, is shown on **Figure 1**.

The subject property presently supports industrial buildings, valleylands, parking areas, residential buildings and lawn. A channelized section of Mullet Creek traverses the western portion of the property. Based on the City's Zoning Map 39E, the tableland portions are zoned as Development (D) and the creek valley is zoned as Greenlands (G1). The proponent is proposing to re-develop the subject property to accommodate residential development consisting of 155 townhouse units.

The requirement for an EIS is triggered by the proximity of a proposed development to certain components of the City's Natural Heritage System. In this case, Mullet Creek is identified as "Significant Natural Areas" and "Natural Green Space" on the City of Mississauga Official Plan (MOP) Schedule 3. The purpose of an EIS is to demonstrate, to the satisfaction of the City of Mississauga and appropriate conservation authority, that the proposed development and/or site alteration will not have a negative impact on natural heritage features or their ecological functions and to also identify opportunities for protection, restoration, and enhancement of the Natural Heritage System.

The subject property is located within the Streetsville Community Node and is mostly designated as high density residential on Schedule 10 of the MOP. This schedule also depicts the western portion of the subject property as "Greenlands" with a natural hazard overlay (**Figure 2**).

The scope of investigations to be undertaken as part of the EIS was determined by assessing the likelihood of the proposed development activity impacting upon existing natural features and ecological functions. This scope of the EIS was summarized using the City of Mississauga's EIS Checklist (**Appendix A**).

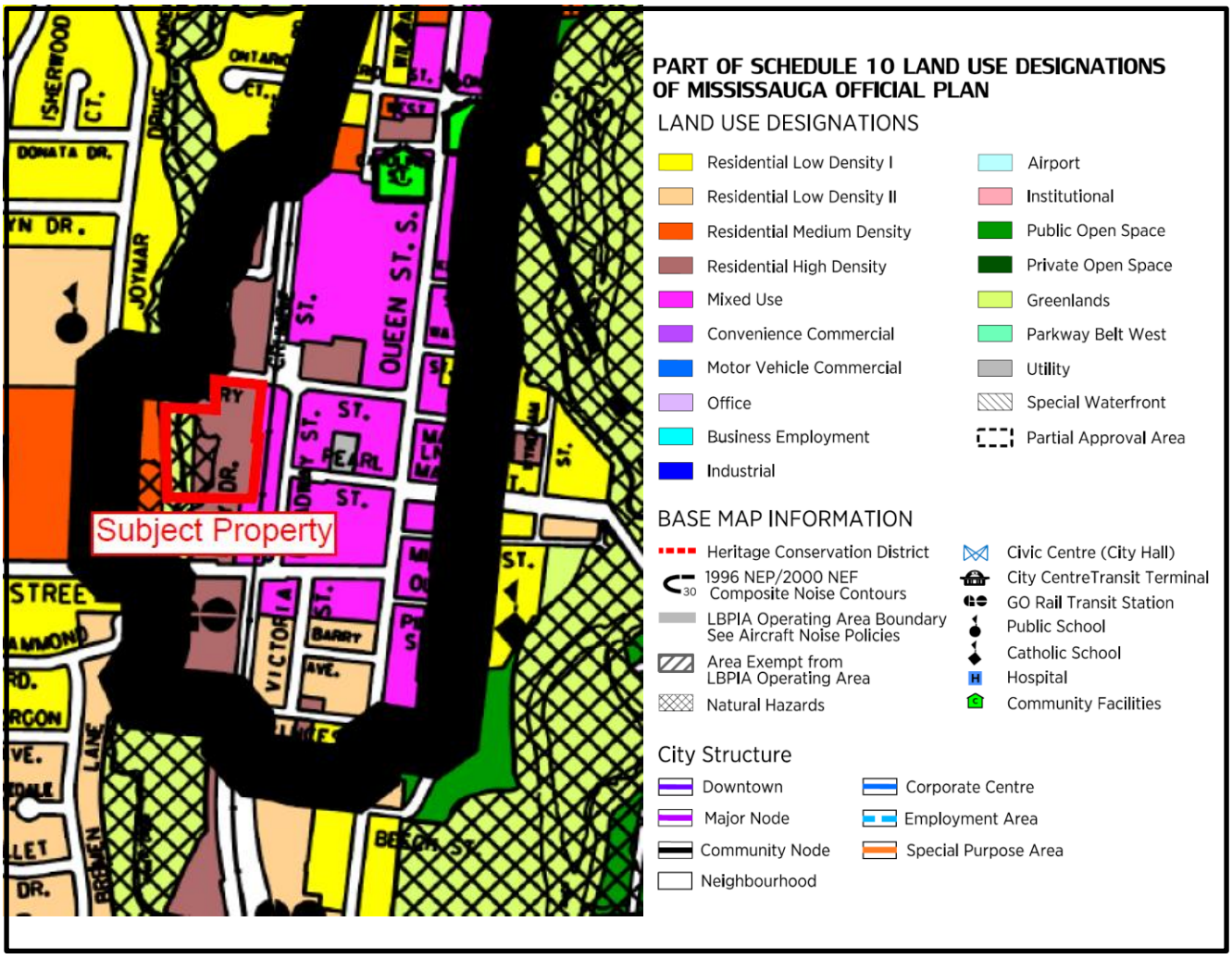
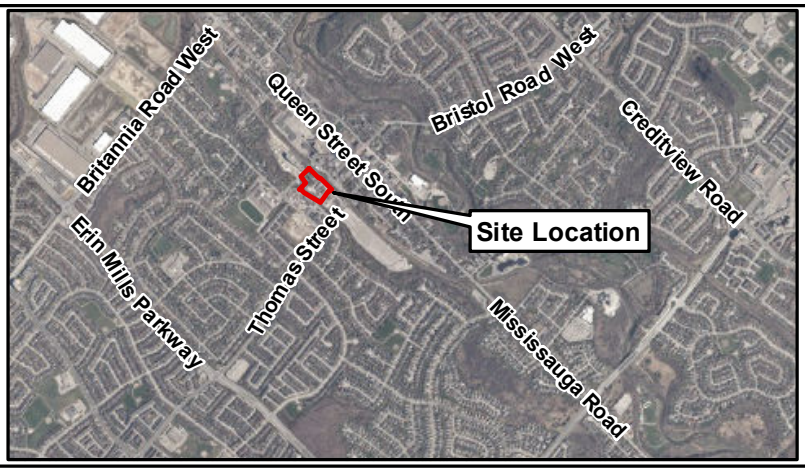


Figure 2. Excerpt from the City of Mississauga Official Plan Schedule 10 – Land Use Schedule

1.1 Study Objectives and Scope

The objectives of this EIS are to:

1. Characterize natural heritage resources and ecological functions in the study area;
2. Identify significant natural heritage resources and functions;
3. Identify environmental constraints to inform the development limits and design;
4. Identify opportunities to restore and enhance the Natural Heritage System;
5. Describe the proposed development plan;
6. Assess potential impacts of the proposed development plan on significant natural heritage features and ecological functions; and
7. Recommend mitigation measures for avoiding or minimizing potential development related impacts to significant natural heritage features and functions.



Site Location	Figure 1
Environmental Impact Study 51 & 57 Tannery Street & 208 Emby Drive, Mississauga	
UTM Zone 17 N, NAD 83	N W E S
First Base Solutions Web Mapping Service 2017	
0 12.5 25 50 Metres	1:1,500
BEACON ENVIRONMENTAL	Project 217069 June 2018

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1.2 Study Area

The study area selected for this EIS includes the subject property (55 and 57 Tannery Street, and 208 Emby Drive) and the immediately adjacent lands. The EIS also gives consideration to the relationship of the study area to the broader Natural Heritage System (ref. **Figure 1**).

1.3 Study Team

This EIS was prepared using an integrated approach with input from a multi-disciplinary project team. The project team is comprised of experts in the fields of land use planning, geology, hydrogeology, hydrology, and ecology. The EIS has relied upon technical reports prepared by other team members to ensure that the ecological inter-relationships between groundwater, surface water and natural heritage resources are adequately characterized. The integrated approach to identification of environmental constraints and opportunities was used to arrive at a site plan design. A list of Study Team members, their qualifications, and role in the project is provided in **Table 1**.

Table 1. Composition of Study Team, Key Roles and Reports Provided

Firm	Individuals	Title – Qualifications	Key Role and Reporting
Beacon Environmental Limited	Ken Ursic	Project Manager / Sr. Ecologist – M.Sc. Ecol.	Project Management *EIS Report – Reviewer*
	Daniel Westerhof	Ecologist – B.Sc., MES	Vegetation Surveys, Incidental Wildlife, EIS Report Input
	Anna Corrigan	Ecologist – B.Sc.	EIS Report Input
	Devin Upper	GIS Specialist – B.E.S., GIS Cert.	EIS Mapping
	Mike King	Subconsultant – Ecologist	Breeding Bird Surveys
LEA Consulting Ltd.	Michael Du	Senior Principle Engineer	*Servicing and Stormwater Management Brief*
Kirkor Architects and Planners	Shazad Mohammad	Architect	*Site Plan*
Fiddes Clipsham Inc.	Zach Fiddes	Consulting Engineering/ Land Surveying	*Topographical Plan*
MEP Design Landscape Architecture	Michael Presutti	Landscape Architect	*Landscape Concept Plan*
Patriot Engineering LTD.	Larry Galimanis	P.Eng	*Geotechnical Investigation for Performing Slope Stability Analysis*

1.4 Report Outline

An overview of the sections on this EIS report and their contents is provided below:

Section 1 - Introduction: outlines the purpose, objectives and scope of work, and presents the report organization.

Section 2 - Environmental Policy Review: describes the environmental planning context for the study area and provides an overview of key environmental policies, legislation, and regulation that are directly relevant to the EIS.

Section 3 - Study Methodology: describes the methodologies used to characterize the biophysical environment, identify constraints and opportunities, and assess impacts related to the proposed development.

Section 4 - Study Findings: summarizes the findings of the background reviews and field investigations, characterizes the biophysical environment, and includes analyses to evaluate the significance of the biophysical resources in the context of applicable environmental planning policies, regulations and legislation.

Section 5 - Constraints and Opportunities: identifies natural heritage and natural hazard constraints to future land uses, and identifies opportunities for enhancement to the Natural Heritage System.

Section 6 - Description of the Proposed Development: describes the proposed development for the subject property and details of the preliminary grading, servicing and stormwater management approaches associated with the proposed development.

Section 7 - Impact Assessment and Recommended Mitigation: assesses the anticipated impacts of the proposed land uses on the Natural Heritage System and its functions and identifies a range of appropriate mitigation measures to address these impacts.

Section 8 - Policy Conformity: evaluates the proposed development plan, and recommended mitigation measures, in terms of their compliance with the applicable environmental policies, regulations and legislation.

Section 9 - Conclusions: summarizes key study findings and recommendations and provides a concluding statement.

2. Policy Review

This section includes an overview of key federal, provincial, and local environmental policies, legislation, and regulations that are directly relevant to this EIS and land use planning for the subject property. Key legislation, policies and regulations that have been reviewed and considered in preparing the EIS include the following:

- Federal Fisheries Act (2013);
- Ontario Endangered Species Act (2007);
- Provincial Policy Statement (2014);
- Region of Peel Official Plan (2016);
- City of Mississauga Official Plan (2017);
- Conservation Authorities Act – Ont. Reg. 160/06;
- Credit Valley Conservation – Watershed Planning and Regulation Policies;
- City of Mississauga EIS Checklist (2017).

The following review is not intended to be comprehensive, but has been included to highlight key policy, regulatory and legislative requirements as they relate to the proposed re-development to ensure that the plan is in conformity with the existing policy framework. **Section 8** of this EIS includes a summary that describes how the proposed re-development conforms to the various environmental policies, legislation and regulations described above and apply to the subject property.

2.1 Federal Fisheries Act (2013)

There is a watercourse that traverses to the subject property. The watercourse supports indirect fish habitat. Fish habitat is protected under the Federal *Fisheries Act* (1985). In Ontario, the federal department of Fisheries and Oceans Canada (DFO) manages fish habitat and the Ontario Ministry of Natural Resources and Forestry (MNRF, formerly known as OMNR or MNR) manages fisheries. Section 35 (1) of the Federal *Fisheries Act* precludes "any work, undertaking or activity that results in serious harm to fish" that are part of a commercial, recreational or aboriginal fishery, or to fish that support such a fishery. S. 35(2) provides that s. 35(1) does not apply where the work, undertaking or activity has been authorized by the Minister and is carried on in accordance with conditions established by the Minister.

The *Fisheries Act* defines "serious harm" to fish as "serious harm to fish is the death of fish or any permanent alteration to, or destruction of, fish habitat". The Fisheries Protection Policy Statement (2013) was prepared by Fisheries and Oceans Canada (formerly Department of Fisheries and Oceans [DFO]) to provide guidance on compliance with the *Fisheries Act*.

Compliance with the provisions of s. 35 of the *Fisheries Act* in regard to particular water bodies is now made on a case-by-case basis through a self-assessment process to determine impacts to fish and fish habitat and to identify appropriate responses. Where development activities taking place in or near water may affect fisheries by adversely affecting fish or fish habitat, the Fisheries Protection Policy Statement (2013) recommends that proponents of these activities should:

- Understand the types of impacts their projects are likely to cause;
- Take measures to avoid and mitigate impacts to the extent possible; and,
- Request authorization from the Minister and abide by the conditions of any such authorization, when it is not possible to avoid and mitigate impacts of projects that are likely to cause serious harm to fish.

As per the Fisheries Protection Policy Statement (2013), efforts should be made to avoid impacts first. When avoidance is not possible, then efforts should be made to mitigate impacts caused by the project in question. After these actions, any residual impacts should then be addressed by offsetting.

Proponents are required to submit an offsetting plan to demonstrate that the measures and standards above are adhered to and will also be required to demonstrate that the offsetting measures will maintain or improve the productivity of fisheries.

2.2 Ontario Endangered Species Act (2007)

Species at Risk in Ontario include species that are listed as endangered, threatened or special concern at the provincial level, however the Act only regulates the habitat of endangered or threatened species. Species listed as special concern are addressed through the Provincial Policy Statement and policies pertaining to significant wildlife habitat and are discussed in **Section 2.3**.

The Ontario Ministry of Natural Resources and Forestry (MNRF) (letter and email from B. Keen dated June 6, 2017), notes the potential for at least six species at risk within the vicinity of the study area. Species noted include: Butternut (*Juglans cinerea*) (endangered), Little Brown Myotis (*Myotis lucifugus*) (endangered), Northern Myotis (*Myotis septentrionalis*) (endangered), Eastern Small-footed Myotis (*Myotis leibii*) (endangered), Tri-coloured Bat (*Perimyotis subflavus*) (endangered), and Chimney Swift (*Chaetura pelagica*) (threatened).

The *Endangered Species Act* (2007) provides legal protection to endangered and threatened species confirmed on a site. For context, relevant excerpts from this Act are included below:

Subsection 9(1) of the Act states that:

> *No person shall,*
> *(a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;*
> *(b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,*
> *(i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,*
> *(ii) any part of a living or dead member of a species referred to in subclause (i),*
> *(iii) anything derived from a living or dead member of a species referred to in subclause (i); or*
> *(c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii).*

Subsection 10(1)(a) of the Act states that:

> *No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species.*

However, under subsection 17(1) of the Act, the Minster may issue a permit that authorizes a person to engage in an activity that would otherwise be prohibited by subsection 9(1) or 10(1) of the Act provided the applicable legislative requirements of subsection 17(2) are satisfied. The *Endangered Species Act*

Submission Standards for Activity Review and 17(2)(c) Overall Benefit Permits (OMNR, 2012a) is a document that provides guidance regarding permitting requirements under the Act. Relevant excerpts are provided below:

> *There are four types of permits that may be issued for authorizing activities where the activity:*
>
> - *is necessary for the protection of human health or safety - clause 17(2)(a);*
> - *has the main purpose to assist, and would assist, in the protection or recovery of the species - clause 17(2)(b);*
> - *has the main purpose not to assist in the protection or recovery of the species, but through specific and mandatory conditions outlined in the permit will result in an overall benefit to the species within a reasonable time - clause 17(2)(c); and,*
> - *will result in significant social or economic benefit to Ontario, but will not jeopardize the survival or recovery of species at risk - clause 17(2)(d).*
>
> *Permits may be issued where the following legislated requirements are satisfied:*
>
> The Minister is of the opinion that the main purpose of the activity authorized by the permit is not to assist in the protection or recovery of the species specified in the permit; but,
>
> *(i) the Minister is of the opinion that an overall benefit to the species will be achieved within a reasonable time through requirements imposed by conditions of the permit,*
> *(ii) the Minister is of the opinion that reasonable alternatives have been considered, including alternatives that would not adversely affect the species, and the best alternative has been adopted, and*
> *(iii) the Minister is of the opinion that reasonable steps to minimize adverse effects on individual members of the species are required by conditions of the permit.*

The Minister is not obligated to issue an Overall Benefit Permit to a proponent. An Overall Benefit Permit may only be issued where the legislated requirements in clause 17(2)(c) of the Act will be met by the conditions in the permit.

2.3 Provincial Policy Statement (2014)

The Provincial Policy Statement (PPS) (MMAH 2014) provides policy direction to municipalities on matters of provincial interest as they relate to land use planning and development. The PPS provides for appropriate land use planning and development while protecting Ontario's natural heritage. Development governed by the Planning Act must be consistent with the policy statements issued under the PPS. These are outlined in Section 2.1 - Natural Heritage, Section 2.2 – Water, and Section 3.1 - Natural Hazards of the PPS, and relevant sections from each are provided in the following pages.

2.3.1 Natural Heritage

The PPS includes policies that speak to the identification and protection of natural heritage systems, as well as levels of protection for the various components that comprise such systems. Some of these features are present in the study area, and must be assessed in the context of these policies.

The policies specific to natural heritage are found in Section 2.1 of the PPS and are provided in their entirety below:

> *2.1.1 Natural features and areas shall be protected for the long term.*
>
> *2.1.2 The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.*
>
> *2.1.3 Natural heritage systems shall be identified in Ecoregions 6E & 7E, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas.*
>
> *2.1.4. Development and site alteration shall not be permitted in:*
>
> *a. significant wetlands in Ecoregions 5E, 6E and 7E; and*
>
> *b. significant coastal wetlands.*
>
> *2.1.5 Development and site alteration shall not be permitted in:*
>
> *a. significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;*
>
> *b. significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);*
>
> *c. significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);*
>
> *d. significant wildlife habitat;*
>
> *e. significant areas of natural and scientific interest; and*
>
> *f. coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b)*
>
> *unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*
>
> *2.1.6 Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.*
>
> *2.1.7 Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.*
>
> *2.1.8 Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5 and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.*
>
> *2.1.9 Nothing in policy 2.1 is intended to limit the ability of agricultural uses to continue.*

In terms of implementation, identification of the various natural heritage features noted above is a responsibility shared by MNRF and the municipal planning authority. The MNRF is responsible for the

confirmation of habitat of endangered species and threatened species, and for its regulation (under the Endangered Species Act), as well as for the identification of Provincially Significant Wetlands (PSWs) and Areas of Natural and Scientific Interest (ANSIs). Local and regional planning authorities are responsible for the identification of Significant Woodlands, Significant Valleylands, and Significant Wildlife Habitat, with support from applicable guidance documents (i.e., Natural Heritage Reference Manual, OMNR 2010; Significant Wildlife Habitat Technical Guidelines, OMNR 2000; Significant Wildlife Habitat Criteria for Ecoregion 7E, MNRF 2015). Local and regional planning authorities in southern Ontario also typically work with their local conservation authority to identify and confirm non-PSWs that may have significance at the local or regional level. As described in **Section 2.1** above, identification and verification of fish habitat is now self-regulated although enforcement of the related policies and regulations is still managed by MNRF and regulated by DFO.

In areas where significant natural heritage features are present, the boundaries of natural heritage features are further refined through site-specific studies undertaken as part of the planning process and in accordance with the requirements of municipal policies.

2.3.2 Water

Water resources are a key consideration in this EIS. Section 2.2 of the PPS directs planning authorities to protect, improve or restore the quality and quantity of surface and groundwater water resources through watershed and land use planning, as per the policies below cited in their entirety.

