Environmental Impact Statement

55 Eagle Street

Prepared for

Millford Development Limited

P.O. Box 215
Newmarket, ON
L3Y 4X1

March 2021
Project No. P2020-429

Prepared by

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OPENING

March 2021

C/O Frank Orsi
Millford Development Limited
P.O. Box 215
Newmarket, Ontario L3Y 4X1

Re: 55 Eagle Street, Newmarket, Ontario
Environmental Impact Statement (Natural Heritage Evaluation)

To Whom It May Concern,

GeoProcess Research Associates Inc. (GRA) is pleased to present the following Environmental Impact Statement (EIS) for the proposed residential development at 55 Eagle Street, Town of Newmarket, Regional Municipality of York, Ontario. This Environmental Impact Statement functions as a Natural Heritage Evaluation, as required by section 9.0 of the Town of Newmarket's Official Plan for lands adjacent to a Natural Heritage Feature. This EIS reports the findings of multiple in-field assessments conducted in 2020 and 2021 and provides the developable limits and restoration planning for the proposed development in relation to the natural heritage and hydrological features and functions of the Subject Property.

The report addresses the comments provided by the LSRCA during the consultation process that has taken place for this project.

Regards,

GEOPROCESS RESEARCH ASSOCIATES INC

Ian Roul, M.Sc.
Senior Ecologist

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1. Introduction

GeoProcess Research Associates Inc. (GRA) was retained by Millford Development Limited to prepare an Environmental Impact Statement (EIS) in support of applications to amend the Town of Newmarket Official Plan and Zoning By-law to accommodate a proposed residential development located at 55 Eagle Street in Newmarket, ON, referred to as the "Subject Property".

The Town of Newmarket Official Plan proposes to identify portions of the Natural Heritage System (NHS), per schedule B-Natural Heritage System (2017), along the western portion of the Subject Property (Figure 1), including a woodlot and floodplain (Figure 2). Subject to policy 9.2 (2), an Environmental Impact Statement (EIS) is required when development and/or site alteration is proposed within the NHS to demonstrate that there will be no significant negative impact to the feature or its ecological functions. In addition, York Region Official Plan identifies portions of the Regional Greenlands System within the Western Creek valley system along the northern portion of the Subject Property outside of the proposed development envelope. Per section 2.1.9 of the York Region Official Plan development or site alteration within 120 of the Regional Greenlands System shall be accompanied by an environmental impact study.

The EIS has been prepared in accordance with the York Region Official Plan EIS guidelines per the York Region Official Plan EIS definitions (p. 172) and the Town of Newmarket Official Plan Environmental Impact Study Guidelines per section 9.4 and is based on current environmental policies, background information and field investigations of natural heritage features. Based on the information gathered, the ecological features and functions associated with the Subject Property were characterized and ecologically appropriate limits for development were established. Mitigation and management strategies were developed with the objective of protecting, restoring and enhancing the ecological features and functions on the Subject Property.

1.1. NHS appeal

The NHS designation identified on the Town of Newmarket OP (2017) Schedule B is subject to appeal by Millford Development Ltd. before the Local Planning Appeal Tribunal (LPAT). The appeal made by Millford Development Ltd. to the Ontario Municipal Board (OMB) (now LPAT) was countered by the Town of Newmarket and the Region of York through a Notice of Motion requesting the appeal be dismissed. An oral decision by the OMB ordered the hearing to proceed.

Millford submitted Official Plan and Zoning By-law amendment applications to the Town in 2011, which was followed by a public meeting in 2012 and follow up studies and comment responses to address reports completed as part of the application. In the absence of a Town decision regarding the new application, a new appeal was made to LPAT by Millford in March 2020. This appeal is intended to be heard together with Millford's outstanding appeal of the Town of Newmarket Official Plan.

1.2. Previous Studies

As part of Millford Development Ltd.'s previous application for development of the Subject Property, several studies and documents were completed that formed part of the development application and were reviewed for the purposes of this EIS:

- Environmental Impact Statement completed by Azimuth Environmental Consulting, Inc. (dated February 2008).
- Tree Plan prepared by Cathy Bentley (dated 2007).
- Addendum to Tree Plan prepared by Cathy Bentley (dated 2011).
- EIS comments prepared by Lake Simcoe Region Conservation Authority (LSRCA) (dated 2009).
- EIS comment response prepared by Azimuth Environmental Consulting, Inc. (dated 2009).
- Planning Justification Report prepared by Peter E. Allen & Associates (dated April 2011).
- Functional Servicing and Stormwater Management Report prepared by Masongsong Associates Engineering Ltd. (dated March 2011, revised September 2020).

1.3. Subject Property

The Subject Property is located approximately 100 metres east of Yonge Street and immediately north of Eagle Street in Newmarket, Ontario. The Subject Property contains a portion of Western Creek, a tributary of the East Holland River, along with its associated valley lands. The southern portion of the Subject Property outside of the Western Creek valley land, includes a small, disturbed woodlot, open meadow and sparse tree cover. No structures are located within the Subject Property. The top of bank of the valley feature was previously established in 2009 by Soil Engineers Ltd. and was staked by the LSRCA in 2012.

2. Environmental Planning Context

The following section has been prepared to identify applicable environmental policies, regulations, and legislation relevant to the Subject Property and proposed development.

2.1. Provincial Policy Statement

The Provincial Policy Statement (PPS), 2020 is administered under Section 3 of the *Planning Act*. It became effective May 1, 2020 and replaces the 2014 PPS. The PPS applies to planning decisions made on or after that date. It provides policy direction for land use and development within the Province of Ontario and provides for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment. The policies of the PPS may be complemented by provincial and municipal plans and policies.

The PPS defines eight natural heritage features and provides planning polices for each, listed below. The function of Natural Heritage Features and Areas is further clarified by the definition of a Natural Heritage System, which is *"a system made up of natural heritage features and areas, and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species, and ecosystems."*

1. Significant wetlands;
2. Coastal wetlands;
3. Fish habitat;
4. Significant woodlands;
5. Significant valleylands;
6. Habitat of endangered species and threatened species;
7. Significant Wildlife Habitat; and,

8. Significant Areas of Natural and Scientific Interest (ANSIs).

Section 2.0 and 3.0 of the PPS deal with development and site alteration, and where these activities shall not be permitted. Section 2.0 policies surround the conservation of biodiversity, and protection of the health of the Great Lakes, natural heritage, water, agricultural, mineral and cultural heritage and archaeological resources for their economic, environmental and social benefits. Section 3.0 directs development away from areas of natural or human-made hazards to mitigate risks to public health or safety, and property damage from natural hazards, including the risks that may be associated with the impacts of a changing climate.

Policies in Section 2.1 are particularly relevant as they surround development and site alteration in, and adjacent to, *natural heritage features*. These policies and select others are outlined below, in Table 1.

Table 1 Applicable Policies of the Provincial Policy Statement

Policy Number	Policy
(2.1 - Natural Heritage) 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 St. Marys River); c) *significant valleylands* in Ecoregions 6E and 7E (excluding islands in Lake Huron and 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*.
(2.2 - Water) 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*.
(3.1 - Natural Hazards) 3.1.1	Development shall generally be directed, in accordance with guidance developed by the Province (as amended from time to time), to areas outside of: a) *hazardous lands* adjacent to the shorelines of the *Great Lakes - St. Lawrence River System* and *large inland lakes* which are impacted by *flooding hazards, erosion hazards* and/or *dynamic beach hazards*; b) *hazardous lands* adjacent to *river, stream* and *small inland lake systems* which are impacted by *flooding hazards* and/or *erosion hazards*; and c) *hazardous sites.*
3.1.3	Planning authorities shall prepare for the impacts of a changing climate that may increase the risk associated with natural hazards

2.2. Lake Simcoe Protection Plan

The Lake Simcoe Protection Plan (LSPP), effective June 2, 2009, was prepared to implement the Lake Simcoe Protection Act (2008). This plan incorporates the role of federal agencies, provincial agencies, municipalities, and the conservation authority to protect the Lake Simcoe watershed. The LSPP includes 'Designated', 'Have-regard-to', and 'Monitoring' policies, as well as recommendations for strategic actions. The plan promotes the collection of data and the implementation of sub-watershed and municipal plans with targets and timeframes concerning aquatic life within the watershed, water quality, water conservation and quantity, education and outreach. Key areas including shorelines and natural heritage sites, invasive species, climate change and the impacts of recreational activities are addressed as well. The LSPP acknowledges that the Greenbelt Plan, Oak Ridges Moraine Conservation Plan (ORMCP) and the Provincial Policy Statement (PPS) have similar objectives and their jurisdiction covers much of the watershed. The Subject Property is located within the Lake Simcoe Watershed and outside of the Oak Ridges Moraine Conservation Plan or Greenbelt Plan areas.

2.3. York Region Official Plan

The York Region Official Plan was approved in 2010 and consolidated in April 2019. This document defines the intent of Regional Council to guide sustainability and growth management in the Regional Municipality of York. As per *Map 1- Regional Structure (2018)* the Subject Property lands are classified as Urban Area and it is indicated on *Map 2-Regional Greenlands System (2018)* that the Subject Property contains an element of the Regional Greenlands System associated with the eastern portion of Western Creek. Regional Greenlands System policies in section 2.1 are designed to identify, protect, and enhance a linked Greenlands System as a permanent legacy for York Region. It is stated that development and site alteration be prohibited within the Regional Greenlands System and that development and site alteration applications within 120 metres of the Regional Greenlands System shall be accompanied by an environmental impact study.

Within the property, the Greenland System includes both a key hydrologic feature in the form of a permanent or intermittent stream as per *Map 4-Key Hydrological Features (December 2018)* and woodlands as per *Map 5-Woodlands (December 2018*). Key natural heritage features and key hydrologic features are the building blocks of York Region's natural systems. Many of these features are cores and corridors and can function as potential linkages. Key natural heritage features and key hydrologic features can exist within the Regional Greenlands System or outside of the System and are subject to the policies in Section 2.1 and 2.2. Key features outside of the System shall be protected subject to the policies of Section 2.2.

2.4. Town of Newmarket Official Plan

The Newmarket Official Plan (OP) was adopted by Town Council in October 2006, approved by the Region of York in April 2008 and was subsequently appealed by Millford. The current consolidation of this OP includes all subsequent amendments made up to December 2016. The policies of this Plan promote the sustainability of the Town, both as an organization and as a community, incorporating concepts and actions that are intended to achieve social well-being, economic vitality and environmental protection. As per schedule A-*Land Use (2017)*, the Subject Property contains a variety of land use designations including Parks and Open Space, Natural Heritage System, and Residential (OPA 29) and is traversed by a watercourse and section of flood plain.

The Natural Heritage System per the Town of Newmarket OP includes meadows, woodlots, watercourses, floodplains and wetlands. The Natural Heritage System elements located within the property per Schedule B-*Natural Heritage System (2017)* include a woodlot, floodplain and watercourse. Definitions or criteria to define these natural heritage features are not provided within the Town of Newmarket OP. The policies for floodplains in this Plan along with the regulations of the Lake Simcoe Region Conservation Authority shall also apply as part of the Natural Heritage System. Further Natural Heritage System policies are stated in Section 9.

2.5. Lake Simcoe Region Conservation Authority

The Lake Simcoe Region Conservation Authority (LSRCA) is responsible for O. Reg 179/06 – Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses, a regulation under the Conservation Authorities Act, 1990. This regulation prohibits development in or on the areas within jurisdiction of the Authority and applies to shorelines, rivers, stream valleys, hazardous lands, wetlands, or areas adjacent to a wetland. A permit may be issued to develop in the regulated areas or alter a channel with or without conditions. The portion of Western Creek located on the Subject Property is regulated by the LSRCA.

2.6. Endangered Species Act

The Endangered Species Act (ESA) protects habitat and individuals of wildlife species designated as Endangered, Threatened or Extirpated in Ontario. These designations are defined as:

> *Endangered:* A species shall be classified as an endangered species if it lives in the wild in Ontario but is facing imminent extinction or extirpation.
>
> *Threatened:* A species shall be classified as a threatened species if it lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening to lead to its extinction or extirpation.
>
> *Extirpated:* A species shall be classified an extirpated species if it lives somewhere in the world, lived at one time in the wild in Ontario, but no longer lives in the wild in Ontario.

Provincial Species at Risk are identified and assessed by the Committee on the Status of Species at Risk in Ontario (COSSARO). The ESA protects species listed by COSSARO as Endangered, Threatened or Extirpated in Ontario and their habitats by prohibiting anyone from killing, harming, harassing, or possessing protected

species, as well as prohibiting any damage or destruction to the habitat of the listed species. All listed species are provided with general habitat protection under the ESA aimed at protecting areas that species depend on to carry out their life processes, such as reproduction, rearing, hibernation, migration or feeding. In addition, specific habitat regulations for some species have been developed that specifically define the extent and character of their protected habitat beyond what is stated in the general habitat regulation.

Activities that may impact a protected species or its habitat require the prior issuance of a Permit from the Ministry of Environment, Conservation and Parks (MECP), unless the activities are exempted under Regulation. The current Ontario Regulation 242/08 identifies activities which are exempt from the permitting requirements of the Act, these activities are subject to rigorous controls outside the permit process including registration of the activity and preparation of mitigation plans. Activities that are not exempted under O. Reg. 242/08 require a complete permit application process.

3. Assessment Methodology

3.1. Background Review

Literature and background data pertaining to the Subject Property were reviewed and evaluated to obtain background planning policy information. A list of documents and information sources consulted are provided below:

- Provincial Policy Statement (2020)
- Lake Simcoe Protection Plan (2009)
- York Region Official Plan (2010)
- Town of Newmarket Official Plan (2006)
- Endangered Species Act (2007) and Ontario Regulation 242/08
- Land Information Ontario Natural Heritage Information
- eBird Database
- Ontario Breeding Bird Atlas
- iNaturalist

3.2. Field Work Completed by GRA

GRA conducted field studies to characterize and inventory the natural heritage features and functions of the Subject Property and surrounding landscape. A summary of the field work is provided below in **Table 2.**

Table 2 Field Work Summary

Study	Date (2020)	Staff	Affiliation
Amphibian Survey	April 28, May 22 & June 10	Ben Angel	GRA
Snag Survey	May 22	Ben Angel	GRA
Vegetation Assessment	May 22, June 30, August 27	Jennifer Reader, Ben Angel	GRA
Breeding Bird Survey	June 1 & 18	Don Graham	GRA

Watercourse Characterization	June 11	Ken Glasbergen	GRA
Tree Inventory	July 20, 21 & 22	Jennifer Reader, Ben Angel	GRA

3.2.1. Vegetation Assessment

3.2.1.1. Floristics Inventory

A two-season inventory of all floristic species was completed in spring and summer of 2020. Species nomenclature and ranking follows the Ministry of Natural Resources and Forestry Natural Heritage Information Centre database. A list of all vascular plant species observed was compiled and is presented in **Appendix B**.

3.2.1.2. Ecological Land Classification

Vegetation communities were mapped and described according to the Ecological Land Classification (ELC) system for Southern Ontario (Lee et al. draft 2008). Vegetation community boundaries were determined using desk top analysis and further refined in the field. The results of this assessment are provided in **Section 4.4.**

3.2.1.3. Tree Inventory

An assessment of all trees with a diameter at breast height (DBH) of 10 cm or greater within the property and within 6 metres of the development limit was completed during summer 2020. The results of this inventory and recommended protection measures are found in **Section 4.4.13**, **Appendix A** and **Figure 4**. The following information was collected:

- **Tree #** - tree numbers correspond to Figure 4.
- **Species** - common and botanical names provided in the inventory table.
- **DBH** - diameter (centimeters) at breast height, measured at 1.4 m above the ground.
- **Condition** - condition of trees were assessed as follows:
    - **Trunk integrity (TI)**: conditions on trunk that might affect likelihood of failure based on factors including co-dominant stems, cracks, decay, poor taper, lean, response growth, abnormal or missing/dead bark, etc.
    - **Crown Structure (CS)**: condition on crown structure that might affect likelihood of failure including live crown ratio, presence of defects (included bark, weak attachments, cracks, decay, cavities), crown density.
    - **Crown Vigor (CV)**: an assessment of overall tree health classified as weak/under stress (poor), average vigor for its species and site condition with some signs of stress (fair), growing well and appears to be free of significant health stress factors (good).
- **Comments** - additional relevant detail.

Topographical mapping, and where necessary, aerial photography was used to identify the location of trees, which were then confirmed in the field.

3.2.1.4. Snag Surveys

Following Ministry of Natural Resources and Forestry (2017) bat habitat survey protocol for Species at Risk Bats within Treed Habitats, snag surveys were completed during leaf-off conditions on May 22, 2020. The survey included an assessment of all trees with a diameter at breast height (dbh) of 10 cm or greater, live or dead, with loose or naturally exfoliating bark, cavities, hollows, or cracks. Results of these surveys and locational maps are found in **Section 4.6.1**, **Table 8**, and **Figure 5**.

3.2.2. Wildlife Surveys

3.2.2.1. Amphibian Surveys

Amphibian Calling Surveys followed the Marsh Monitoring Protocol (Bird Studies Canada, 2000). This protocol requires the survey stations within the Subject Property to be visited on three separate nights to conduct surveys. Surveys are to begin from one half hour after sunset and are to end before midnight. Visits are to occur no less than fifteen (15) days apart and take place during the spring and early summer. This protocol ensures that the entire range of early, middle and late-breeding species will be surveyed for.

In addition, surveys must be conducted under the appropriate weather conditions to coincide with breeding calling activity. It is required that surveys are conducted when conditions are moist (i.e. after a rain, during a light mist, on humid night), and do not occur when conditions are windy (i.e. wind noise reduces ability to hear calls and frogs generally do not call during windy conditions) (Bird Studies Canada, 2000). Minimum air temperature requirements for the visits are provided in Table 3**.** The first survey should occur shortly after the first or second warm spring shower with the required night-time air temperature. The results of the Amphibian Calling Surveys are found in **Section 4.6**.

Table 3 Temperature Requirements for Amphibian Calling Surveys

Visit #	Target Species (Breeding Designation)	Required Minimum Night Temperature
Visit 1	Early	Above 5^{O}C
Visit 2	Middle	Above 10^{O}C
Visit 3	Late	Above 17^{O}C

3.2.2.2. Breeding Bird Surveys

Breeding bird surveys were undertaken over six hours of monitoring time by a breeding bird expert under appropriate weather conditions over two visits on June 1 and June 18, 2020. The methodology of the Ontario Breeding Bird Atlas was adopted. The area surveyed was thoroughly covered by walking randomly throughout the site and recording presence, abundance and level of breeding evidence.

Table 4 Breeding Bird Survey Summary

Visit Date	Visit Time	Temperature Range (°C)	Cloud Cover(%)	Wind Speed (Beaufort Scale)
June 1	6:00-9:00	9-14	10-30	0-0
June 18	6:30-9:30	15-17	0-10	0-0

3.2.3. Watercourse Characterization

The habitat assessment of Western Creek was completed following the Ontario Stream Assessment Protocol, Section 4: Module 1 Rapid Assessment Methodology for Channel Structure. The watercourse morphology was surveyed using an RTK enabled Hemisphere GPS unit. Substrates were characterized using the Wolmen pebble count procedure, with a sample size of 100 particles.

3.2.4. Species at Risk Screening

A screening for the possible occurrence of Species at Risk (SAR) was conducted for the Subject Property based on Federal and Provincial status. This included a review of the Natural Heritage Information Centre, the regional SAR list, the Breeding Bird Atlas, iNaturalist and any additional lists provided by the MNRF or MECP. Potential species identified were further assessed during the complementary field studies.

3.2.5. Significant Wildlife Habitat Assessment

A screening for Significant Wildlife Habitat following the Ministry of Natural Resources and Forestry Significant Wildlife Habitat Technical Guide (2000) and Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E (January 2015) was conducted for the Subject Property. All potential SWH identified through this assessment was subsequently confirmed during the complementary field studies on the Subject Property.

4. Existing Conditions

4.1. General Site Description and Landscape Position

The Subject Property is located immediately east of the Yonge Street corridor in an area that has a mix of residential uses (primarily single-family homes, but also town homes and apartments) and commercial uses along Eagle Street. Western Creek, a tributary of the East Holland River, and its associated floodplain and valleyland are located along the northern half of the Subject Property. The southern portion of the Subject Property is currently in a naturalizing state and exhibits a high level of informal use and disturbance as a result of impacts from surrounding land use.

No permanent structures are located within the Subject Property limits. The property abuts multiple commercial and residential land uses, including, a physiotherapy office, orthodontist office, car repair and

maintenance centre and McDonalds restaurant. The east side of the Subject Property meets a cul-de-sac and the western property limits of the adjoining neighbourhood.

4.2. Physiography and Geology

The Subject Property is located within the Schomberg Clay Plain physiographic region, which is characterized as having rolling relief that reflects the underlying till plan. Thick deposits, typically of 15 m of fine-grained sediments are draped over an irregular till plan (Chapman & Putnam). The Schomberg Clay Plain is not a continuous feature and occurs in several low-lying areas in Schomberg, Newmarket and Lake Scugog. The Town of Newmarket and the Town of Aurora to the south are located almost entirely within a pocket of Schomberg Clay Plain, which is surrounded by the Oak Ridges Moraine to the west, south and east, and meets the Simcoe lowlands to the north. The geology of the East Holland River subwatershed consists of Quaternary sediments that overlie Ordovician bedrock of the Limestone Simcoe Group and the shale Georgian Bay-Blue Mountain Formation (Chapman and Putnam 1984)

4.3. Natural Heritage System

4.3.1. Western Creek Valley

Western Creek and its associated valley system originate west of Yonge Street where it has both an open channel sections and large enclosed sections. The watercourse section within the Subject Property originates from a headwall under Yonge Street and flows east across the property. The valley system is comprised of vegetation units, with the western two thirds comprised of a mix coniferous/deciduous woodland. The valley is better defined within the woodland unit, with well defined valley walls. The eastern third of the valley opens into a meadow dominated community, which supports a wider floodplain and lower and less well-defined valley walls. Flow within Western Creek is split near Avenue Road, with approximately seventy to eighty percent of the flow entering a large storm collector under Avenue Road and the remaining flow going north before entering a catch-basin at the property limit. Western Creek and its floodplain are regulated by the LSRCA. This feature is described in more detail in the vegetation and watercourse assessment sections below.

4.3.2. Woodlands

Woodlands are located within the tablelands and valleylands of the southwestern portion of the Subject Property. Woodlands are defined per the Forestry Act (1990) as:

> "woodlands" means land with at least,
>
> (a) 1,000 trees, of any size, per hectare,
>
> (b) 750 trees, measuring over five cm in diameter, per hectare,
>
> (c) 500 trees, measuring over 12 cm in diameter, per hectare, or
>
> (d) 250 trees, measuring over 20 cm in diameter, per hectare,
>
> but does not include a cultivated fruit or nut orchard or a plantation established for the purpose of producing Christmas trees.

The woodland community present on the tableland is defined as a FODM4a vegetation community composed of a small, disturbed grouping of landscape and pioneer trees associated with a rural dwelling

that once existed at the site. This feature is described in more detail in Table 5 and is identified as a 'woodlot' in the Town of Newmarket OP, which is subject to an appeal before the LPAT. As noted in **Section 4.4.1.4.** of this EIS, the FODM4a community meets the *(a) 1000 tree, of any size, per hectare* and *(b) 750 trees, measuring over five cm in diameter, per hectare* criteria.

4.4. Vegetation

The following provides a description of the Subject Property based on secondary source information and field collected data.

4.4.1. Vegetation Communities

4.4.1.1. Floristics

A total of 182 species of vascular plants were identified during the flora survey, including 65 non-native species (approximately 36% of all species). No significant or rare species were identified for the property. Significance was based on rarity at two geographical scales: global and provincial (NHIC database). A working vascular plant list is provided in Appendix B.

4.4.1.2. Ecological Land Classification (ELC)

11 ELC vegetation communities were delineated on the property and are described below in **Table 5**. Refer to **Figure 2** for location of ELC communities.