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

- *a. using the watershed as the ecologically meaningful scale for integrated and long-term planning, which can be a foundation for considering cumulative impacts of development;*
- *b. minimizing potential negative impacts, including cross-jurisdictional and cross-watershed impacts;*
- *c. identifying water resource systems consisting of ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas, which are necessary for the ecological and hydrological integrity of the watershed;*
- *d. maintaining linkages and related functions among ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas;*
- *e. implementing necessary restrictions on development and site alteration to:*
  - *a. protect all municipal drinking water supplies and designated vulnerable areas; and*
  - *b. protect, improve or restore vulnerable surface and ground water, sensitive surface water features and sensitive ground water features, and their hydrologic functions;*
- *f. planning for efficient and sustainable use of water resources, through practices for water conservation and sustaining water quality;*
- *g. ensuring consideration of environmental lake capacity, where applicable; and*
- *h. ensuring stormwater management practices minimize stormwater volumes and contaminant loads, and maintain or increase the extent of vegetative and pervious surfaces.*

2.2.2 Development and site alteration shall be restricted in or near sensitive surface water features and sensitive ground water features such that these features and their related hydrologic functions will be protected, improved or restored.

Mitigative measures and/or alternative development approaches may be required in order to protect, improve or restore sensitive surface water features, sensitive ground water features, and their hydrologic functions.

Compliance with these policies requires a multi-disciplinary and integrated approach to land use planning. Such an approach has been adopted through the preparation of this EIS.

2.3.3 Natural Hazards

In addition to balanced protection of natural heritage resources and water resources, the PPS also includes policy direction regarding reducing the potential risk to Ontario's residents from natural or human-made hazards. Section 3.1 of the PPS generally discourages development within identified natural hazards (i.e., areas that are at risk of flooding and / or erosion).

Natural hazards that need to be considered on the subject property include flooding and erosion hazards associated with the Mullet Creek valleylands.

2.4 Regional Municipality of Peel Official Plan (2008)

The Peel Region Official Plan (ROP) contains policies aimed at protecting, maintaining, and restoring a Greenlands System consisting of "Core Areas", "Natural Areas and Corridors (NAC's)", and "Potential Natural Areas and Corridors (PNAC's)". Key elements of the Region's Greenlands System include the following:

- Areas of Natural and Scientific Interest (ANSI);
- Environmentally Sensitive or Significant Areas (ESA);
- Escarpment Natural Areas;
- Escarpment Protection Areas;
- Fish and wildlife habitat;
- Habitats of threatened and endangered species;
- Wetlands;
- Woodlands;
- Valley and stream corridors;
- Shorelines;
- Natural lakes;
- Natural corridors;
- Groundwater recharge and discharge areas;
- Open space portions of the Parkway Belt West Plan; and
- Other natural features and functional areas.

The above key elements are to be interpreted, identified and protected in accordance with the policies of the Regional Official Plan.

2.4.1 Core Areas

Core Areas represent those features and areas that are considered to be significant at the provincial and regional levels. They generally correspond with significant features and areas listed in the PPS and include:

- Significant Wetlands;
- Significant Coastal Wetlands;
- Core Woodlands;
- Environmentally Sensitive or Significant Areas;
- Provincial Life Science ANSI;
- Significant Habitat of Threatened and Endangered Species;
- Escarpment Natural Areas of the Niagara Escarpment Plan; and
- Core Valley and Stream Corridors.

Core Areas of the Greenlands System are mapped on Schedule A of the ROP. There are no Core Areas identified on or adjacent to the subject property. Criteria for identifying additional core features of the Greenlands System are provided in the ROP.

Policy 2.3.2.6 prohibits development and site alteration within the Core Areas of the Greenlands System in Peel except for:

a. Forest, fish and wildlife management;
b. Conservation and flood or erosion control projects, but only if they have been demonstrated to be necessary in the public interest and after all reasonable alternatives have been considered;
c. Essential infrastructure exempted, pre-approved or authorized under an environmental assessment process;
d. Passive recreation;
e. Minor development and minor site alteration;
f. Existing uses, buildings or structures;
g. Expansions to existing buildings or structures;
h. Accessory uses, buildings or structures; and
i. A new single residential dwelling on an existing lot of record, provided that the dwelling would have been permitted by the applicable planning legislation or zoning by-law on the date the Regional Official Plan Amendment 21B came into effect. A new dwelling built after the Regional Official Plan Amendment 21B came into effect in accordance with this policy shall be deemed to be an existing building or structure for the purposes of the exceptions permitted in clauses g) and h) above.

Area municipalities are directed to adopt appropriate policies to allow the above exceptions when it can be demonstrated that there is no reasonable alternative location outside of the Core Area and the use, development or site alteration is directed away from the Core Area feature to the greatest extent possible; and the impact to the Core Area feature is minimized and any impact to the feature or its functions that cannot be avoided is mitigated through restoration or enhancement to the greatest extent possible.

2.4.2 Natural Areas and Corridors (NAC) and Potential Natural Areas and Corridors (PNAC)

Natural Areas and Corridors (NAC) include:

- Evaluated non-provincially significant wetlands;
- Woodlands meeting one or more of the criteria in Table 1 of the ROP;
- Significant wildlife habitat;
- Fish habitat;
- Regionally significant life science Areas of Natural and Scientific Interest;
- Provincially significant earth science Areas of Natural and Scientific Interest;
- Escarpment Protection Areas of the Niagara Escarpment Plan; and
- The Lake Ontario shoreline and littoral zone and other natural lakes and their shorelines.

Potential Natural Areas and Corridors (PNAC) include:

- Unevaluated wetlands;
- Cultural woodlands and cultural savannahs within the Urban System and Rural Service Centres meeting one or more of the criteria in Table 1 of the ROP;
- Any other woodlands greater than 0.5 hectares (1.24 acres);
- Regionally significant earth science Areas of Natural and Scientific Interest;
- Sensitive groundwater recharge areas;
- Portions of historic shorelines;
- Open space portions of the Parkway Belt West Plan Area;
- Potential ESA's identified as such by the conservation authorities; and
- Any other natural features and functional areas interpreted as part of the Greenlands System Potential Natural Areas and Corridors, by the individual area municipalities in consultation with the conservation authorities.

NAC's and PNAC's represent natural features and areas that are considered locally significant. NAC's and PNAC's are considered locally important. Regional policies pertaining to NAC's and PNAC's defer their interpretation, protection, restoration, enhancement, proper management and stewardship to local municipalities.

2.5 City of Mississauga Official Plan (2017)

Section 6.3 of the MOP contains policies pertaining to the protection of the Green System. The Green System is composed of 1) the Natural Heritage System, 2) the Urban Forest, 3) Natural Hazard Lands; and 4) Parks and Open Spaces. The Natural Heritage System is conceptually illustrated on Schedule 3 of the MOP.

Components of the Green System that overlap with the subject property include the Natural Heritage System, Natural Hazard Lands, and the Urban Forest. Policies pertaining to each of these Green System components are discussed below.

2.5.1 Natural Heritage System

The Natural Heritage System consists of 1) Significant Natural Areas, 2) Natural Green Spaces, 3) Special Management Areas, 4) Residential Woodlands, and 5) Linkages. The Natural Heritage System is conceptually illustrated on Schedule 3 of the MOP. Components of the Natural Heritage System that are directly associated with the subject property and adjacent lands include Significant Natural Areas and Natural Green Spaces and Natural Hazards.

The exact limit of components of the Natural Heritage System are to be determined through site specific studies such as an EIS. Minor refinements to the boundaries of the Natural Heritage System may also be made through an EIS or other appropriate studies accepted by the City without and official plan amendment.

2.5.1.1 Significant Natural Areas

Significant Natural Areas include one or more of the following features:

- Provincially or regional significant life science areas of natural and scientific interest (ANSI);
- Environmentally sensitive or significant areas (ESA);
- Habitat of threatened species or endangered species;
- Fish habitat;
- Significant wildlife habitat;
- Significant woodlands;
- Significant wetlands, including Provincially Significant Wetlands (PSW), coastal wetlands, and other wetlands greater than 0.5 hectares; and
- Significant valleylands, including the main branches, major tributaries and other tributaries and watercourse corridors draining directly to Lake Ontario including the Credit River, Etobicoke Creek, Mimico Creek and Sixteen Mile Creek.

Policy 6.3.27 states:

> *Development and site alteration as permitted in accordance with the Greenlands designation within or adjacent to a Significant Natural Area will not be permitted unless all reasonable alternatives have been considered and any negative impacts minimized. Any negative impact that cannot be avoided will be mitigated through restoration and enhancement to the greatest extent possible. This will be demonstrated through a study in accordance with the requirements of the Environmental Assessment Act. When not subject to the Environmental Assessment Act, an Environmental Impact Study will be required.*

Policy 6.3.29 states:

> *Development and site alteration on lands adjacent to a provincially significant wetland, provincially significant coastal wetland and habitat of endangered species and threatened species or other Significant Natural Area will require an Environmental Impact*

> *Study, demonstrating no negative impact to the natural heritage features or on their ecological function, to the satisfaction of the City and appropriate conservation authority.*

2.5.1.2 Natural Green Spaces

Natural Green Spaces are areas that meet one or more of the following criteria:

- Woodlands greater than 0.5 hectares that do not qualify as significant woodland;
- Wetlands that do not qualify as significant wetland;
- Watercourses that do qualify as significant valleyland; and
- All natural areas greater than 0.5 hectares that have vegetation that is uncommon in the City.

Policy 6.3.32 states that development and site alteration will not be permitted within or adjacent to Natural Green Spaces unless it has been demonstrated through an Environmental Assessment or Environmental Impact Study that there will be no negative impact to the natural heritage features and their ecological functions and opportunities for their protection, restoration, enhancement and expansion have been identified.

2.5.2 Natural Hazard Lands

Natural Hazard Lands are associated with valley and watercourse corridors and the Lake Ontario shoreline. These areas are prone to flooding and erosion and are generally unsuitable for development.

With respect to valleylands, it is the policy of the City that *development adjacent to valleylands and watercourse features must incorporate measures to ensure public health and safety; protection of life and property; as well as enhancements and restoration of the Natural Heritage System*.

Policy 6.3.47 states:

> *Development and site alteration will not be permitted within erosion hazards associated with valleyland and watercourse features. In addition, development and site alteration must provide appropriate buffer to erosion hazards, as established to the satisfaction of the City and appropriate conservation authority.*

Policy 6.3.48 states:

> *Development adjacent to valleyland and watercourse features may be required to be supported by detailed slope stability and stream erosion studies, where appropriate.*

With respect to flood plains, it is the policy of the City that *lands subject to flooding are a danger to life and property and, as such, development is generally prohibited. However, it is recognized that some historic development has occurred within flood plains and may be subject to special flood plain policy consideration.*

Policy 6.3.51 states:

Development and site alteration is generally prohibited on lands subject to flooding.

Policy 6.3.52 states:

Where historic development has occurred in the flood plain, minor works may be permitted subject to detailed studies to the satisfaction of the City and appropriate conservation authority.

Policy 6.3.53 states:

The construction of buildings or structures permitted in or adjacent to the flood plain will be protected to the elevation of the Regulatory Flood and will not impact upstream or downstream properties. Additional flood protection measures to be implemented relative to individual development applications will be determined by the City and the appropriate conservation authority.

Policy 6.3.54 states:

Access for development adjacent to or within the flood plain will be subject to appropriate conservation authority policies and the policies of the City.

2.5.3 EIS Requirements

MOP Chapter 6 outlines policies that provides guidance on when an EIS is triggered.

In the case of the proposed redevelopment, an EIS is triggered by Policy 6.3.29.

6.3.29 Development and site alteration on lands adjacent to a Provincially significant wetland, Provincially significant coastal wetland and habitat of endangered species and threatened species or other Significant Natural Area will require an Environmental Impact Study, demonstrating no negative impact to the natural heritage features or on their ecological function, to the satisfaction of the City and appropriate conservation authority.

Other relevant policies are as follows:

6.3.31 Setbacks and buffers adjacent to fish habitat areas will be determined by an Environmental Impact Study, which will conform to approved fisheries management plans.

6.3.32 Development and site alteration will not be permitted within or adjacent to Natural Green Spaces, Linkages and Special Management Areas unless it has been demonstrated that there will be no negative impact to the natural heritage features and their ecological functions and opportunities for their protection, restoration, enhancement and expansion have been identified. This will be demonstrated through a study in accordance with the requirements of the Environmental Assessment Act. When not subject to the Environmental Assessment Act, an Environmental Impact Study will be required.

6.3.33 Environmental Impact Studies will delineate the area to be analysed, describe existing physical conditions, identify environmental opportunities and constraints, and evaluate the ecological sensitivity of the area in relation to a proposal. It will also outline measures to protect, enhance, restore and expand the Natural Heritage System and associated ecological Figure 6-8: Mississauga promotes and is proactive in the management of its natural heritage areas and the protection of its ecological functions. Environmental Impact Studies will be prepared to the satisfaction of the City and appropriate conservation authority.

2.6 Credit Valley Conservation (CVC) Authority Policies and Regulations

Credit Valley Conservation (CVC) plays several roles in overseeing development applications.

Firstly, under Section 28 of the Conservation Authorities Act, CVC regulates activities within and adjacent to wetlands, watercourses and hazard lands under Ontario Regulation 160/06 - *Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*. A permit must be obtained from CVC for development or site alteration within regulated areas.

Secondly, CVC provides planning and technical advice to local and regional municipalities to assist them in fulfilling their responsibilities regarding natural hazards, natural heritage and other relevant policy areas pursuant to the *Planning Act*. CVC participates in the review of *Planning Act* applications to ensure the applicant and planning authority are aware of the Section 28 regulations and requirements and assist in coordinating those applications to avoid any conflicts.

CVC policies are outlined in their *Watershed Planning and Regulation Policies* (CVC 2010). Key policies pertaining to the proposed development application are contained in Section 6.2 (Lot Creation Policies) and general policies pertaining to implementation of Ont. Reg. 160/06 are contained in Section 7.0.

7.2.1 Lot Creation Policies

7.2.2 Development Limits

a) CVC will not support the creation of new lots through plan of subdivision or consent that extend into, or fragment ownership of, the natural heritage system, including natural heritage features and areas, significant natural areas, hazardous land and erosion access allowances, in consideration of the long term management concerns related to risks to life and property and natural heritage protection.

b) In addition to policy 6.2.1 a), CVC will recommend that lots created through plan of subdivision or consent are set back a minimum of whichever is the greatest of the following buffers:

- *i. 10 metres from the limit of flood hazards;*
- *ii. 10 metres from the limit of erosion hazards;*
- *iii. 10 metres from the limit of dynamic beach hazard;*
- *iv. 10 metres from the drip line of significant woodlands;*
- *v. 10 metres from the limit of other wetlands;*

vi. 30 metres from the limit of provincially significant wetlands;
vii. 30 metres from the bankfull flow location of watercourses; and/or
viii. A distance to be determined through the completion of a comprehensive environmental study or technical report, to the satisfaction of CVC, from the limit of the following:
a. significant wildlife habitat;
b. significant habitat of threatened species and endangered species;
c. regionally and provincially significant life science ANSIs;
d. ESAs; and/or
e. significant habitat of species of conservation concern.

c) Notwithstanding policy 6.2.1 b), CVC may recommend lots be set back a distance other than those identified in 6.2.1 b) based on the results of a comprehensive environmental study or site specific technical report completed to the satisfaction of CVC, and consistent with provincial and municipal policy.

Additionally, CVC undertakes subwatershed studies from time to time. These studies provide site-specific characterization and policy. The subject property falls in the area of the Subwatershed 4 - Mullet Creek study, which was last published in 1999. This version is not available at the time of this report as it is undergoing an update.

3. Study Methodology

The following tasks were undertaken in preparing this EIS:

- Background information collection and review;
- Consultations with the Study Team, City and CVC;
- Field Investigations;
- Feature Staking;
- Identification of Constraints and Opportunities;
- Evaluation of the Proposed Development;
- Impact Assessment;
- Recommendations for Mitigation; and
- Policy Compliance.

A general description of the methods and/or approach used to complete these tasks for each discipline is provided below.

As part of the background review, a number of technical studies have been completed within the study area in support of this EIS by members of the multi-disciplinary Study Team. The technical studies cover key disciplines that are important for understanding of the environmental conditions and identifying constraints and opportunities that may influence re-development. Technical studies that have been relied upon in preparation of this EIS are listed below:

- Tree Inventory and Arborist Report (Beacon Environmental Ltd., April 2018);
- Servicing and Stormwater Management Brief (LEA Consulting Ltd., March 2018);
- Preliminary Site Servicing Plan (LEA Consulting Ltd., February 2018);
- Preliminary Site Grading Plan (LEA Consulting Ltd., February 2018);
- Topographical Plan (Fiddes Clipsham Inc., July 2017);
- Geotechnical Investigation for Performing Slope Stability Analysis (Patriot Engineering Ltd., March 2017);
- Site Plan, Tannery Townhomes (Kirkor Architects and Planners, February 2018); and
- Landscape Concept Plan, Tannery Townhomes -Mississauga, Ontario (MEP Design, N.D).

A brief description of the study scope for each of these supporting technical studies is provided in the corresponding report sections. For more detailed study methods and descriptions, please refer to the individual technical reports provided under separate cover.

3.1 Physical Environment

3.1.1 Feature Staking

The physical top of slope along the Mullet Creek valley was staked in the field with CVC staff on July 12, 2017 and was subsequently surveyed by an Ontario Land Surveyor (OLS).

3.1.2 Hydrogeology

A detailed hydrogeological assessment of the subject property was not undertaken; however hydrogeological conditions were characterized using available background information and groundwater level date obtained from several shallow monitoring wells that were installed as part of the geotechnical investigation undertaken by Patriot Engineering Ltd. in 2017.

For further details on the methodologies employed, please refer to the *Geotechnical Investigation for Performing Slope Stability Analysis* prepared by Patriot Engineering Ltd. (March, 2017).

3.1.3 Hydrology

Hydrological conditions were characterized using background information, topographic data and drainage information provided in the *Servicing and Stormwater Management Brief* (LEA Consulting Ltd., March 2018).

3.1.4 Geotechnical Assessment

A geotechnical investigation, slope stability analysis, and streambank erosion risk assessment was undertaken for the subject property in March 2017 by Patriot Engineering Ltd. The purpose of the geotechnical investigation was to determine the long term stable slope (LTSSL) location to delineate the hazard land zone in order to establish the development limits along the south-westerly boundary of the subject property. The investigation consisted of analyzing the findings of four (4) boreholes which

were strategically positioned throughout the subject property. For additional information regarding the methodologies employed, please refer to the *Geotechnical Investigation for Performing Slope Stability Analysis* prepared by Patriot Engineering Ltd. (March, 2017).

3.1.5 Slope Stability Setbacks

Patriot Engineering Ltd. was retained to undertake a review of the Geotechnical Assessment to determine whether the proposed development setbacks to be applied to the LTSSL were appropriate from a geotechnical perspective. It was confirmed that the proposed erosion hazard setbacks to the proposed development are, from a geotechnical perspective, appropriate and do not:

- *Impose any adverse impact to slope stability;*
- *Subject life and property to significant and unacceptable risk; or*
- *Create new hazards or aggravate existing hazards on the subject property or other properties.*

3.2 Natural Heritage Resources

3.2.1 Background Review

The following background information sources were consulted for this study.

- Region of Peel Official Plan;
- City of Mississauga Official Plan;
- Natural Heritage Information Centre;
- City of Mississauga Natural Areas Inventory Data for Streetsville (SV1);
- CVC Subwatershed Studies;
- Ministry on Natural Resources and Forestry – SAR Screening with Ben Keen, Management Biologist, Aurora District;
- Physiography of Southern Ontario (Chapman and Putnam 1984);
- Ontario Breeding Bird Atlas (Cadman *et al*. 2007);
- Ontario Herpetofaunal Summary Atlas (Ontario Nature, 2017);
- Atlas of the Mammals of Ontario (Dobbyn 1994); and
- Historical and current aerial photography.

3.2.2 Feature Staking

The dripline of trees along the Mullet Creek valley and the existing Top of Bank was staked in the field with CVC and City of Mississauga staff on July 12, 2017.

3.2.3 Field Investigations

The following field investigations were undertaken as part of this study to characterize the natural heritage features and functions associated with the property. These surveys are further discussed in the following sections.

- Ecological Land Classification;
- Floristic Surveys;
- Tree Inventory; and
- Wildlife Surveys – Breeding Birds and SAR habitat.

3.2.3.1 Vegetation Communities and Flora Inventory

Site visits were conducted on April 12, July 12, and October 25, 2017 to document the vegetation on the subject property. Vegetation communities were mapped and described according to the Ecological Land Classification System for Southern Ontario (Lee *et al.*, 1998) and a list of a plant species was compiled for the property.

3.2.3.2 Tree Inventory

An ISA Certified Arborist completed an inventory of all trees ≥ 10 cm in diameter on the subject property on April 12, 2017. Trees on the subject property were marked with numbered aluminum forestry tags. Tagged trees were surveyed by a registered Ontario Land Surveyor.

All trees were assessed and data was collected on species, trunk diameter (DBH), and health and condition. The condition of individual trees was assessed in terms of overall health and structural integrity based on indicators such as live buds, dead wood, decay, structural defects, and presence of disease. Each tree was assigned a condition rating as follows:

- **Poor** – Severe dieback, significant lean, missing leader, major defects, significant decay and/or disease presence;
- **Fair** – Moderate dieback and/or lean, limb defects, multiple stems, moderate foliage damage from stress;
- **Good** – Healthy vigorous growth, minor visible defects or damage; and
- **Dead** – No live growth.

This information was used to prepare an Arborist Report and Tree Inventory and Preservation Plan (TIPP) that includes recommendations for tree preservation and tree removal. A copy of the Arborist Report and TIPP is provided in **Appendix B**.

3.2.3.3 Breeding Bird Surveys

Two surveys for breeding birds took place in the early morning on days with ideal weather conditions (while the temperature was within 5° C of normal, it was not raining, nor excessively windy). The breeding bird community was surveyed using a roving type survey, in which all parts of the subject property were walked to within 50 m and all birds heard or observed and showing some inclination

toward breeding were recorded as breeding species. All birds heard and seen were recorded in the location observed on an aerial photograph of the site. Survey details are presented in **Table 2**.

Table 2. Breeding Bird Survey Details

	Survey 1	Survey 2
Date:	June 3, 2017	June 17, 2017
Start Time:	6:46 am	6:29 am
End Time:	7:22 am	6:58 am
Temperature (˚C):	12°C	18 °C
Wind speed (km/h):	6-11 km/h	0 km/h
Cloud cover (%):	10 %	20 %
Precipitation:	None	None

3.2.3.1 Other Wildlife

Other wildlife taxa observed on the property during field investigations were noted as incidental observations.

3.3 Constraints & Opportunities Analysis

A constraint analysis was undertaken for the study area to identify natural heritage and natural hazards that may preclude redevelopment opportunities on portions of the subject property. The purpose of the constraint analysis was to comprehensively identify an environmental constraint line for the purposes of establish limits to future development. Constraints considered included significant natural heritage features and functions and associated ecological buffers as well as natural hazards and their associated setbacks.

The constraint analysis is based on a consideration of the following:

(i) presence of significant natural heritage features / areas and their associated ecological functions;
(ii) presence of physical and/or natural hazard constraints; and
(iii) applicable environmental policies and regulations.

The analysis consisted of overlaying, on a site plan, the various natural heritage and natural hazard constraints and their associated ecological buffers and setbacks. Feature limits were determined using standard protocols and policy definitions and guidelines. Setbacks to natural hazards were applied to ensure protection and safety of property.

Information collected through the biophysical inventory was also used to identify opportunities to restore and enhance the ecological integrity and functions of the significant natural heritage features that were identified for protection within the Natural Heritage System.

3.4 Impact Assessment

To assess potential impacts associated with the proposed development and to evaluate the effects on the biophysical environment, an impact assessment matrix was developed using a multi-disciplinary approach that provides an integrated framework for assessing impacts. The impact assessment matrix is organized by technical discipline (e.g., hydrogeology, hydrology, terrestrial and aquatic ecology, etc.). It describes the various significant natural features, functions and attributes that require protection, identifies sources of potential impacts that may be expected with the type of development being proposed and recommends measures that can be incorporated into the design and construction so that impacts can be avoided or mitigated.

4. Study Findings

4.1 Physical Setting

4.1.1 Bedrock, Topography and Soils

The study area is located within the South Slope physiographic region of Southern Ontario and includes a strip south of the Peel plain, which is where the subject property is located. The subject property overlies the grey shales of the Georgian Bay Formation (Chapman and Putnam 1984).

The subject property is relatively flat and gently slopes to the south towards the industrial buildings and to the southwest towards Mullet Creek. There is a downwards slope on the west side of subject property associated with Mullet Creek. Surface runoff from the development site and the Emby Drive extension is conveyed via sheet flow westerly toward Mullet Creek. The total drainage area is approximately 1.084 ha for the proposed condominium area and 0.269 ha for the proposed Embry Drive extension. (Ref. *Stormwater Management and Servicing Brief* (LEA Consulting Ltd. 2018).

Geotechnical investigation completed by Patriot Engineering Ltd. (2017) has confirmed that most of the site has been filled. Various fill layers were detected to depths of 4.0 to 4.9 m below ground surface (bgs). The geotechnical report describes the underlying the fill layers as "*native, compact to very dense, grey, and/or brown, moist to slightly moist, sandy silt till layer was encountered in all boreholes. Some clay, plus traces gravel, cobbles and shale fragments, as well as, isolated wet sand seams were also observed within this material*"

4.1.2 Hydrogeology

Groundwater levels was measured using piezometers installed four boreholes on the subject property. Groundwater elevations documented by Patriot Engineering Ltd. on February 16, 2016 were encountered 4.1 to 5.5 m bgs. Groundwater levels are expected to fluctuate seasonally. All boreholes were dry at the time of drilling. No seeps or springs were observed.

4.2 Natural Heritage Resources

4.2.1 Background Review

There is some natural heritage data available for the study area that was collected during the City of Mississauga Natural Areas Survey (NAS) (City of Mississauga 2014). The NAS identifies portions of the subject property as overlapping with both Natural Area SV10 (see **Figure 3**). Natural Area SV10 is classified as a Natural Green Space and overlaps with the Mullet Creek valleylands.

Natural Area SV10 was identified on the Natural Areas Fact Sheet (City of Mississauga, 2015) as being comprised of one ecological community: Fresh-moist Willow Lowland Deciduous Forest Type (FOD7-3). This community is described as having an open canopy of scattered mature Willow (Salix spp.), Green Ash (*Fraxinus pennsylvanica*) and American Elm (*Ulmus americ*ana) that are 10-25 m in height and covers greater than 60%. The sub canopy is 2-10 m with a greater than 60% cover, and is comprised of Manitoba Maple (*Acer negundo*), Norway Maple (*Acer platanoides*), White Willow (*Salix alba*) and American Elm, while the understorey consists of Manitoba Maple, Beaked Willow (*Salix bebbiana*), Inserted Virginia Creeper (*Parthenocissus inserta*), Riverbank Grape (*Vitis riparia*), and Common Hawthorn (*Crategus monogyna*). This layer is between 1-2 m and covers 1-10%. The ground layer is dominated by Goldenrod (*Solidago canadensis*), Purple Loosetrife (*Lythrum salicaria*), Common Burdock *(Arctium minus*) and Reed Canary Grass (*Phalaris arundinacea*), and is 0.5-1 m in height and covers more than 60% of the community.

In terms of fauna, the NAS describes SV10 as supporting 18 bird species, 1 reptile and 1 odonate species. The bird community is described as consisting of a variety of common urban-tolerant species such as Blue Jay (*Cyanocitta cristata*), Northern Cardinal (*Cardinalis cardinalis*), American Goldfinch (*Spinus tristis*) and Common Grackle (*Quiscalus quiscula*). In terms of significant flora and fauna, SV10 is noted as supporting one rare plant species for the City of Mississauga and eleven wildlife species of local conservation concern.

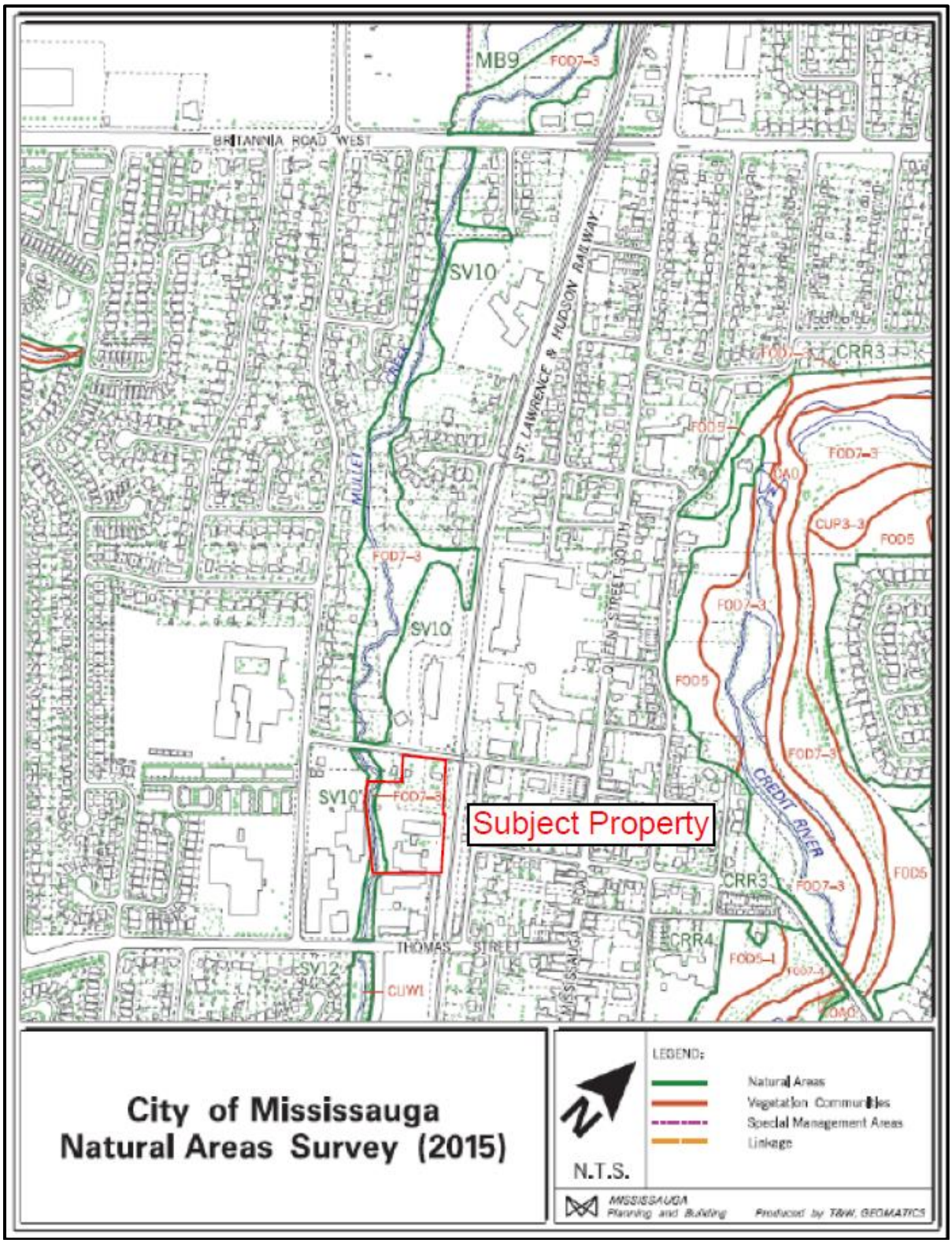


Figure 3. City of Mississauga Natural Areas Survey for Natural Areas SV10

Other background information sources consulted in preparing this EIS included the Natural Heritage Information Centre (NHIC) database which yielded numerous observations for the 1 to 10 km grid square corresponding with the study area. All of the records for potential species at risk are considered historical (> 80 years old), and included many aquatic species, mainly associated with the Credit River. None of the species from the NHIC database were documented during field investigations, nor is there suitable habitat for these species.

As discussed in **Section 2.2**, correspondence from the Ministry of Natural Resources and Forestry (MNRF) in a letter from B. Keen dated June 6, 2017, indicated that MNRF has records for a number of Species at Risk in the vicinity of the study area. Species noted include that six species at risk have been recorded within or in the vicinity of the study area. Species include: Butternut (*Juglans cinerea*) (endangered), Little Brown Myotis (*Myotis lucifugus*) (endangered), Northern Myotis (*Myotis septentrionalis*) (endangered), Eastern Small-footed Myotis (*Myotis leibii*) (endangered), Tri-coloured Bat (*Perimyotis subflavus*) (endangered), and Chimney Swift (*Chaetura pelagica*) (threatened). It should be noted that these records do not correspond directly with the site, but are located within the area.

4.2.2 Vegetation Communities

Vegetation communities on the subject property are illustrated in **Figure 4**. The mapping is based on site specific investigations conducted by Beacon in 2017.

ELC Unit 1: Cultural Woodland

This community is located along the valley slope adjacent to Mullet Creek on the west side of the property. The canopy is dominated by Manitoba Maple (*Acer negundo*), with some Black Walnut (*Juglans nigra*), Hybrid Crack Willow (Salix X rubens), and Green Ash (*Fraxinus pennsylvanica*). The Green Ash component of the canopy is dead or dying. The understory consists of Tartarian Honeysuckle (*Lonicera tatarica*), Riverbank Grape (*Vitis riparia*), Mantitoba Maple, and Common Buckthorn (*Rhamnus cathartica*). Dominant ground covers are weedy species, notably Garlic Mustard (*Alliaria petiolata*), Urban Avens (*Geum urbanum*), Tall Goldenrod (*Solidago altissima*), and Greater Celadine (*Chelidonium majus*).

This community is extremely disturbed and has been heavily altered by encroachment from surrounding industrial development, notably fill and waste dumping.

ELC Unit 2: Hedgerow

The community consists of a line of trees that is situated along the existing property lines between 51 and 57 Tannery Street and 208 Emby Drive. The canopy consists large of Manitoba Maple, with some Black Walnut, apple, and hawthorns. The understory consists of Tartarian Honeysuckle, Common Buckthorn, European Spindletree (*Euonymus europea*), and Choke Cherry (*Prunus virginiana*). Dominant ground covers are Garlic Mustard, Creeping Charlie (*Glechoma hederacea*), Greater Celadine, and Tall Goldenrod.

ELC Unit 3: Anthropogenic

The majority of the subject property contains existing residential and commercial/industrial buildings with associated parking and landscaping. Vegetation consist of planted ornamentals and ruderal species typical of disturbed areas.

4.2.3 Flora

A total of 70 species of vascular plants were identified on the subject property. A complete plant list is presented in **Appendix C**. Approximately 64% (45/70) of the species on the property are non-native, which is very high and reflects the disturbed nature of the site. One species, Black Walnut is ranked S4? in Ontario by the Natural Heritage Information Centre (NHIC) indicating is apparently secure in the province and very common in the GTA. All other native species on the subject property are ranked S5 indicating that they are common and secure in Ontario. No regionally rare or uncommon plant species occur on the property.

4.2.4 Breeding Birds

A total of 10 species of breeding, or potentially breeding birds, were recorded on the subject property. Eight additional species were observed adjacent to the subject property (**Table 3**). The majority of the species encountered were common species that are widespread in open, scrubby habitats, or fragmented or disturbed habitats, such is as found on most of the subject property. Some of the more abundant species observed included: Black-capped Chickadee (*Poecile atricapillus*), American Robin (*Turdus migratorius*), European Starling (*Sturnus vulgaris*) and House Sparrow (*Passer domesticus*). Species that were observed flying or foraging over the subject property that were not believed to be breeding on the subject property included Mallard (*Anas platyrhynchos*) and Chimney Swift (*Chaetura pelagica*).

One species observed foraging on and adjacent to the subject property, the Chimney Swift (*Chaetura pelagica*), is listed Threatened under the Endangered Species Act (2007). This bird is an aerial insectivore and nests in dark, sheltered areas and will attach its nest to vertical surfaces; chimneys are the most common structure used (COSEWIC 2007). Chimney Swift nesting opportunities may exist in the broader study area, however there is no evidence to suggest that Chimney Swift are breeding on any of the structures on the property.

No species ranked as S1 through S3 (Critically Imperiled through Vulnerable) by the province were present.

Existing Conditions

Figure 4

Environmental Impact Study
51 & 57 Tannery Street & 208 Emby Drive, Mississauga

Legend

- Subject Property
- ELC Communities
- Contours (0.50 m) *
- Watercourse **

ELC Unit	ELC Community	ELC Code
1	Cultural Woodland	CUW
2	Hedgerow	HR
3	Anthropogenic	ANT

First Base Solutions: Contours (0.50 m) 2017 *
Ministry of Natural Resources and Forestry: Watercourse 2017 **

First Base Solutions
Web Mapping Service 2017

UTM Zone 17 N, NAD 83

N W E S

0 5 10 20 Metres

1:900

BEACON ENVIRONMENTAL

Project 217069
June 2018

C:\Dropbox\Dropbox (Beacon)\All GIS Projects\2017\217069 - EIS 51-57 Tannery Street Mississauga\MXD\217069_Fig04_ExistingConditions_20180416.mxd

Table 3. Results of Breeding Bird Surveys

Common Name	Scientific Name	Status			Locations			
		COSEWIC[a]	COSARRO[a]	S-Rank[b]	On Property Visit 1	On Property Visit 2	Off Property Visit 1	Off Property Visit 2
Great Blue Heron	*Ardea herodias*	n/a	n/a	S4	-	-	F	F
Mallard	*Anas platyrhynchos*	n/a	n/a	S5	-	F	F	-
Mourning Dove	*Zenaida macroura*	n/a	n/a	S5			F	1
Chimney Swift	*Chaetura pelagica*	THR	THR	S4	F	F	-	F
Downy Woodpecker	*Picoides pubescens*	n/a	n/a	S5	-	1	-	1
American Crow	*Corvus brachyrhynchos*	n/a	n/a	S5	-	-	3	F
Black-capped Chickadee	*Poecile atricapillus*	n/a	n/a	S5		4	1	-
American Robin	*Turdus migratorius*	n/a	n/a	S5	7	1	-	1
Cedar Waxwing	*Bombycilla cedrorum*	n/a	n/a	S5	1	-	-	F
European Starling	*Sturnus vulgaris*	n/a	n/a	SE	7	-	3	5
Common Yellowthroat	*Geothlyphis trichas*	n/a	n/a	S5	-	-	1	-
Northern Cardinal	*Cardinalis cardinalis*	n/a	n/a	S5	2	-	-	1
Song Sparrow	*Melospiza melodia*	n/a	n/a	S5	-	-	1	-
Red-winged Blackbird	*Agelaius phoeniceus*	n/a	n/a	S4	1	-	1	3
Common Grackle	*Quiscalus quiscula*	n/a	n/a	S5	1	-	5	-
Brown-headed Cowbird	*Molothrus ater*	n/a	n/a	S4	-	-	1	-
American Goldfinch	*Spinus tristis*	n/a	n/a	S5	1	1	1	1
House Sparrow	*Passer domesticus*	n/a	n/a	SNA	3	9	1	6

a COSEWIC = Committee on the Status of Endangered Wildlife in Canada
a Species at Risk in Ontario List (as applies to ESA) as designated by COSSARO (Committee on the Status of Species at Risk in Ontario)
END = Endangered, THR = Threatened, SC = Special Concern

[b] SRANK (from Natural Heritage Information Centre) for breeding status if:
S1 (Critically Imperiled), S2 (Imperiled),S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure)
SNA (Not applicable…'because the species is not a suitable target for conservation activities'; includes non-native species)

4.2.5 Aquatic Habitat

According to the Natural Areas Fact sheet for SV10 (as discussed in **Section 4.2.1**), the Mullet Creek is identified as a Type 2 Fishery (City of Mississauga 2015).

4.2.6 Species at Risk

Correspondence from MNRF (pers. comm. B. Keen, MNRF, – 2018) indicates that there are records for six species at risk in the vicinity of the subject property: Butternut (endangered), and Chimney Swift (threatened). No Butternut were observed on or adjacent to the property through the vegetation survey or tree inventory. Chimney Swift were observed flying/foraging over the site during the breeding bird surveys; however, there was no evidence of breeding or nesting on the subject property.