Table 5 Description of ELC Communities Documented for 55 Eagle Street

ELC Code	Classification	Vegetation	Comments
Coniferous Forest Community Series			
FOCM6-3	Dry-Fresh Scotch Pine Naturalized Coniferous Plantation Type	Dominated by planted Scots Pine (*Pinus sylvestris*) 68% with occurrences of Norway Maple (*Acer plataniodes*) 13%, Norway Spruce (*Picea abies*) 11%, and White Elm (*Ulmus americana*) 8%. Additional species include Manitoba Maple (*Acer negundo*), Black Walnut (*Juglans nigra*), White Ash (*Fraxinus americana), American Basswood (Tilia americana) and Trembling Aspen (Populus tremuloides).* Understory species include Chokecherry *(Prunus virginiana*), Common Buckthorn (*Rhamnus cathartica*), Tatarian Honeysuckle (*Lonicera tatarica*) and Riverbank Grape (*Vitis riparia*). The groundlayer in both areas are composed of Garlic Mustard and Canada Avens (*Geum canadense*).	Two areas have been identified within the Study area limits as FOCM6-3 communities composed of mid-age Scots Pine: a small isolated pocket along the southwestern limit and another larger pocket along the northern limit of the property. The community along the southwestern limit exhibits higher recreation use and disturbance due to its proximity to the surrounding land use and ease of access. Both areas exhibit high levels of invasive species, including Common Buckthorn, Garlic Mustard and Japanese Knotweed.
FOCM5	Naturalized Coniferous Hedgerow Ecosite	Dominated by Scots Pine, with Black Walnut, Manitoba Maple, Trembling Aspen and a heavy Common Buckthorn understory. Groundlayer is composed of common native and non/native woodland and meadow species, including Garlic Mustard, Canada Avens, Canada Goldenrod (*Solidago canadensis*), Herb Robert (*Geranium robertianum*)	This unit includes a small naturalizing Scots Pine plantation within the southwest corner of the Subject Property similar in composition to the FOCM6-3 community.
Deciduous Forest Community Series			
FODM4a	Dry-Fresh Upland Deciduous Forest Ecosite	Species composition for this community includes juvenile White Cedar (*Thuja occidentalis*) 31% planted along the limits, Black Walnut 19%, Manitoba Maple 13% Basswood 10%, Trembling Aspen 8%, American Elm 5%, Black Locust 4%, White Spruce 4%, White Ash 1%, Sugar Maple 1%, Apple1 %, Norway Maple 1%, American Mountain Ash (*Sorbus americana*) 1% and Siberian Elm 1%. The understory and groundlayer are heavily composed of Common Buckthorn with pockets of Common Lilac (*Syringa vulgaris*), Japanese Knotweed (*Reynoutria japonica*) and Tatarian Honeysuckle (*Lonicera tatarica*). The groundlayer is predominantly Garlic Mustard and regenerating Common Buckthorn and Canada Avens.	Disturbance as a result of surrounding land use and high recreational use has impacted the ecological integrity of this unit resulting in high levels of non-native and/or invasive species, soil compaction, impacts to forest structure (dense Buckthorn, limited native tree regeneration, low species richness evident in the groundlayer) and heavy dumping of debris. In addition, this area is used for temporary shelter in the form of tents, temporary structures, firepits and as a result high levels of garbage and debris are evident throughout the feature.
FODM4b & c	Dry-Fresh Upland Deciduous Forest Ecosite	Common species include Manitoba Maple, Black Walnut, Scots Pine, Trembling Aspen, Norway Maple, White Ash, American Basswood and White Elm. The understory includes Common Buckthorn, Choke Cherry, Tatarian Honeysuckle and Common Elderberry. The ground layer is predominantly Garlic Mustard and Canada Avens.	Two small forest units located along the northern portion of the Subject Property similar in composition, with a slighter higher occurrence of Poplars within the FODM4c community.

ELC Code	Classification	Vegetation	Comments
FODM4-5	Dry-Fresh Manitoba Maple Deciduous Forest Ecosite	Species composition includes Manitoba Maple 84%, Black Walnut 8% and Crack Willow 8%. Associate species include White Cedar, White Elm, Norway Maple, American Basswood, White Ash and Scots Pine. The understory is heavily composed of Common Buckthorn with Japanese Knotweed, Choke Cherry and Riverbank Grape (*Vitis riparia*).	The community has been fragmented and disturbed by existing recreational practices and historical clearing. Heavy debris throughout this feature. Informal trails bisect the community.
FODM7-3	Fresh-Moist Lowland Deciduous Forest	This community includes a mid-age bottomland forest community situated along the existing watercourse. The forest community is composed of Manitoba Maple, Crack Willow, Green Ash with occasional gaps in canopy. The understory is composed Red-osier Dogwood, Red Raspberry and Common Buckthorn with Reed-canary Grass dominating the groundlayer.	Informal trails and camping debris documented within this community. Riverbank grape and Thicket creeper present within the forest canopy.
Woodland			
WODM4	Dry-Fresh Deciduous Woodland Ecosite	This community is composed of Manitoba Maple, Black Walnut, Black Walnut and Scots Pine. The understory has patches of Common Buckthorn and Japanese Knotweed but is predominantly old field common native and non-native species, including Common Goldenrod, Coltsfoot (*Tussilago farfara*), Yellow Sweet Clover (*Melilotus officinalis*), Garlic Mustard, Canada Avens, Riverbank Grape and Canada Thistle (*Cirsium arvense*)	Woodlands contain equal to or greater than 35% tree cover but less than 60% cover and for areas with a cultural legacy, are typically dominated by invasive herbaceous, shrub and tree cover. Historically land use across the site was predominantly agricultural use and cleared. Current recreation use has further impacted the features and function of the property resulting in degraded communities with large gaps in canopy. The woodland unit contains limited canopy cover composed of native and non-native, invasive species with an invasive, advantageous understory and groundlayer.
Meadow Series			
MEMM3	Dry-Fresh Mixed Meadow Ecosite	Dominated by common native and non-native species Smooth Brome (*Bromus inermis ssp. inermis*), Kentucky Blue Grass (*Poa pratensis*), Redtop (*Agrostis gigantea*), Canada Goldenrod (*Solidago canadensis*), Alfalfa (*Medicago sativa ssp. sativa*), Timothy (*Phleum pratense*), Common Milkweed (*Asclepias syriaca*), Ox-eye Daisy (*Chrysanthemum leucanthemum),* Alsike Clover (*Trifolium hybridum spp. elegans*), Canada Thistle, New England Aster (*Symphyotrichum novae-angliae*), and Wild Carrot (*Daucus carota*). Juvenile tree and shrub species are present in low numbers through this community and include, Black Walnut, Manitoba Maple, White Ash, Staghorn Sumac (*Rhus typhina*) and Common Buckthorn.	This community occupies the eastern portion of the Subject Property tableland outside the valley land system. Community has been mowed in areas.
MEMM4	Fresh-Moist Mixed Meadow Ecosite	Common species include Common Goldenrod, Reed-canary Grass, New England Aster (*Symphoricarpos novae-angliae*), Panicled Aster, Canada Goldenrod and Canada Thistle.	Located along the eastern floodplain of Western Creek within the valleyland. Interspersed with the MAMM3-1 community. Drier portion are dominated by Canada Goldenrod.
Meadow Marsh Community Series			
MAMM3-1	Mixed Mineral Meadow Marsh Type/Fresh-Mixed Meadow Ecosite	Dominated by Panicled Aster (*Symphyotrichum lanceolatum*) with Joe Pye Weed (*Eutrochium maculatum*), Boneset (*Eupatorium maculatum*), Spotted Touch-me-not (*Impatiens capensis*), Fowl Blue Grass (*Poa palustris*), Fox Sedge (*Carex vulpinoidea*), Field Horsetail (*Equisetum arvense*), Black Bulrush (*Scirpus atrovirens*), Bebb's Sedge (*Carex bebbii*), Sensitive Fern (*Onoclea sensibilis*) and Reed-canary Grass (*Phalaris arundinacea*).	Located along the eastern floodplain of Western Creek within the valleyland. Complex community with MEMM4. Silty clay with mottles at surface. Informal trail bisects community.

4.4.1.3. Tree Inventory

A tree inventory was conducted for the area of proposed development within the Subject Property including the southern 'woodlot' (FODM4a), portions of the valley feature (FODM4-5) and other treed areas. This is referred to as the Study Area in this sub-section. The tree inventory documented a total of 478 trees in and within 6 m of the development envelope, with 152 located in the 'woodlot'.

Trees identified within the inventory were predominantly young to mid-age trees with approximately 60% under 20 cm DBH and 33% between 20 and 40 cm DBH. The most common species identified in the tree inventory was the Manitoba maple, which accounted for approximately 26% of all trees.

Manitoba maples were located throughout the property but were mainly concentrated within the northern portion of the southern 'woodlot' and the upper slopes of the valley feature. They were primarily represented by young to mid-aged naturally occurring individuals except for several large (50 cm DBH or over) dead or declining trees in the 'woodlot' that likely once existed as landscape trees, before the area had naturalized.

Black walnut (18%) was also common throughout the property, mainly in open areas with more sunlight and they were the most common tree to be recorded with a DBH of 30 cm and over. Mature individuals were most common in the southwest portion of the 'woodlot' and it is likely that they are naturally occurring trees. Trembling aspen (7%) and basswood (5%) are two common secondary species within the Study Area. Young trembling aspen and young to mid-aged basswood individuals account for much of the naturally occurring new growth within the Study Area, particularly within the southern and eastern portions of the southern 'woodlot'. Planted coniferous trees including eastern white cedar (16%), Scots pine (9%) and spruces (3%) account for a notable portion of inventoried tree and their evident use as plantation and/or hedgerow species makes them most recognizable as non-naturally occurring. However, there is evidence that these species are regenerating throughout the property, particularly the Scots pine.

To accommodate the proposed development, 402 of the 478 trees are proposed to be removed. Of the 76 trees to be retained, 37 are located within the 6 m buffer zone from the top of bank, 35 are located beyond the top of bank, and four trees are located off-property within the neighbouring property to the east (trees 230, 234, 236, 237, 238). A certified arborist is recommended to be present while grading is completed in proximity to these trees to ensure that their root zones are not damaged. Refer to **Appendix A** for a list of trees identified within this inventory and **Figure 4** for their location.

4.4.1.4. Town of Newmarket Woodlot (FODM4a)

In addition to the ELC assessment and tree inventory surveys conducted, the feature identified as a FODM4a vegetation community and 'Woodlot' within the Town of Newmarket OP was further assessed on March 4th, 2021 to help better define the condition associated with this feature. Additional surveys included shrub density plots, defining the limits of soil disturbance and forest stand analysis to identify areas that do not meet density per the Forestry Act (1990). Refer to Figure 8 for the survey plots and results of the assessments.

The results of the additional field investigations contributed to the assessment of the feature as a culturally disturbed community that formed as a result of previous plantings and the spread of non-native, invasive species. Soil disturbance, including soil compaction, piles of fill and large dug holes were documented throughout the feature. Informal trails, fire pits and recreational usage have greatly impacted the structure

of the feature evident in the lack of regenerating species, open areas devoid of shrub or subcanopy species and scattered dense pockets of non-native and or invasive species.

Photo: 1: Disturbed Woodlot with limited tree regeneration and invasive understory

Seven random forest density plots were assessed within the feature and the results are provided below in **Table 6**. The majority of the plots did not meet density thresholds, per the Forestry Act with the exception of plots assessed near the top-of bank and along the perimeter of the feature adjacent Eagle Street where pockets of Trembling Aspen and Manitoba Maple are regenerating.

Table 6 Woodlot Tree Density Plots

 # Plots=7 plots **r = 5.64m =** **100m² =** **1/100ha**

Tree Tally (number of stems per 100m²)					
	Diametre cm (dbh)				
Species	**≤5**	**>5 ≤12**	**>12 ≤20**	**>20**	**All Diam.**
Acer negundo	25	18	3	4	50
Tilia americana			2	1	3
Juglans nigra	2	3		3	8
Ulmus pumila		2	1		3
Populus tremuloides		32			32
Total		785	85	114	1371
Threshold trees/ha		**750**	**500**	**250**	**1000**

The density and composition of the shrub layer was also assessed throughout the feature. A total of 10 2m x 2m plots were randomly inventoried and the results are provided below in **Table 7.** The data identified a shrub layer devoid of native species and dominated by non-native, invasive species, including Common lilac, Common Buckthorn and Tatarian Honeysuckle.

Table 7 Woodlot Shrub Density Plots

Density Plot	Species	Height	
		< 120 cm	> 120 cm
1	*Rhamnus cathartica*	21	1
1	*Syringa vulgaris*	2	-
2	100% *Poa pratensis*		
3	*Rubus occidentalis*	3	-
4	*Prunus virginiana*	-	4
5	*Rhamnus cathartica*	-	3
5	*Acer platanoides*	-	1
5	*Lonicera tatarica*	-	2
5	*Syringa vulgaris*	-	1
6	*Rhamnus cathartica*	9	-
6	*Syringa vulgaris*	-	5
6	*Prunus virginiana*	-	1
7	*Prunus virginiana*	-	3
8	*Rhamnus cathartica*	3	5
8	*Syringa vulgaris*	2	3
8	*Prunus virginia*	1	-
9	*Syringa vulgaris*	-	9

Density Plot	Species	Height	
		< 120 cm	> 120 cm
9	*Lonicera tatarica*	-	1
10	*Acer negundo*	4	2
10	*Syringa vulgaris*	-	1
10	*Rhamnus cathartica*	-	1

Photo: 2: Invasive Shrub Understory

Photo: 3: Invasive Shrub understory and gaps in canopy

In addition to vegetative data collected for the feature, an assessment on the level of soil disturbance was completed to define the limits of fill piles and pits. Fill piles and pits accounted for over a third of the feature. Outside of defined fill piles and pits, the soil has been heavily impacted from historical and on-going high recreational use.

Photo: 4: Soil disturbance and fill piles

The results of the assessment determine the feature to be highly degraded with minimal wildlife habitat value outside of urban generalist species. Continued disturbance along with the eventual natural falling of the few dead and/or dying Manitoba Maple will result in further gaps in canopy and likely facilitate the spread of the existing non-native, invasive species.

4.5. Wildlife Surveys

4.5.1. Breeding Bird Surveys

A total of 24 species (21 with breeding evidence) were observed throughout the survey with varying evidence of breeding. No Species at Risk were observed. The following **Table 8** provides the provincial NHIC ranking (S Rank) and the current SARO designation categorized by the level of breeding evidence. Ranking legends are provided below. In the species columns, each species is assigned a breeding level, based on the highest level of breeding evidence observed, by quadrant. A species observed, showing no breeding evidence or where no suitable habitat is present, is marked 'X'. The number recorded represents the highest one-day total for that species.

Table 8 Breeding Bird Survey Results

Common Name	Latin Name	Quantity	Breeding Level	S Rank	COSSARO/ COSEWIC	Comment
Red-tailed Hawk	*Buteo jamaicensis*	1	X	S5		Harassed by crows
Ring-billed Gull	*Larus delawarensis*	3	X	S5B,S4N		Flyover
Rock Pigeon	*Columba livia*	10	X	SNA		Flyover
Mourning Dove	*Zenaida macroura*	2	H	S5		
Downy Woodpecker	*Picoides pubescens*	1	H	S5		
Red-eyed Vireo	*Vireo olivaceus*	1	SM	S5B		
Blue Jay	*Cyanocitta cristata*	2	P	S5		
American Crow	*Corvus brachyrhynchos*	5	T	S5B		
Black-capped Chickadee	*Poecile atricapillus*	4	CF	S5		
House Wren	*Troglodytes aedon*	1	T	S5B		
American Robin	*Turdus migratorius*	5	A	S5B		
Gray Catbird	*Dumetella carolinensis*	2	T	S4B		
European Starling	*Sturnus vulgaris*	8	T	SNA		
Cedar Waxwing	*Bombycilla cedrorum*	4	T	S5B		
American Redstart	*Setophaga ruticilla*	1	T	S5B		
Song Sparrow	*Melospiza melodia*	6	A	S5B		
Chipping Sparrow	*Spizella passerina*	1	T	S5B		
Northern Cardinal	*Cardinalis cardinalis*	4	N	S5		
Red-winged Blackbird	*Agelaius phoeniceus*	4	T	S4		
Common Grackle	*Quiscalus quiscula*	4	T	S5B		
Brown-headed Cowbird	*Molothrus ater*	5	T	S4B		
Baltimore Oriole	*Icterus galbula*	2	SM	S4B		
American Goldfinch	*Spinus tristis*	6	T	S5B		
House Sparrow	*Passer domesticus*	1	H	SNA		

OBBA Breeding Evidence Codes

POSSIBLE

H-species observed in breeding season in suitable nesting habitat
S-singing male present or breeding calls heard in breeding season in suitable habitat

PROBABLE

P-pair observed in their breeding season in suitable habitat
T-permanent territory presumed through registration of territorial song or presence of adult bird in breeding habitat on at least 2 days, one week or more apart at the same place.
D-courtship or display between a male and female, or two males including courtship feeding and copulation.
V-visiting probable nest site.
A-agitated behavior or anxiety calls of adults
B-brood patch on adult female or cloacal protuberance on adult male
N-nest building or excavation of nest hole

CONFIRMED

DD-distraction display or injury feigning
NU-used nest or eggshell found [occupied/laid during atlas period]
FY-recently fledged young or downy young.
AE-adults leaving or entering nest site in circumstances indicating occupied nest
FS-adult carrying faecal sac
CF-adult carrying food for young
NE-nest containing eggs
NY-nest with young seen or heard

NHIC S-Rank Legend

SH- Possibly Extirpated (Historical); species occurred historically and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years.
S1- Critically Imperiled. Extremely rare in Ontario; usually 5 or fewer occurrences in the province
S2-Imperiled. Very rare in Ontario; usually between 6 and 20 occurrences in the province
S3- Vulnerable. Rare to uncommon in Ontario; usually between 21 and 60 occurrences in the province; may have fewer occurrences, but with some extensive examples remaining
S4- Apparently secure. Considered to be common in Ontario. It denotes a species that is apparently secure, with over 80 occurrences in the province
S5- Secure. Indicates that a species is widespread in Ontario. It is demonstrably secure in the province.
?- Indicates some uncertainty with the classification due to insufficient information
SNR- Not Ranked
SNA- Not Applicable, a conservation status rank is not applicable because the species is not a suitable target for conservation activities

SARO Legend

SC- Special Concern
END- Endangered
THR- Threatened
EX- Extirpated

4.6. Amphibian Surveys

Amphibian surveys were completed on April 28, May 22 and June 10, 2020 following the Marsh Monitoring Protocol temperature requirements. Two survey stations were located along the southern top of bank at opposite ends of the property to ensure coverage of the entire Subject Property. No amphibians were heard calling on any of the survey nights. See **Table 9** *below for survey details and Figure 6 for locations*.

Table 9 Amphibian Survey Results

Visit #	Breeding Species	Required Night-time Air Temperature	Date	Actual Temperature
Visit 1	Early	Above 5 ^{O}C	April 28	9 ^{O}C
Visit 2	Middle	Above 10 ^{O}C	May 22	21 ^{O}C
Visit 3	Late	Above 17 ^{O}C	June 10	22 ^{O}C

4.6.1. Snag Survey

A snag survey was conducted to assess the potential for suitable bat habitat for the proposed development envelope within the Subject Property including the southern 'woodlot' (FODM4a), portions of the valley feature (FODM4-5) and the FOCM6-3 plantation. The survey documented a total of 33 snag trees within the development envelope. Several small dead trees (generally 10-15 cm DBH) of decay classes 4 and 5 were observed, but not identified as snags due to a lack of bat habitat features. Approximately 5 additional dead or dying individuals within the conifer plantation located at the west end of the site were also excluded from the snag count due to their small size and lack of habitat features.

Of the 33 snags identified in the study area, 20 were Manitoba maple, 8 were eastern cottonwoods and the remaining five snags were represented by five other species. Large and/or highly decayed trees likely existed as landscape trees prior to naturalization. These trees consisted primarily of eastern cottonwood individuals towards the southeast portion of the property and Manitoba maples within the 'woodlot'. Young to mid-aged Manitoba maples of poor condition constituted the majority of other snags. Refer to **Table 8** for a list of snags identified as part of this inventory and Figure 6 for their locations.

Table 10 Snag Survey

ELC Polygon	Number	Species	DBH	Height Class	Cavity	Loose Bark	Crack	Knot hole	Decay class 1-3	10 m from nearest snag	Notes
FODM11	1	Eastern Cottonwood (*Populua deltoides*)	22	3	.	x	x	.	.	x	Decay class 4
FODM12	2	Manitoba Maple (*Acer negundo*)	18	4	x	x	x	x	x	x	Decay class 1, cavity at 4 m
FODM13	3	Eastern Cottonwood (*Populua deltoides*)	18	4	.	x	x	.	.	x	Decay class 5
FODM14	4	Manitoba Maple (*Acer negundo*)	17	2	.	x	.	.	x	x	Decay class 1
FODM15	5	Eastern Cottonwood (*Populua deltoides*)	25	1	x	x	.	x	.	x	Decay class 4, cavity at under 1 m
FODM16	6	Manitoba Maple (*Acer negundo*)	12	4	x	x	x	x	.	x	Decay class 4, cavities at 1 m ,2 m
FODM17	7	Manitoba Maple (*Acer negundo*)	16	3	x	.	.	x	x	x	Decay class 1, cavity at 2 m

ELC Polygon	Number	Species	DBH	Height Class	Cavity	Loose Bark	Crack	Knot hole	Decay class 1-3	10 m from nearest snag	Notes
FODM18	8	Eastern Cottonwood (*Populua deltoides*)	33	1	.	x	x	x	x	x	Decay class 3
FODM19	9	Manitoba Maple (*Acer negundo*)	16	4	x	x	.	x	.	x	Decay class 4, cavity at 2 m
FODM20	10	Manitoba Maple (*Acer negundo*)	18	3	.	x	x	.	.	x	Decay class 4
FODM21	11	Manitoba Maple (*Acer negundo*)	15	4	x	.	x	x	x	x	Decay class 3, cavity at 2 m
FODM22	12	Manitoba Maple (*Acer negundo*)	16	4	x	x	x	.	x	x	Decay class 2, cavity at 4 m
FODM23	13	Eastern Cottonwood (*Populua deltoides*)	77	1	x	x	x	x	.	x	Decay class 4, cavities at 4 m, 5 m, 6 m
FODM24	14	Maple Species (*Acer sp.*)	20	2	.	x	.	.	x	x	Decay class 3
FOCM5	15	Scots Pine (*Pinus silverstris*)	12	3	.	x	.	.	.	x	Decay class 4

ELC Polygon	Number	Species	DBH	Height Class	Cavity	Loose Bark	Crack	Knot hole	Decay class 1-3	10 m from nearest snag	Notes
FOCM6	16	Eastern Cottonwood (*Populua deltoides*)	37	1	.	x	.	.	x	x	Decay class 3
FOCM7	17	Eastern Cottonwood (*Populua deltoides*)	53	1	.	x	.	.	x	x	Decay class 2
FOCM8	18	Eastern Cottonwood (*Populua deltoides*)	56	1	.	x	.	.	x	x	Decay class 3
FODM4-5	19	Manitoba Maple (*Acer negundo*)	10-15	2	x	x	x	x	x	.	Decay class 1, cavity at 2 m, multi-stem
WODM4	20	Manitoba Maple (*Acer negundo*)	31, 26	1	x	x	x	.	x	.	Decay class 1, cavity at 2 m, codominant
FODM4a	21	Manitoba Maple (*Acer negundo*)	20-40	3	x	.	x	x	x	x	Decay class 2, cavities at 1 m, 2 m, multi-stem
FODM4a	22	Manitoba Maple (*Acer negundo*)	33	4	x	x	x	x	x	x	Decay class 2, cavity at 2 m

ELC Polygon	Number	Species	DBH	Height Class	Cavity	Loose Bark	Crack	Knot hole	Decay class 1-3	10 m from nearest snag	Notes
FODM4a	23	Manitoba Maple (*Acer negundo*)	19	3	x	x	x	x	x	x	Decay class 2, cavity at 2 m
FODM4a	24	White Elm (*Ulmus americana*)	53	3	x	x	x	x	.	x	Decay class 5, cavities at 2 m, 3 m, codominant
FODM4-5	25	Manitoba Maple (*Acer negundo*)	76	1	x	x	x	x	x	x	Decay class 1, cavity at 4 m
FODM4a	26	Manitoba Maple (*Acer negundo*)	72	1	x	x	x	x	x	x	Decay class 2, cavity at 1 m
FODM4a	27	Manitoba Maple (*Acer negundo*)	81	2	x	x	x	x	x	x	Decay class 3, cavities at 2 m, 3 m, 5 m +
FODM4a	28	Manitoba Maple (*Acer negundo*)	91	2	x	x	x	x	x	x	Decay class 2, cavities at 2 m, 3 m, 4 m
FODM4a	29	Eastern White Cedar (*Thuja occidentalis*)	46	2	x	.	x	.	.	x	Decay class 4, cavities at 2 m and over

ELC Polygon	Number	Species	DBH	Height Class	Cavity	Loose Bark	Crack	Knot hole	Decay class 1-3	10 m from nearest snag	Notes
FODM4a	30	Basswood (*Tilia americana*)	20-60	1	x	x	x	x	x	x	Decay class 1, cavities at 1 m to 5 m, multi-stem
FODM4a	31	Manitoba Maple (*Acer negundo*)	51	2	x	x	x	x	x	.	Decay class 2, cavities at 2 m, 3 m, 5 m
FODM4a	32	Manitoba Maple (*Acer negundo*)	56	4	x	.	x	x	.	x	Decay class 5, many cavities
FODM4a	33	Manitoba Maple (*Acer negundo*)	52	4	x	.	x	x	.	x	Decay class 5, many cavities
FODM4a	34	.	.	.	.	.	.	.	.	.	Grouping of 15-20 small drying or dead trees exhibiting little or no habitat features

5. Watercourse Assessment

Western Creek, a tributary of the East Holland River traverses the Subject Property, flowing west to east. Flow within the watercourse is split at the eastern end of the Subject Property, with the majority being diverted into a large storm pipe located under Avenue Road. The storm pipe was installed to alleviate flooding that was impacting homes along Avenue Road. Millford gave the Town of Newmarket land to accommodate for this storm pipe. The remaining flow is captured in a pipe at the northern property limit and is enclosed through the residential neighbourhood to the north. Upstream of the Subject Property, and west of Yonge Street, Western Creek is both enclosed and open as it flows through residential neighbourhoods.