MNRF was consulted at the outset of the project and confirmed that they would not considered the site as providing habitat for listed bats and therefore did not request surveys (pers. comm. B. Kowalyk, MNRF – 2017).

4.3 Evaluation of Significance

The following subsections describe the process for evaluating the significance of the various natural heritage features and ecological features that associated with the study area.

The relative significance of natural heritage features, ecological functions and attributes is generally determined by applying significance criteria that have been developed at the local and regional level. Where such criteria are not available, provincial criteria and guidelines have been considered.

Key sources of guidance for determining significance of the natural features and areas include: the PPS (OMNR 2014), the Peel Region Official Plan, the Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study (NSEI et al. 2009), and Mississauga Official Plan (2010). The following sections provide a summary of which natural heritage features and areas within the study area would be considered significant according to the policies, criteria and guidance provided in the above noted guidance documents. An overview of the relevant policies was provided in **Section 2** and additional details provided below.

As was discussed in **Section 1**, portions of the subject property are mapped as part of the City's Natural Heritage System; however, this mapping is based on coarse scale desktop analyses. One of the key tasks of the EIS is to verify which features and areas satisfy regional and local significance criteria using detailed and current site-specific data.

4.3.1 Significant Habitat for Threatened or Endangered Species

Significance, as it relates to the habitat of endangered species and threatened species is defined by the PPS (2014) as:

> *"the habitat, as approved by the Ontario Ministry of Natural Resources, that is necessary for the maintenance, survival, and/or the recovery of naturally occurring or reintroduced*

> *populations of endangered species or threatened species, and where those areas of occurrence are occupied or habitually occupied by the species during all or any part(s) of its life cycle"*

There is no habitat for endangered and threatened species associated with the subject property. Beacon has confirmed with the MNRF that surveys for bats are not warranted (pers. comm. B. Kowalyk, MNRF – 2017).

4.3.2 Significant Woodlands

Significant Woodlands are recognized as components of the City's Natural Heritage System. Significant Woodlands are defined in the PPS, and in the Region of Peel and City of Mississauga Official Plans. All of the definitions are consistent with respect to attributes and functions that make a woodland significant, however there is some variability in how they are to be identified.

The PPS defines Significant Woodlands as follows:

> *"… an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history. These are to be identified using criteria established by the Ontario Ministry of Natural Resources"*

While the MNRF has criteria for determining woodland significance in areas subject to provincial plans (i.e. Greenbelt, Oak Ridges Moraine, etc.) as well as for Renewable Energy Act projects, no specific criteria have been included or referenced in the 2014 PPS. It is therefore assumed that guidance is from the *Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005.* (MNRF 2010), a document that provides municipalities with guidance on establishing their own significance criteria would apply. As the Peel ROP was approved by MMAH and is considered be consistent with the PPS, we have relied upon the ROP definition.

The ROP defines Significant Woodlands as follows:

> *"an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or …the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history".*

The City of Mississauga Official Plan defines Significant Woodlands as follows:

> *"an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history. These will be identified using criteria established by the Region of Peel in consultation with the City".*

Based on the definition of significant woodland provided in the MOP, the City relies upon Regional criteria in determining woodland significance (underline added for emphasis).

Prior to application of the significant woodland criteria, it is necessary to first identify which of the treed features in the study area satisfy the definition of a "woodland" using the definitions contained in the ROP and MOP.

The ROP defines 'woodlands" as follows:

> *"…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.*
>
> *Woodlands are further defined as any area greater than 0.5 ha that has:*
>
> *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 five centimetres in diameter at breast height (1.37m), per hectare,*
> *iii. 500 trees measuring over 12 centimetres in diameter at breast height (1.37m), per hectare, or*
> *iv. 250 trees measuring over 20 centimetres in diameter at breast height (1.37m), per hectare (densities based on the Forestry Act of Ontario 1998)*
>
> *and, which have a minimum average width of 40 metres or more measured to crown edges.*
>
> *Treed portions with less than the required stocking level will be considered part of the woodland as long as the combination of all treed units in the overall connected treed area meets the required stocking level. Woodlands experiencing changes such as harvesting, blowdown or other tree mortality are still considered woodlands. Such changes are considered temporary whereby the forest still retains its long-term ecological value…"*

The MOP definition of "woodland" is identical to the ROP definition above but also includes the following additional text:

> *Woodlands may exclude treed communities which are dominated by invasive non-native tree or shrub species such as buckthorn (Rhamnus cathartica) and Norway maple (Acer plantanoides) that threaten the ecological diversity of native communities, good forestry*

> *practices and environmental management. Such exceptions may be considered where native tree species comprise less than 10 percent of the tree crown cover and are represented by less than 100 stems of any size per hectare.*

The ROP contains similar policies that exclude certain types of treed features from classification as Core Woodlands or Significant Woodlands provided they meet exclusionary criteria described in Policy 2.3.2.21 which states:

> *Exclude as Core woodlands and significant woodlands, plantations that are:*
>
> *a) managed for production of fruits, nuts, Christmas trees or nursery stock;*
> *b) managed for tree products with an average rotation of less than 20 years (e.g. hybrid willow or poplar); or*
> *c) established and continuously managed for the sole purpose of complete removal at rotation, as demonstrated with documentation acceptable to the Region or area municipality, without a woodland restoration objective.*
>
> *Additional exclusions may be considered for treed communities which are dominated by invasive non-native tree species such as buckthorn (Rhamnus species), Norway maple (Acer platanoides), or others deemed to be highly invasive, that threaten the ecological functions or biodiversity of native communities.*
>
> *Such exceptions should be supported by site-specific studies that consider*
>
> *1) the degree of threat posed;*
> *2) any potential positive and/or negative impact on the ecological functions or biodiversity of nearby or adjacent native communities; and*
> *3) the projected natural succession of the community.*
>
> *Communities where native tree species comprise approximately 10 percent or less of the tree crown cover and approximately 100 or fewer stems of native tree species of any size per hectare would be candidates for exclusion.*

This EIS has applied the woodland definitions and criteria from the ROP and MOP to the one treed community (ELC Unit 1) to determine if it meets the definition of "woodland". While this treed feature was classified as cultural woodland (CUW) under the ELC system, it does not satisfy the woodland criteria in the ROP or MOP as it is too narrow. Treed areas must have a minimum average width of 40 m to be considered woodlands.

Furthermore, the Mississauga Official Plan states: *Woodlands may exclude treed communities which are dominated by invasive non-native tree or shrub species such as buckthorn (Rhamnus cathartica) and Norway maple (Acer plantanoides) that threaten the ecological diversity of native communities, good forestry practices and environmental management.*

Additionally, this feature is dominated by non-native species, notably Manitoba Maple.

Policy 2.3.2.21 was developed to avoid inclusion of wooded features that are dominated by invasive species as significant woodlands in order to protect the ecological integrity of more intact natural woodlands within the Regional Greenlands System and Natural Heritage System.

In our opinion, features such as this CUW exhibit all the attributes necessary for exclusion as is contemplated in the Mississauga Official Plan woodland definition and ROP Policy 2.3.2.21.

While this EIS has recommended that the CUW be excluded as part of the significant woodland for the reasons noted above, this feature is directly associated with the Mullet Creek valley; therefore, the feature is protected through setbacks applied to the valley slope and is entirely outside the proposed development limit.

ELC unit 2, a hedgerow, also does not qualify as a woodland as it too is less than 40 m wide and dominated by invasive species, many of which are in poor condition (ref. Arborist Report, Beacon 2018).

4.3.3 Significant Wetlands

In regard to wetlands, significant is defined by the PPS (2014) as:

> "*an area identified as provincially significant by the Ontario Ministry of Natural Resources using evaluation procedures established by the Province, as amended from time to time."*

There are no Provincially Significant Wetlands (PSWs) or MNRF evaluated wetlands within or adjacent to the subject property. The Creditview Wetland is situated more approximately 2.3 km to the east of the subject property are identified as PSW.

4.3.4 Significant Valleylands

In regard to valleylands, significant is defined by the PPS (2014) as:

> *"ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system …"*

Significant valleylands are normally identified by municipalities with input from their agency partners. Significant valleylands are also recognized regionally as Core Areas of the Greenlands System and locally as Significant Natural Areas and part of the City's Natural Heritage System.

The MOP criteria for significant valleylands reads as follows:

> *6.3.12 g significant valleylands are associated with the main branches, major tributaries and other tributaries and watercourse corridors draining directly to Lake Ontario including the Credit River, Etobicoke Creek, Mimico Creek and Sixteen Mile Creek.*

According to this definition, the Mullet Creek valley qualifies as a Significant Valleyland because it is considered a "major tributary" having a direct confluence with the Credit River.

4.3.5 Significant Wildlife Habitat

Significant wildlife habitat (SWH) represents a combination of natural heritage features, attributes and functions that are intended to capture the best examples of wildlife habitat within a planning area such as an upper or lower tier municipality. This responsibility for confirming SWH is assigned to the planning authority (i.e. Region); however, municipalities rely upon proponents to identify "candidate SWH" through planning studies.

The Region of Peel has developed SWH criteria and thresholds to be applied throughout the Region. These criteria are included in Figure 5 of the ROP. It should however be noted that these criteria and the various thresholds have not been adopted as Regional policy. The MOP definition of SWH defers to the ROP definition; however, the ROP does not include a definition for SWH, so it is presumed that it is defined as per the PPS.

> *Significant: means:* d) *"in regard to other features and areas, ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system"*

To determine if any of the features in the study area support candidate SWH, we consulted the Region of Peel SWH criteria (based on *Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study*, NSEI *et al*., 2009), and the more recent *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF 2015).

According to the *Significant Wildlife Habitat Technical Guidelines* (MNRF 2000), there are four broad categories of Significant Wildlife Habitat (SWH):

1. Seasonal Concentration Areas of Animals;
2. Rare Vegetation Communities or Specialized Habitat For Wildlife;
3. Habitat for Species of Conservation Concern; and
4. Animal Movement Corridors.

Within each of these categories, there are multiple types of SWH, each of which is intended to capture a specialized type of habitat that may or may not be captured by other existing feature-based categories (e.g., significant wetlands, significant woodlands).

Based on a review of the *Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study* (NSEI *et al*., 2009), it was determined the subject property does not support seasonal wildlife concentration areas, rare vegetation communities, specialized habitat, or habitat for species of conservation concern. Although, the Mullet Creek valley may qualify as a secondary or tertiary movement corridor for wildlife; however, it is our opinion that the potential corridor function along Mullet Creek alone is insufficient to designate the valley as SWH.

4.3.6 Significant Areas of Natural and Scientific Interest (ANSI)

In regard to Areas of Natural and Scientific Interest (ANSIs), significant is defined by the PPS as:

> *"areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education."*

The study area does not overlap with any designated ANSIs.

4.3.7 Fish Habitat

The PPS (2014) treats all fish habitat equivalently regardless of significance. All water features (i.e. permanent or intermittent streams, seasonally flooded areas, and natural ponds are generally considered fish habitat. The PPS applies only to waterbodies that constitute fish habitat, as defined by the *Fisheries Act* (1985).

As discussed in **Section 4.2.5**, Mullet Creek directly provides fish habitat and is classified as a Type 2 Fishery within the study area (City of Mississauga, 2015).

5. Constraints and Opportunities

The purpose of the constraint analysis is to identify biophysical features and functions that could present constraint to redevelopment of the subject property. While impact avoidance is considered the primary method for environmental protection, it is also recognized that constrained areas cannot always be avoided, and that other effective methods exist that can mitigate potential adverse impacts of development on the environment.

In addition to the identification of environmental constraints, the EIS has identified a number of opportunities to restore and enhance the natural environment which should be implemented as part of the proposed development.

5.1 Constraints

There are a number of biophysical features associated with the study area that represents constraints to the proposed redevelopment of the subject property. The purpose of the constraint analysis is to identify significant natural heritage features and functions that must be protected as well as natural hazards that must be avoided. These are discussed below.

5.1.1 Natural Heritage Constraints

Based on the background information and the data gathered through field investigations described in **Section 4.2** and through the evaluation of significance presented in **Section 4.3**, it was determined that all of the significant natural heritage features that have been identified in the study area are associated with the valleyland of Mullet Creek.

Natural heritage constraints identified within the study area include the following:

- Watercourses (Mullet Creek);
- Fish Habitat (Mullet Creek);
- Valleyland/hazard land (top of bank of Mullet Creek staked by CVC on July 12, 2017); and

No components of the Regional Greenlands System (Core areas, NAC, or PNAC) occur on the property. There is also no habitat for endangered or threatened species on the subject property.

5.1.1.1 Buffers

It is the policy of the City of Mississauga that ecological buffers to natural features be determined on a site-specific basis through an EIS or similar study to the satisfaction of the City and appropriate conservation authority. CVC's lot creation policies recommend applying a 10 m buffer to the flood and erosion hazard and a 30 m buffer to the watercourse, but also allow for consideration of buffers or setbacks of other distances based on site specific studies.

Due to the nature of the proposed development (i.e. town houses), the risk of encroachment related impacts from lots backing onto the adjacent natural area is considered low. Incorporation of measures such as fencing and naturalization plantings will provide for enhanced buffer functions. Additionally, this feature will also receive protection through implementation of the natural hazard setbacks.

For these reasons, the EIS recommends that a buffer of 10 m be applied to the erosion hazard as defined by the long term stable slope. This buffer will provide the necessary protection to the watercourse and fish habitat. Additionally, the EIS recommends that the buffer area be cleaned up and naturalized to provide for improved ecological functions.

5.1.2 Natural Hazards

5.1.2.1 Slope Hazard

The physical top of slope along the Mullet Creek valleylands were staked by CVC on July 12, 2017. Patriot Engineering Ltd. (2017) has prepared a *Geotechnical Investigation for Performing Slope Stability Analysis* to determine the position of the long term stable top of slope line (LTSSL) relative to the physical top of slope. The study determined that, for the majority of the site, the LTSSL is coincident with the physical top of slope. The LTSSL represents a constraint to development and is illustrated on **Figure 5**.

5.1.2.2 Flood Hazard

The floodplain for the subject property is provided by the CVC. The floodline is a constraint to development and is shown on **Figure 5**.

5.1.2.3 Setbacks

CVC's lot creation policies recommend applying a 10 m setback to the limits of flood and erosion hazards. The greatest setback that limits development is shown on **Figure 5.**

5.1.3 Recommended Development Limits

Based on consideration of the various natural heritage and natural hazard constraints described above, and application of ecologically appropriate buffers and technically supportable hazard setbacks, it is recommended that the limit of the greatest constraint be used to establish the development limits for the proposed redevelopment. Through overlaying the various constraints, it was determined that the following environmental constraints be used to define the limits of future development along the south-western boundary of the property:

- 10 m setback from slope (erosion) hazard; and
- 10 m setback from flood hazard.

5.2 Opportunities

The biophysical assessments completed as part of this EIS have confirmed that the ecological integrity of the Mullet Creek valleylands have been severely compromised by a) past disturbances (heavily altered by encroachment from surrounding development, notably fill and waste dumping), b) proliferation of invasive species, and c) forest dieback due to Emerald Ash Borer.

While the level of degradation is considered significant, it is nevertheless possible to implement localized management strategies (i.e. invasive species control, vegetation management, and habitat creation) that can aid in restoring ecological integrity and functions to these areas.

The proposed re-development presents a number of opportunities for enhancement of the proposed NHS and associated ecological functions.

Opportunities include:

- Installing fencing along the boundaries of natural areas and/or their setbacks where none presently exist;
- Enhancements to the biodiversity of the NHS can be achieved by:
    - Removing highly invasive species such as Manitoba Maple, Common Buckthorn and Honeysuckle from portions of the subject property adjacent to the NHS;
    - Replacing poor quality, non-native trees with native trees;
    - Re-vegetating the buffer area using native trees, shrubs and groundcovers;
    - Incorporating native trees and shrubs into the landscaping of the proposed development to the extent feasible; and,
    - Remove garbage and debris from the valley slopes and areas to be naturalized on the subject property;
- Improvements to quality of surface runoff can be achieved by implementing LID measures; and
- Increase tree canopy cover on the site over the long-term by implementing tree preservation measures and planting trees.

Environmental Constraints and Opportunities

Figure 5

Environmental Impact Study
51 & 57 Tannery Street & 208 Emby Drive, Mississauga

Legend

- Subject Property
- Long Term Stable Top of Slope *
- 10 m Setback to Long Term Stable Top of Slope **
- Floodline ***
- Watercourse ****

Patriot Engineering LTD: Long Term Stable Top of Slope 2017 *
Beacon Environmental: 10 m Setback to Long Term Stable Top of Slope 2018 **
Fiddes Clipsham Inc: Floodline 2017 ***
Ministry of Natural Resources and Forestry: Watercourse 2017 ****

First Base Solutions
Web Mapping Service 2017

UTM Zone 17 N, NAD 83

N W E S

0 5 10 20 Metres

1:900

BEACON ENVIRONMENTAL

Project 217069
June 2018

C:\Dropbox\Dropbox (Beacon)\All GIS Projects\2017\217069 - EIS 51-57 Tannery Street Mississauga\MXD\217069_Fig05_EnvironmentalConstraintsandOpps_20180416.mxd

6. Description of Proposed Development

6.1 Site Plan

The proposed development consists of 155 townhouse units in seven blocks with underground parking. It will be accessed by Emby Drive, which will be extended to Tannery Street. A site plan been prepared by Kirkor Architects and Planners (2018) and is included as **Figure 6a** and **6b. Figure 6a** shows the Site Plan Statistics and the Context Plan, while **Figure 6b** shows the Lower Level Parking.

6.2 Site Servicing

6.2.1 Water and Sanitary

Water and sanitary services to the proposed development will be achieved by connecting to existing and proposed infrastructure along Thomas Street, Emby Drive and Tannery Street (ref. **Figure 7** – Sheet C-101 – LEA Consulting Ltd.). Water will be supplied by a proposed 100 mm watermain that will provide domestic water, which will be connected via a cut-in Tee to a proposed 150 mm fire protection water service. Additionally, there is a proposed 150 mm diameter sanitary sewer that will connect to the extension of the existing sanitary sewer on Emby Drive. For more details, refer to *Servicing and Stormwater Management Brief* (LEA Consulting Ltd. 2018).

6.2.2 Stormwater Management

Drainage from the subject property is currently untreated and run off is directed to Mullet Creek. In order to analyze stormwater flows for the subject property, the area around the proposed development was subdivided into 4 drainage catchments, which is further discussed in Section 2.1 of *Servicing and Stormwater Management* Brief (LEA Consulting Ltd. 2018). Under post-development conditions, the storm flow within the 3 drainage catchment areas outside of the condominium area will be diverted to a proposed storm sewer on Emby Drive, which will then discharge to a municipal storm sewer on Thomas Street. Therefore, only the condominium area's post-development storm flow will be considered for stormwater quantity control.

Based on the post-development conditions for the condominium area, the required on-site storage for different storm water events are:

- 0 m^3 for a 2-year event;
- 25.94 m^3 for a 10-year event;
- 93.07 m^3 for a 100-year event; and,
- 120.0 m^3 for a regional storm.

Based on these site conditions, a 190 m^3 stormwater storage tank is proposed, and will be located in the underground parking lot. This storage tank will then outlet to a proposed storm sewer in Emby Drive.

Stormwater quality will meet the City's requirements of 80% TSS removal, and therefore additional water quality improvement is not recommended. Stormwater quality controls were not considered for rooftop drainage since it is considered "clean" runoff as it won't come in contact with parking lot drainage (LEA Consulting Ltd., March 2018).

Please refer to **Figure 7** for the location of the proposed storm sewers and **Figure 8** for a display of overland flow route on Emby Drive**.** The *Servicing and Stormwater Management Brief* (LEA Consulting Ltd. 2018) for provide additional details about how the site will be serviced.

6.3 Water Balance

Per the *Servicing and Stormwater Management Brief* (LEA Consulting Ltd. 2018), water balance can be achieved by retaining the first 5 mm of rainfall depth on site through infiltration, evapotranspiration, etc. for the condominium area. To satisfy the water balance criteria, an on-site storage volume of 55 m^3 is required for this catchment area.