Within the Subject Property Western Creek flows through two distinct vegetation communities. The western two thirds of the watercourse flow through a mixed deciduous/coniferous woodland, while the balance of the eastern portion flow through a meadow community. The two differing vegetation communities result in differing influences on the channel form. The portion of the channel within the woodland is wider and shallower, while the meadow section is narrower and more entrenched. The overall form of the creek is reflective of a flashy urban system that causes channel instability through lateral erosion within the woodland and downward bed cutting in the meadow. The two differing responses to the same hydraulic conditions can be attributed to the differing root zone characteristics. The dense rooting zone associated with the meadow grasses provides greater resistance to lateral erosion compared to the sparser rooting zone in the woodland, which is more susceptible to lateral bank erosion.

Water quality was not measured however based on visual inspection it appears to be similar to urban systems that have upstream enclosures and receive urban runoff. The water had a grayish tinge to it and an odour that is typical of systems receiving a high degree of stormwater. The site visit was conducted approximately twelve hours after a fairly large thunderstorm system moved through the area, so it is anticipated that the flow was reflective of this recent rain event and its associated runoff.

A detailed characterization of the meadow dominated riparian community was completed as this is the reach of the watercourse that could be readily surveyed with the GPS based equipment, will be within the closest proximity to the proposed development and was the only portion of the watercourse that had pools sufficiently deep to hold fish (no fish were observed within the portions of the channel within the woodland). The channel characterization found the watercourse supports a pool/riffle morphology, with the majority of pools falling into the 0.6 to 1.0 m in depth category. The morphological distribution of the channel form is as follows: riffles 43%, pools 37% and glides 21%. Banks were steep at close to 1:1 and showing signs of erosion pretty much along their entire length.

The pebble count for the riffles found the D50 to be 37 mm and the D95 to be 143 mm, with a higher distribution of particles greater than 10 mm with the highest particle count occurring around the 100 mm size range. Overall a fairly coarse sediment count, which is reflective of a flashy system, in which high flows flush the finer sediments downstream. **Figure 6** shows the particle distribution and **Figure 7** shows the locations of the surveyed cross sections and centerline of the channel, which coincides with the OSAP Rapid Assessment reach. **Table 11** provides a summary of the average channel dimensions.

Table 11 Channel Dimensions per Survey Cross Section

Parameter	XS-1	XS-2	XS-3	XS-4	XS-5	XS-6	Average
x-section area (m.sq.)	1.6	2.5	1.0	2.0	1.3	1.8	**1.7**
Width (m)	3.5	5.9	2.6	4.3	4.2	5.1	**4.3**
Mean depth (m)	0.5	0.4	0.4	0.5	0.3	0.3	**0.4**
Maximum depth (m)	0.7	0.8	0.6	0.9	0.7	0.8	**0.7**
Wetted perimeter (m)	4.2	6.6	3.2	5.0	4.8	5.5	**4.9**
Hydraulic radius (m)	0.4	0.4	0.3	0.4	0.3	0.3	**0.3**
Width-depth ratio	7.3	13.8	7.0	9.0	14.1	14.5	**11.0**
Channel Slope							**~0.64%**

Formal fish community sampling was not conducted. A few cyprinids (minnows) were observed in a large pool within the meadow, but otherwise no other fish were observed. It is not surprising very few fish were observed within the channel. The channel on the Subject Property is isolated from any upstream and downstream channels due to enclosures immediately up and downstream of the site. As a result, fish within the reach are limited to the approximately 400 m of channel within the Subject Property. This is a small reach of channel for populations of fish to be isolated and will limit the number of fish which can be supported. Of

particular importance when considering the carrying capacity of an isolated reach is determining what is the limiting habitat. Based on the field investigation, the most likely limiting habitat within the Subject Property is over-wintering habitat. Fish require deep pools in the winter that are generally free from anchor and frazil ice and are often associated with groundwater inputs. The field investigation found that there were only a few (3) deep pools (<0.75 m) within the open meadow area that are likely providing over-wintering habitat and no good candidate pools within the woodland reach. In addition, the poor water quality, an unstable hydraulic regime, and a small genetic pool would also limit the fish habitat function of Western Creek within the Subject Property. As a result, it is unlikely this isolated portion of the channel can support a robust and diverse fish community.

6. Species at Risk

The Endangered Species Act, 2007, S.O. 2007 was passed to protect the biodiversity of Ontario by using the best available scientific, community and aboriginal traditional knowledge and the precautionary principle as its doctrine. The purpose of the Act is to identify species at risk, protect species at risk and their habitats, and to promote the recovery of species at risk and stewardship activities which assist in these goals. The Committee on the Status of Species at Risk in Ontario (COSSARO) functions to maintain an up-to-date database of information pertaining to species in Ontario and their classification. COSSARO advises the Minister of Natural Resources and Forestry, who makes and files a regulation that lists all plant and animal species classified by COSSARO as extirpated, endangered, threatened, or of special concern. This regulation is the Species at Risk in Ontario List, O. Reg 230/08. Ontario Regulation 242/08 provides general policies concerning exemptions and habitat specifications for those listed species, Species at Risk (SAR).

6.1. Screening

The Natural Heritage Information Center (NHIC), operated by the OMNRF, collects, reviews, manages and distributes information on Ontario's biodiversity. Data on species, plant communities, wildlife concentration areas and natural areas is made accessible to the public and professionals using generalized 1-kilometer grid units to protect sensitive information. Data distributed by the NHIC is used in conservation and natural resource management decision making and is of valued assistance to this report.

Using the Make-a-Map: Natural Heritage Areas application, a screening for potential Species at Risk on or within a 1-kilometer grid of the Subject Property was completed for ID grid 17PJ2278. The list presents the species by common and scientific name, the last observed date in that unit (when available) and their status Provincially (SARO Status), Federally (COSEWIC Status) and as recognized by the associate international NatureServe network by Subnational Rank (SRank). NatureServe is a non-profit organization which functions as a network of professionals to collect and manage data on rare, endangered and threatened species and ecosystems across the Americas since 1974.

Mapping for Aquatic Species by the Department of Fisheries and Oceans was also reviewed. The digital mapping tool (last modified 2019-08-23) does not identify the presence of any Species at Risk or Species of Special Concern.

Table 12 Species at Risk Database Information Sources Summary

Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	Last Obs Date	Source
Eastern Wood-Pewee	Contopus virens	S4B	SC	SC	n/a	NHIC
Wood Thrush	Hylocichla mustelina	S4B	SC	THR	n/a	NHIC

6.2. Assessment

Two Species at Risk were identified as a result of the screening and one (Butternut) was identified during field surveys. Another three potential Species at Risk were identified during the field surveys based on the habitat conditions found on the site. The following Species at Risk were further assessed for potential impacts. Both observed and potential Species at Risk are listed below:

- Eastern Wood-Pewee (*Contopus virens*) - **Special Concern**
- Wood Thrush – (*Hylocichla* mustelina) - **Special Concern**
- Butternut (*Juglans cinereal*) - **Endangered**
- Little Brown Myotis (*Myotis lucifugus*) - **Endangered**

- Northern Myotis (*Myotis septentrionalis*) - **Endangered**
- Tri-coloured Bat (*Perimyotis subflavus*) -**Endangered**

6.2.1. Eastern Wood Pewee

The Eastern Wood-pewee was designated as Special Concern on the Species at Risk in Ontario List on June 27, 2014. An aerial insectivore forest bird, it is identified by its distinct "pee-ah-wee" song and is difficult to distinguish from related species by morphology. Individuals reach only 15 cm in length and colouring is adapted to provide camouflage within the forest setting. It is one of many forest flycatchers which partition the forest canopy into different niches of foraging habitat. The most common habitat is intermediate-age to mature forest with limited understory vegetation, though it is also found along forest edges and within clearings of forests. The species is found throughout the eastern half of the continent with its northern limit located north of the Great Lakes system. Threats to the species survival are relatively unclear but may include overall land use conversion and loss of forest, a decrease in available prey, an increase in predators (urbanized squirrels and jays), and impacts related to the over-browsing of forests by White-Tailed Deer. Threats specific to migration and overwinter habitat in the south must also be considered.

No individuals were observed during breeding bird surveys conducted for the Subject Property.

6.2.2. Wood Thrush

The wood thrush was added to the SARO list on June 27, 2014 as a species of Special Concern. It is a medium-sized songbird, about 20 cm long – slightly smaller than the American robin and similar in shape. These birds are generally rusty brown on the upper parts with white under parts and large blackish spots on the breast and sides. The wood thrush lives in mature deciduous and mixed (conifer-deciduous) forests. They seek moist stands of trees with well-developed undergrowth and tall trees for singing perches. The wood thrush flies south to Mexico and Central America for the winter.

Major threats to the wood thrush appear to be: 1. the loss or breaking up of the bird's forest habitat from urban, suburban and cottage development, 2. over-browsing by white-tailed deer in some locations, which decreases the number and type of plants and trees in the forest, including the number of saplings, where the wood thrush nests, and 3. parasitic behaviour from brown-headed cowbirds, which lay their eggs in the nests of the wood thrush (and other birds), and whose young are fed by the host thrush at the expense of their own young. Loss and the breaking up of forests in the bird's winter habitat may also be a threat to the wood thrush.

Screening of NHIC data revealed an element occurrence of the wood thrush for the general surrounding area of the Subject Property, however habitat features on-site do not support this species, nor were individuals observed during breeding bird surveys.

6.2.3. Butternut

The Butternut was already assessed as endangered when the *Endangered Species Act* took effect in 2008. Its Canadian range includes Ontario, Quebec and New Brunswick south of the Canadian Shield. It is a deciduous forest species, located alone or in groups, found along the edges or in sunny openings as it does not do well in shade. It prefers moist, well-drained soil and often found along streams. It can reach 30m in height, has compound branching with 11 to 17 leaflets (9-15 cm long each) along the feather-like leaves. The fruit is a large nut which is light green, sticky and fuzzy. Bark begins smooth but ridges as it ages. It is susceptible to the Butternut Canker, a fungal disease which is devastating the population due to its quick spread between individuals and within an individual. Up to one third of the trees in eastern Ontario have already been killed and most are infected. Research into individuals showing signs of resistance is on-going.

One butternut was identified along the northern limit of the Subject Property approximately 85 m from the development limit and thus will not be impacted by the development. Due to its protection within the regional greenlands system, a Butternut Health Assessment was not required.

6.2.4. Little Brown Myotis

The little brown myotis bat was listed as Endangered on the Species at Risk in Ontario (SARO) List on January 23, 2013. Its population is widespread across Ontario and most of North America. It is nocturnal and hibernates from fall until spring, most often in caves or abandoned mines which are humid. In the active half of the year they roost in trees and buildings where they colonize to raise young. They have glossy brown fur

and weigh between 4 and 11 grams with a wingspan of 22-27 centimeters. A fleshy projection that covers the entrance to the ear, which is long, thin and rounded at the tip distinguishes them from other bat species. They feed at night on insects and are most active in the hours just after sunset. White nose syndrome, caused by a fungus of European origination, threatens this species. It propagates in environments very similar to the hibernating environments used by these bats (humid and cold). Mass mortality events are possible at more than 75% of Ontario's hibernation sites due to the fungus' affect on hibernation cycles, metabolism and fat storage.

The valleyland woodland outside of the proposed development envelope contains sufficiently large trees to be considered potential habitat for little brown myotis. This area is to be preserved in the proposed plan and protected with a buffer.

6.2.5. Northern Myotis

The northern myotis bat was listed as Endangered on the Species at Risk in Ontario (SARO) List on January 2013. This bat is impacted by the white nose syndrome. Prior to the spread of the fungal disease across North America, the northern myotis was found throughout forested areas across southern and northern Ontario, and throughout all Canadian provinces. This species, previously known as northern long-eared bats, had long, rounded ears with dull yellow-brown fur and pale grey bellies. They are approximately eight centimeters in length and have a wingspan of approximately 25 centimeters. This Myotis species is similar in looks to the little brown bat (*Myotis lucigufus*) save for the pointed tip at the northern myotis ear. Distinct from the little brown bat, this species prefers to roost under loose, exfoliating bark more often than within tree cavities during the summer rearing months. Hibernation throughout the winter occurs in obscure caves far from the summer foraging grounds and is the root location for the spread of the white nose syndrome. Mass die-offs of up to 90 percent of overwinter populations occur in infected hibernacula. This emphasizes the importance of successful reproduction of remaining individuals at summer maternity roosting habitat.

The valleyland woodland outside of the proposed development envelope contains sufficiently large trees to be considered potential habitat for northern myotis. This area is to be preserved in the proposed plan and protected with a buffer.

6.2.6. Tri-coloured bat

This was listed as Endangered on the Species at Risk in Ontario (SARO) List on June 15, 2016. This bat is impacted by white nose syndrome. This species is very rare, and their population is more scattered across the province as such. The species is similar in size to the myotis, but orange-red colouring in the muzzle, ears and forearms distinctly mark it. Tri-colouring on its back in black, yellow and brown, is indicated by its name. Similar to the myotis, this species is an aerial insectivore with summer roosting locations in forests and buildings and overwinter hibernation in caves. Unlike myotis, they typically hibernate by themselves rather than in a larger unit.

The valleyland woodland outside of the proposed development envelope contains sufficiently large trees to be considered potential habitat for tri-coloured bat. This area is to be preserved in the proposed plan and protected with a buffer.

8. Significant Wildlife Habitat

Significant Wildlife Habitat (SWH) include natural heritage features protected per Section 2.1 of the Provincial Policy Statement, 2020. The Significant Wildlife Habitat Technical Guide (OMNRF, 2000) aids in land use planning by providing the identification, description and prioritisation of significant wildlife habitat in Ontario. The associated Ecoregion Criteria Schedules are used to further provide detailed criteria for assessing and confirming SWH within Ontario. The following section provides the results of a SWH screening and assessment conducted for the Subject Property.

8.1. Screening

Significant (and/or sensitive) Wildlife Habitat features and functions as described within the OMNRF Significant Wildlife Habitat Ecoregion Criteria Schedule for Region 6E (OMNRF, 2015) were reviewed and evaluated for the Subject Property and adjacent lands. The document groups wildlife habitat into four main categories:

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

The screening, found in Table 11, consisted of a review of the ELC codes and habitat criteria for candidate SWH. Any SWH on the Subject Property or adjacent lands was noted in Column 4 and a rationale was provided in Column 5.

Findings of the SWH screening identified one seasonal concentration area of animals: Bat Maternity Colonies. This is identified within the valley system associated with the northern portion of the Subject Property outside the proposed development envelope.

Table 13 Significant Wildlife Habitat Screening 6E

Wildlife Habitat	Candidate SWH		Potential on Site	Rationale
	ELC Ecosite Codes	Habitat Criteria		
Seasonal Concentration Areas of Animals				
Waterfowl Stopover and Staging Areas (Terrestrial)	CUM, CUT1 - plus evidence of annual spring flooding within these ecosites *Fields with seasonal flooding and waste grains in certain areas are specific to Tundra Swan	Fields with sheet water during Spring (mid-March to May) •agricultural fields with waste grain are not SWH unless they have spring sheet water available.	No	No habitat features on site.
Waterfowl Stopover and Staging Areas (Aquatic)	MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, SWD1, SWD2, SWD3, SWD4, SWD5, SWD6, SWD7	Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. • Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify.	No	No habitat features on site.
Shorebird Migratory Stopover Area	BBO1, BBO2, BBS1, BBS2, BBT1, BBT2, SDO1, SDS2, SDT1, MAM1, MAM2, MAM3, MAM4, MAM5	•Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. •Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores in May to mid-June and early July to October. • No sewage treatment ponds.	No	No habitat features on site.
Raptor Wintering Area	Combo of one of each Community Series from Forest (FOD, FOM, FOC) and Upland (CUM, CUT, CUS, CUW). Bald Eagle: Forest on shoreline area adjacent to large rivers and lakes.	A combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Need to be > 20 ha. •Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. • Field area of the habitat is to be wind swept with limited snow depth or accumulation.• Eagle sites have open water and large trees and snags available for roosting.	No	No habitat features on site.
Bat Hibernacula	CCR1, CCR2, CCA1, CCA2. * buildings are not to be considered SWH	May be found in caves, mine shafts, underground foundations and Karsts. •Active mine sites are not considered SWH.	No	No habitat features on site.
Bat Maternity Colonies	All Ecosites in: FOD, FOM, SWD, SWM.	Maternity colonies can be found in tree cavities, vegetation and often in building. *Buildings are not considered SWH. • Not found in caves or mines in ON. •Located in Mature Deciduous or mixed forest stands with >10/ha large diameter (>25cm dhb) wildlife trees. •Prefer snags in early stages of decay (class 1-3 or class 1 or class 2). •Silver-haired Bats prefer older mixed or deciduous forests with at least 21 snags/ha.	Yes	Habitat identified within the valley system associated with the northern portion of the Subject Property outside the proposed development envelope.
Turtle Wintering Areas	Snapping and Midland Painted: SW, MA, OA, SA and FEO/BOO Series. Northern Map: Open water areas such as deeper rivers or streams and lakes.	Wintering areas are in the same general area as their core habitat. Water must be deep enough not to freeze and have soft mud substrates. •Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. •Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH.	No	No habitat features identified on the Subject Property.

Wildlife Habitat	Candidate SWH		Potential on Site	Rationale
	ELC Ecosite Codes	Habitat Criteria		
Reptile Hibernaculum	Any ecosite other that very wet. •Talus, Rock Barren, Crevice, Cave, Alvar may be directly related. •Observations of congregations in spring or fall is good indicator.	Sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH.• Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. •Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover.	No	No habitat features identified on the Subject Property.
Colonially-Nesting Bird Breeding Habitat (Bank and Cliff)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles, cliff faces, bridge abutments, silos, barns. CUM1, CUS1, BLS1, CLO1, CLT1, CUT1, BLO1, BLT1, CLS1.	Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area, *does not include man-made structures or licenced Mineral Aggregate Operation.	No	No habitat features on site.
Colonially-Nesting Bird Breeding Habitat (Tree/Shrub)	SWM2, SWM3, SWM5, SWM6, SWD1, SWD2, SWD3, SWD4, SWD5, SWD6, SWD7, FET1	Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. •Most nests in trees are 11 to 15 m from ground, near the top of the tree.	No	No habitat features on site.
Colonially-Nesting Bird Breeding Habitat (Ground)	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1; 50,000 NTS map). Proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6; MAS1 – 3; CUM, CUT, CUS	Nesting colonies on islands or peninsulas associated with open water or in marshy areas. Brewers Blackbird colonies found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands.	No	No habitat features on site.
Migratory Butterfly Stopover Areas	Combo of one of each Field (CUM, CUT, CUS) and Forest (FOC, FOD, FOM, CUP).	Minimum 10 ha in size with combo of field and forest located within 5km of Lake Erie or Lake Ontario. •Should not be disturbed. • Field/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. •Should provide protection from the elements, often spits of land or areas with the shortest distance to cross the Great Lakes.	No	No habitat features on site.
Land bird Migratory Stopover Areas	All Ecosites within: FOC, FOM, FOD, SWC, SWM, SWD	Woodlots >5ha in size and within 5km of Lake Erie and Lake Ontario. • If woodlands are rare in area, smaller size can be considered. • If multiple woodlands located along shore line, those 2km from shoreline are more significant. • Sites have a variety of habitats; forest, grassland and wetland complexes. •The largest sites are more significant. •Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5km of Lake Erie and Lake Ontario are Candidate SWH.	No	No habitat features on site.
Deer Winter Congregation Areas	All forested ecosites within: FOC, FOM, FOD, SWC, SWM, SWD + conifer plantations much smaller than 50 ha may be used.	Woodlots >100 ha in size or if large woodlots are rare in a planning area woodlot >50ha. • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. *Woodlots with high densities of deer due to artificial feeding are not significant.	No	No habitat features on site.
Rare Vegetation Communities				

Wildlife Habitat	Candidate SWH		Potential on Site	Rationale
	ELC Ecosite Codes	Habitat Criteria		
Cliffs and Talus Slopes	Any Ecosite within: TAO CLO TAS CLS TAT CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris. Most cliff and talus slopes occur along the Niagara Escarpment.	No	No habitat features on site.
Sand Barren	SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always < 60%	A sand barren area >0.5ha in size. • Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. • Vegetation can vary from patchy and barren to tree covered, but less than 60%.	No	No habitat features on site.
Alvar	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2, *Five Alvar Indicator Species:* 1) Carex crawei 2) Panicum philadelphicum 3) Eleocharis compressa 4) Scutellaria parvula 5) Trichostema brachiatum	An Alvar site > 0.5 ha in size, only known sites are found in the western islands of Lake Erie. • An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. • Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal's species. • Vegetation cover varies from patchy to barren with a less than 60% tree cover.	No	No habitat features on site.
Old Growth Forest	FOD FOC FOM SWD SWC SWM	Woodland area is >0.5ha • Characterized by heavy mortality or turnover of overstory trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	No	No habitat features on site.
Savannah	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%. • No minimum size to site. • Site must be restored or a natural site. *Remnant sites such as railway right of ways are not considered to be SWH. • Remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario)	No	No habitat features on site.
Tallgrass Prairie	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. •An open Tallgrass Prairie habitat has < 25% tree cover. •No minimum size to site. •Site must be restored or a natural site. *Remnant sites such as railway right of ways are not considered to be SWH.	No	No habitat features on site.
Other Rare Vegetation Communities	See the Significant Wildlife Habitat Technical Guide (OMNRF, 200), Appendix M for Provincially Rare S1,S2 and S3 ELC Vegetation Types.	May include beaches, fens, forest, marsh, barrens, dunes and swamps. See OMNRF/NHIC for up to date list of rare vegetation communities.	No	No habitat features on site.
Specialized Habitat for Wildlife				
Waterfowl Nesting Area	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4. * Note: includes adjacency to Provincially Significant Wetlands	A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. •Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests.	No	No habitat features on site.