6.4 Grading

In the past, the subject property was developed (as discussed in **Section 1**). Therefore, minimal grading works are required in support of the proposed development. For more details, refer to the site grading plan (**Figure 8** – Sheet C-100 – LEA Consulting Ltd.).

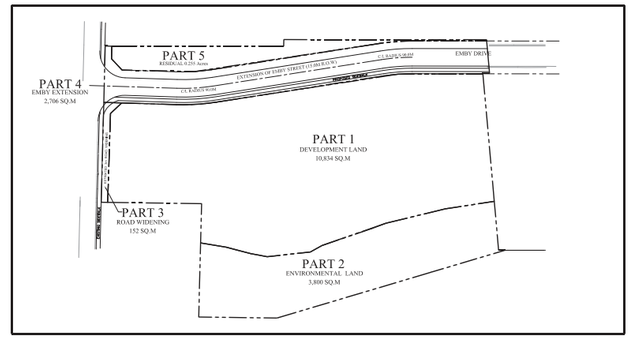
6.5 Landscaping

A Landscape Concept Plan has been prepared for the site by MEP Design Landscape Architecture (ref. **Figure 9)**. The plan identifies areas of buffer restoration, building locations, proposed entry locations to the development and the outdoor amenity area. A detailed Landscaping Plan will be submitted for the development site in the future. Additionally, Beacon will prepare and submit a separate Buffer Restoration Plan for the site.

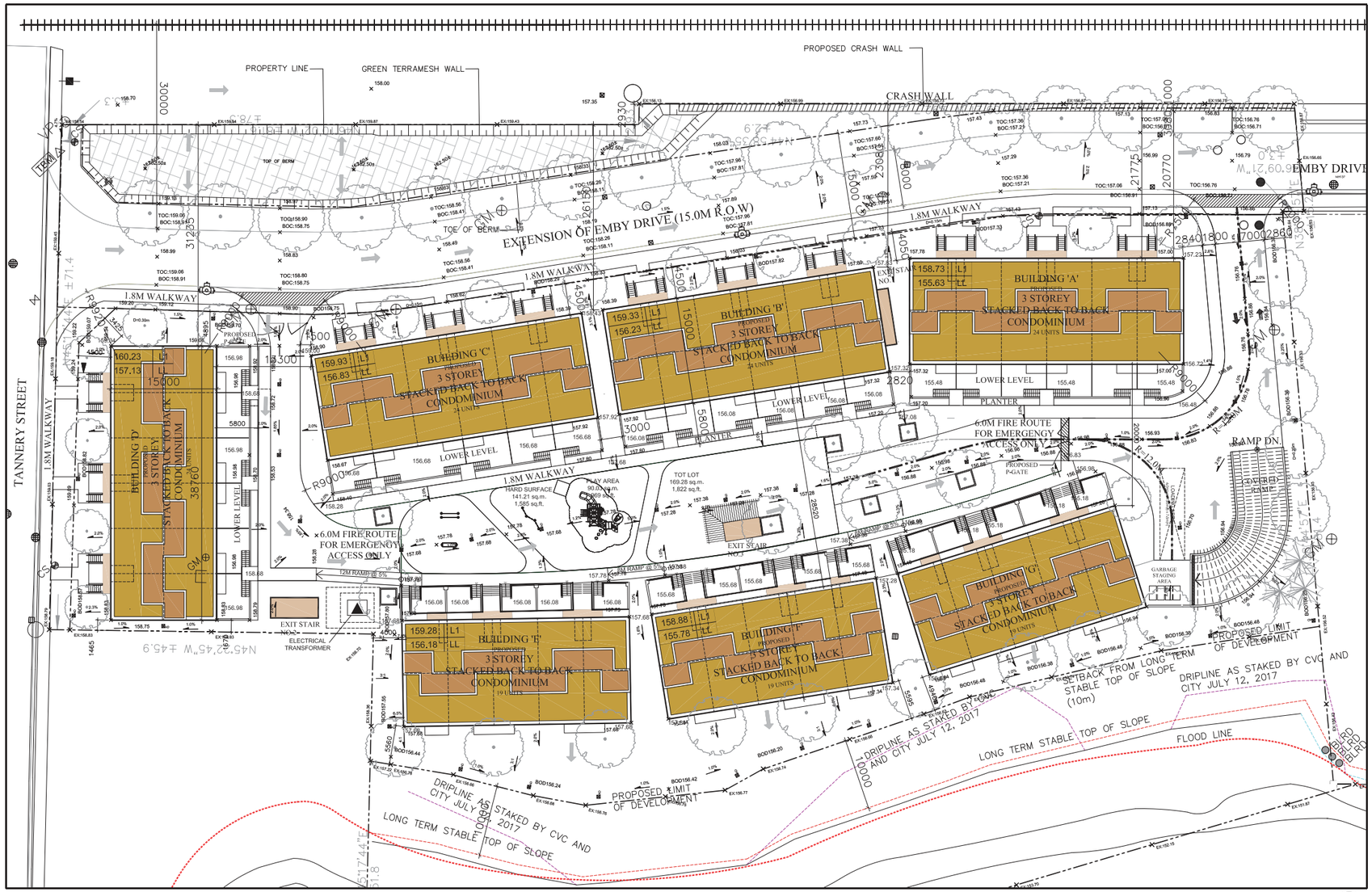
7. Impact Assessment and Mitigation

The impact assessment presented in this section includes the site-specific assessment for the subject property and adjacent lands. The impact assessment is based on:

- The most detailed level of information available related to biophysical resources based on primary and secondary data and analyses (as presented in **Section 4**); and
- The findings of the constraint analyses (presented in **Section 5**) to identify sensitive and significant natural features and ecological functions that require protection to maintain the integrity and biodiversity of the natural heritage within the study area.



Context Area Plan 1:1000 — 4 RZ-01



Site Plan 1:250 — 3 RZ-01

Context Plan N,T,S — 2 RZ-01

TANNERY STREET TOWNHOUSE DEVELOPMENT
Mississauga, Ontario
Proposed Residential Development

Project Statistics — 1 RZ-01

Contractor Must Check And Verify All Dimensions On The Job.

Do Not Scale The Drawings.

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Date:

KIRKOR ARCHITECTS + PLANNERS
20 De Boers Dr. Suite #400 Toronto ON M3J 0H1
T(416) 665-6060, F(416) 665-1234, www.kirkorarchitects.com

No.	Revision	Date

Figure 6a

No.	ISSUED	DATE
01	OPA / ZBA	MAY 31,18

Drawing Title
Site Plan
Statistics & Context Plan

Project
Phase 12
NYX CAPITAL
Proposed
Townhouse
Residential
Development
TANNERY TOWNHOMES
MISSISSAUGA ,ONTARIO

Scale
AS NOTED
Drawn by:
T.S
Checked by:
S.M
File No.:
17-145
Plot Date:
June 8, 2018

RZ-01

FILENAME: 17145-Tannery Townhomes

KIRKOR ARCHITECTS + PLANNERS
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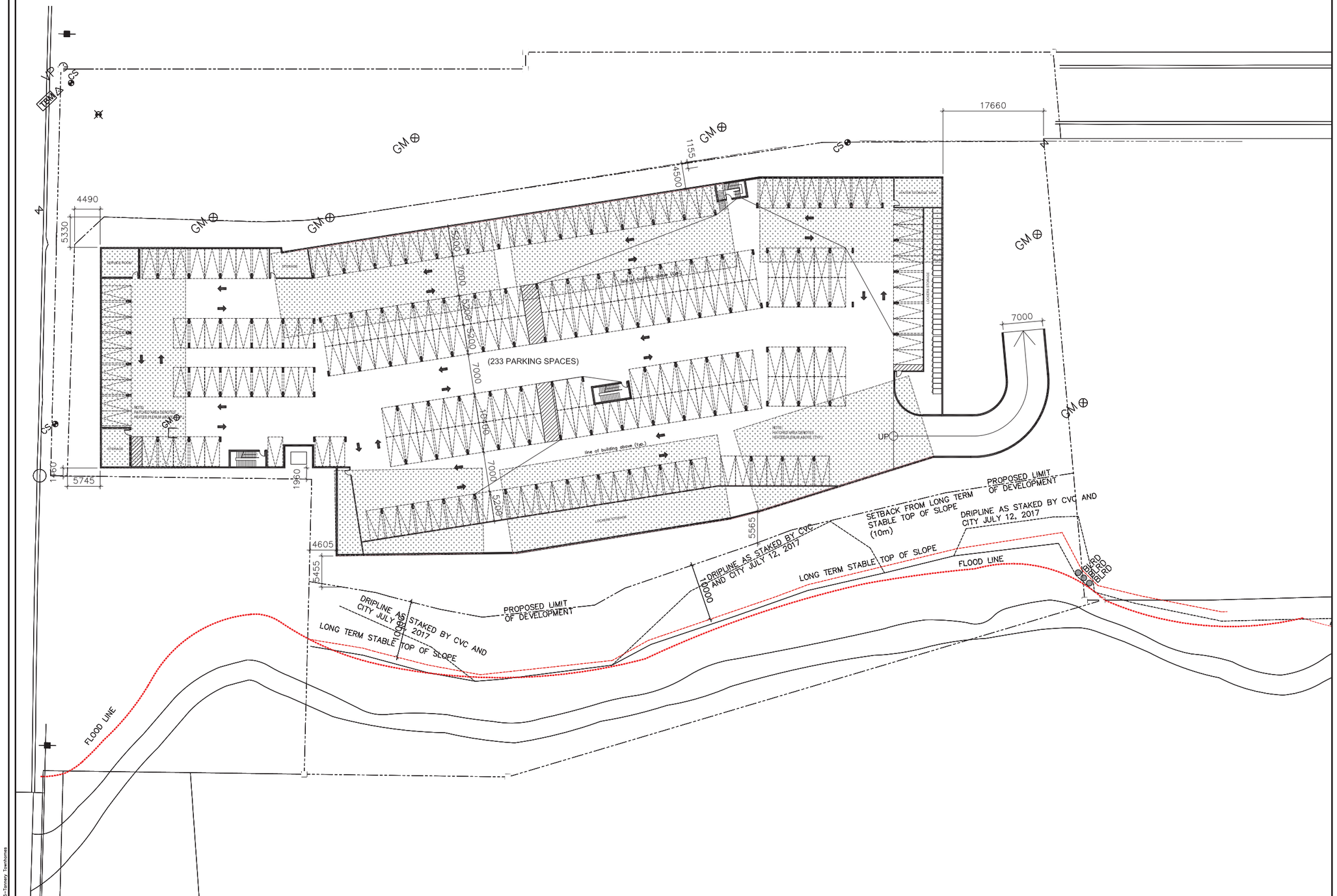
No	Revision	Date



Lower Level Parking 1
1:250 RZ-02

Figure 6b

No.	ISSUED	DATE
01	OPA / ZBA	MAY 31,18

Drawing Title:
Lower Level Parking

Project:
Phase 12

NYX CAPITAL
Proposed

Townhouse Residential Development

TANNERY TOWNHOMES
MISSISSAUGA ,ONTARIO

Scale:
AS NOTED

Drawn by:
T.S

Checked by:
S.M

File No.:
17-145

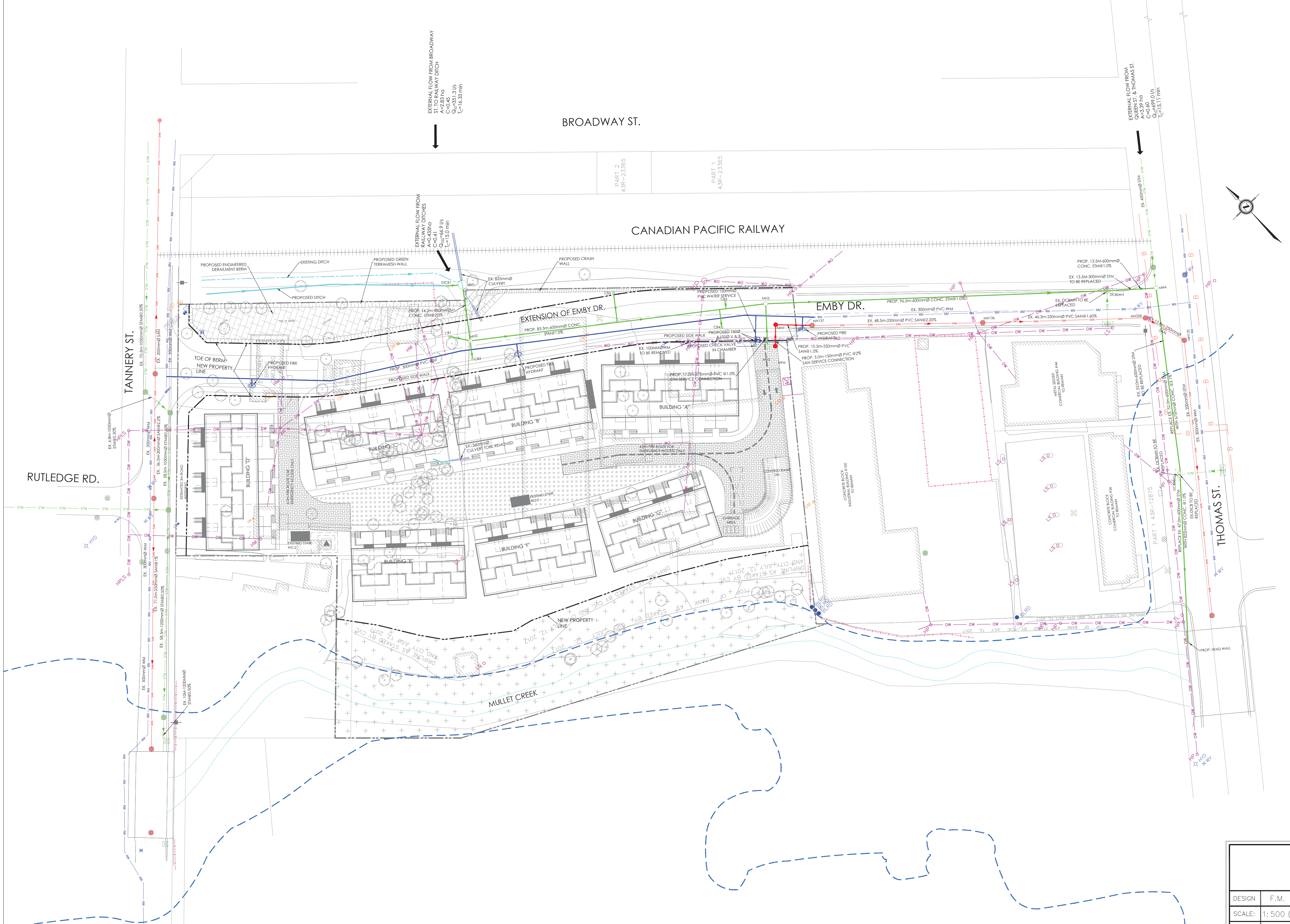
Plot Date:
June 8, 2018

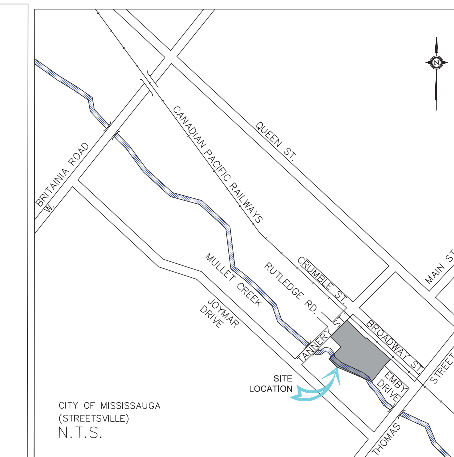
RZ-02

FILENAME: 17145-Tannery Townhomes

NOTES:

1. ALL EXISTING UTILITIES WITHIN THE MAIN PROPERTY LINE INCLUDING CATCH BASINS, LIGHT STANDARDS, HYDRO POLES, OVERHEAD WIRES, GAS METERS AND FENCES TO BE REMOVED.





LEGEND

- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING CATCHBASIN
- HP — EXISTING HYDROPOLE
- LS — EXISTING LIGHT STANDARD
- HPLS — EXISTING HYDROPOLE/LIGHT STANDARD
- WV — EXISTING WATER VALVE
- HYD — EXISTING FIRE HYDRANT
- BLRD — EXISTING BOLLARD
- CS — EXISTING CURB STOP
- EXISTING MONITORING WELL
- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED FIRE HYDRANT
- STM — EXISTING STORM SEWER
- SAN — EXISTING SANITARY SEWER
- WM — EXISTING WATER MAIN
- B — EXISTING BELL CABLE
- OW — EX. OVERHEAD WIRES
- X — EXISTING FENCE
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATER MAIN
- PROPERTY LINE
- NEW PROPERTY LINE
- EXISTING DITCH
- EXISTING TREE
- GM — EXISTING GAS METER
- EXISTING SIGN
- TO BE CONVEYED TO CITY OR CVC
- CONTIGUOUS AMENITY
- REGIONAL FLOOD LINE (FROM MULLET CREEK FLOOD RISK MAP)

MISSISSAUGA

CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

No.	DATE	DESCRIPTION
1	**/**/**	********

Figure 7

625 Cochrane Drive, Suite 900
Markham, Ontario
L3R 9R9, Canada
Tel: (905)470-0015. Fax: (905)470-0030

LEA Consulting Ltd.
Consulting Engineers and Planners
www.LEA.ca

51-57 TANNERY STREET DEVELOPMENT
PRELIMINARY SITE SERVICING PLAN

DESIGN	F.M.	DRAWN	F.M.	CHECKED	M.D.	CONTRACT No. 18038
SCALE:	1:500 (FULL SIZE)			DRAWING NUMBER		C-101
DATE:	FEBRUARY 10, 2018					

DRAWING NAME: F:\18038 – 51 Tannery\Drafting\Contract Drawings\C101-Site Servicing Plan.dwg Mar 29, 2018–3:30pm

One of the primary objectives followed in designing the proposed development was to protect the NHS features and functions. Since impact avoidance is generally the most effective means of reducing the risk of development impacts on the natural environment, it is recommended that development limits be established outside of any significant natural heritage features. This can be achieved by establishing development limits outside the areas identified as being environmentally constrained.

As with the other components of this EIS, an integrated multi-disciplinary approach has been applied to assessing the potential impacts of redeveloping the subject property.

The impact assessment matrix presented in **Table 4** is structured to:

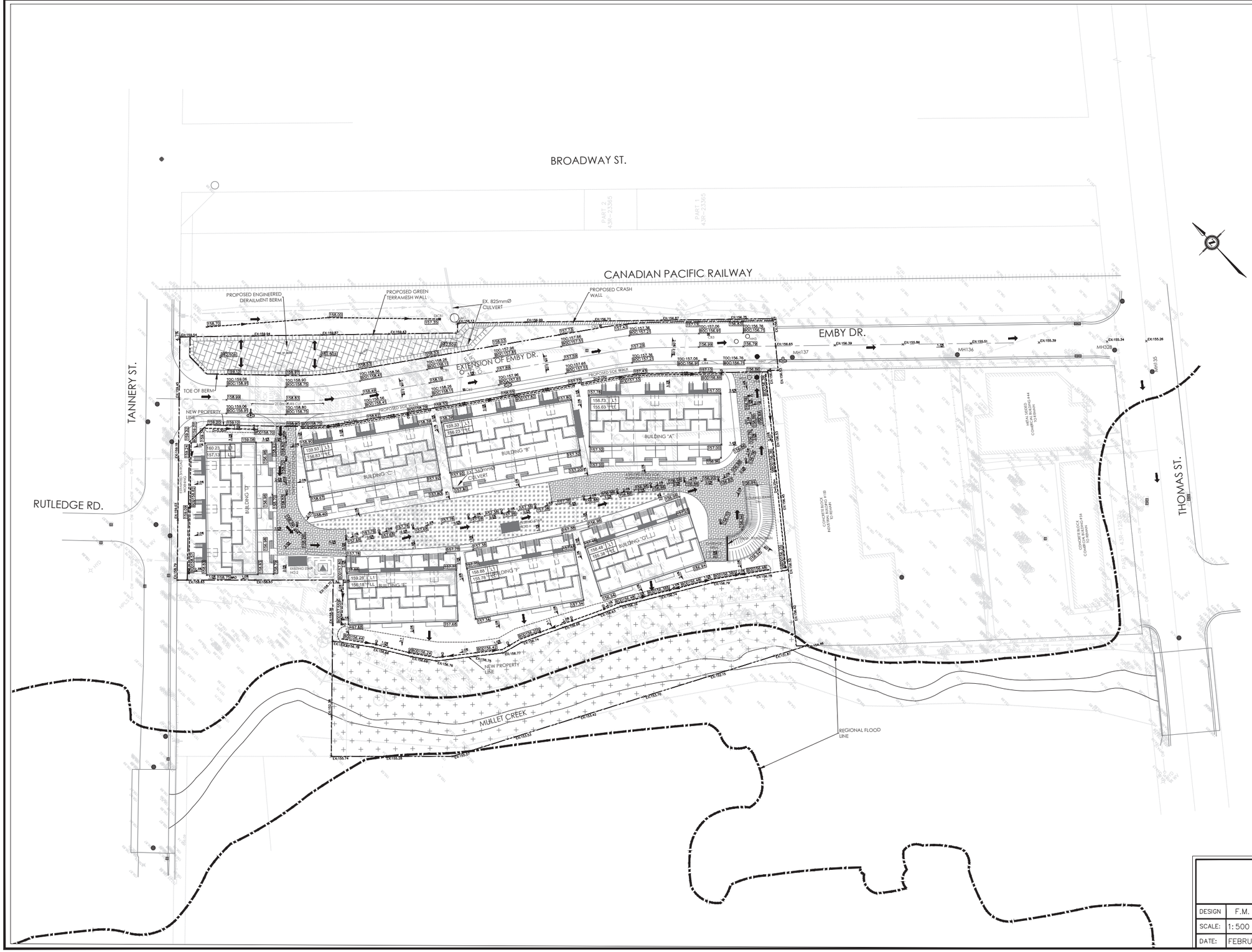
- Identify the specific development activity (impact source);
- Describe the potential effect on environmental receptors (features and functions);
- Recommend mitigation measures to address potential impacts; and
- Describe the effects on the biophysical environment.