Wildlife Habitat	Candidate SWH		Potential on Site	Rationale
	ELC Ecosite Codes	Habitat Criteria		
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. *Nests located on man-made objects are not to be included as SWH. •Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy.	No	No habitat features on site.
Woodland Raptor Nesting Habitat	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3.	All natural or conifer plantation woodland/forest stands >30ha with >4ha of interior habitat. • Interior habitat determined with a 200m buffer. •Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest.	No	No habitat features on site.
Turtle Nesting Areas	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. •For an area to function as a turtle nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. *Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH.• Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used.	No	No habitat features on site.
Seeps and Springs	Where ground water comes to the surface. Often, they are found within headwater areas within forested habitats. •Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system.	No	No habitat features on site.
Amphibian Breeding Habitat (Woodland)	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD •Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	Presence of a wetland, pond or woodland pool (including vernal pools) >500m^2 (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size). • Some small wetlands may not be mapped and may be important breeding pools for amphibians. •Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.	No	No habitat features on site.
Amphibian Breeding Habitat (Wetlands)	ELC Community Classes SW, MA, FE, BO, OA and SA. •Typically, these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	Wetlands >500m^2 (about 25m diameter), supporting high species diversity are significant; •some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. •Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation.	No	No habitat features on site.
Woodland Area-Sensitive Bird Breeding Habitat	All Ecosites within: FOC FOM FOD SWC SWM SWD	Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. •Interior forest habitat is at least 200 m from forest edge habitat.	No	No habitat features on site.
Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)				

Wildlife Habitat	Candidate SWH		Potential on Site	Rationale
	ELC Ecosite Codes	Habitat Criteria		
Marsh Bird Breeding Habitat	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites	Nesting occurs in wetlands. All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. •For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water.	No	No habitat features on site.
Open Country Bird Breeding Habitat	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha. •Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years). •Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. •The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.	No	No habitat features on site.
Shrub/Early Successional Bird Breeding Habitat	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 •Patches of shrub ecosites can be complexed into a larger habitat for some bird species.	Large field areas succeeding to shrub and thicket habitats>10ha in size. •Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or livestock pasturing in the last 5 years). •Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. •Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.	No	No habitat features on site.
Terrestrial Crayfish	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1-with inclusions of above meadow marsh ecosites can be used by terrestrial crayfish.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. •Usually the soil is not too moist so that the tunnel is well formed. •Can often be found far from water.	No	No habitat features on site.
Special Concern and Rare Wildlife Species	All plant and animal element occurrences (EO) within a 1 or 10km grid.	Identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites	No	No habitat features on site.
Animal Movement Corridors				
Amphibian Movement Corridors	Corridors may be found in all ecosites associated with water.	Corridors will be determined based on identifying the significant breeding habitat for these species. Movement corridors between breeding habitat and summer habitat. Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from this Schedule.	N/A	

9. Constraints and Opportunities

A constraints and opportunities analysis were used to evaluate the existing ecological features and functions of the Subject Property and identify any constraints or limitations to the proposed development. In addition to the identification of constraints, opportunities are identified in which mitigation or compensation measures may be implemented to enhance the existing natural environment.

9.1. Natural Heritage Constraints and Buffers

9.1.1. Natural Heritage Constraints

Secondary source information in conjunction with field investigations conducted for the Subject Property was used to identify environmental constraints such as watercourses, woodlands and potential significant wildlife habitat and SAR.

9.1.1.1. Western Creek Valleyland

The northern portion of the property is occupied by Western Creek, a tributary of the East Holland River, and its associated valley system. This feature is identified within the York Region Official Plan (2010) as forming a portion of the Regional Greenlands Systems (Map 2). In addition, the watercourse and associated floodplain are regulated by the LSRCA Ontario Regulation 179/06: Lake Simcoe Regulation of Development, Interference with Wetlands and Alteration to Shorelines and Watercourses.

A 6-metre setback from the northern top-of-bank limit of this feature was staked in the field with Azimuth Environmental Consulting Inc. and LSRCA staff on April 16, 2009 and is identified on the proposed site plan (Figure 3). No grading or development is proposed within the 6-metre setback.

9.1.1.2. Woodlot

The Region of York Map 5: Woodlands and Town of Newmarket OP Schedule B: Natural Heritage System identify a woodland and woodlot, respectively, within the southwest portion of the Subject Property. A woodland is defined per the Region of York OP as:

"*An area of land at least 0.2 hectare in area with at least:*

a. *1000 trees of any size, per hectare;*
b. *750 trees measuring over 5 centimetres diameter at breast height, per hectare;*
c. *500 trees measuring over 12 centimetres diameter at breast height, per hectare; or,*
d. *250 trees measuring over 20 centimetres diameter at breast height, per hectare,*"

Significance of a woodland feature per the Region of York OP is described per Section 2.2.45. "*woodlands be verified on a site-by-site basis and shall include those woodlands meeting one of the following criteria:*

a. is 0.5 hectares or larger and:

i. directly supports globally or provincially rare plants, animals or communities as assigned by the Natural Heritage Information Centre; or,

ii. *directly supports threatened or endangered species, with the exception of specimens deemed not requiring protection by the Province (e.g. as is sometimes the case with Butternut); or,*
iii. *is within 30 metres of a provincially significant wetland or wetland as identified on Map 4, waterbody, permanent stream or intermittent stream*;

In addition, policy 2.2.48. of the Region of York OP states "*That within the Urban Area or within the existing settlement areas as defined in the Lake Simcoe Protection Plan, and outside of the Oak Ridges Moraine Conservation Plan and Greenbelt Plan areas, a woodland, or portions thereof, which would be defined as significant woodland in accordance with policy 2.2.45 of this Plan, is not considered significant if all of the following are met:*

a. the woodland is located outside of the Regional Greenlands System as shown on Map 2 of this Plan;
b. the woodland is located in an area strategic to the achievement of the community objectives of Section 5.2 and 5.6 of this Plan or is identified within an intensification area detailed in a local municipal intensification strategy, and is evaluated through an official plan amendment process, or other appropriate study;
c. the woodland does not meet the criteria in policy 2.2.45.a of this Plan; and,
d. the woodland is a cultural and regenerating woodland to the satisfaction of York Region, in consultation with the conservation authority and local municipality.

A cultural and regenerating woodland is defined as "*woodlands where the ecological functions of the site are substantially compromised as a result of prior land use activity and would be difficult to restore and/or manage as a native woodland in an urban setting. An environmental impact study should assess these ecological functions with consideration of the following:*

- *the woodland is regenerating, typically with a dominant proportion of woody species being invasive and non-native (e.g., Norway Maple, Manitoba Maple, Siberian Elm, Scots Pine, European Buckthorn, White Mulberry, Tree-of-heaven, Apple, White Poplar, etc.)*
- *the area was not treed approximately 20 to 25 years ago as determined through air photo interpretation or other suitable technique*
- *soils may be degraded, for example, soil may be compacted, the top soil removed, or there may be substantial erosion from over-use and/or the woodland may be regenerating on fill*
- *there is limited ability to maintain or restore self-sustaining ecological functions typical of native woodlands*

The feature meets the definition of significance only due to its proximity to the existing watercourse. The area proposed for removal is outside the 30-metre setback from the York Region OP watercourse identified on Map 4. In addition, the feature meets the definition of a culturally and regenerating woodland per the York Region OP criteria due to the level of disturbance associated with the feature. The feature is highly degraded in nature with low ecological integrity and provides limited ecological function to the surrounding landscape (refer to section 4.4.1.4 for existing condition description).

The proposed site plan identifies the removal of this feature to accommodate the proposed development. The proposed removal will not result in net negative impacts across the landscape, including a reduction in forest canopy cover, subject to the implementation of the proposed mitigation and compensation measures (i.e. native tree plantings within buffer and valley land). The proposed compensation plan will result in an increase in native canopy cover for the property and result in an overall increase in the ecological integrity

of the landscape. Overall patch size and habitat quality are largely reduced due to urbanization resulting in biodiversity loss and biological homogenization (Buckthorn dominated). Incorporation of native species and restoration of the valley land provides the opportunity to notably improve and enhance the function of the valley land.

9.1.2. Setbacks

The limits of the Western Creek Valleyland, forming part of the Regional Greenlands System, were established through a staking exercise of the top-of-bank, which will incorporate a 6-metre variable vegetated buffer protection zone along the limit of the natural feature adjacent the proposed development. The proposed setback will ensure the protection of the physical and stable top-of-bank, critical root zones of existing and future trees and provide a natural buffer between the natural heritage system and proposed development limit. The extent of dripline associated with the trees along top-of-bank were surveyed as part of this EIS and determined that a 6-metre staked by LSRCA will protect the associated root zone of trees within the buffer.

9.2. Opportunities

The proposed development represents an opportunity to manage and restore the Western Creek Valley land in proximity to the proposed development through the installation of native plant species reflective of the local area. Disturbance within this area as a result of historical land use and existing informal use has resulted in impacts to the ecological functions associated with the valley land features. Native plantings will serve to increase biodiversity, enhance habitat for native wildlife species and improve function for species utilizing the valley land corridor.

A proposed compensation planting plan for the buffer and valley land incorporating native species is proposed, identifying tree species suitable to the property's soil texture, moisture regime and woodland community type. It is anticipated that a net gain in natural heritage features and functions and tree canopy cover will occur over time through the protection of the valley land features and applicable setback and the implementation of planting and compensation plans.

Key components of the compensation plan include (but are not limited to):

- Creating new native habitat;
- Protecting and buffering the valley land system;
- Restoring and enhancing existing habitats;
- Improving landscape connectivity; and,
- Increasing wildlife habitat value.

The NHS associated with the tableland outside the valley land system provides minimal ecological functions and does not make substantial contributions to the larger valley land NHS. Opportunities to create new, native habitat will increase the functionality of the valley land corridor. There are also opportunities to enhance ecological functions within the site that is proposed for development through the use of Low Impact Development (LIDs), green roofs, rain gardens, which can serve to establish native plantings and area for wildlife foraging. Refer to Section 11 for further details regarding the compensation plan.

10. Development Proposal

The proposed development includes a residential development occupying an area of approximately 2.0 ha fronting onto Eagle Street. The proposed site plan identifies a condominium residential development with access roadways.

The proposed development will maintain the existing drainage pattern on-site, which drains naturally northeast to Western Creek. Minor runoff will be directed to on-site storage facilities and major overland flow will overtop these facilities to flow through internal roads to discharge to Western Creek. Stormwater, water and sewer will tie into existing municipal services. The Stormwater Management Plan will be designed in accordance with the Town of Newmarket Stormwater criteria and Best Management Practice guidelines in the Ministry of Environment Stormwater Management Plan Manual and Low Impact Guidelines by LSRCA. In addition, an oil and grit separator is proposed for quality control and reduces phosphorus by 80%, which meets the LSPP target. Refer to the Functional Servicing Plan prepared by Masongsong Associates Engineering Ltd (revised September 2020) for further details and Figure 3 for the proposed Site Plan.

Low impact development (LID's) identified within Masongsong's FSR will achieve a zero-deficit water balance thorough the use of a number of LID measures. The FSR identifies the potential use of bioretention swales, enhance grass swales, pervious pavement and vegetatve filter strips. Refer to Masongsong's FSR for further details.

11. Impact Assessment

Impacts to the various natural heritage features associated with and adjacent to the Subject Property were considered in the impact analysis. Table 12 presents the natural heritage components which were considered in this assessment, the proposed activity associated with that component, potential short term and long-term impacts and recommended mitigation measures and if any residual effects are anticipated. Potential impacts were assessed using field collected data and secondary source information, including an overlay of the proposed site plan.

Table 14 Impact Summary Table

Category	Feature and Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
Short-term Impacts					
Construction Activity	Surrounding habitats	Grading, Servicing & Development	Release of dust as a result of construction activities.	Implement dust suppression measures during site grading when conditions are dry or strong winds are anticipated.	Impacts from dust to the surrounding landscape should be minimal.
Construction Activity	Local and migrating wildlife	Grading, Servicing & Development	Noise from construction works on local and migrating wildlife.	Limited measures can be employed as a certain level of construction noise will occur.	Noise impacts to wildlife present may occur, however due to the Subject Property's close proximity to existing transportation routes and development, much of the landscape is already impacted by noise. As the majority of the wildlife found within the local landscape is tolerant to disturbances, they are anticipated to return to the area once construction activities end.
Construction Activity	Watercourse	Grading, Servicing & Development	Movement of sediment from the site into the adjacent watercourse during the construction phase, which then cause impacts such has loss of aquatic habitat, reduced water quality, mortality of aquatic life.	Implementation of Sediment and Erosion Control Measures with monitoring to be completed by a qualified inspector.	No adverse impacts from construction generated sediment runoff are expected with the implementation and maintenance of an approved Sediment and Erosion Control (ESC) plan. No residual effects expected.
Construction Activity	Wildlife Habitat	Site Clearing/Tree removal	Impacts to nests and nesting birds.	Undertake vegetation and tree clearing between March 31st to August 31st per the Migratory Birds Convention Act. If clearing is to occur during the nesting season, a nest survey should be completed by a qualified bird biologist to identify any nests that are not to be disturbed until the young have fledged.	Implementation of applicable mitigation measures is expected to reduce or eliminate impacts to migratory and breeding birds during the construction period. Planting of trees and shrubs per the compensation plan will offset tree removal on-site and provide a net increase in nesting habitat on the Subject Property.
Long-term Impacts					
Artificial Light	Local and migrating wildlife	Development	Light pollution.	Lights directed downward will reduce the amount of ambient light issuing from the Subject Property. It is recommended that downward casting lighting is used across the site.	Minimal residual effects expected.
Vegetation	Subject Property Vegetation	Grading, Servicing and Development	The proposed development will require the removal of the majority of vegetation identified within the proposed development envelope to	Compensation for trees identified for removal follow the Town of Newmarket's Depreciated aggregate cm method per the Town of Newmarket	Plant species identified for the Subject Property are common and secure within Ontario and Canada and the majority are identified as non-native and/or invasive species. Residual effects of

Category	Feature and Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
			accommodate the proposed development. Of the 478 trees identified within the proposed development envelope, 402 are identified for removal.	Tree Preservation, Protection, Replacement and Enhancement Policy (2005). Undertake vegetation and tree clearing between October and March outside of the breeding bird window as per the Migratory Birds Convention Act and outside of bat roosting time windows as per recommendations from the MECP (MNRF). If clearing is to occur during the nesting season, a nest survey should be completed by a qualified bird biologist to identify any nest which are not to be disturbed until the young have fledged.	vegetation removal are anticipated to be minor due to their cultural influence. Compensation measures, including planting of 932 inches of trees will serve to enhance the existing valleyland adjacent the proposed development envelope.
Natural Heritage System	Western Creek Valleyland (Regional Greenlands System)	Grading, Servicing and Development	No physical intrusions into the Western Creek valley land from the proposed development.	Incorporation of native plantings within the valleyland setback and portions of the valleyland are recommended.	The valley land will be maintained by a 6 m setback from staked top-of-bank. Opportunities for native planting will serve to improve the ecological features and functions associated with the Subject Property.
	Town of Newmarket Woodlot above top-of-bank	Grading, Servicing and Development	The proposed development will result in the removal of this feature.	Compensation for this feature is based on aggregate inch replacement of significant trees, understorey enhancement in Western Creek valley, re-forestation of the meadow portion of the Western Creek valley and full re-vegetation of the valley buffer lands.	The proposed development is consistent with current and surrounding land use and as a result will have limited influence on wildlife habitat utilization for the woodlot. The woodlot currently resides within an urban matrix and has been largely influenced historically by anthropogenic uses and as such, is highly degraded and lacking proper forest structure and function. The project is exempt from the LSRCA ecological offsetting program based on Section 3.3.2.1 which allows for Municipal compensation to take place and prevents duplicate compensation.
Wildlife	Incidental Wildlife	Grading, Servicing and Development	Removal of vegetation within the proposed development envelope.	Undertake vegetation and tree clearing between March 31st and August 31st per the Migratory Birds Convention Act. Any tree clearing proposed within the migratory songbird window will require nest screening by a qualified biologist. Trees supporting songbird nests cannot be disturbed until the young have fledged from the nest.	Incidental wildlife observations were limited to local, generalist species commonly found within the identified vegetation communities and surrounding land area. Long term residual impacts to populations of these species within the local landscape are not anticipated as a result of the proposed works.
Significant Wildlife Habitat	Candidate SWH	Grading, Servicing and Development	Candidate SWH is contained within the Western Creek valleyland.	Proposed native plantings proposed within the Western Creek valleyland.	Proposed restoration measures within the Western Creek valley land will provide long-term ecological

Category	Feature and Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
	Bat Maternity Colonies				benefits to the existing Regional Greenlands system. No residual effects expected.

11.1.1. Cumulative Impacts

Cumulative impacts are changes to the environment due to past, present and the reasonably foreseeable future impacts. The Subject Property and surrounding landscape have experienced on-going disturbance from historical and current land use as a result of surrounding residential development and commercial expansion along the Yonge Street corridor.

The progression of development within the vicinity of the Subject Property over history has resulted in the isolation and loss of large-scale natural vegetation communities and open spaces, and an increasingly urban landscape. With the transformation of the southern portion of the Subject Property into an urban community consisting of residential dwellings and the associated transportation infrastructure, the wildlife and plant community will see a shift to accommodate the changes. However, as the Subject Property and adjacent natural heritage features have been part of the urban matrix for some time, large cumulative impacts are not anticipated. The conversion of the isolated landscape to an urban one will have limited changes on the character of the landscape due to on-going and historical land use.

The existing 'woodlot' will be removed to accommodate the proposed development and compensation is proposed in the form of aggregate inch replacement of significant trees, understorey enhancement in Western Creek valley, re-forestation of the meadow portion of the Western Creek valley and full re-vegetation of the valley buffer lands. As the current 'woodlot' is highly disturbed by existing informal use, it is anticipated that its removal will not result in the loss of integral habitat or landscape function. The local area is currently urban and the addition of the proposed development will not alter the wildlife community present on the adjacent lands. Mitigation measures have been provided to ensure that impacts on the Subject Property, adjacent natural heritage features and the greater landscape are minimized.

12. Mitigation Measures

The following mitigation measures are recommended to avoid and minimize impacts. The measures have two distinct intended outcomes: mitigation to reduce the impact on the natural heritage system and mitigation to reduce the impact of active construction.

12.1. Natural Heritage System Measures

- Minimize outdoor lighting and direct it down and away from natural areas.
- Inspection by a qualified person(s) to conduct regular monitoring of all sediment and erosion measures implemented to ensure they are in working order. Any deficiencies observed are to be recorded and immediately reported to the site contractor.

12.2. Construction Measures

General construction related mitigation measures include the following:

- Clearing of vegetation within the Subject Property as part of site preparation should be conducted in late summer or winter months (September-March) so as not to coincide with breeding bird season. If clearing is to proceed within the breeding bird window, the Subject Property should be screened by a qualified bird biologist to determine if any migratory song birds are nesting within work zone;

- All trees should be felled into the work zone;
- Top-soil removed during stripping is recommended to be stockpiled for reapplication post-construction;
- A construction work plan should designate specific locations for stockpiling of soils and other material;
- Implementation of the erosion and sediment control plan is recommended to prevent releases of sediment into the adjacent natural areas;
- Implementation of dust control measures is recommended to reduce dust impacts on the adjacent lands.

12.3. Compensation Plan

The proposed plan includes ecological offsetting for the removal of a portion of a Town of Newmarket woodlot above top-of-bank. To determine the necessary compensation, the Town of Newmarket Tree Preservation, Protection, Replacement and Enhancement Guidelines, as well as the LSRCA ecological offsetting program were assessed. Based on the conditions of the site and Section 3.3.2.1 of the LSRCA ecological offsetting program which states "*ecological offsetting will not be required for woodlands that are within municipalities that have tree by-laws with comparable compensation requirements and duplication of tree replacement will also be avoided*", compensation will follow the Town of Newmarket requirements. The Town of Newmarket tree replacement policies require the replacement on the basis of aggregate inch of diameter for all significant trees. Significant trees are defined as those over 20 cm, as well as those planted as part of an approval for development or are within 4.5 m on an adjacent property. Calculations for the aggregate inch utilize the Depreciated Condition Method that considers the percentage condition of each tree. See Appendix E, Figure E1 for GRA's illustrated compensation plan.

Based on the results of the tree inventory, a total of 928 inches (2357 cm) of diameter is required to be replaced. The preference for replacement is given to onsite compensation and this site provides open space within the buffer and open meadow area to accommodate 427 trees based on a three-metre centre planting. This plan further provides for an additional 505 trees to be planted in the understorey enhancement zones. The restoration planting is based on 10-gallon potted plants as this provides the maximum yield with the lower intensity of disturbance from planting. Trees at this size are generally 1 inch (2.54 cm) therefore the 932 inches of proposed trees offset the 928 inches required in the aggregate inch method.

The replanting is focused on pioneer floodplain species in the meadows of the Western Creek valley. These species will quickly create new canopy and are modelled on typical urban swamps with a high percentage of white cedar. This mixed swamp also includes white birch and trembling aspen to provide structural habitat within the newly created wooded areas. The proposed plan also includes an understorey enhancement zone (1.4 ha) which will have debris and invasive species removed prior to the replanting. This work will increase the native biodiversity of the area and is focussed on succession forest species that will benefit from the protection of the existing vegetation, as well as the newly created openings from the invasive species removal.

Overall, the plan includes the removal of 0.51 ha of identified 'woodlot' with a replacement of 0.64 ha (0.44 ha of forested meadow + 0.2 ha of planted buffer) of new woodland cover and 1.4 ha of understorey enhancement. The proposed plantings will result in a net ecological benefit to the subject property by:

- Removal of invasive species from the natural areas of the Subject Property;

- Establishing a forested riparian floodplain community. The riparian woodland will provide shading and overhead cover to the stream, provide nutrient inputs in the form of leaf litter, provide a deeper rooting zone along the channel banks which should reduce the slumping currently observed within the meadow.
- Increase wildlife habitat structure within the Subject Property, and,
- Increase plant diversity.

thereby creating a net benefit to the natural heritage system located on the property.

13. Closing

The Subject Property's landscape position and the natural heritage features and functions it supports have been considered in this EIS. The Subject Property supports cultural, successional vegetation communities, urban tolerant wildlife species and a Town of Newmarket 'Woodlot' within the southern portion of the property.

An application for Official Plan Amendments and Zoning By-law Amendments to the Town of Newmarket was submitted in 2011 by Millford Development Ltd. following Millford's appeal of the designation of 'Woodlot' on a portion of the Subject Property in the Town's Official Plan. Two active appeals exist for the Subject Property, made to the Local Planning Appeal Tribunal (LPAT) by Millford.

Due to the historical and contemporary development of the Subject Property and surrounding land use, ecological communities, and species with low tolerance to disturbance are not present. The EIS found that the vegetation identified for removal is characteristic of low quality, invasive communities that have attracted high informal use, and the removal of these features will not result in the loss of integral habitat or landscape function across the landscape.

The 'woodlot' identified for removal to accommodate the proposed development is deemed significant within the York Region OP due only to its proximity to an existing permanent watercourse (within 30 metres) per Map 4 of the OP. The 'woodlot' area identified for removal is located outside the 30-metre setback and outside of the staked 6-metre setback from top-of-bank. Mitigation and compensation measures have been provided to ensure that impacts on the property, adjacent natural heritage features and the greater landscape are minimized. Ecological benefits of the development will occur through the compensation plan and conveyance of land to the Town of Newmarket.

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55 Eagle Street
Environmental Impact Statement

Prepared for Millford Development Limited

March 2021

Prepared by:

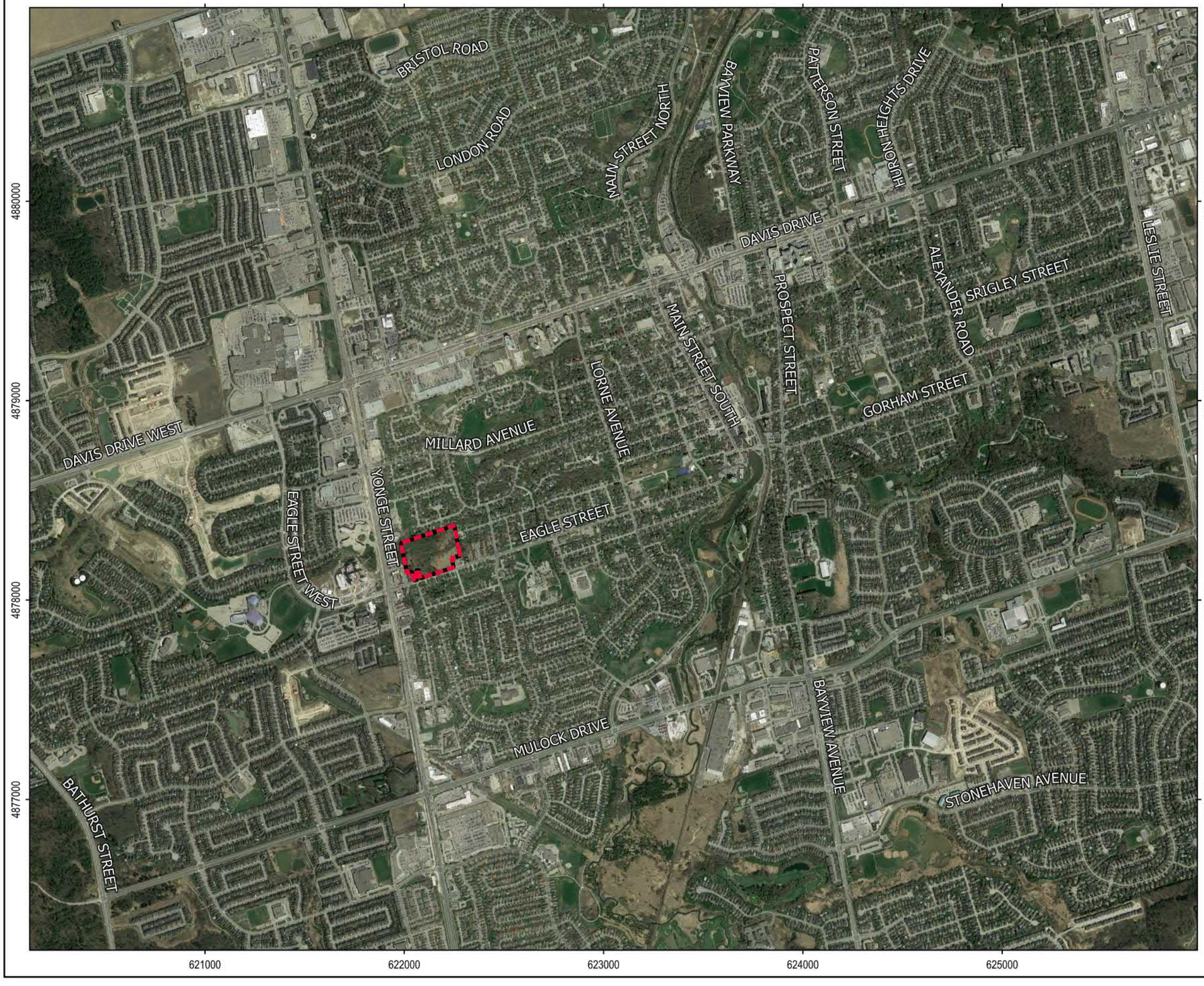
Ian Roul, M.Sc.
Senior Ecologist

Jenn Reader, B.Sc., ERPG
Ecologist, Certified Arborist #ON-1792A

Disclaimer

Project Number P2020-429

Figures



Legend

Subject Property

N

0 200 400 600 800 1,000 m

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CHECKED BY:	IR	DATE:	Mar 26, 2021

Figure 1.

Key Map

55 EAGLE STREET ENVIRONMENTAL IMPACT STATEMENT

MILLFORD DEVELOPMENT LIMITED

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Legend

- Subject Property
- ELC Polygons
- LSRCA Regulated Area
- Western Creek
- Amphibian Survey Loctations
- Top of Bank (LSRCA - April 15 2009)

ELC Community Codes

FOCM5: Naturalized Coniferous Hedge-row Ecosite

FODM4: Dry – Fresh Upland Deciduous Forest Ecosite

FODM4-5: Dry - Fresh Manitoba Maple Deciduous Forest Type

FODM7-3: Fresh – Moist Willow Lowland Deciduous Forest Type

FODM11: Naturalized Deciduous Hedge-row Ecosite

MAMM3-1: Mixed Mineral Meadow Marsh Type

MEMM3: Dry - Fresh Mixed Meadow Ecosite

MEMM4: Fresh - Moist Mixed Meadow Ecosite

WODM4: Dry - Fresh Deciduous Woodland Ecosite

N

0 10 20 30 40 50 metres

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Figure 2.

Existing Conditions

55 EAGLE STREET
ENVIRONMENTAL IMPACT STATEMENT
MILLFORD DEVELOPMENT LIMITED

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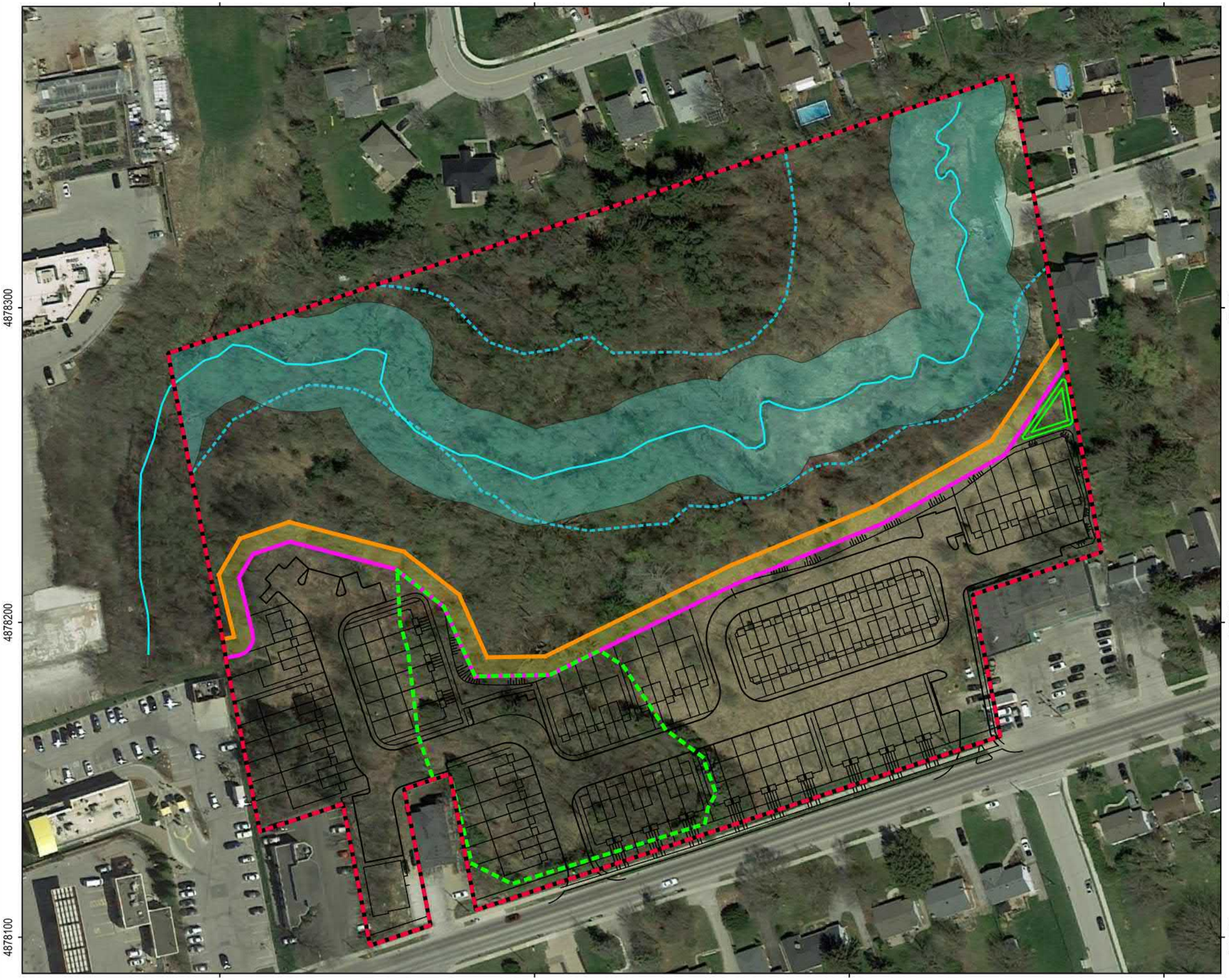

Legend

- Subject Property
- Site Plan
- Newmarket NHS
- Western Creek
- 15 m Warmwater Watercourse Buffer
- Approximate Floodplain
- Top of Bank (LSRCA - April 15 2009)
- 6 m setback
- Buffer zone
- Proposed bioretention swale
- 3 m road widening

N

0 10 20 30 40 50 m

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CHECKED BY:	JR	DATE:	Mar 26, 2021

Figure 3.

Site Plan

55 EAGLE STREET
ENVIRONMENTAL IMPACT STATEMENT
MILLFORD DEVELOPMENT LIMITED

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622000 622100 622200 622300

4878300 4878200 4878100

Legend

- Subject Property
- Site Plan
- Watercourse
- Top of Bank (LSRCA - April 15 2009)
- Development limit
- Buffer zone

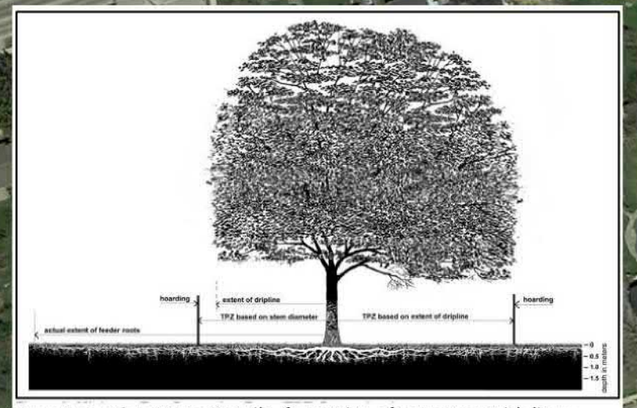
Tree inventory

- Tree locations
- Minimum Tree protection zones for planning purposes
- Tree Protection Fencing

N

0 10 20 30 40 50 metres

Notes:
1. Do not undertake vegetation and tree clearing between March 31st and August 31st to respect the Migratory Birds Conservation Act (1994) and the protection of bats during roosting season.



Tree Protection Zone Details, from City of Toronto Guidelines

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Figure 4.

Tree Inventory

55 EAGLE STREET
ENVIRONMENTAL IMPACT STATEMENT
MILLFORD DEVELOPMENT LIMITED

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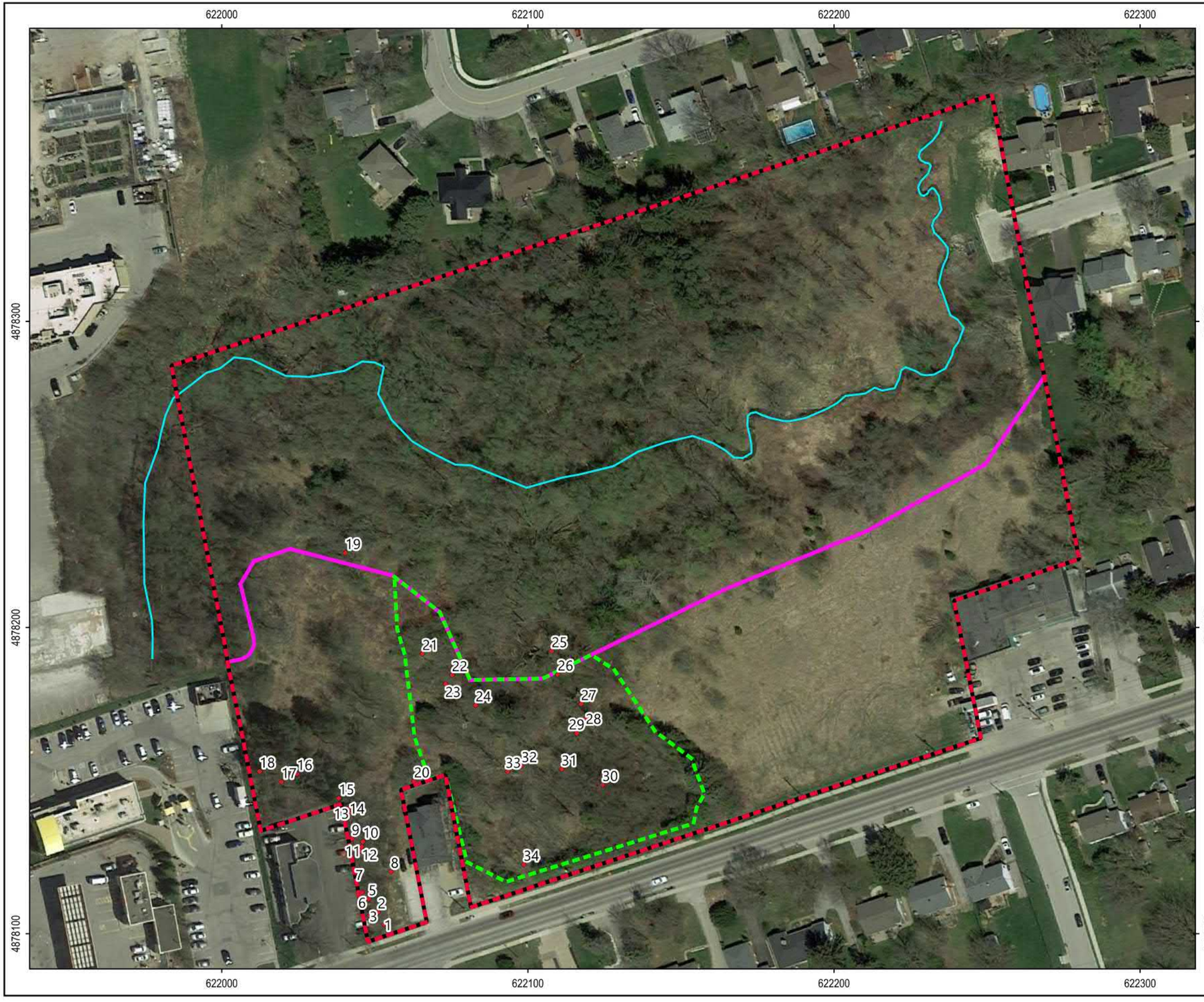

Legend

- Subject Property
- Newmarket NHS
- Western Creek
- Develpment limit
- Snags

N

0 10 20 30 40 50 m

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CHECKED BY:	IR	DATE:	Mar 26, 2021

Figure 5.

Bat Habitat Survey

55 EAGLE STREET
ENVIRONMENTAL IMPACT STATEMENT

MILLFORD DEVELOPMENT LIMITED

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Prepared using QGIS and Google Satellite Imagery

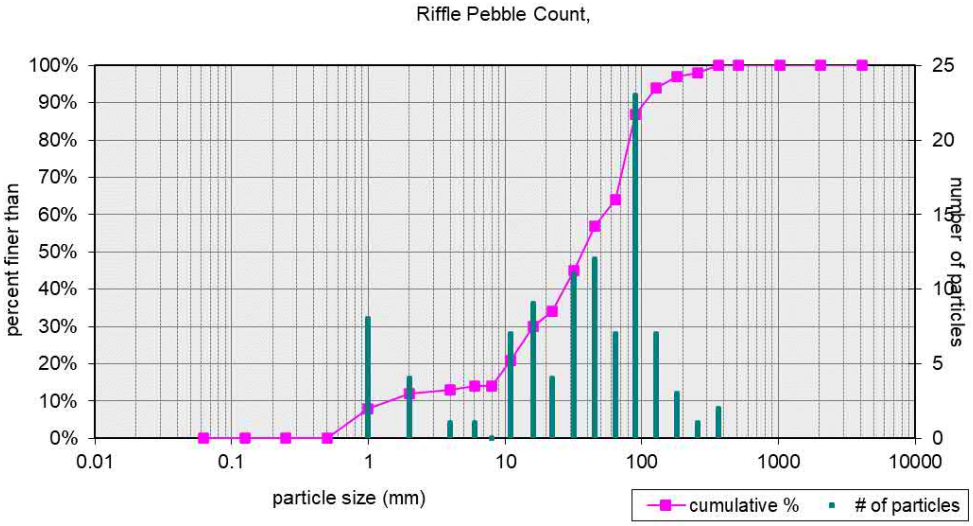

Figure 6 Particle size distribution and count for a typical riffle of Western Creek

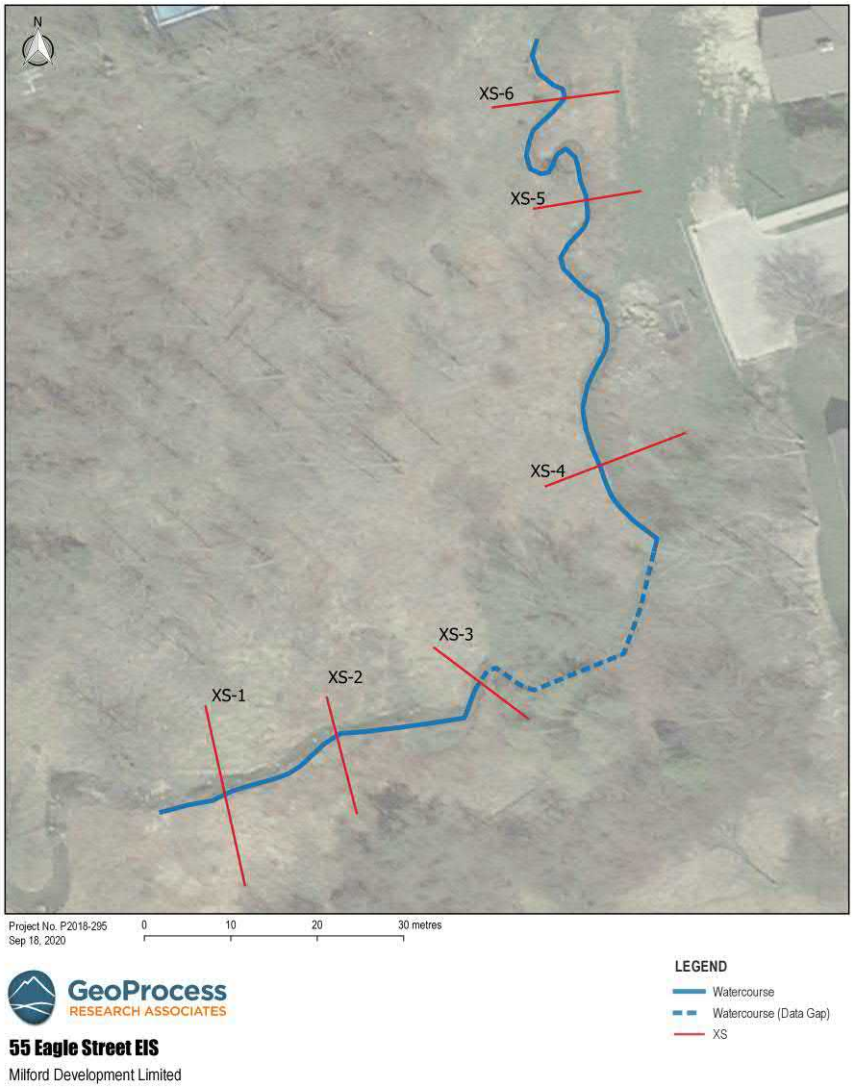

Figure 7 Location of Cross Section and Channel Center Line Survey

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CREATED BY:	MD	PROJECT NO.:	P2020-429
CHECKED BY:	JR, WB	DATE:	Apr 01, 2021

Figure 8.