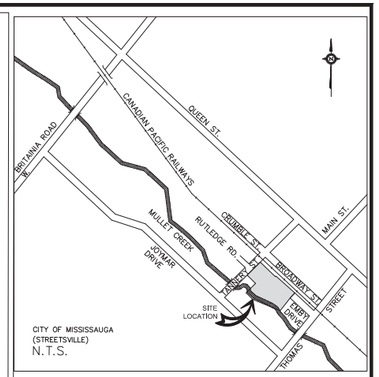
7.1 Erosion and Sediment Control

Per Section 8 of the *Servicing and Stormwater Management Brief* (LEA Consulting Ltd. 2018), it is recommended that Best Management Practices (BMPs) shall be installed and maintained during construction in accordance to the CVC's Stormwater Management Criteria (August 2012). This should include sediment controls measures to prevent silt entry to existing area drains and catch basins, mud-mats at all entrance locations, and having inspection and monitoring programs that follows the CVC Stormwater Management Criteria (August 2012).

Table 4. Impact Assessment Matrix

Category	Feature/Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
Geology	**Bedrock Geology**	Grading and Servicing	It is not anticipated that grading and servicing will be within the bedrock, therefore no impacts to bedrock resources are anticipated.	None	Neutral
	Surficial Geology/ Physiography/ Topography	Site Preparation and Grading	The site is flat and overlain with a thin layer of glacial till that has been previously modified, including fill. The proposed grading will not significantly alter the topography of the landscape.	• A cut and fill balance should be maintained for the site to the extent feasible. • Limit grading to the development area and attempt to match existing grades at development limits and along tree protection zones.	Neutral
Soils	**Topsoil**	Site Preparation and Grading	None. There is minimal topsoil on the property due to the former development.	The limited topsoil resources should be salvaged and reused.	Neutral
Air Quality	**Air**	Site Preparation and Grading	Due to the scale of the redevelopment and its setting which is sheltered from prevailing winds, it is not anticipated that dust from grading and construction will result in adverse environmental impacts.	Dust control will be the responsibility of the Contractor and will be managed through construction specifications – for example, construction requirements may include the application of water to cleared and unpaved construction areas.	Neutral
Groundwater	**Groundwater Flows**	Grading, Servicing and Development	Based on the borehole data and measured ground water levels some ground water seepage may be encountered within the excavated area, which may require de-watering during construction.	• Use trench plugs or anti-seepage collars along installed services to prevent redirection of groundwater flows and water table lowering, if necessary • A construction dewatering plan should be prepared to the satisfaction of CVC, if required. • If permanent ground water controls are required; then a passive system for redirecting ground water flows is recommended.	Neutral
	Groundwater Quality	Grading, Servicing and Development	Site preparation activities such as grading can increase the risk of erosion and sedimentation to the NHS. Under the post-development scenario, contaminants such as oil, sand, salt and other debris may also affect the water quality of surface runoff.	Implement sediment and erosion control plans to ensure that sediments are contained on the site and do not enter the watercourses.	Neutral
Surface Water	**Watercourse Features**	Grading, Servicing and Development	No direct impacts to watercourses are anticipated.	None	Neutral
	Watercourse Flows	Grading, Servicing and Development	Uncontrolled stormwater runoff has the potential to exacerbate flooding and erosion issues in Mullet Creek. Increases in surface water runoff entering these watercourses under post-development conditions could negatively impact downstream infrastructure and property.	Implement appropriate BMP's and SWM controls recommended in the Servicing and Stormwater Management Brief.	Neutral
	Water Quality	Grading, Servicing and Development	Uncontrolled erosion, sedimentation, and machine use (including potential spills) during construction could result in release of deleterious materials (fuel, oil, lubricant, etc.) into the watercourses, and/or degradation of water quality within the limits of construction and outlying areas.	Implement appropriate BMP's and SWM controls recommended in the Servicing and Stormwater Management Brief.	Neutral
	Water Temperature	Grading, Servicing and Development	Uncontrolled stormwater runoff has the potential to further degrade water quality in Mullet Creek. Runoff can have adverse thermal impacts on the creek.	Implement appropriate BMP's and SWM controls recommended in the Servicing and Stormwater Management Brief.	Neutral
Site Water Balance	**Overall Site**	Grading and Development	No impacts are anticipated if recommended mitigation measures are implemented.	Based on the site conditions of the condominium area, a 190 m^3 stormwater storage tank is proposed in the underground parking lot. This storage tank will then outlet to a proposed storm sewer in Emby Drive. The water-balance criteria can be satisfied with an onsite storage volume of approximately 54.2 m^3 for the condominium area.	Neutral
Natural Heritage System	**NHS Linkages**	Grading, Servicing and Development	Re-development on the subject property will be confined to lands that are presently developed. Connectivity along the Mullet Creek valleylands will be maintained as the re-development will be restricted to the tableland.	Remove invasive species and planting native species within Mullet Creek valleylands. Cleaning garbage out of natural features.	Positive
	Significant Woodlands	Grading, Servicing and Development	There are no significant woodlands on or adjacent to the subject property.	None	Neutral
	Wetlands	Grading, Servicing and Development	There are no wetlands on or adjacent to the subject property.	None	Neutral
	Valleylands/Hazard Lands	Grading, Servicing and Development	The Mullet Creek valley qualifies as a significant valleyland, according the City's OP criteria, and will be protected from any direct development. A 10 m setback has been applied to the long term stable top of slope.	Potential indirect impacts to the valleylands can be eliminated or minimized by implementing the various mitigation measures described in this EIS. Potential erosion hazards can be mitigated by avoiding disturbance (i.e., site alteration) within the identified Long Term Stable Top of Slope and Top of Bank (as staked by CVC July 12, 2017). Indirect impacts related to sedimentation during construction can be addressed through erosion and sediment control measures along the development limit.	Positive
	Significant Wildlife Habitat	Grading, Servicing and Development	The valleylands associated with Mullet Creek provide wildlife movement corridors, although it is our opinion that the potential corridor function along Mullet Creek alone is insufficient to designate the valley	None	Neutral





CITY OF MISSISSAUGA
(STREETSVILLE)
N.T.S.

LEGEND

- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED FIRE HYDRANT
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING CATCHBASIN
- HP EXISTING HYDROPOLE
- LS EXISTING LIGHT STANDARD
- HPLS EXISTING HYDROPOLE/LIGHT STANDARD
- WV EXISTING WATER VALVE
- HYD EXISTING FIRE HYDRANT
- BLRD EXISTING BOLLARD
- CS EXISTING CURB STOP
- EXISTING MONITORING WELL
- OH OH EX. OVERHEAD WIRES
- X X EXISTING FENCE
- PROPERTY LINE
- EXISTING DITCH
- PROPOSED DITCH
- AD PROPOSED AREA DRAIN
- 159.47 EXISTING SURVEY ELEVATION
- EX: 158.32 EXISTING ELEVATION
- 158.32 PROPOSED ELEVATION
- TOC158.26 PROPOSED TOP OF CURB ELEVATION
- BOC158.11 PROPOSED BOTTOM OF CURB ELEVATION
- BOD157.20 PROPOSED BOTTOM OF DITCH ELEVATION
- OVERLAND FLOW ROUTE
- GM EXISTING GAS METER
- EXISTING TREE
- EXISTING SIGN
- TO BE CONVEYED TO CITY OR CVC
- CONTIGUOUS AMENITY
- REGIONAL FLOOD LINE (FROM MULLET CREEK FLOOD RISK MAP)

CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

No.	DATE	DESCRIPTION
1	**/**/**	********

Figure 8

625 Cochrane Drive, Suite 900
Markham, Ontario
L3R 9R9, Canada
Tel: (905)470-0015. Fax: (905)470-0030

LEA Consulting Ltd.
Consulting Engineers and Planners
www.LEA.ca

51-57 TANNERY STREET DEVELOPMENT
PRELIMINARY SITE GRADING PLAN

DESIGN	F.M.	DRAWN	F.M.	CHECKED	M.D.	CONTRACT No. 18038
SCALE:	1:500 (FULL SIZE)			DRAWING NUMBER		C-100
DATE:	FEBRUARY 10, 2018					

DRAWING NAME: F:\18038 - 51 Tannery\Drafting\Contract Drawings\C100-Site Grading Plan.dwg Mar 26, 2018 - 4:06pm

Figure 9

0 5 10 25m

Tannery Townhomes - Mississauga, Ontario

MEPDESIGN
LANDSCAPE ARCHITECTURE

Category	Feature/Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
			as SWH. However, this function will be enhanced post re-development with a greater setback to the valley slope and ecological enhancements. Refer to the NHS Linkage section above.		
	Trees	Grading, Servicing and Development	The proposed development will result in the removal of 76 trees from the tableland, many of which are in poor condition or dead (see Arborist Report, Beacon 2018 for details).	The loss trees can be mitigated over the long term by restoring an equivalent or greater number of trees and increasing the extent of the canopy. Plantings can be accommodated within the development area as well as on adjacent lands to compensate for these removals and provide a net gain in terms of species quality and overall cover.	Neutral - Positive
	Fish Habitat	Grading, Servicing and Development, SWM Controls	Mullet Creek provide Type 2 Fish Habitat. Grading, servicing and development of the site will occur adjacent to this habitat and are not anticipated to result in a direct impact. Appropriate development setbacks and buffers have been provided	Potential impacts to fish habitat in Mullet Creek can be reduced by implementing BMP's and ESC measures. Mitigation measures for flood control, water quality, temperature impacts, and erosion are noted above under Surface Water. Additionally, it is proposed that the valleylands be enhanced through restoration and naturalization efforts proposed in this EIS. These proposed activities will serve to enhance the habitat and supporting functions for fish.	Neutral-Positive
Wildlife	**Birds**	Grading, Servicing and Development	The breeding bird surveys documented a number of urban tolerant species on and adjacent to the subject property. Proposed tree removals from the tablelands may result in a small reduction in nesting habitat; however, the based on the scale and location of the proposed development, it is not expected to have a significant effect on the avian community. Construction activity on the site could potentially disturb the birds during the nesting season.	• Undertake all vegetation / tree clearing between August and early April so as not to impact breeding birds and not contravene the *Migratory Birds Convention Act.* • Restore tree canopy by planting replacement trees	Neutral
Species at Risk (SAR)	**SAR Habitat**	Grading, Servicing and Development	There is no habitat for Species at Risk (SAR) on or adjacent to the subject property.	None	Neutral

8. Policy Conformity

A summary of federal, provincial and municipal environmental protection and planning policies and regulations applicable to the subject property were discussed in **Section 2**. An evaluation of how the proposed re-development complies with the applicable environmental policies and legislation is summarized below in **Table 5**.

Table 5. Policy Compliance Assessment

APPLICABLE POLICY / LEGISLATION	RELEVANT EIS FINDINGS AND RECOMMENDATIONS
Federal Fisheries Act (1985)	Fish were noted at the confluence of Mullet Creek. Fish habitat will not be impacted by the proposed development provided that the mitigation measure recommended in this report and the Servicing and Stormwater Management Brief are implemented.
Endangered Species Act (2007)	N/A. There is no habitat for threatened or endangered species.
Provincial Policy Statement (2014) Section 2.1 – Natural Heritage	
1. Habitat for Threatened and Endangered Species	N/A. There is no habitat for threatened or endangered species.
2. Significant Valleylands	Mullet Creek qualifies as a significant valleyland. The valley and its functions will not be negatively impacted
3. Significant Wetlands	N/A. There is no wetland habitat.
4. Significant Woodlands	N/A. There are no significant woodlands.
5. Significant Wildlife Habitat	In our opinion, the Mullet Creek Valley adjacent to the subject property is not considered candidate SWH for wildlife movement corridor. Regardless, the valley will not be negatively impacted by the proposal.
6. Significant Areas of Natural and Scientific Interest	N/A – There are no Areas of Natural of Scientific Interest.
7. Fish Habitat	No impacts to fish habitat are anticipated provided that the mitigation recommendations in this report are implemented.
Provincial Policy Statement (2014) Section 2.2 - Water	No impacts to sensitive water features anticipated. The EIS and companion technical studies have identified mitigation measures to be implemented to reduce impacts to sensitive surface water and groundwater features and their hydrologic functions.
Provincial Policy Statement (2014) Section 2.3 – Natural Hazards	Development of the subject property will be limited to areas outside natural hazards (i.e. slopes, floodplains). No development is proposed beyond the Long Term Stable Top of Slope.
Region of Peel OP	There are no Core Areas associated with the subject property or adjacent lands.
Mississauga OP (2016)	
1. Natural Heritage System	
Significant Natural Areas	Significant natural areas associated with the subject property and adjacent lands include: • Fish Habitat • Significant Valleyland • Significant Wildlife Habitat

APPLICABLE POLICY / LEGISLATION	RELEVANT EIS FINDINGS AND RECOMMENDATIONS
	No development is proposed within Mullet Creek or the valleyland; therefore, there no direct impacts are anticipated. Indirect impacts can be avoided or minimized by implementing the recommendations of his report.
Natural Green Spaces	Natural Green Spaces correspond with the valley and will not be impacted.
2. Natural Hazard Lands	Development of the subject property will be limited to areas outside natural hazards (i.e. valley slopes associated with Mullet Creek).
CVC Regulations and Policies	
Ontario Regulation 160/06 Watershed Planning and Regulation Policies (CVC, 2010)	Development of the subject property will be limited to areas outside features that are regulated by CVC including watercourses and natural hazards (i.e. valley slopes). The EIS has recommended ecologically appropriate buffers. The development limit is considered to be appropriately setback from natural hazards such as the top of slope.

9. Conclusion

Nyx Development Corp. is proposing to redevelop the 1.85 ha property located at 55 and 57 Tannery Street and 208 Emby Drive in the City of Mississauga. The property currently supports industrial buildings, valleylands, parking areas, residential buildings and lawn. The proponent is proposing to redevelop the property to accommodate 155 staked back to back townhouses.

The subject property is located within the Streetsville Community Node, and is mostly designated as high density residential on Schedule 10 of the City's OP. This schedule also shows that the western portion of the subject property is considered "Greenlands" and contains natural hazards. Schedule 3 of the City's OP considers the valleylands associated with Mullet Creak along the south-western border of the site as "Significant Natural Areas and Natural Green Space," and a natural hazards overlay has been applied to the floodplains associated with this creek.

Due to the proximity of the proposed re-development to the Significant Natural Area, it is the City's policy to require an EIS demonstrating that the re-development does not negatively impact upon the adjacent natural features and functions. Beacon was retained by Nyx Development Corp to prepare an EIS in support of their applications for the Official Plan Amendment (OPA), Zoning By-law Amendment (ZBLA), and Draft Plan of Subdivision or Condominium for the proposed redevelopment.

This EIS was prepared by Beacon with input from a multi-disciplinary team comprised of experts in the fields of ecology, arboriculture, geology, hydrogeology and hydrology. The EIS integrates key findings from other technical reports prepared by the project team to ensure that the ecological inter-relationships between surface water and natural heritage resources are adequately characterized.

This EIS has been prepared in accordance with the City of Mississauga's EIS Checklist. The EIS has a) characterized the natural heritage features and ecological functions associated with the subject property and surrounding area, b) evaluated the significance of the natural heritage features, c) identified development constraints and impact avoidance measures, d) assessed the potential direct and indirect impacts of the proposed re-development on these features and functions, and e) provided

recommendations for mitigation and enhancement measures that can be implemented to protect and restore the ecological integrity of the Natural Heritage System.

Using background information and data collected by the study team through the various field investigations, inventories and assessments, the EIS has determined the significance of the natural heritage resources and identified natural hazard constraints associated with the study area and identified the limits of these features to establish future development limits. All of the significant natural heritage features that have been identified in the study area are associated with the valleylands associated with Mullet Creek.

The Mullet Creek valley could potentially be considered a significant valleyland. The watercourse is considered to provide Type 2 fish habitat. This feature may qualify as a secondary or tertiary movement corridor for wildlife. Collectively, these features represent the Significant Natural Area, and will be protected from development by a setback of 10 m to the long term stable top of slope.

From a natural heritage perspective, the proposed redevelopment will not result in any negative impacts to ecological features or functions associated with the natural heritage system provided that the recommended impact avoidance and mitigation measures specified in this EIS and corresponding technical reports are implemented. It is also Beacon's opinion that implementation of the stormwater management controls, native landscaping, and buffer restoration plan will have a positive impact on Natural Heritage System.

Report prepared by:
Beacon Environmental

Dan Westerhof, B.Sc., MES
Terrestrial Ecologist, Certified Arborist
(ON-1536A)

Report prepared by:
Beacon Environmental

Anna Corrigan, B.Sc. (Hons)
Ecologist

Report reviewed by:
Beacon Environmental

Ken Ursic, M.Sc.
Principal

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Appendix A

City of Mississauga EIS Checklist

Environmental Impact Study Checklist
October 2017

Applicant: Tim Jessop (Nyx Capital Corp.) Env. Consultant: Ken Ursic (Beacon Environmental)

Phone: (416) 548-5590 x1006 Phone: (519) 826-0419 x23

Email: tim@nyxcapital.com Email: kursic@beaconenviro.com

PAM and/or DARC # and Date: _____

Development Application (check): ☐ Official Plan Amendment ☐ Zoning By-law Amendment ☒ Site Plan Application ☐ Subdivision ☐ Condominium ☐ Other

Site / Property Address: 55 and 57 Tannery Street, and 208 Emby Drive

Process

- Applicant requests site meeting prior to initial submission
- After site meeting, environmental consultant completes EIS Checklist based on on-site discussion and submits to City for confirmation
- EIS, with EIS Checklist included as an appendix, becomes part of complete application
- Depending on application type, an addendum may be required with subsequent applications (eg. level of detail required at OPA versus Site Plan)
- Natural heritage records generally require updates or field verification after 5 years
- If additional questions, please contact Ken Ursic (Beacon Environmental)

Content

The following is a checklist of all the potential sections that may need to be addressed as part of an EIS. However, depending on the scope and scale of the proposed development and/or site alteration, as well as the nature and extent of natural heritage features and areas to be considered, not all elements will necessarily be required. Components not included in the Terms of Reference, with a rationale for their exclusion, should be marked as "N/A".

1. Introduction

- ☒ Description of subject property (natural features and areas, land cover, existing hard surfaces or buildings)
- ☒ Description of the type and scale of the development proposal (including, but not limited to, servicing, above and below ground structures, proposed grading)
- ☒ Describe the historical and present uses of the subject property:
  - ☒ grading/filling activities
  - ☐ brownfield contamination
- ☒ Description of the site context/study area and the subject property's relationship to the surrounding landscape
- ☒ Include map(s) of the development location, subject property and study area
  - ☒ Orthographic map with known natural heritage features/areas overlaid

2. Planning Context

- ☒ Current land uses designation and zoning for the subject property and for the adjacent lands, including Upper and Lower Tier designations
- ☒ Identify the type of required development applications
- ☒ Include map(s) of the development location and extent of the area to be studied including current Land Use / Zoning City Land Use and Zoning are discussed in EIS.
- ☒ Identify environmental legislative, regulatory and policy requirements that may affect the development proposal, including clauses relevant to the proposal (Federal, Provincial, Municipal – Upper and Lower Tier, and Conservation Authority)

3. Background Review

- ☒ Identify relevant information from existing studies, plans, databases and other sources to be analyzed as part of the EIS including, but not limited to, Natural Heritage and Urban Forest Strategy, Natural Areas Survey, Region of Peel data, Conservation Authority data, Natural Heritage Information Centre

4. Characterizing the Natural Environment: Approach and Methodology

- ☒ Detailed study methods for studying natural heritage features and areas, wildlife habitat and Species at Risk (including time of year, level of searcher effort, etc.)
- ☒ Identify and describe the approach and methods to be used to assess natural environment of the subject property and the adjacent lands for:
  - ☒ Geology and Soils
  - ☒ Hydrology and Hydrogeology
  - ☒ Aquatic and Fish Habitat
  - ☒ Terrestrial Vegetation (including wetlands)
  - ☒ Vegetation Communities (Ecological Land Classification)
  - ☒ Wildlife
  - ☒ Natural Hazards
  - ☒ Connectivity and Ecological Linkages
- ☒ Identify whether there are potential natural heritage features and areas that do not need to be assessed, and provide a rationale for their exclusion
- ☒ Complete a screening for Significant Wildlife Habitat
- ☒ Include map(s) showing locations for field studies (i.e. points, plots, transects)
- ☒ Tree inventory and preservation plan for trees outside of the NAS

Site is very small and entire area was surveyed. EIS explains the methodology further.

5. Data Analysis: Approach and Methodology

- ☒ Evaluation of Significance and Natural Hazards—identify that the following assessments are in scope and any known analysis that will need to be included
  - ☒ Natural heritage features and areas against the appropriate policies and guidelines to determine significance:
  - ☒ Natural heritage features and areas against the appropriate policies and guidelines related to natural hazards:
  - ☒ Appropriate buffers and/or setbacks to the natural heritage features
- ☒ Natural Heritage Opportunities and Constraints— identify that it is in scope
- ☒ Environmental Policy Analysis (confirmation of policies and legislation to be addressed)
- ☒ Impact Assessment—identify that the scope includes direct, indirect, and cumulative impacts

n/a ☐ Evaluation of Alternative Options/Measures—establish key analysis points to be addressed in the EIS

- ☒ Recommended Mitigation Measures (including, but not limited to avoidance, enhancement, restoration, education and stewardship)

6. Monitoring

- ☒ Monitoring Plan (outline of the types of monitoring to be included in the EIS)

7. Recommendations and Conclusion

- ☒ Recommendations Concluding Statement (confirm they are to be provided in the EIS)

Signatures

Env. Consultant: _____ Date: _____

City Of Mississauga: _____ Date: _____

Appendix B

Arborist Report and Tree Inventory and Preservation Plan (Beacon 2018)

June 7, 2018 BEL 217069

Mr. Armin Fatehi, P.Eng., MBA
Nyx Capital Corp
201-1131A Leslie Street
Toronto, ON M3C 3L8

Re: Arborist Report for 51 and 57 Tannery Street and 208 Emby Ave, Mississauga, ON

Dear Mr. Fatehi:

Beacon Environmental Limited (Beacon) is pleased to provide you with this Arborist Report and Tree Inventory and Preservation Plan (TIPP) in support of the proposed Site Plan for properties located at 51 and 57 Tannery Street and 208 Emby Ave in the City of Mississauga.

This report summarizes the findings of a tree inventory and assessment of all trees ≥10 cm in diameter at breast height (DBH, measured 1.4 m above grade) located on or within 6 m of the subject property and provides recommendations for tree removal or preservation based on the proposed development plan which are reflected on the Tree Inventory and Preservation Plan.

Methods

All trees measuring ≥10 cm in diameter at breast height (DBH, measured 1.4 m above grade) on and adjacent to the subject properties (where accessible) within 6.0 m of the property line, were inventoried and assessed by an ISA Certified Arborist on April 24, 2017. Trees on the subject property were marked with numbered aluminum forestry tags. Tagged trees were surveyed by a registered Ontario Land Surveyor. The assessment included collecting data on species, trunk diameter (DBH), and health and condition. The condition of individual trees was assessed in terms of overall health and structural integrity based on indicators such as live leaves and buds, dead wood, decay, structural defects, and presence of disease. Each tree was assigned a condition rating of good, fair, poor, or dead, based on the following criteria:

- **Poor** – Severe dieback, significant lean, missing leader, major defects, significant decay and/or disease presence;
- **Fair** – Moderate dieback and/or lean, limb defects, multiple stems, moderate foliage damage from stress;
- **Good** – Healthy vigorous growth, minor visible defects or damage; and
- **Dead** – No live growth.

Findings

A total of 110 trees were inventoried on and adjacent to the subject property. A complete list of trees in provided in **Appendix A**. Tree locations are illustrated in **Figure 1**. Trees range in size from 10 to 95 cm DBH, with a median DBH of 22 cm. The majority of the trees are Manitoba Maple. A summary of the species and size class distribution is provided in **Table 1**. Tree condition is summarized as follows:

- Good: 19;
- Fair-Good: 6;
- Fair: 27;
- Fair-Poor: 14;
- Poor: 33; and
- Dead: 11.

Table 1. Tree Species and Size Class Summary

Species	Common Name	DBH Range (cm)							Total
		10-14	15-19	20-29	30-39	49-49	50-59	90-99	
Acer negundo	Manitoba Maple	9	14	14	12	4	3	-	**56**
Acer platanoides	Norway Maple	-	2	-	1	-	-	-	**3**
Acer x freemanii	Freeman's Maple	-	-	-	1	-	-	-	**1**
Betula papyrifera	White Birch	-	1	1	-	-	-	-	**2**
Crataegus sp	Hawthorn	2	1	-	-	-	-	-	**3**
Fraxinus americana	White Ash	1	-	3	1	-	-	-	**5**
Ulmus pumila	Siberian Elm	-	-	1	-	-	-	-	**1**
Juglans nigra	Black Walnut	4	4	5	1	1	-	-	**15**
Juglans regia	English Walnut	-	-	-	2	-	-	-	**2**
Magnolia sp	Magnolia	1	-	-	-	-	-	-	**1**
Malus sp	Apple	-	4	1	-	-	-	-	**5**
Picea abies	Norway Spruce	-	-	1	-	3	1	-	**5**
Picea pungens	Colorado Blue Spruce	-	-	4	-	-	-	-	**4**
Pinus nigra	Austrian Pine	-	-	1	-	-	-	-	**1**
Quercus macrocarpa	Bur Oak	1	-	-	-	-	-	-	**1**
Salix x sepulcralis	Hybrid Crack Willow	-	-	-	-	-	-	1	**1**
Ulmus americana	White Elm	1	1	-	1	-	-	-	**3**
Populus deltoides	Cottonwood	-	-	-	-	-	1	-	**1**
	Total	**19**	**27**	**31**	**19**	**8**	**5**	**1**	**110**

Description of Proposed Redevelopment

The proposed re-development of the subject property consists of seven townhouse buildings totaling 155 stacked, back-to-back units, outdoor amenity space, and underground parking. Emby Drive will be extended across the subject property to connect with Tannery Street. A crash wall and berm are proposed on the east side of the subject property adjacent to the railway corridor.

Impact Assessment and Recommendations

Tree Removals

A total of 82 trees are recommended for removal to accommodate the proposed development, of which 35 are in fair or good condition, 27 are in poor condition, 10 are in fair-poor condition, and 10 are dead. The majority are Manitoba Maple.

The *Migratory Birds Convention Act* protects the nests, eggs, and young of most bird species from harassment, harm, or destruction. Therefore, it is recommended that tree removals be conducted between mid-August and mid-April to avoid the time period when birds are nesting. For any proposed clearing of vegetation during the breeding bird season (approx. April 15 and August 15), an avian biologist should undertake nest searches immediately prior (within two days) to site alteration to identify whether nests are present and what actions are necessary to avoid impacts.

Tree Preservation

A total of 28 trees are identified for preservation (see **Figure 1** and **Appendix A**), primarily along Mullet Creek.

Tree health and structural integrity can be compromised by grade changes, soil compaction, root cutting, and mechanical damage to trunks and branches resulting from the operation of construction equipment.

Trees to be retained shall be protected through the establishment of a tree protection zone (TPZ). The minimum recommended TPZ's are based on the DBH of the tree as indicated in **Table 2** and illustrated on **Figure 1**. While not explicitly recognized by the City of Mississauga, comparable TPZs are accepted in other area municipalities, including the City of Toronto, City of Burlington, the Town of Richmond Hill, and the Town of Aurora.

Table 2. Minimum Tree Protection Zones

Trunk Diameter (cm)	Minimum TPZ (m)*
<10	1.2
10-29	1.8
30-40	2.4
41-50	3
51-60	3.6
61-70	4.2
71-80	4.8
81-90	5.4
91-100	6

* to be measured from the outside edge of the base of the tree

The TPZ should be demarcated with tree protection hoarding consisting of 1.2 m orange plastic fencing framed with solid top and bottom rail, or 1.2 m plywood (see **Figure 1** for fence location and detail), or an alternative approved by the City. Fencing should be installed before any construction or site alteration takes place.

No grading, soil disturbance, or surface treatments shall occur within the TPZ and no equipment or materials shall be stored inside the TPZ.

In addition to the establishment of the TPZ, the following specifications are recommended to ensure the health and survival of any retained trees:

- Before the beginning of work, the contractor and qualified arborist, should meet on site to review work procedures, access routes, storage areas and the TPZ or other tree protection measures.
- Where underground utilities are to be installed, the route shall be outside any TPZ, or tunnelling or boring methods should be used for installation.
- Some tree roots may extend beyond the tree protection zone. Any root damage occurring during construction should be cut cleanly with a hand saw or pruning shears.
- Any injury to a tree during construction should be evaluated by a qualified arborist.
- Any pruning of trees for construction clearance shall be performed by a qualified arborist.

Tree Replacement/Compensation

To compensate for the loss of trees from the subject property, generous tree planting is proposed in the conceptual landscape plan. Additionally, the Scoped Environmental Impact Study (Beacon 2018) has provided recommendations for a buffer management plan that targets the Mullet Creek valleylands and 10 m setback zone. The buffer management plan will consist of removing garbage and debris from the valley, controlling invasive trees and shrubs, and naturalizing the area using native trees and shrubs. These efforts will involve substantial tree plantings which will offset impacts associate with tree removals

from the site. Focussing plantings within this area will provide far better ecological functions (e.g., additional buffering, edge protection, wildlife habitat) than the existing trees currently provide.

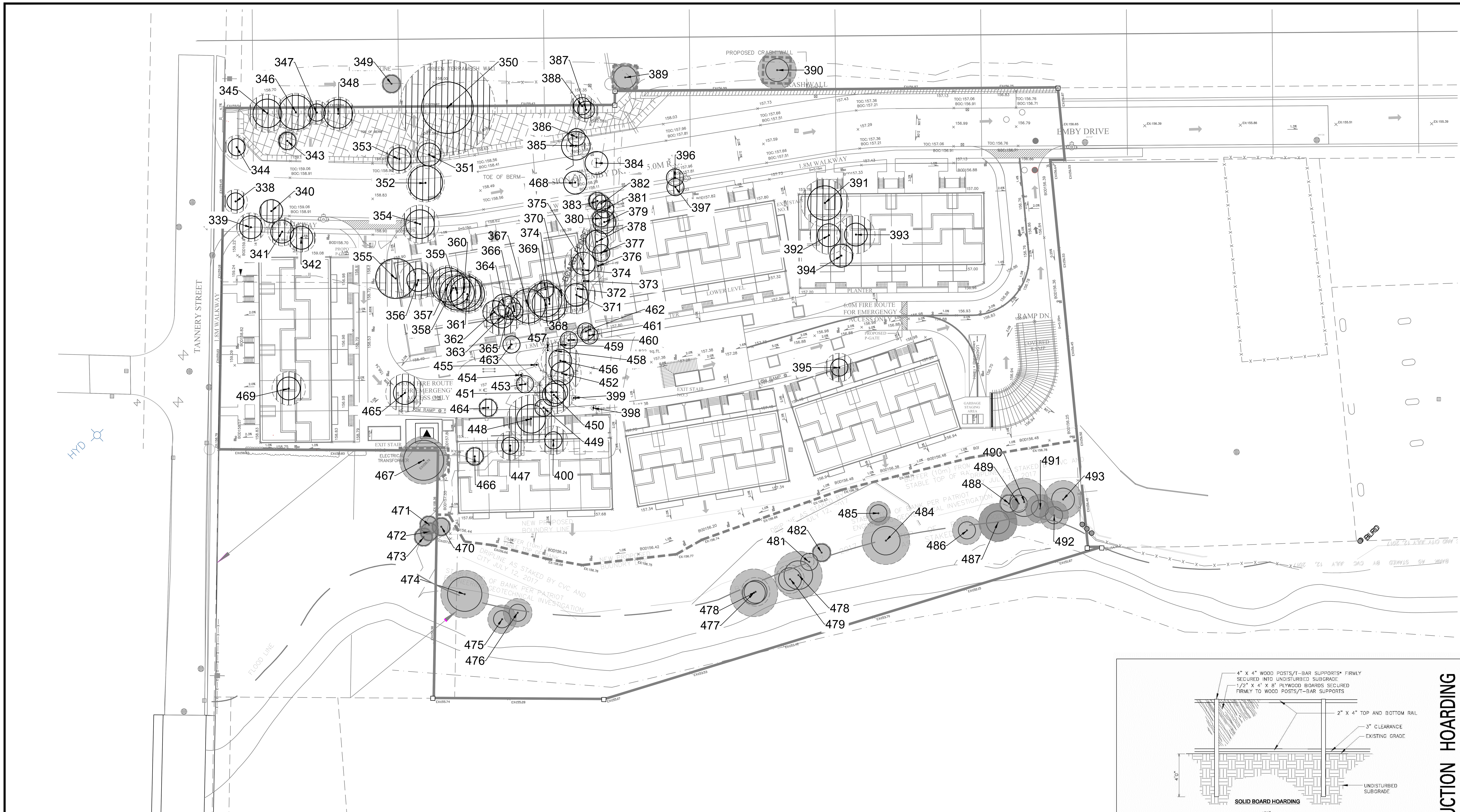
Should you have any questions, please do not hesitate to contact the undersigned.

Report prepared by:
Beacon Environmental

Dan Westerhof, B.Sc., MES
Terrestrial Ecologist, Certified Arborist (ON-1536A)

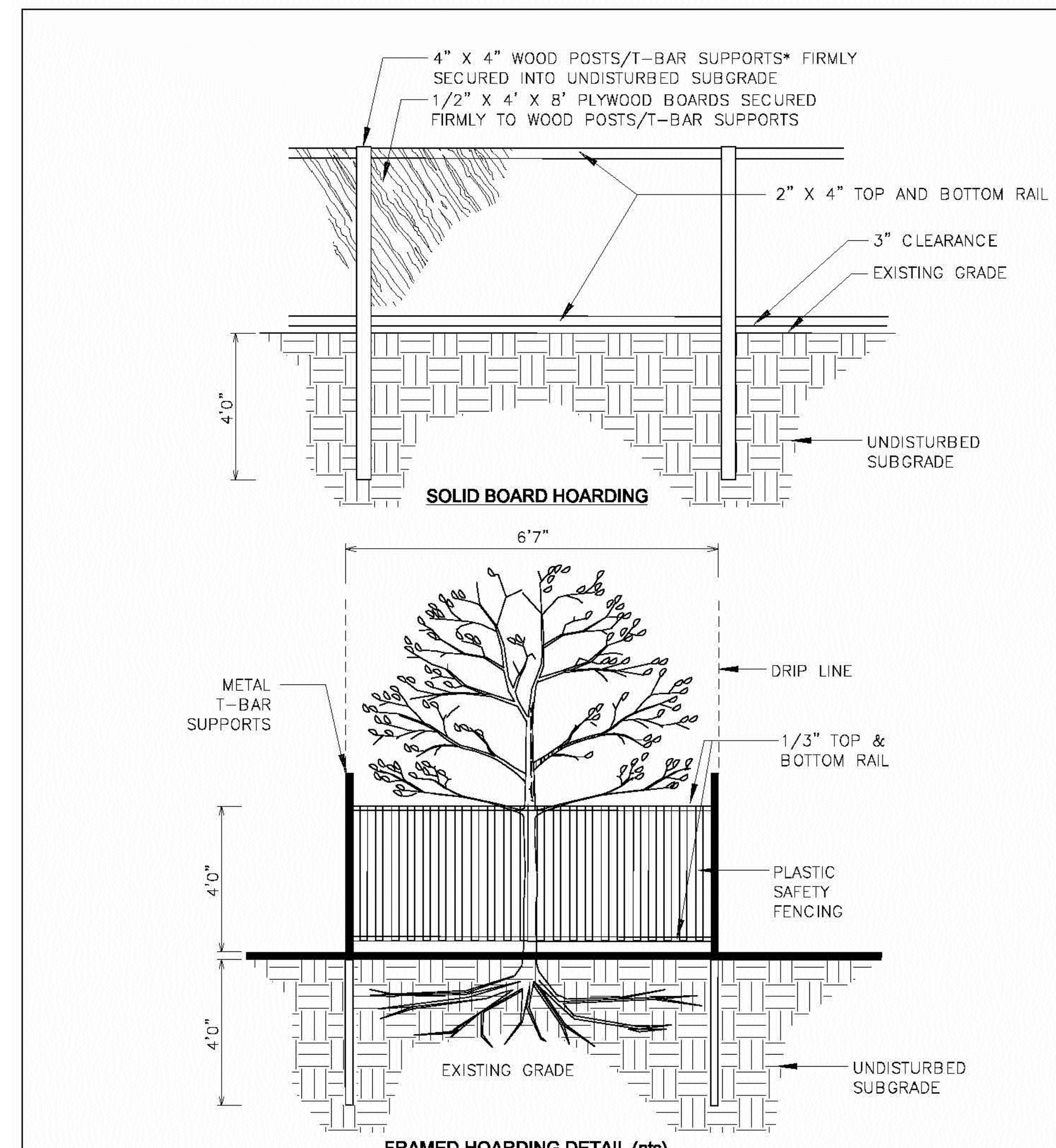
Report reviewed by:
Beacon Environmental

Ken Ursic
Senior Ecologist



GENERAL NOTES :

1. This plan is to be read in conjunction with the arborist report prepared by Beacon
2. Any ambiguity in this drawing or accompanying details is to be reported to the project Arborist from Beacon Environmental. Contractor is not to proceed in uncertainty and is to understand the project fully before commencing work.
3. Drawings may be scaled for layout measurement but dimensions and elevations shown are subject to verification on site.
4. The Contractor must notify the project Arborist a minimum of 5 (five) days prior to the commencement of any construction work.
5. Contact local underground utility service companies to obtain utility locates and identification prior to commencing work.
6. The Contractor shall maintain all areas until Owner's acceptance of the project in accordance with the specifications.
7. The Contractor is to have the required Tree Removal Permit in hand prior to the removal of any trees. The Contractor shall keep a copy of the Tree Removal Permit on site while performing any works.
8. All existing trees which are to remain shall be fully protected with hoarding as specified of this plan and Tree Protection Hoarding Detail on Sheet TP-1.
9. The applicant is responsible for ensuring that tree protection hoarding is maintained throughout all phases of demolition and construction in the location and condition as approved by the City.