Town of Newmarket Woodlot Assessment

55 EAGLE STREET
ENVIRONMENTAL IMPACT STATEMENT
MILLFORD DEVELOPMENT LIMITED

Prepared using QGIS and Google Satellite Imagery

Appendix A

Tree Inventory

Number	Species	DBH	TI	CS	CV	CDB	Action	Comments
1	Manitoba Maple (Acer negundo)	29.5	G	F	G	0	Within road widening	light lean south
2	Manitoba Maple (Acer negundo)	15	G	F	G	0	Within road widening	light lean south
3	Norway Maple (Acer platanoides)	16.5	G	G	G	0	Remove	
5	Norway Maple (Acer platanoides)	15	G	G	G	0	Remove	
7	Manitoba Maple (Acer negundo)	16, 13.5, 19	G	F	F	35	Remove	mutlistem at base
8	Norway Maple (Acer platanoides)	22.5	G	G	G	0	Remove	
9	Manitoba Maple (Acer negundo)	17	G	P	P	60	Remove	heavy lean east , broken branch
10	Black Walnut (Juglans nigra)	16	G	G	G	0	Remove	
11	Sugar Maple (Acer saccharum)	18	P	F	G	15	Remove	2 callus wounds at 1 m, , flaky bark , broken low branches , asymetric crown
12	Manitoba Maple (Acer negundo)	18.5	G	F	G	10	Remove	moderate lean west
14	Norway Maple (Acer platanoides)	21	G	G	G	0	Remove	
15	Apple Species (Malus sp.)	23	F	G	G	10	Remove	dead branch , epicormic branching , scratch
17	Manitoba Maple (Acer negundo)	12	P	P	P	65	Remove	exfoliating bark , broken branch

18	Manitoba Maple (Acer negundo)	17, 19.5, 14, 16	F	P	G	20	Remove	multistem at base, moderate lean south , base wound, cut stem
19	Eastern Cottonwood (Populus deltoides)	21.5	G	F	P	50	Remove	bend west
20	Apple Species (Malus sp.)	12.5	G	F	G	10	Remove	
21	Manitoba Maple (Acer negundo)	14.5	G	G	P	60	Remove	dead branches , 1 small stem , out leaning in , multistem at base
22	Manitoba Maple (Acer negundo)	25	G	F	P	55	Remove	dead 13.5 m stem, light lean west
23	Black Walnut (Juglans nigra)	18	G	G	G	0	Remove	
24	Manitoba Maple (Acer negundo)	11.5, 15.5	G	F	P	70	Remove	multistem at base , small dead stem
26	Black Walnut (Juglans nigra)	20, 29.5	G	G	G	35	Remove	codominant at base, smaller stem dead and curled
27	Black Walnut (Juglans nigra)	36	G	F	G	25	Remove	asymetric crown
29	Manitoba Maple (Acer negundo)	12	G	F	G	15	Remove	moderate lean south
32	Black Walnut (Juglans nigra)	24	G	G	G	25	Remove	
33	Norway Maple (Acer platanoides)	23	G	G	G	0	Remove	
34	Manitoba Maple (Acer negundo)	10.5, 15, 18.5	F	F	F	40	Remove	multistem at base , base wound , stem snapped at 2 m
35	Manitoba Maple (Acer negundo)	25.5, 23	G	P	G	25	Remove	small stem, multistem at base, heavy lean east
36	Black Locust (Robinia pseudoacacia)	11	G	F	G	15	Remove	asymetric crown
37	Black Locust (Robinia pseudoacacia)	20	G	G	G	5	Remove	asymetric crown

39	Eastern Cottonwood (Populus deltoides)	~65	G	P	G	15	Remove	heavy lean east
40	Scots Pine (Pinus sylvestris)	27	G	G	F	40	Remove	moderate vines, buckthorn
41	Scots Pine (Pinus sylvestris)	25	G	F	F	30	Remove	asymetric crown, buckthorn
42	Scots Pine (Pinus sylvestris)	30.5	G	G	G	0	Remove	
43	Black Walnut (Juglans nigra)	10	G	G	G	0	Remove	subcanopy
45	Scots Pine (Pinus sylvestris)	19	G	G	P	90	Remove	nest , almost dead
46	Scots Pine (Pinus sylvestris)	18.5	G	G	P	70	Remove	competing
47	Scots Pine (Pinus sylvestris)	14.5	G	G	G	30	Remove	
48	Scots Pine (Pinus sylvestris)	32	G	G	G	15	Remove	
48	Scots Pine (Pinus sylvestris)	32	G	G	G	15	Remove	
50	Scots Pine (Pinus sylvestris)	15.5	G	G	F	35	Remove	buckthorn
51	Scots Pine (Pinus sylvestris)	13.5	G	G	F	20	Remove	buckthorn , vines
52	Scots Pine (Pinus sylvestris)	13.5	F	F	P	90	Remove	heavy vines
53	Scots Pine (Pinus sylvestris)	18.5	G	G	G	20	Remove	vines
55	Scots Pine (Pinus sylvestris)	18	G	G	G	20	Remove	
56	Scots Pine (Pinus sylvestris)	23	G	G	G	10	Remove	buckthorn

57	Scots Pine (Pinus sylvestris)	13.5	G	G	G	0	Remove	
58	Scots Pine (Pinus sylvestris)	19.5	G	G	G	20	Remove	asymetric crown
59	Black Walnut (Juglans nigra)	11.5	G	G	G	20	Remove	
60	Black Walnut (Juglans nigra)	18	G	G	G	35	Remove	
62	Black Walnut (Juglans nigra)	21.5	G	G	P	70	Remove	
63	Scots Pine (Pinus sylvestris)	19	G	G	P	80	Remove	heavy vines
64	Scots Pine (Pinus sylvestris)	19	G	G	F	30	Remove	vines, competing
65	Scots Pine (Pinus sylvestris)	15	G	G	P	55	Remove	heavy vines
66	Scots Pine (Pinus sylvestris)	10	G	G	G	15	Remove	
69	Eastern Cottonwood (Populus deltoides)	52	F	G	F	40	Remove	
70	Black Walnut (Juglans nigra)	17.5	G	G	G	0	Remove	
71	Black Walnut (Juglans nigra)	12.5	G	G	G	0	Remove	
72	Norway Maple (Acer platanoides)	18.5	G	G	G	0	Remove	
73	Eastern Cottonwood (Populus deltoides)	55.5	G	G	P	70	Remove	
74	Scots Pine (Pinus sylvestris)	33.5	G	G	G	0	Remove	
75	Scots Pine (Pinus sylvestris)	36.5	G	G	G	0	Remove	pruned

77	Norway Spruce (Picea abies)	25.5	G	G	G	25	Remove	vines
78	Scots Pine (Pinus sylvestris)	23.5	G	G	G	25	Remove	vines, buckthorn
79	Scots Pine (Pinus sylvestris)	17.5	G	G	G	10	Remove	
80	Scots Pine (Pinus sylvestris)	24.5	G	G	G	10	Remove	
83	Scots Pine (Pinus sylvestris)	23.5	G	G	G	20	Remove	
84	Scots Pine (Pinus sylvestris)	26	G	G	G	15	Remove	
85	Scots Pine (Pinus sylvestris)	24.5	G	G	G	0	Remove	
86	Scots Pine (Pinus sylvestris)	19	G	F	F	45	Remove	asymetric crown
87	Scots Pine (Pinus sylvestris)	19.5	G	G	G	15	Remove	
88	Scots Pine (Pinus sylvestris)	27	G	G	G	20	Remove	
89	Scots Pine (Pinus sylvestris)	13	G	G	G	20	Remove	pruned, asymetric crown
90	Scots Pine (Pinus sylvestris)	35.5	G	G	G	0	Remove	pruned
91	Scots Pine (Pinus sylvestris)	22.5	G	F	F	40	Remove	pruned, asymetric crown
92	Scots Pine (Pinus sylvestris)	25.5	G	G	G	15	Remove	pruned
93	Scots Pine (Pinus sylvestris)	19	G	G	G	20	Remove	asymetric crown
94	Scots Pine (Pinus sylvestris)	18.5	G	G	G	25	Remove	

95	Black Walnut (Juglans nigra)	12	G	G	G	0	Remove	
96	Black Walnut (Juglans nigra)	39	G	G	G	0	Remove	
97	Black Walnut (Juglans nigra)	15, 20.5	G	G	G	0	Remove	codominant at base
98	Black Walnut (Juglans nigra)	25.5	G	G	G	0	Remove	
101	Manitoba Maple (Acer negundo)	23, 29, 33.5, 26.5, 26	G	G	G	15	Remove	
102	Scots Pine (Pinus sylvestris)	10.5	G	F	G	25	Remove	asymetric crown
103	Manitoba Maple (Acer negundo)	10.5	G	G	P	60	Remove	dead small stem
104	Manitoba Maple (Acer negundo)	13.5	G	G	F	30	Remove	
105	Manitoba Maple (Acer negundo)	12.5	G	G	F	50	Remove	
106	Manitoba Maple (Acer negundo)	18.5	P	G	P	70	Remove	large wound
107	Black Walnut (Juglans nigra)	12.5	G	G	G	0	Remove	
108	Black Locust (Robinia pseudoacacia)	10.5	G	G	G	5	Remove	
109	Black Walnut (Juglans nigra)	30	G	G	G	10	Remove	asymetric crown
110	Black Walnut (Juglans nigra)	33.5	G	G	G	10	Remove	
111	Black Walnut (Juglans nigra)	30	G	F	G	10	Remove	asymetric crown

112	Black Walnut (Juglans nigra)	39	G	G	G	5	Remove	
113	Manitoba Maple (Acer negundo)	31	G	G	G	5	Remove	
114	Manitoba Maple (Acer negundo)	13	G	F	G	20	Remove	bent stem, small stems
115	Manitoba Maple (Acer negundo)	21	G	G	G	15	Remove	codominant at 1.5 m
116	Manitoba Maple (Acer negundo)	19, 12	G	G	G	35	Remove	codominant at 1.5 m
117	Manitoba Maple (Acer negundo)	17, 13.5	G	G	G	30	Remove	codominant at base
118	Black Walnut (Juglans nigra)	14	G	G	G	0	Remove	
119	Manitoba Maple (Acer negundo)	28, 33, 24	G	G	G	10	Remove	asphalt at base , multistem at base
120	Manitoba Maple (Acer negundo)	21	G	F	G	15	Remove	light lean east , multistem at 1.5 m
121	Black Walnut (Juglans nigra)	24	G	G	G	20	Retain	moderate vines
122	Manitoba Maple (Acer negundo)	~4x 10-25	G	P	F	45	Retain	out leaning in, , 10 cm dead stem , vines
123	Black Walnut (Juglans nigra)	15, 21.5	G	G	G	0	Retain	codominant at 1 m , ants
124	Black Walnut (Juglans nigra)	30, 28	F	G	G	10	Remove	trunk lesion
125	Black Walnut (Juglans nigra)	19	P	P	G	30	Remove	lesion , bending south
126	Black Walnut (Juglans nigra)	10	F	G	G	5	Remove	codominant at 1 m, 1 small stem
127	Manitoba Maple (Acer negundo)	21	F	P	F	60	Remove	heavy lean east

128	Manitoba Maple (Acer negundo)	24, 32.5	G	F	F	35	Remove	broken branch, codominant at base, moderate vines, light lean west
129	Black Walnut (Juglans nigra)	12.5	G	G	F	40	Remove	moderate vines
130	Manitoba Maple (Acer negundo)	11	G	P	P	80	Retain	moderate lean west, , codominant at 1 m , heavy vines
131	Manitoba Maple (Acer negundo)	16.5, 11	G	G	P	75	Remove	lean east (11 cm), heavy vines, epicormic branching
132	Manitoba Maple (Acer negundo)	16	F	P	P	80	Remove	epicormic branching , cut stem , heavy lean east , dead branch , heavy vines
133	Manitoba Maple (Acer negundo)	14.5, 27	G	F	F	30	Retain	moderate vines , codominant at 1.5 , small stem lean
135	Black Walnut (Juglans nigra)	47	G	G	G	10	Retain	
136	Black Walnut (Juglans nigra)	35	G	G	G	15	Retain	light vines
138	Scots Pine (Pinus sylvestris)	24	G	G	P	80	Retain	heavy vines , almost dead
139	Scots Pine (Pinus sylvestris)	16.5	G	G	P	85	Retain	almost dead , heavy vines
144	Black Walnut (Juglans nigra)	15	G	F	F	35	Retain	asymetric crown, moderate vines
145	Scots Pine (Pinus sylvestris)	17	G	G	P	75	Retain	heavy vines
150	Apple Species (Malus sp.)	12.5	G	F	F	45	Retain	light lean east , light vines
153	Manitoba Maple (Acer negundo)	33, 38.5, 15.5, 28, 25	G	F	G	30	Retain	moderate lean south , out leaning in
154	Scots Pine (Pinus sylvestris)	21	G	G	P	90	Retain	almost dead

155	Manitoba Maple (Acer negundo)	15.5	G	P	F	40	Remove	heavy lean south
156	Manitoba Maple (Acer negundo)	21, 16	G	F	G	20	Remove	moderate lean west , codominant at base
157	Manitoba Maple (Acer negundo)	22.5x, ~20m x2, ~15 m, ~10m	F	P	F	35	Retain	moderate lean south, , wounds , broken branch , buckthorn , multistem at base
158	Manitoba Maple (Acer negundo)	17.5, 11, 24.5, 12.5	G	G	G	10	Remove	small callus wound
159	Manitoba Maple (Acer negundo)	17, 16, 19.5	G	G	G	25	Remove	multistem at base , 4 small stems, 2 x10 stems , buckthorn
160	Manitoba Maple (Acer negundo)	27, 18.5, 19	G	G	F	60	Retain	dead branches , 1 small stem , out leaning in , multistem at base
162	Manitoba Maple (Acer negundo)	14.5	G	P	P	75	Retain	out leaning in , light lean south , moderate vines , competing , dead branch
163	Quaking Aspen (Populus tremuloides)	17	G	F	F	45	Retain	moderate vines , competing , out leaning in
164	Black Walnut (Juglans nigra)	41	G	G	G	10	Retain	out leaning in
165	Manitoba Maple (Acer negundo)	23, 27	P	P	P	80	Retain	codominant at base, fallen, epicormic branching, moderate vines, cracks/breaks, fungi, dead wood
166	Manitoba Maple (Acer negundo)	20, 36	P	P	P	80	Retain	fallen, heavy epicormic branching , broken bottom , dead stem 17 , out leaning in , heavy lean south
167	Manitoba Maple (Acer negundo)	33	G	G	G	30	Retain	out leaning in , moderate lean southeast , moderate vines
168	Black Walnut (Juglans nigra)	12.5	G	F	F	45	Retain	asymetric crown, moderate vines, competing

169	Manitoba Maple (Acer negundo)	26	G	G	G	40	Retain	1 small stem , asymetric crown , light vines , base wound
170	Manitoba Maple (Acer negundo)	21, 21, 31, 19.5	P	G	G	20	Retain	light lean north , heavy wounds
171	Manitoba Maple (Acer negundo)	~40, ~35, ~30,~20	F	P	P	85	Retain	out fallen in , heavy epicormic branching , moderate dead wood
172	Manitoba Maple (Acer negundo)	44	G	G	G	25	Retain	light curl south
173	Manitoba Maple (Acer negundo)	23.5	G	G	G	15	Retain	
174	Manitoba Maple (Acer negundo)	16	G	G	G	30	Retain	
175	Manitoba Maple (Acer negundo)	13.5, 14.5	F	F	G	15	Retain	epicormic branching from large fallen stem , multistem at 1 m , 1 small stem
176	Black Walnut (Juglans nigra)	13.5	G	G	P	90	Remove	almost dead , heavy vines
177	Black Walnut (Juglans nigra)	58	G	G	G	10	Remove	
180	Basswood (Tilia americana)	5x ~ 30	G	G	G	10	Remove	1 small stem , multistem at base
181	Manitoba Maple (Acer negundo)	13.5	G	G	F	45	Remove	
182	Manitoba Maple (Acer negundo)	16	G	G	F	40	Remove	heavy vines
183	Manitoba Maple (Acer negundo)	11	G	F	F	65	Remove	moderate lean south , moderate vines
184	Manitoba Maple (Acer negundo)	11	F	P	F	60	Remove	moderate lean north , base wound , bend
185	Manitoba Maple (Acer negundo)	18, 18.5	F	P	P	85	Remove	dead wood , broken branchs , heavy vines

186	Manitoba Maple (Acer negundo)	33	P	P	F	40	Remove	heavy lean south , moderate vines , large wound
187	Manitoba Maple (Acer negundo)	17.5, 17,5	G	P	P	90	Remove	codominant at 1.5 , heavy lean south , almost dead
188	Black Walnut (Juglans nigra)	13	G	G	F	45	Remove	moderate vines
189	Manitoba Maple (Acer negundo)	11, 17	F	P	F	65	Remove	codominant at 1 m , 2 small stems , heavy lean south
190	Manitoba Maple (Acer negundo)	~20x4, 30, 40	F	P	F	70	Remove	dead stems ~25x3, 30x5, , leaning mainy east , heavy epicormic branching
191	Manitoba Maple (Acer negundo)	12, 11	G	F	G	45	Remove	multistem at base , 4 small stems , competing , buckthorn , light lean north
192	American Mountain-Ash (Sorbus americana)	11.5	G	F	G	35	Remove	moderate lean north , asymetric crown
193	Manitoba Maple (Acer negundo)	47.5	G	G	G	15	Retain	
194	Manitoba Maple (Acer negundo)	33,5	G	P	G	25	Retain	heavy lean west
196	Manitoba Maple (Acer negundo)	12	G	G	P	70	Remove	beside well
197	Black Walnut (Juglans nigra)	43	G	G	G	5	Remove	lesion
198	Norway Maple (Acer platanoides)	18	G	F	G	40	Retain	out leaning in , competing , light vines , asymetric crown
199	Eastern White Cedar (Thuja occidentalis)	10	G	G	F	30	Retain	buckthorn
200	White Spruce (Picea glauca)	20	G	G	G	0	Retain	out leaning in
201	White Spruce (Picea glauca)	32	G	G	G	0	Retain	out leaning in
202	Eastern White Cedar (Thuja occidentalis)	12	G	G	G	0	Retain	

203	Eastern White Cedar (Thuja occidentalis)	12	G	G	G	0	Retain	
204	Quaking Aspen (Populus tremuloides)	45.5	G	F	F	25	Retain	moderate lean southwest , asymetric crown
205	Quaking Aspen (Populus tremuloides)	~60, ~65	G	G	G	15	Retain	out leaning in , light vines
206	Quaking Aspen (Populus tremuloides)	19	F	G	G	15	Retain	twisted stem
207	Balsam Poplar (Populus balsamifera)	13	G	G	G	10	Retain	
208	Manitoba Maple (Acer negundo)	15.5, 14	G	G	G	20	Retain	light lean south , codominant at base
209	Manitoba Maple (Acer negundo)	16	G	G	G	15	Retain	
210	Crack Willow (Salix fragilis)	36	G	G	G	10	Retain	out leaning in started at nm , codominant at 2 m
211	Manitoba Maple (Acer negundo)	14.5, 15, 15	G	G	G	35	Retain	multistem at base , out leaning in end
212	Manitoba Maple (Acer negundo)	11.5, 16	G	G	G	20	Retain	codominant at 1 m
213	Manitoba Maple (Acer negundo)	18	G	G	F	35	Retain	out leaning in , codominant at 1 .5 , moderate vines
214	Manitoba Maple (Acer negundo)	14.5	G	G	G	15	Retain	edge
215	White Spruce (Picea glauca)	11	G	G	G	0	Retain	edge
216	Russian Olive (Elaeagnus angustifolia)	23 a25 a20	G	P	P	60	Retain	out leaning in , heavy lean south , multistem at 1 m
217	Manitoba Maple (Acer negundo)	19, 10.5	G	G	G	20	Retain	codominant at base, light lean south, out leaning in

218	Siberian Elm (Ulmus pumila)	38.5, 21,5, 17.5	F	G	G	10	Retain	rusty trunk wound, multistem at 1 m, out leaning in, light lean south
219	Manitoba Maple (Acer negundo)	30	G	G	G	0	Retain	edge , multistem at 2 m
220	Manitoba Maple (Acer negundo)	4x ~20	G	G	G	20	Retain	moderate lean south , pruned , light vines , out leaning in
221	Black Walnut (Juglans nigra)	10	G	G	G	0	Retain	
222	Manitoba Maple (Acer negundo)	20.5	G	G	G	0	Retain	
223	Apple Species (Malus sp.)	34.5	P	G	G	10	Remove	pear tree, large wound, buckthorn
224	Apple Species (Malus sp.)	21, 22, 15, 15	G	G	G	0	Remove	buckthorn, multistem at base
225	Apple Species (Malus sp.)	17, 21.5, 23, 12	G	F	G	35	Remove	light lean west , multistem at base
226	American Elm (Ulmus americana)	29	G	G	G	15	Remove	
227	Manitoba Maple (Acer negundo)	15.5	G	G	G	30	Remove	
228	Apple Species (Malus sp.)	~ 12x sm	G	G	G	0	Remove	
229	American Elm (Ulmus americana)	11, 11.5	G	G	G	15	Remove	competing
230	White Spruce (Picea glauca)	~30	G	G	G	0	Retain	off property , pruned
231	American Mountain-Ash (Sorbus americana)	~4 x15	G	G	G	0	Retain	off property
232	Manitoba Maple (Acer negundo)	~50	G	G	G	35	Retain	off property, other smaller stems

233	Quaking Aspen (Populus tremuloides)	~25	G	G	G	25	Retain	light lean west , another behind , off property , actually on p but beside house
234	Manitoba Maple (Acer negundo)	~75	G	F	G	35	Retain	off property , broken branch on property
235	Apple Species (Malus sp.)	13	G	G	G	15	Remove	many small stems
236	Manitoba Maple (Acer negundo)	~65	G	F	F	45	Retain	codominant at 2 m , broken branch on property , off property , heavy lean west
237	Manitoba Maple (Acer negundo)	~45	G	F	P	70	Retain	off property
238	Manitoba Maple (Acer negundo)	~60	G	F	F	40	Retain	codominant at 2 m , off property , fallen on property, light bend
239	Manitoba Maple (Acer negundo)	24.5, 15	G	G	G	30	Remove	multistem at base , broken branch
240	Manitoba Maple (Acer negundo)	21.5	G	G	G	35	Remove	
241	Black Walnut (Juglans nigra)	~120	P	F	G	10	Remove	multistem at 2 m , deadstem , large low wound
242	Black Walnut (Juglans nigra)	46	G	G	G	0	Remove	
243	Manitoba Maple (Acer negundo)	14	G	P	G	40	Remove	multistem at base, 3 small stems
244	Quaking Aspen (Populus tremuloides)	12.5	F	G	G	0	Remove	low wound
245	Quaking Aspen (Populus tremuloides)	18	G	G	G	0	Remove	
246	Quaking Aspen (Populus tremuloides)	15	G	G	G	0	Remove	
247	Quaking Aspen (Populus tremuloides)	12.5	P	G	G	15	Remove	low wound, orange fungi

248	Quaking Aspen (Populus tremuloides)	10.5	G	G	G	0	Remove	
249	Quaking Aspen (Populus tremuloides)	14	G	G	G	0	Remove	
250	Quaking Aspen (Populus tremuloides)	15	G	G	G	0	Remove	
251	Quaking Aspen (Populus tremuloides)	17.5	G	G	G	0	Remove	
252	Quaking Aspen (Populus tremuloides)	16.5	G	G	G	0	Remove	
253	Eastern White Cedar (Thuja occidentalis)	16.5	G	G	G	0	Remove	3 small stem
254	Manitoba Maple (Acer negundo)	20, 20, 21	G	G	G	0	Remove	multistem at base and 1 m
255	Eastern White Cedar (Thuja occidentalis)	14	G	G	G	0	Remove	
256	Balsam Poplar (Populus balsamifera)	17.5, 19	G	G	G	0	Retain	multistem at base
257	Basswood (Tilia americana)	28. 31.5, 14.6	G	G	G	0	Retain	multistem at base and 1 m
258	Manitoba Maple (Acer negundo)	15, 15.5, 28	G	G	G	20	Remove	multistem at 1 m
259	White Ash (Fraxinus americana)	12.5	F	F	G	25	Remove	wound, asymetric crown
260	Manitoba Maple (Acer negundo)	15	G	F	F	45	Remove	asymetric crown
261	Manitoba Maple (Acer negundo)	~ 4x40	G	F	G	15	Remove	2x ~35 dead stems, beside auto shop
262	Manitoba Maple (Acer negundo)	19, 14	G	G	G	35	Retain	multistem at base
263	Manitoba Maple (Acer negundo)	12	F	G	F	40	Retain	multistem at 1 m , 1 small stem , base wound

264	Manitoba Maple (Acer negundo)	16.5	G	G	G	30	Remove	1 small stemall stem
265	Manitoba Maple (Acer negundo)	12.5, 11	G	G	G	25	Remove	multistem at base
266	Manitoba Maple (Acer negundo)	18	G	G	G	10	Remove	1 small stemall stem
267	Manitoba Maple (Acer negundo)	10.5	G	G	F	45	Remove	
268	Manitoba Maple (Acer negundo)	10.5	F	G	G	20	Remove	base wound
269	Manitoba Maple (Acer negundo)	12.5	F	G	G	30	Remove	base wound
270	Manitoba Maple (Acer negundo)	15	G	G	G	25	Remove	codominant at 1.5 m
271	Manitoba Maple (Acer negundo)	12, 12.5	F	G	G	20	Remove	codominant at 1 m , light lean south , wound
272	Manitoba Maple (Acer negundo)	14	G	G	G	25	Remove	3 small stem
273	Manitoba Maple (Acer negundo)	10	G	G	G	15	Remove	
274	Manitoba Maple (Acer negundo)	11.5	G	G	G	10	Remove	2 small stems
275	Manitoba Maple (Acer negundo)	16.5	G	G	G	35	Remove	
276	Manitoba Maple (Acer negundo)	15, 17	G	G	G	20	Remove	
277	Manitoba Maple (Acer negundo)	17 16	G	G	G	15	Retain	2 small stems
278	Eastern White Cedar (Thuja occidentalis)	11	G	G	G	0	Retain	
279	Black Walnut (Juglans nigra)	16	G	G	F	40	Retain	heavy vines

280	Quaking Aspen (Populus tremuloides)	40	G	G	G	35	Retain	moderate vines
281	Black Walnut (Juglans nigra)	13.5	G	G	G	35	Retain	
282	Manitoba Maple (Acer negundo)	12	G	F	F	75	Remove	1 small stem , codominant at base
283	Manitoba Maple (Acer negundo)	15	G	G	F	70	Remove	
285	Black Walnut (Juglans nigra)	19.5	G	G	G	5	Remove	
286	Manitoba Maple (Acer negundo)	~15 x6	G	G	G	10	Remove	codominant at base
287	Manitoba Maple (Acer negundo)	5x 10-25	G	G	F	40	Remove	
288	Manitoba Maple (Acer negundo)	4x10	G	G	F	45	Remove	1 dead small stem
289	Apple Species (Malus sp.)	14, 12	G	G	G	5	Remove	
290	Black Walnut (Juglans nigra)	13	G	G	G	0	Remove	
291	Black Walnut (Juglans nigra)	16.5	G	G	G	15	Remove	
292	Black Walnut (Juglans nigra)	16.5	G	F	G	20	Remove	asymetric crown
293	Black Walnut (Juglans nigra)	24	G	G	G	0	Remove	
294	Black Walnut (Juglans nigra)	28.5	G	F	G	20	Remove	bend south
296	Manitoba Maple (Acer negundo)	~ 80	F	G	G	30	Retain	codominant at 2 m , bumpy
297	Black Walnut (Juglans nigra)	21.5	G	F	G	40	Remove	