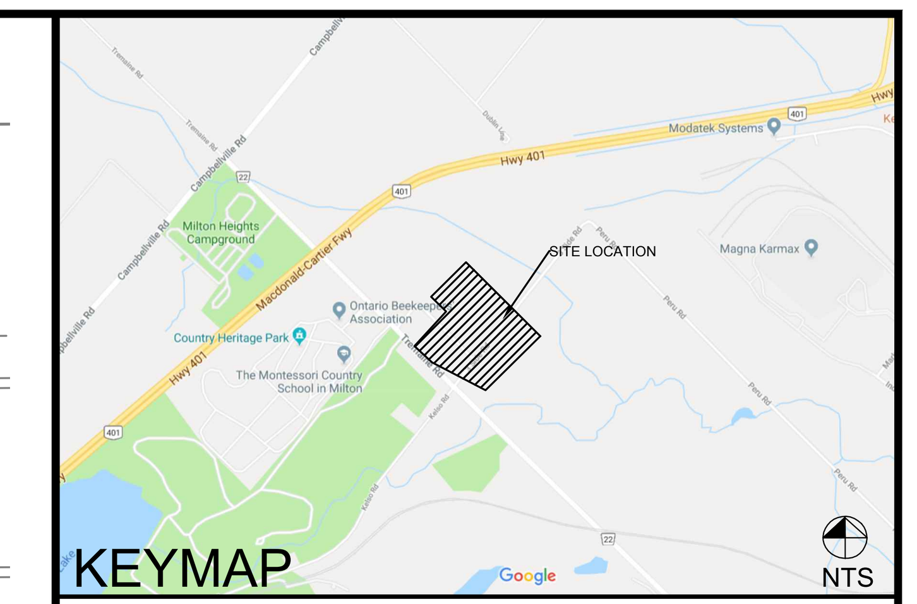


NOTES:
1. HOARDING DETAILS TO BE DETERMINED FOLLOWING INITIAL SITE INSPECTION.
2. HOARDING TO BE APPROVED BY DEVELOPMENT AND DESIGN.
3. HOARDING MUST BE SUPPLIED, INSTALLED AND MAINTAINED BY THE APPLICANT THROUGHOUT ALL PHASES OF CONSTRUCTION, UNTIL APPROVAL TO REMOVE HOARDING IS OBTAINED FROM DEVELOPMENT AND DESIGN.
4. DO NOT ALLOW WATER TO COLLECT AND POND BEHIND OR WITHIN HOARDING.
* T-BAR SUPPORTS FOR SOLID HOARDING WILL ONLY BE ALLOWED WITH PRE APPROVAL FROM DEVELOPMENT AND DESIGN.

MISSISSAUGA Development and Design

SCALE: N.T.S.
DATE: JAN, 2008

DEVELOPMENT & DESIGN CONSTRUCTION HOARDING



LEGEND

- Tree with Preservation Potential
- Tree for Removal
- 1678 Tree tag
- Tree Crown
- Minimum Tree Protection Zone
- Tree Location
- Tree Hoarding Fence
- Property Boundary

Notes: Scale shown is for an 36" x 24" page. For illustrative purposes. Do not scale

Nº	REVISIONS	DATE:	BY:
6			
5			
4			
3			
2	Revised to include new site plan	2018/06/07	DW
1	Revised	2018/04/16	DW

SCALE: 1:400 (0 2 5 10 20m)

NORTH ARROW

CERTIFIED ARBORIST ISA
DAN WESTERHOF
#ON-1536A

SEAL

BEACON ENVIRONMENTAL

GUELPH OFFICE
373 WOOLWICH ST,
GUELPH, ON N1H 3W4
T) 519.826.0419
519.826.9306
www.beaconenviro.com

CLIENT
NYX CAPITAL CORP.

PROJECT
51 & 57 TANNERY STREET
MISSISSAUGA

SHEET TITLE
TREE INVENTORY AND PRESERVATION PLAN

DESIGN BY:	--	PROJECT Nº:	217069
DRAWN BY:	NC	FIGURE Nº:	1
CHECKED BY:	DW		
DATE:	07 June 2018		

Appendix A

Tree Inventory and Evaluation

Appendix A

Tree Inventory and Evaluation

Tree #	Species	DBH (cm)	Crown (m)	Condition	Comments	TPZ	Recommendation
338	*Acer platanoides*	18	5	Good	Good form and vigour	1.8	Remove
339	*Picea pungens*	37	6	Fair	Branch dieback	2.4	Remove
340	*Picea pungens*	34	5	Good		2.4	Remove
341	*Picea pungens*	37	6	Good		2.4	Remove
342	*Betula papyrifera*	12,15,16,17	6	Good		2.4	Remove
343	*Magnolia sp.*	10,10	4	Good		1.8	Remove
344	*Acer platanoides*	19	5	Good		1.8	Remove
345	*Picea abies*	40	8	Good		3	Remove
346	*Picea abies*	50	8	Good		3.6	Remove
347	*Picea abies*	27	5	Fair	Thin crown	1.8	Remove
348	*Picea abies*	44	7	Good		3	Remove
349	*Juglans nigra*	15	4	Good		1.8	Protect
350	*Salix x sepulcralis*	95	20	Fair	broken branches, cavity at 4 m	5.4	Remove
351	*Acer negundo*	35	6	Poor	Significant dieback	2.4	Remove
352	*Acer negundo*	50	8	Poor	lean, significant dieback	3.6	Remove
353	*Betula papyrifera*	20,20,22	6	Fair-Good		2.4	Remove
354	*Picea abies*	40	8	Fair-Poor	surrounded by gravel/pavent, significant dieback	3	Remove
355	*Acer negundo*	35,44,40	8	Poor	old wound at base, significant dieback	4.2	Remove
356	*Acer negundo*	24,27	8	Poor	Poor form, dieback	2.4	Remove
357	*Acer negundo*	37,38	8	Fair-Poor	significant lean in one strem, large cavity at 4 m, poor form	3.6	Remove
358	*Acer negundo*	20,28	8	Poor	top broken off one stem	2.4	Remove
359	*Acer negundo*	26	7	Fair	lean west	1.8	Remove
360	*Acer negundo*	40	8	Fair-Poor		3	Remove
361	*Acer negundo*	13,10	4	Fair-Poor	lean, poor form	1.8	Remove
362	*Acer negundo*	32	8	Fair-Poor	large broken branch, poor form, arched over	2.4	Remove
363	*Acer negundo*	18	2	Poor	nearly dead	1.8	Remove
364	*Acer negundo*	30	2	Poor	top snapped	2.4	Remove
365	*Acer negundo*	18	4	Fair		1.8	Remove
366	*Acer negundo*	25	6	Poor	poor form, uneven crown	1.8	Remove
367	*Acer negundo*	27	1	Dead		-	Remove

Tree #	Species	DBH (cm)	Crown (m)	Condition	Comments	TPZ	Recommendation
368	*Acer negundo*	28,38	8	Fair-Poor	poor form, uneven crown, cavity at 4 m	3.6	Remove
369	*Malus sp*	15	4	Poor	poor form, arched over	1.8	Remove
370	*Acer negundo*	25	1	Dead		-	Remove
371	*Ulmus americana*	32	8	Fair		2.4	Remove
372	*Acer negundo*	16	4	Poor	Top dead, significant lean	1.8	Remove
373	*Juglans nigra*	21	4	Fair-Poor	uneven crown	1.8	Remove
374	*Acer negundo*	14,14	1	Dead	basal sprouts	-	Remove
375	*Acer negundo*	34	8	Poor		2.4	Remove
376	*Malus sp*	16,15	1	Dead	extensive dieback	-	Remove
377	*Juglans nigra*	14	3	Fair-Poor		1.8	Remove
378	*Acer negundo*	13,14,14,15,15,21	6	Poor	poor form	2.4	Remove
379	*Acer negundo*	20,23	6	Poor	extensive dieback	2.4	Remove
380	*Acer negundo*	15,14	4	Poor	poor form, branch dieback, stems arching over	1.8	Remove
381	*Acer negundo*	12	3	Poor	poor form, branch dieback, stems arching over	1.8	Remove
382	*Acer negundo*	16	4	Poor	arching over, dieback	1.8	Remove
383	*Acer negundo*	21	2	Poor	extensive dieback	1.8	Remove
384	*Acer negundo*	31	2	Poor	nearly dead	2.4	Remove
385	*Acer negundo*	25,33,24	4	Poor	one stem fallen over, main stem nearly dead, extensive dieback	3	Remove
386	*Acer negundo*	10,12	2	Poor	poor form	1.8	Remove
387	*Acer negundo*	27	6	Poor	leaning over	1.8	Remove
388	*Malus sp*	16,16	5	Poor	poor form, branch dieback	1.8	Remove
389	*Malus sp*	18,23,15	6	Fair-Poor		2.4	Protect
390	*Ulmus pumila*	24,20,19	8	Fair-Good		2.4	Protect
391	*Acer negundo*	55	10	Fair-Poor	large branch stub, heavily pruned on one side	3.6	Remove
392	*Juglans regia*	37	8	Fair-Good	uneven crown	2.4	Remove
393	*Juglans regia*	37	8	Fair-Good	slight lean	2.4	Remove
394	*Picea pungens*	30	5	Fair-Good		2.4	Remove
395	*Pinus nigra*	24	6	Fair	Flat top	1.8	Remove
396	*Acer negundo*	17	3	Poor	against building, debris piled around tree	1.8	Remove
397	*Acer negundo*	17	3	Poor	against building, debris piled around tree	1.8	Remove
398	*Quercus macrocarpa*	12	3	Fair		1.8	Remove
399	*Juglans nigra*	13	3	Fair	vine in crown	1.8	Remove
400	*Juglans nigra*	25	6	Good		1.8	Remove
447	*Juglans nigra*	19	6	Good		1.8	Remove
448	*Juglans nigra*	18	6	Good		1.8	Remove
449	*Juglans nigra*	44	10	Good		3	Remove
450	*Juglans nigra*	12	3	Fair		1.8	Remove
451	*Juglans nigra*	31	8	Fair-Good	uneven crown	2.4	Remove

Tree #	Species	DBH (cm)	Crown (m)	Condition	Comments	TPZ	Recommendation
452	*Fraxinus americana*	20	1	Dead		-	Remove
453	*Juglans nigra*	10	3	Poor	stunted, covered in fine	1.8	Remove
454	*Fraxinus americana*	22	1	Dead		-	Remove
455	*Fraxinus americana*	14	1	Dead		-	Remove
456	*Acer negundo*	22	1	Poor	nearly dead	1.8	Remove
457	*Fraxinus americana*	22	1	Dead		-	Remove
458	*Ulmus americana*	16	4	Fair		1.8	Remove
459	*Acer negundo*	16	1	Dead		-	Remove
460	*Ulmus americana*	13	3	Fair		1.8	Remove
461	*Acer negundo*	15	3	Poor	poor form, dieback	1.8	Remove
462	*Acer negundo*	11	2	Fair-Poor		1.8	Remove
463	*Fraxinus americana*	30	1	Dead		-	Remove
464	*Acer negundo*	10,10	4	Fair		1.8	Remove
465	*Acer x freemanii*	39	8	Fair	cavity/decay in crotch, good vigour	2.4	Remove
466	*Juglans nigra*	15	4	Good	old wound in trunk	1.8	Remove
467	*Acer negundo*	38,50	10	Poor	knobby old trunk, large stub @ 2 m, dieback, broken branches, large hanging branch	4.2	Protect
468	*Juglans nigra*	22	6	Good		1.8	Remove
469	*Acer platanoides*	31	7	Good		2.4	Remove
470	*Crataeagus sp*	14,10,11	4	Fair		1.8	Protect
471	*Crataeagus sp*	14,13	4	Fair		1.8	Protect
472	*Crataeagus sp*	16,14	4	Fair		1.8	Protect
473	*Malus sp*	15,18	4	Fair-Poor	one stem dead	1.8	Protect
474	*Populus deltoides*	55	10	Fair	Branch dieback	3.6	Protect
475	*Juglans nigra*	20	6	Good	vine in crown	1.8	Protect
476	*Juglans nigra*	28	6	Good	vine in crown	1.8	Protect
477	*Acer negundo*	39	10	Fair	lean toward creek, uneven crown, broken branches	2.4	Protect
478	*Acer negundo*	40	10	Fair	sprawling, uneven form	3	Protect
479	*Acer negundo*	35	6	Fair-Poor	lean north, dieback	2.4	Protect
480	*Acer negundo*	35	6	Poor	split in crotch, one stem fallen over onto trailer along top of bank	2.4	Protect
481	*Acer negundo*	16	4	Poor	significant lean south	1.8	Protect
482	*Acer negundo*	10	2	Poor		1.8	Protect
483	*Acer negundo*	35,30	1	Dead	dead trunk fallen over onto tableland	-	Protect
484	*Acer negundo*	26,24,24	10	Poor	diverging stems, uneven crown, poor form	3	Protect
485	*Acer negundo*	20	5	Fair	uneven crown	1.8	Protect
486	*Acer negundo*	25	6	Poor	significant dieback	1.8	Protect
487	*Acer negundo*	20,20	8	Fair	down slope	2.4	Protect
488	*Acer negundo*	40	10	Fair	decayed stube at 2 m	3	Protect
489	*Acer negundo*	10	3	Fair	arching east	1.8	Protect

Tree #	Species	DBH (cm)	Crown (m)	Condition	Comments	TPZ	Recommendation
490	*Acer negundo*	6,8,10	4	Fair		1.8	Protect
491	*Acer negundo*	17	6	Fair-Poor	lean toward creek, dieback	1.8	Protect
492	*Acer negundo*	16	6	Fair	uneven crown	1.8	Protect
493	*Acer negundo*	16,18,15	8	Fair		2.4	Protect

Appendix C

Vascular Plant Species List

Appendix C

Vascular Plant Species List

Family Name	Scientific Name	Common Name	S-RANK[a]	Peel[b]
Aceraceae	*Acer negundo*	Manitoba Maple	S5	n/a
Aceraceae	*Acer platanoides*	Norway Maple	SNA	n/a
Aceraceae	*Acer* x *freemanii*	Freeman's Maple	S5	n/a
Anacardiaceae	*Rhus hirta*	Staghorn Sumac	S5	n/a
Apiaceae	*Aegopodium podagraria*	Goutweed	SNA	n/a
Apiaceae	*Daucus carota*	Queen Anne's Lace	SNA	n/a
Asteraceae	*Ambrosia artemisiifolia*	Annual Ragweed	S5	n/a
Asteraceae	*Arctium minus*	Lesser Burdock	SNA	n/a
Asteraceae	*Artemisia* sp.	Wormwood Species	SNA	n/a
Asteraceae	*Bidens frondosa*	Devil's Beggar's Ticks	S5	n/a
Asteraceae	*Cichorium intybus*	Chicory	SNA	n/a
Asteraceae	*Cirsium arvense*	Creeping Thistle	SNA	n/a
Asteraceae	*Cirsium vulgare*	Bull Thistle	SNA	n/a
Asteraceae	*Conyza canadensis*	Fleabane	S5	n/a
Asteraceae	*Solidago altissima var. altissima*	Tall Goldenrod	S5	n/a
Asteraceae	*Sonchus arvensis* ssp. *arvensis*	Field Sowthistle	SNA	n/a
Asteraceae	*Symphyotrichum lanceolatum* ssp. *lanceolatum*	Panicled Aster	S5	n/a
Asteraceae	*Symphyotrichum novae-angliae*	New England Aster	S5	n/a
Asteraceae	*Taraxacum officinale*	Common Dandelion	SNA	n/a
Asteraceae	*Tussilago farfara*	Colt's Foot	SNA	n/a
Betulaceae	*Betula papyrifera*	Paper Birch	S5	n/a

Family Name	Scientific Name	Common Name	S-RANK[a]	Peel[b]
Boraginaceae	*Lithospermum officinale*	European Gromwell	SNA	n/a
Brassicaceae	*Alliaria petiolata*	Garlic Mustard	SNA	n/a
Brassicaceae	*Hesperis matronalis*	Dame's Rocket	SNA	n/a
Caprifoliaceae	*Lonicera tatarica*	Tartarian Honeysuckle	SNA	n/a
Celastraceae	*Euonymus europaea*	European Spindle-tree	SNA	n/a
Cornaceae	*Cornus sericea* ssp. *sericea*	Red-osier Dogwood	S5	n/a
Cupressaceae	*Thuja occidentalis*	Northern White Cedar	S5	n/a
Fabaceae	*Lotus corniculatus*	Bird's-foot Trefoil	SNA	n/a
Fabaceae	*Medicago lupulina*	Black Medic	SNA	n/a
Fabaceae	*Melilotus alba*	White Sweet Clover	SNA	n/a
Fabaceae	*Trifolium pratense*	Red Clover	SNA	n/a
Fabaceae	*Trifolium repens*	White Clover	SNA	n/a
Fabaceae	*Vicia cracca*	Tufted Vetch	SNA	n/a
Fagaceae	*Quercus macrocarpa*	Bur Oak	S5	n/a
Grossulariaceae	*Ribes rubrum*	Northern Red Currant	SNA	n/a
Juglandaceae	*Juglans nigra*	Black Walnut	S4?	n/a
Juglandaceae	*Juglans regia*	English Walnut	SNA	n/a
Lamiaceae	*Glechoma hederacea*	Ground Ivy	SNA	n/a
Lamiaceae	*Leonurus cardiaca* ssp. *cardiaca*	Common Motherwort	SNA	n/a
Lamiaceae	*Nepeta cataria*	Catnip	SNA	n/a
Lythraceae	*Lythrum salicaria*	Slender-spike Loosestrife	SNA	n/a
Oleaceae	*Fraxinus americana*	White Ash	S5	n/a
Oleaceae	*Fraxinus pennsylvanica*	Green Ash	S5	n/a
Oleaceae	*Ligustrum vulgare*	European Privet	SNA	n/a
Oleaceae	*Syringa vulgaris*	Common Lilac	SNA	n/a
Papaveraceae	*Chelidonium majus*	Greater Celadine	SNA	n/a
Pinaceae	*Picea abies*	Norway Spruce	SNA	n/a

Family Name	Scientific Name	Common Name	S-RANK[a]	Peel[b]
Pinaceae	*Picea pungens*	Colorado Spruce	SNA	n/a
Pinaceae	*Pinus nigra*	Black Pine	SNA	n/a
Plantaginaceae	*Plantago lanceolata*	English Plantain	SNA	n/a
Poaceae	*Dactylis glomerata*	Orchard Grass	SNA	n/a
Poaceae	*Elymus repens*	Quack Grass	SNA	n/a
Poaceae	*Phalaris arundinacea*	Reed Canary Grass	S5	n/a
Poaceae	*Poa pratensis* ssp. *pratensis*	Kentucky Bluegrass	SNA	n/a
Rhamnaceae	*Rhamnus cathartica*	Buckthorn	SNA	n/a
Rosaceae	*Crataegus* sp.	Hawthorn Species	n/a	n/a
Rosaceae	*Geum urbanum*	Clover-root	SNA	n/a
Rosaceae	*Malus* sp.	Apple Species	SNA	n/a
Rosaceae	*Prunus virginiana* var. *virginiana*	Choke Cherry	S5	n/a
Rosaceae	*Rubus idaeus* ssp. *strigosus*	Wild Red Raspberry	S5	n/a
Rosaceae	*Rubus occidentalis*	Black Raspberry	S5	n/a
Salicaceae	*Populus deltoides* ssp. *deltoides*	Eastern Cottonwood	S5	n/a
Salicaceae	*Salix* x *rubens*	Reddish Willow	SNA	n/a
Scrophulariaceae	*Verbascum thapsus*	Common Mullein	SNA	n/a
Solanaceae	*Solanum dulcamara*	Climbing Nightshade	SNA	n/a
Ulmaceae	*Ulmus americana*	American Elm	S5	n/a
Ulmaceae	*Ulmus pumila*	Siberian Elm	SNA	n/a
Vitaceae	*Parthenocissus vitacea*	Thicket Creeper	S5	n/a
Vitaceae	*Vitis riparia*	Riverbank Grape	S5	n/a

a - SRANK (from Natural Heritage Information Centre) for breeding status if: S4 (Apparently Secure), S5 (Secure) SNA (Not applicable...'because the species is not a suitable target for conservation activities'; includes non-native species)

b - Varga, 2005 (Distribution and Status of the Vascular Plants of the Greater Toronto Area): R^x, where x is the