298	Black Walnut (Juglans nigra)	34	G	G	G	10	Remove	light vines
299	Eastern White Cedar (Thuja occidentalis)	~30	G	G	G	0	Remove	cut
300	Eastern White Cedar (Thuja occidentalis)	~45	G	G	G	0	Remove	
301	Black Locust (Robinia pseudoacacia)	13.5, 12.5	G	G	G	0	Remove	codominant at 1 m
302	Black Locust (Robinia pseudoacacia)	16	G	F	F	35	Remove	asymetric crown, light lean west
303	Manitoba Maple (Acer negundo)	31.5, 11.5, 10	G	F	G	20	Remove	2 small stems , multistem at base , light lean west
304	Manitoba Maple (Acer negundo)	44, 22, 13	G	F	G	35	Remove	broken branch , multistem at base
305	American Elm (Ulmus americana)	23	G	G	F	40	Remove	competing
306	Black Walnut (Juglans nigra)	38	G	G	G	20	Remove	
307	Quaking Aspen (Populus tremuloides)	10.5, 11.5	G	G	G	25	Remove	
309	Quaking Aspen (Populus tremuloides)	12	G	G	G	35	Remove	
310	Quaking Aspen (Populus tremuloides)	10	G	G	G	20	Remove	
311	Quaking Aspen (Populus tremuloides)	10.5	G	G	G	25	Remove	
313	American Elm (Ulmus americana)	10.5	G	G	P	85	Remove	almost dead
315	Quaking Aspen (Populus tremuloides)	12.5	G	G	G	35	Remove	

316	Quaking Aspen (Populus tremuloides)	12.5	G	G	F	45	Remove	
317	Quaking Aspen (Populus tremuloides)	11.5	G	G	G	20	Remove	
318	Quaking Aspen (Populus tremuloides)	12	G	G	F	45	Within road widening	
319	Quaking Aspen (Populus tremuloides)	12	G	G	G	10	Remove	
320	Quaking Aspen (Populus tremuloides)	11	G	G	F	50	Remove	
321	Quaking Aspen (Populus tremuloides)	11	G	G	G	10	Remove	
322	American Elm (Ulmus americana)	14.5	G	G	P	60	Remove	
325	Quaking Aspen (Populus tremuloides)	10.5	G	G	G	10	Within road widening	
327	Quaking Aspen (Populus tremuloides)	13	G	G	G	0	Within road widening	
328	Quaking Aspen (Populus tremuloides)	12	G	G	G	10	Within road widening	
329	Quaking Aspen (Populus tremuloides)	10	G	G	F	45	Within road widening	
330	Quaking Aspen (Populus tremuloides)	10.5	G	G	G	30	Within road widening	
332	Quaking Aspen (Populus tremuloides)	18.5	G	G	G	10	Remove	
337	Quaking Aspen (Populus tremuloides)	13.5	G	G	P	75	Remove	
342	Black Walnut (Juglans nigra)	30.5	G	G	G	0	Remove	
343	Black Walnut (Juglans nigra)	12	G	G	P	75	Remove	heavy vines

344	Black Walnut (Juglans nigra)	27	G	G	G	0	Remove	
345	Black Walnut (Juglans nigra)	41.5	G	G	G	0	Remove	
348	Black Walnut (Juglans nigra)	19	G	G	G	10	Remove	
349	Black Walnut (Juglans nigra)	10	G	G	G	25	Remove	
350	Black Walnut (Juglans nigra)	39.5	G	G	G	20	Remove	
351	Black Walnut (Juglans nigra)	13	G	G	G	35	Remove	moderate vines
352	Black Walnut (Juglans nigra)	15	G	P	F	55	Remove	moderate lean south
353	Manitoba Maple (Acer negundo)	12	G	G	G	20	Remove	
354	Black Locust (Robinia pseudoacacia)	14, 10.5	G	F	G	35	Remove	asymetric crown
356	Eastern White Cedar (Thuja occidentalis)	26	G	G	G	0	Remove	
357	Eastern White Cedar (Thuja occidentalis)	11.5	G	G	G	0	Remove	
358	Eastern White Cedar (Thuja occidentalis)	18	G	G	G	0	Remove	
359	Eastern White Cedar (Thuja occidentalis)	21, 12	G	G	G	0	Remove	codominant at base
360	Eastern White Cedar (Thuja occidentalis)	23.5	G	G	G	15	Remove	
361	Eastern White Cedar (Thuja occidentalis)	13	G	G	G	0	Remove	
362	Eastern White Cedar (Thuja occidentalis)	16	G	G	G	0	Remove	

363	Black Walnut (Juglans nigra)	19.5	G	F	G	30	Remove	asymetric crown
364	Eastern White Cedar (Thuja occidentalis)	24	G	G	G	0	Remove	
365	Eastern White Cedar (Thuja occidentalis)	17.5	P	G	F	40	Remove	tall wound
367	Eastern White Cedar (Thuja occidentalis)	22	G	G	G	0	Remove	
368	Eastern White Cedar (Thuja occidentalis)	12.5	G	G	G	0	Remove	
369	Eastern White Cedar (Thuja occidentalis)	13	G	F	F	35	Remove	
370	Eastern White Cedar (Thuja occidentalis)	18	P	G	G	0	Remove	wound
371	Eastern White Cedar (Thuja occidentalis)	12.5	G	F	F	30	Remove	
372	Black Walnut (Juglans nigra)	73	G	G	G	15	Remove	
373	Eastern White Cedar (Thuja occidentalis)	4x 10-15	G	F	G	20	Remove	light lean east
374	Black Walnut (Juglans nigra)	46, 45, 26	G	G	G	0	Remove	multistem at 1.5 m
375	Black Locust (Robinia pseudoacacia)	16.5	G	F	G	25	Remove	asymetric crown
376	Black Locust (Robinia pseudoacacia)	13	G	G	G	25	Remove	
377	Black Locust (Robinia pseudoacacia)	18	G	G	G	20	Remove	
378	Eastern White Cedar (Thuja occidentalis)	17.5	G	G	G	0	Remove	
379	Eastern White Cedar (Thuja occidentalis)	16.5	G	G	G	0	Remove	

381	Eastern White Cedar (Thuja occidentalis)	19.5, 12.5	G	G	G	20	Remove	codominant at 1.5 m
383	Eastern White Cedar (Thuja occidentalis)	3x 10-15	G	F	F	45	Remove	multistem at base, 1 small stem
384	Black Walnut (Juglans nigra)	16.5	G	G	G	25	Remove	
385	Black Walnut (Juglans nigra)	19	G	G	G	15	Remove	
386	Honey Locust (*Gleditsia triacanthos*)	15.5	G	G	G	0	Remove	large thorns
387	Black Locust (Robinia pseudoacacia)	19	G	G	G	10	Remove	
388	Black Locust (Robinia pseudoacacia)	17	G	G	G	10	Remove	
389	Black Locust (Robinia pseudoacacia)	11	G	G	G	15	Remove	
390	White Ash (Fraxinus americana)	13.5	G	G	G	10	Within road widening	
391	Eastern White Cedar (Thuja occidentalis)	22	G	G	G	0	Remove	
392	Eastern White Cedar (Thuja occidentalis)	21.5	G	G	G	0	Remove	
393	Eastern White Cedar (Thuja occidentalis)	25	G	G	G	0	Remove	
394	Eastern White Cedar (Thuja occidentalis)	11	P	F	F	55	Within road widening	holes , wound
395	Eastern White Cedar (Thuja occidentalis)	17.5	G	G	G	0	Within road widening	
396	Eastern White Cedar (Thuja occidentalis)	16.5	P	G	G	0	Within road widening	wound
397	Eastern White Cedar (Thuja occidentalis)	25.5	P	G	G	20	Within road widening	latge wound , hole at 1 m

398	Eastern White Cedar (Thuja occidentalis)	5x 10-25	G	G	G	0	Within road widening	
399	Eastern White Cedar (Thuja occidentalis)	18.5	G	G	G	0	Within road widening	
400	Eastern White Cedar (Thuja occidentalis)	17.5	G	G	G	0	Within road widening	
401	Eastern White Cedar (Thuja occidentalis)	13	G	G	G	0	Within road widening	
402	Eastern White Cedar (Thuja occidentalis)	3x 10-20	G	G	G	0	Within road widening	2 small stems
403	Eastern White Cedar (Thuja occidentalis)	15	G	G	G	0	Within road widening	
404	Honey Locust (Gleditsia triacanthos)	22.5	P	P	P	90	Within road widening	almost dead
405	Eastern White Cedar (Thuja occidentalis)	13.5	G	G	G	30	Within road widening	
406	Eastern White Cedar (Thuja occidentalis)	14	G	G	G	20	Remove	
407	Eastern White Cedar (Thuja occidentalis)	16	G	G	G	0	Within road widening	
408	Eastern White Cedar (Thuja occidentalis)	18.5	G	G	G	0	Remove	
409	Eastern White Cedar (Thuja occidentalis)	13, 10.5	G	G	G	0	Within road widening	codominant at base
410	Eastern White Cedar (Thuja occidentalis)	23	G	G	G	0	Within road widening	
411	Manitoba Maple (Acer negundo)	15	G	G	F	50	Within road widening	light lean north
412	Eastern White Cedar (Thuja occidentalis)	11, 10.5	G	G	G	0	Within road widening	codominant at base
413	Eastern White Cedar (Thuja occidentalis)	19	G	G	G	0	Within road widening	

414	Eastern White Cedar (Thuja occidentalis)	10, 16	G	G	G	0	Within road widening	codominant at base
415	Eastern White Cedar (Thuja occidentalis)	15.5, 19.5	G	G	G	0	Within road widening	codominant at base
416	Eastern White Cedar (Thuja occidentalis)	5x 10-20	G	G	G	0	Within road widening	
417	Eastern White Cedar (Thuja occidentalis)	13.5, 10.5	G	G	G	0	Within road widening	codominant at base
418	Eastern White Cedar (Thuja occidentalis)	12, 18.5	G	G	G	0	Within road widening	codominant at base
419	Black Walnut (Juglans nigra)	14	G	G	G	0	Remove	
420	Black Walnut (Juglans nigra)	13	G	G	G	20	Remove	asymetric crown
421	American Elm (Ulmus americana)	14	G	G	F	45	Within road widening	
422	White Ash (Fraxinus americana)	12.5	G	G	G	15	Remove	
423	American Elm (Ulmus americana)	14	G	G	G	25	Remove	
424	Norway Maple (Acer platanoides)	30	G	G	G	45	Remove	
425	Honey Locust (Gleditsia triacanthos)	~25, 20	F	P	P	75	Within road widening	broken top/limbs, wound
426	Eastern White Cedar (Thuja occidentalis)	17, 12.5	G	G	G	0	Remove	codominant at base
427	Eastern White Cedar (Thuja occidentalis)	17.5	G	G	G	0	Remove	
428	Eastern White Cedar (Thuja occidentalis)	13.5	G	G	G	0	Remove	
429	Eastern White Cedar (Thuja occidentalis)	15	G	G	G	0	Remove	

430	Eastern White Cedar (Thuja occidentalis)	11.5, 21	G	G	G	0	Within road widening	
431	Norway Maple (Acer platanoides)	11	G	P	P	80	Within road widening	
432	Eastern White Cedar (Thuja occidentalis)	14.5	G	G	G	0	Within road widening	
433	Eastern White Cedar (Thuja occidentalis)	12.5, 13	G	G	G	0	Within road widening	codominant at 1 m
434	Eastern White Cedar (Thuja occidentalis)	12	G	G	G	0	Within road widening	
435	Eastern White Cedar (Thuja occidentalis)	13.5	G	G	G	0	Within road widening	
436	Eastern White Cedar (Thuja occidentalis)	16.5	G	G	G	0	Within road widening	
437	Eastern White Cedar (Thuja occidentalis)	15	F	G	G	0	Within road widening	
438	Apple Species (Malus sp.)	28.5	G	G	G	20	Within road widening	light lean south , codominant at 2 m
439	Eastern White Cedar (Thuja occidentalis)	19.5, 15.5, 12	G	G	G	0	Remove	
440	Eastern White Cedar (Thuja occidentalis)	15	G	G	G	0	Remove	
441	Eastern White Cedar (Thuja occidentalis)	13	F	G	F	30	Within road widening	
442	Eastern White Cedar (Thuja occidentalis)	21	G	G	G	0	Remove	
443	Eastern White Cedar (Thuja occidentalis)	12, 18.5	G	G	G	0	Remove	codominant at base
444	Eastern White Cedar (Thuja occidentalis)	23.5, 23.5	G	G	G	0	Remove	codominant at base
445	Manitoba Maple (Acer negundo)	10	G	G	G	40	Remove	

446	Manitoba Maple (Acer negundo)	25	G	F	G	35	Remove	moderate epicormic branching , heavy lean south
447	White Ash (Fraxinus americana)	10	G	G	G	30	Remove	
448	Black Walnut (Juglans nigra)	26.5	G	G	G	0	Remove	
449	Sugar Maple (Acer saccharum)	13	G	G	G	35	Within road widening	competing
450	White Ash (Fraxinus americana)	17	G	G	G	15	Within road widening	asymetric crown
451	Manitoba Maple (Acer negundo)	14.5	G	P	F	40	Within road widening	
452	Sugar Maple (Acer saccharum)	20	G	F	G	25	Within road widening	asymetric crown
453	Eastern White Cedar (Thuja occidentalis)	10.5, 14.5	G	G	G	0	Remove	
454	Eastern White Cedar (Thuja occidentalis)	18	G	G	G	0	Remove	
455	Eastern White Cedar (Thuja occidentalis)	15	G	G	G	0	Remove	
458	Apple Species (Malus sp.)	19, 13.5	G	F	F	50	Remove	moderate lean east
459	White Spruce (Picea glauca)	43	G	G	G	20	Remove	light vines
460	White Spruce (Picea glauca)	28.5	G	G	F	45	Remove	moderate vines
461	Manitoba Maple (Acer negundo)	13	G	G	G	30	Remove	
462	White Spruce (Picea glauca)	60.5	G	G	G	25	Remove	moderate vines
463	Manitoba Maple (Acer negundo)	14.5	G	P	F	45	Remove	heavy lean east

464	Basswood (Tilia americana)	16.5	G	G	G	20	Remove	
465	White Spruce (Picea glauca)	38	G	G	G	35	Remove	codominant at 1.5 m
466	Eastern White Cedar (Thuja occidentalis)	7x 10-20	G	G	G	30	Remove	
467	Sugar Maple (Acer saccharum)	13	G	G	G	20	Remove	
468	White Spruce (Picea glauca)	10.5	G	G	G	15	Remove	
469	Eastern White Cedar (Thuja occidentalis)	28.5	G	G	G	20	Remove	
471	Eastern White Cedar (Thuja occidentalis)	16	G	G	G	15	Remove	
473	White Spruce (Picea glauca)	16.5	G	G	G	35	Remove	
474	White Spruce (Picea glauca)	29.5	G	G	G	20	Remove	
475	Eastern White Cedar (Thuja occidentalis)	11, 19	G	G	G	0	Remove	
476	American Elm (Ulmus americana)	19.5	G	G	G	20	Remove	
477	American Elm (Ulmus americana)	21	G	G	G	10	Remove	
478	Black Walnut (Juglans nigra)	15	G	G	F	55	Remove	
479	Manitoba Maple (Acer negundo)	13	G	G	F	60	Remove	
480	Eastern White Cedar (Thuja occidentalis)	22, 28, 29	G	G	G	0	Remove	
481	White Spruce (Picea glauca)	31, 23	G	G	G	20	Remove	codominant at 1 m

482	Black Walnut (Juglans nigra)	11	G	G	G	30	Remove	
483	Black Walnut (Juglans nigra)	14.5	G	G	G	10	Remove	
484	Black Walnut (Juglans nigra)	28	G	F	G	10	Remove	
485	Black Walnut (Juglans nigra)	28	G	G	G	10	Remove	
486	Basswood (Tilia americana)	10.5	G	G	G	5	Remove	codominant at base, 1 small stem
487	Black Walnut (Juglans nigra)	10	G	G	P	65	Remove	heavy vines
488	Black Walnut (Juglans nigra)	13.5	G	G	G	20	Remove	
489	Manitoba Maple (Acer negundo)	14, 14	G	F	P	80	Remove	almost dead, vines, competing, codominant at base, moderate lean west
491	Manitoba Maple (Acer negundo)	20.5	G	F	F	65	Remove	
492	Black Walnut (Juglans nigra)	15.5	G	G	G	10	Remove	
493	Black Walnut (Juglans nigra)	11.5	G	G	G	10	Remove	
494	American Elm (Ulmus americana)	28.5	G	F	F	45	Remove	
496	Basswood (Tilia americana)	12	G	G	G	25	Remove	3 small stem
497	Black Walnut (Juglans nigra)	20	G	G	G	45	Remove	
498	Black Walnut (Juglans nigra)	10.5	G	G	G	25	Remove	

499	American Elm (Ulmus americana)	23.5	G	G	P	70	Remove	heavy vines
500	American Elm (Ulmus americana)	12	G	P	F	60	Remove	heavy lean south
502	Basswood (Tilia americana)	18.5	G	G	G	35	Remove	
503	Manitoba Maple (Acer negundo)	82	P	P	P	80	Remove	codominant at 2 m , heavy epicormic branching , almost dead
504	Black Walnut (Juglans nigra)	27.5	G	G	G	30	Remove	
506	Manitoba Maple (Acer negundo)	12.5	G	G	G	25	Remove	
507	Manitoba Maple (Acer negundo)	13	G	G	F	70	Remove	
509	Manitoba Maple (Acer negundo)	14	G	G	G	25	Remove	
510	Siberian Elm (Ulmus pumila)	19, 16, 27	G	G	F	45	Remove	dead stem
511	Manitoba Maple (Acer negundo)	11	G	F	G	25	Remove	light lean north
512	White Spruce (Picea glauca)	54	G	G	G	10	Remove	foundation
513	Honey Locust (Gleditsia triacanthos)	36, 33.5	G	G	G	30	Remove	
514	Manitoba Maple (Acer negundo)	19	G	P	F	35	Remove	heavy lean south, asphalt
516	Basswood (Tilia americana)	34, 11, 10.5	F	G	G	10	Remove	
517	Basswood (Tilia americana)	16x 20-60	F	F	G	15	Remove	
518	Manitoba Maple (Acer negundo)	12.5	G	G	F	55	Remove	

519	Eastern White Cedar (Thuja occidentalis)	43.5, 34.4	G	G	G	30	Remove	codominant at 1.5 m
520	Basswood (Tilia americana)	20	G	G	G	30	Remove	
521	Basswood (Tilia americana)	17	G	G	P	70	Remove	
522	Basswood (Tilia americana)	11.5	G	G	F	50	Remove	
523	Basswood (Tilia americana)	15.5	G	G	G	35	Remove	
524	Basswood (Tilia americana)	23	G	F	G	25	Remove	nest
525	Basswood (Tilia americana)	19.5, 16	G	G	G	30	Remove	codominant at base
526	Basswood (Tilia americana)	20	G	G	G	20	Remove	
527	Basswood (Tilia americana)	22	G	G	G	10	Remove	
528	Basswood (Tilia americana)	15	G	G	P	80	Remove	heavy vines
529	Basswood (Tilia americana)	13.5	G	G	F	55	Remove	
530	Basswood (Tilia americana)	27	G	G	G	45	Remove	moderate vines
531	Black Walnut (Juglans nigra)	31	G	F	G	40	Remove	asymetric crown
532	Basswood (Tilia americana)	5x 12-32	G	G	G	10	Remove	dead stem (12 cm)
533	Basswood (Tilia americana)	18.5	G	G	G	10	Remove	
534	Basswood (Tilia americana)	25	G	G	G	0	Remove	

535	Basswood (Tilia americana)	10	G	G	G	30	Remove	
536	Basswood (Tilia americana)	20	G	G	G	0	Remove	
537	American Elm (Ulmus americana)	12	G	G	G	15	Remove	
538	Basswood (Tilia americana)	25.5, 26.5	G	G	G	20	Remove	codominant at 1 m
539	American Elm (Ulmus americana)	48.5	G	G	F	40	Remove	
540	Black Walnut (Juglans nigra)	21	G	G	G	25	Remove	
541	Black Walnut (Juglans nigra)	22	G	G	G	35	Remove	
543	Black Walnut (Juglans nigra)	39	G	G	G	0	Remove	
545	Black Walnut (Juglans nigra)	35.5	G	G	G	10	Remove	
546	Black Walnut (Juglans nigra)	31.5	G	G	G	10	Remove	
548	Black Walnut (Juglans nigra)	21	G	G	G	20	Remove	
550	Black Walnut (Juglans nigra)	28	G	G	G	15	Remove	

Tree inventory codes:

DBH - Diameter at breast height

CS – Crown structure

CV – Crown vigor

CDB – Canopy dieback

Appendix B

Vascular Plant List

Scientific Name	Common Names	Provincial Conservation Rank (Srank)[5]	Coefficient Conservation	Coefficient Wetness
Abies balsamea	Balsam Fir	S5	5	-3
Acer negundo	Manitoba Maple	S5	0	-2
Acer platanoides	Norway Maple	SE5	0	5
Acer rubrum	Red Maple	S5	4	0
Acer saccharinum	Silver Maple	S5	5	-3
Acer saccharum ssp. saccharum	Sugar Maple	S5	4	3
Achillea millefolium ssp. millefolium	Common Yarrow	SE	0	3
Actaea rubra	Red Baneberry	S5	5	5
Aegopodium podagraria	Goutweed	SE5	0	0
Agrimonia gryposepala	Tall Agrimony	S5	2	2
Agrostis gigantea	Redtop Grass	SE5	0	0
Agrostis stolonifera	Creeping Bent Grass	S5	0	-3
Alisma plantago-aquatica	Common Water-plantain	S5	3	-5
Alliaria petiolata	Garlic Mustard	SE5	0	0
Alopecurus pratensis	Meadow Foxtail	SE5	0	-3
Amaranthus powellii	Green Pigweed	SE5	0	5
Ambrosia artemisiifolia	Common Ragweed	S5	0	3
Amelanchier arborea	Downy Serviceberry	S5	5	3
Amphicarpaea bracteata	Hog Peanut	S5	4	0
Anemone canadensis	Canada Anemone	S5	3	-3
Arctium minus	Common Burdock	SE5		3
Arisaema triphyllum ssp. triphyllum	Jack-in-the-pulpit	S5	5	-2
Asclepias syriaca	Common Milkweed	S5	0	5
Asparagus officinalis	Asparagus	SE5	0	3

Scientific Name	Common Names	Provincial Conservation Rank (Srank)[5]	Coefficient Conservation	Coefficient Wetness
Barbarea vulgaris	Bitter Wintercress	SE5	0	0
Betula papyrifera	White Birch	S5	2	2
Bidens frondosa	Devil's Beggar-ticks	S5	3	-3
Bromus inermis ssp. inermis	Smooth Brome	SE5	0	5
Calamagrostis canadensis	Canada Blue-joint	S5	4	-5
Caltha palustris	Marsh Marigold	S5	5	-5
Campanula rapunculoides	Creeping Bellflower	SE5	0	5
Carex bebbii	Bebb's Sedge	S5	3	-5
Carex crinita	Fringed Sedge	S5	6	-4
Carex granularis	Meadow Sedge	S5	3	-4
Carex intumescens	Bladder Sedge	S5	6	-4
Carex sp	Sedge Species	---	---	---
Carex vulpinoidea	Fox Sedge	S5	3	-5
Carpinus caroliniana	Blue Beech	S5	6	0
Carya cordiformis	Bitternut Hickory	S5	6	0
Carya ovata	Shagbark Hickory	S5	6	3
Caulophyllum thalictroides	Blue Cohosh	S5	6	5
Cerastium fontanum	Common Mouse-ear Chickweed	SE5	0	3
Chrysanthemum leucanthemum	Ox-eye Daisy	SE5	0	5
Cichorium intybus	Chicory	SE5	0	5
Circaea lutetiana ssp. canadensis	Canada Enchanter's Nightshade	S5	3	3
Cirsium arvense	Canada Thistle	SE5	0	3
Cirsium vulgare	Bull Thistle	SE5	0	3
Claytonia virginica	Virginia Spring Beauty	S5	5	3
Clematis virginiana	Virgin's Bower	S5	3	0
Convallaria majalis	European Lily-of-the-valley	SE5	0	5

Scientific Name	Common Names	Provincial Conservation Rank (Srank)[5]	Coefficient Conservation	Coefficient Wetness
Convolvulus arvensis	Field Bindweed	SE5	0	5
Cornus alternifolia	Alternate-leaved Dogwood	S5	6	5
Cornus foemina ssp. racemosa	Grey Dogwood	S5	2	-2
Cornus stolonifera	Red-osier Dogwood	S5	2	-3
Crataegus sp	Hawthorn Species	---	---	---
Dactylis glomerata	Orchard Grass	SE5	0	3
Dipsacus fullonum ssp. sylvestris	Common Teasel	SE5	0	5
Dryopteris carthusiana	Spinulose Wood Fern	S5	5	-2
Echinochloa crusgalli	Barnyard Grass	SE5	0	-3
Echinocystis lobata	Wild Cucumber	S5	3	-2
Eleocharis sp	Spike-rush Species	---	---	---
Elymus repens	Quack Grass	SE5	0	3
Epilobium coloratum	Purple-leaved Willow-herb	S5	3	-5
Epipactis helleborine	Helleborine	SE5	0	5
Equisetum arvense	Field Horsetail	S5	0	0
Equisetum hyemale ssp. affine	Scouring Rush	S5	2	-2
Erigeron annuus	Daisy Fleabane	S5	0	1
Erigeron philadelphicus ssp. philadelphicus	Philadelphia Fleabane	S5	1	-3
Erythronium americanum ssp. americanum	Yellow Trout Lily	S5	5	5
Euonymus obovata	Running Strawberry-bush	S5	6	5
Eupatorium maculatum ssp. maculatum	Spotted Joe-pye-weed	S5	3	-5
Eupatorium perfoliatum	Common Boneset	S5	2	-4
Euthamia graminifolia	Grass-leaved Goldenrod	S5	2	-2
Fragaria vesca ssp. americana	Woodland Strawberry	S5	4	4
Fragaria virginiana ssp. virginiana	Common Strawberry	S5	2	1

Scientific Name	Common Names	Provincial Conservation Rank (Srank)[5]	Coefficient Conservation	Coefficient Wetness
Fraxinus americana	White Ash	S5	4	3
Fraxinus pennsylvanica	Green Ash	S5	3	-3
Galanthus nivalis	Common Snowdrop	SE1	0	5
Galium aparine	Cleavers	S5	4	3
Galium palustre	Marsh Bedstraw	S5	5	-5
Geranium maculatum	Spotted Crane's-bill	S5	6	3
Geranium robertianum	Herb Robert	SE5	0	5
Geum aleppicum	Yellow Avens	S5	2	-1
Geum canadense	White Avens	S5	3	0
Geum urbanum	Wood Avens	SE2	0	5
Glyceria striata	Fowl Manna Grass	S5	3	-5
Hackelia virginiana	Virginia Stickseed	S5	5	1
Hemerocallis fulva	Tawny Day-lily	SE5	0	5
Hesperis matronalis	Dame's Rocket	SE5	0	5
Hieracium aurantiacum	Orange Hawkweed	SE5	0	5
Hypericum canadense	Canadian St. John's-wort	S4?	8	-3
Impatiens capensis	Spotted Touch-me-not	S5	4	-3
Inula helenium	Elecampane	SE5	0	5
Juglans cinerea	Butternut	S4	6	2
Juglans nigra	Black Walnut	S4	5	3
Juncus canadensis	Canada Rush	S5	6	-5
Juncus effusus ssp. solutus	Soft Rush	S5	4	-5
Juncus tenuis	Path Rush	S5	0	0
Lactuca serriola	Prickly Lettuce	SE5	0	0
Leonurus cardiaca ssp. cardiaca	Motherwort	SE5	0	5
Linaria vulgaris	Butter-and-eggs	SE5	0	5

Scientific Name	Common Names	Provincial Conservation Rank (Srank)[5]	Coefficient Conservation	Coefficient Wetness
Lonicera sp	Honeysuckle Species	---	---	---
Lonicera tatarica	Tartarian Honeysuckle	SE5	0	3
Lycopus europaeus	European Water-horehound	SE5	0	-5
Maianthemum canadense	Canada Mayflower	S5	5	0
Maianthemum racemosum ssp. racemosum	False Solomon's Seal	S5	4	3
Maianthemum stellatum	Starry False Solomon's Seal	S5	6	1
Matteuccia struthiopteris var. pensylvanica	Ostrich Fern	S5	5	-3
Medicago lupulina	Black Medick	SE5	0	1
Mentha arvensis ssp. borealis	Wild Mint	S5	3	-3
Myosotis scorpioides	Common Forget-me-not	SE5	0	-5
Nasturtium microphyllum	Small-leaved Water-cress	SE5	0	-5
Oenothera biennis	Common Evening-primrose	S5	0	3
Onoclea sensibilis	Sensitive Fern	S5	4	-3
Ostrya virginiana	Hop Hornbeam	S5	4	4
Oxalis stricta	Upright Yellow Wood-sorrel	S5	0	3
Panicum sp	Panic Grass Species	---	---	---
Parthenocissus inserta	Thicket Creeper	S5	3	3
Phalaris arundinacea	Reed Canary Grass	S5	0	-4
Phleum pratense	Timothy	SE5	0	3
Phragmites australis	Common Reed	SNA	0	-3
Picea glauca	White Spruce	S5	6	3
Picea pungens	Colorado Spruce	SNA	0	
Pilea pumila	Common Clearweed	S5	5	-3
Pinus strobus	Eastern White Pine	S5	4	3
Pinus sylvestris	Scots Pine	SE5	0	5
Plantago major	Common Plantain	SE5	0	-1

Scientific Name	Common Names	Provincial Conservation Rank (Srank)[5]	Coefficient Conservation	Coefficient Wetness
Poa palustris	Fowl Blue Grass	S5	5	-4
Podophyllum peltatum	Mayapple	S5	5	3
Polygonatum biflorum	Giant Solomon's Seal	SNA	8	3
Populus balsamifera ssp. balsamifera	Balsam Poplar	S5	4	-3
Populus grandidentata	Largetooth Aspen	S5	5	3
Populus tremuloides	Trembling Aspen	S5	2	0
Potentilla recta	Rough-fruited Cinquefoil	SE5	0	5
Potentilla simplex	Common Cinquefoil	S5	3	4
Prunella vulgaris ssp. lanceolata	Heal-all	S5	5	5
Prunus serotina	Black Cherry	S5	3	3
Prunus virginiana ssp. virginiana	Choke Cherry	S5	2	1
Pulmonaria officinalis	Common Lungwort	SE1	0	
Quercus macrocarpa	Bur Oak	S5	5	1
Ranunculus abortivus	Kidney-leaf Buttercup	S5	2	-2
Ranunculus acris	Tall Buttercup	SE5	0	-2
Ranunculus repens	Creeping Buttercup	SE5	0	-1
Rhamnus cathartica	Common Buckthorn	SE5	0	3
Rhus radicans ssp. negundo	Climbing Poison-ivy	S5	5	-1
Rhus radicans ssp. rydbergii	Western Poison-ivy	S5	0	0
Rhus typhina	Staghorn Sumac	S5	1	5
Ribes americanum	Wild Black Currant	S5	4	-3
Ribes sp	Currant Species	---	---	---
Rubus idaeus ssp. melanolasius	Wild Red Raspberry	S5	0	-2
Rubus occidentalis	Black Raspberry	S5	2	5
Rubus pubescens	Dwarf Raspberry	S5	4	-4
Rumex crispus	Curly Dock	SE5	0	-1

Scientific Name	Common Names	Provincial Conservation Rank (Srank)[5]	Coefficient Conservation	Coefficient Wetness
Salix fragilis	Crack Willow	SE5	0	-1
Salix sp	Willow Species	---	---	---
Sambucus canadensis	Common Elderberry	S5	5	-2
Sambucus racemosa ssp. pubens	Red-berried Elderberry	S5	5	2
Sanguinaria canadensis	Bloodroot	S5	5	4
Scilla siberica	Siberian Squill	SE2	0	5
Scirpus atrovirens	Black Bulrush	S5	3	-5
Silene latifolia	Bladder Campion	SE5	0	5
Solanum dulcamara	Bittersweet Nightshade	SE5	0	0
Solidago canadensis	Canada Goldenrod	S5	1	3
Solidago flexicaulis	Zig-zag Goldenrod	S5	6	3
Symphyotrichum laeve var. laeve	Smooth Aster	S5	7	5
Symphyotrichum lanceolatum var. lanceolatum	Panicled Aster	S5	3	-3
Symphyotrichum novae-angliae	New England Aster	S5	2	-3
Syringa vulgaris	Common Lilac	SE5	0	5
Tanacetum vulgare	Common Tansy	SE5	0	5
Taraxacum officinale	Common Dandelion	SE5	0	3
Thalictrum pubescens	Tall Meadow-rue	S5	5	-2
Thuja occidentalis	Eastern White Cedar	S5	4	-3
Tragopogon pratensis ssp. pratensis	Meadow Goat's-beard	SE5	0	5
Trifolium hybridum ssp. elegans	Alsike Clover	SE5	0	1
Tsuga canadensis	Eastern Hemlock	S5	7	3
Tulipa gesneriana	Didier's Tulip	SE1	0	
Tussilago farfara	Coltsfoot	SE5	0	3
Typha latifolia	Broad-leaved Cattail	S5	3	-5
Ulmus americana	White Elm	S5	3	-2

Scientific Name	Common Names	Provincial Conservation Rank (Srank)[5]	Coefficient Conservation	Coefficient Wetness
Urtica dioica ssp. gracilis	Slender Stinging Nettle	S5	2	-1
Verbascum thapsus	Common Mullein	SE5	0	5
Veronica officinalis	Common Speedwell	SE5	0	5
Viburnum lentago	Nannyberry	S5	4	-1
Vinca minor	Lesser Periwinkle	SE5	0	5
Viola conspersa	Dog Violet	S5	4	-2
Viola sororia	Common Blue Violet	S5	4	1
Viola sp	Violet Species	---	---	---
Vitis riparia	Riverbank Grape	S5	0	-2
Waldsteinia fragarioides	Barren Strawberry	S5	5	5

Sranks - S5 = secure; S4= apparently secure; S3 = vulnerable; S2 = imperiled; SNA(SE) = conservation status ranking not applicable (exotic), -status uncertain

Appendix C

SAR Screening Table

Species		Habitat Protection Type	Species' Status in Ontario[1]	S-Rank[2]	Information Source[3]	Habitat Requirements[3]	Potential Habitat	Rationale
Scientific Name	**Common Name**							
Castanea dentata	American Chestnut	Yes - General Habitat Protection.	Endangered	S1S2	MNRF	Prefers dryer upland deciduous forests with sandy, acidic to neutral soils.	No	Habitat not present on Subject Property or in adjacent lands.
Frasera carolinensis	American Columbo/ Carolina Gentian	Yes - General Habitat Protection.	Endangered	S2	MNRF	Open deciduous forests, and to a lesser extent along open forest edges and dense shrub thickets. Commonly found in dry uplands.	No	Habitat not present on Subject Property or in adjacent lands.
Panax quinquefolius	American Ginseng	Yes - General Habitat Protection.	Endangered	S2	MNRF	Rich, moist, but well-drained, and relatively mature deciduous woods dominated by Sugar Maple, White Ash and American Basswood.	No	Habitat not present on Subject Property or in adjacent lands.
Juglans cinerea	Butternut	Yes - General Habitat Protection.	Endangered	S2?	MNRF	Grows alone or in small groups in deciduous forests. Prefers moist, well-drained soil; often found along streams. Does not do well in shade.	No	Habitat not present on Subject Property or in adjacent lands.
Cornus florida	Eastern Flowering Dogwood	Yes – Habitat Regulation	Endangered	S2?	MNRF	Under taller trees, in mid-age to mature deciduous or mixed forests. Commonly found in floodplains, slopes, bluffs, ravines, sometimes roadsides and fence rows.	No	Habitat not present on Subject Property or in adjacent lands.
Trichophorum planifolium	Few-flowered Club-rush/ Bashful Bulrush	Yes – Habitat Regulation	Endangered	S1	MNRF	Steep slopes of oak forests.	No	Habitat not present on Subject Property or in adjacent lands.
Pycnanthemum incanum	Hoary Mountain Mint	Yes – General Habitat Protectio	Endangered	S1	MNRF	Dry, Oak woodland, on steep slopes that are warmer than normal. Open areas wit ample sunlight, in habitats with depend on fire for maintenance.	No	Habitat not present on Subject Property or in adjacent lands.
Morus rubra	Red Mulberry	Yes – General Habitat Protectio	Endangered	S2	MNRF	Moist, Forested valleys and floodplains. Sandy and limestone-based loamy soils. Prefers sun from breaks in canopy.	No	Habitat not present on Subject Property or in adjacent lands.
Chimaphila maculata	Spotted Wintergreen	Yes- General Habitat Protectio	Endangered	S2	MNRF	Dry oak-pine woodlands with sandy soils	No	Habitat not present on Subject Property or in adjacent lands.

Species		Habitat Protection Type	Species' Status in Ontario[1]	S-Rank[2]	Information Source[3]	Habitat Requirements[3]	Potential Habitat	Rationale
Scientific Name	**Common Name**							
Eurybia divaricata	White Wood Aster	Yes – General Habitat Protectio	Threatened	S2S3	MNRF	Open, dry deciduous forests dominated by Sugar Maple and Beech. Found mixed in with other asters.	No	Habitat not present on Subject Property or in adjacent lands.
Colinus virginianus	Northern Bobwhite	Yes - General Habitat Protection.	Endangered	S1	MNRF	Savannahs, grasslands, abandoned farm fields, along brushy fencerows and other similar sites. In winter, can forage in sma forest areas.	No	Habitat not present on Subject Property or in adjacent lands.
Icteria virens	Yellow-breasted Chat	Yes - General Habitat Protection.	Endangered	S2B	MNRF	Thickets and scrub, especially where clearings have become overgrown	No	Habitat not present on Subject Property or in adjacent lands.
Empidonax virescens	Acadian Flycatcher	Yes - General Habitat Protection.	Endangered	S2, S3B	MNRF	Mature, shady forests with ravines, or in forested swamps with lots of maple and beech trees.	No	Habitat not present on Subject Property or in adjacent lands.
Tyto alba	Barn Owl	Yes – Habitat Regulation.	Endangered	S1	MNRF	Lives year round at nest site utilizing barns, abandoned buildings, cliff faces, natural cavities. Hunts over grasslands.	No	Habitat not present on Subject Property or in adjacent lands.
Hirundo rusica	Barn Swallow	Yes - General Habitat Protection.	Threatened	S4B	MNRF	Human-made structure, bridges, barns, culverts.	No	Nesting habitat not present on Subject Propert or in adjacent lands. Foraging visitants observed on property.
Dolichonyx oryzivorus	Bobolink	Yes - General Habitat Protection.	Threatened	S4B	MNRF	Tallgrass prairie, open meadows, hayfields, open grass fields.	No	Habitat not present on Subject Property or in adjacent lands.
Setophaga cerulea	Cerulean Warbler	Yes - General Habitat Protection.	Threatened	S3B	MNRF	Mature, deciduous forests with large, tall trees and an open under storey.	No	Habitat not present on Subject Property or in adjacent lands.
Chaetura pelagica	Chimney Swift	Yes - General Habitat Protection.	Threatened	S4B,S4N	MNRF	Urban settlements where they nest and roost in chimneys or other manmade structures. Previously, cave walls and hollow trees or tree cavities.	No	Habitat not present on Subject Property or in adjacent lands.

Species		Habitat Protection Type	Species' Status in Ontario[1]	S-Rank[2]	Information Source[3]	Habitat Requirements[3]	Potential Habitat	Rationale
Scientific Name	**Common Name**							
Sturnella magna	Eastern Meadowlark	Yes - General Habitat Protection.	Threatened	S4B	MNRF	Moderately tall grasslands, such as pastures and hayfields. Also, other croplands, orchards, shrubby overgrown fields, roadsides, airports and other oper areas.	No	Habitat not present on Subject Property or in adjacent lands.
Antrostomus vociferus	Eastern Whip-poor-will	Yes - General Habitat Protection.	Threatened	S4B	MNRF	Mix of open and forested areas, such as savannahs, open woodlands or openings in mature deciduous and coniferous forests.	No	Habitat not present on Subject Property or in adjacent lands.
Ammodramus henslowii	Henslow's Sparrow	Yes - General Habitat Protection.	Endangered	SHB	MNRF	Abandoned farm fields, pastures and we meadows. Prefers tall, dense grasslands with little shrub and tree cover.	No	Habitat not present on Subject Property or in adjacent lands.
Rallus elegans	King Rail	Yes - General Habitat Protection.	Endangered	S2B	MNRF	Densely vegetated freshwater marshes with open shallow water that merges wit shrubby areas. Prefer larger, coastal wetlands.	No	Habitat not present on Subject Property or in adjacent lands.
Ixobrychus exilis	Least Bittern	Yes - General Habitat Protection.	Threatened	S4B	MNRF	Wetland habitats, strongly prefers cattail marshes with a mix of open pools and channels.	No	Habitat not present on Subject Property or in adjacent lands.
Parkesia motacilla	Louisiana Waterthrush	Yes - General Habitat Protection.	Threatened	S3B	MNRF	Steep, forested ravines with fast-flowing streams. Prefers cold and clear streams, but less frequently found in heavily wooded, deciduous swamps with large pools of open water.	No	Habitat not present on Subject Property or in adjacent lands.
Protonotaria citrea	Prothonotary Warbler	Yes - General Habitat Protection.	Endangered	S1B	MNRF	Flooded woodlands or swamps. Silver maple, ash, yellow birch with holes used for nesting.	No	Habitat not present on Subject Property or in adjacent lands.
Ambystoma jeffersonianum	Jefferson Salamander	Yes – Habitat Regulation	Endangered	S2	MNRF	Moist woodlands with loose soil and vernal pooling.	No	Habitat not present on Subject Property or in adjacent lands.

Species		Habitat Protection Type	Species' Status in Ontario[1]	S-Rank[2]	Information Source[3]	Habitat Requirements[3]	Potential Habitat	Rationale
Scientific Name	**Common Name**							
Emydoidea blandingii	Blanding's Turtle	Yes, General Habitat Protectio	Threatened	S3	MNRF	Shallow water in large wetlands and shallow lakes with abundant aquatic plar life.	No	Habitat not present on Subject Property or in adjacent lands.
Heterodon platirhinos	Eastern Hog-nosed Snake	Yes, General Habitat Protectio	Threatened	S3	MNRF	Sandy, well-drained habitats such as beaches and dry forests.	No	Habitat not present on Subject Property or in adjacent lands.
Apalone spinifera	Spiny Softshell	Yes, General Habitat Protectio	Endangered	S2	MNRF	Rivers and lakes, creeks and ditches, highly aquatic. Deep pools and basking sites. Open Sand or gravel for nesting.	No	Habitat not present on Subject Property or in adjacent lands.
Taxidea taxus jacksoni	American Badger	Yes, General Habitat Protectio	Endangered	S2	MNRF	Tall grass prairie, sand barrens and farmland.	No	Habitat not present on Subject Property or in adjacent lands.
Myotis lucifugus	Little Brown Myotis	Yes, General Habitat Protectio	Endangered	S4	MNRF	Roost in trees and buildings.	No	No snags <25 cm DBH identified within proximity to the proposed development.
Myotis septentrionalis	Northern Myotis	Yes, General Habitat Protectio	Endangered	S3	MNRF	Boreal forests.	No	Habitat not present on Subject Property or in adjacent lands.

Appendix D

Aizmuth EIS Agency Comment Response

Comment #	LSRCA Comments per Azimuth EIS dated May 26, 2009	Azimuth Comment Response dated	GRA
1	The breeding bird survey must be conducted in accordance with the Ontario Breeding Bird Atlas Protocol (2001). Although 2 surveys were conducted, because they were done 1 day apart, rather than 15 days apart per the protocol, the results in essence are comparable to a one-day survey. Ontario Breeding Bird Atlas Protocol calls for a minimum of 2 visits to the site, at least 15 days parts. Additionally, although many dead or dying trees were identified, there was no mention of cavity trees or stick nests in the EIS. This should be addressed in your next submission.	The breeding bird studies were done one month apart no one apart. Please review Table 2 in our 2008 Addendum Report (dated December 2009) for this property. During our long involvement with this property, Azimuth staff have not observed any cavity or stick nests on site.	No comment.
2	The Ecological Land Classification (ELC) conducted for the property does not reflect existing conditions, nor does reflect the vegetation types on the most current 2007 orthophotos (e.g. the western CUM1-1) is clearly now thicket if not woodland). The mapping should be amended to reflect the most current circumstance.	In our EIS report and Addendum report, all mapped forested and woodland areas make up approximately 2.76 hr of the property. At your request, we obtained the 2007 aerial photography and adjusted our mapping to reflect the site-specific conditions and newer aerial photography (please see attached Figure). By our calculations and site-specific knowledge of the site, the forested and woodland habitat of the property equal approximately 2.88 ha, taking into the account the minor amount of succession that has occurred in the last 5 years. Although Trembling Aspen (*Populus tremuloides*) is colonizing the site along the south side, no poplar species are listed on the Town of Newmarket's Plant List of acceptable tree species. Similarly, Manitoba Maple (*Acer negundo*) is colonizing the open area of the site is considered a "Prohibited Plant Species" on the Town's Plan	Since the time the Azimuth EIS vegetation data was collected, the site has colonized further to support a woodland, forest and meadow community per the ELC criteria for these communities.

Comment #	LSRCA Comments per Azimuth EIS dated May 26, 2009	Azimuth Comment Response dated	GRA
		List, Exotic and Invasive species including the Tree Inventory, of Significant Size (>30 cm dbh), are 9 Manitoba Maple, 1 Chinese Elm, 2 Colorado Blue Spruce, and 2 Scots Pine (15 trees in total).	
3	Give this succession, the treed area covers >4 ha and is therefore considered an urban woodland with social significance (LSRCA NHS). To meet the Town of Newmarket's need to at least retain its existing, relatively low, forest cover as well as have regard for LSRCA's recognition of an urban woodland regardless of native ecological makeup, the EIS should compensate for the loss of at least 32 of the healthy trees that may be affected by the proposed development. The ratio of replacement can follow the "Aggregate Inch Replacement" of replacing diameter, or the LSRCA's general policy of at 2:1 (minimum 60 m caliper), or another reasonable method to compensate for the loss of the tree's function. A tree compensation plan will be required that will add to the health, size, critical function zone of the amphibian wintering habitat and social function of the retained area.	By our calculations and site specific knowledge of the site, the forested and woodland habitats of the property equal approximately 2.88 ha, taking in to account the minor amount of succession that has occurred in the last 5 years. Understand the woodland/forested habitat continue to the west of the property on other lands not owned by the applicant, that is approximately 0.6 ha in size, our calculations conclude that the forested/woodland habitat cover an area of approximately 3.48 ha (see attached Figure). Therefore, we do no agree that forested/woodland habitat within the property on the adjacent lands meet the criteria of being "an urban woodland of social significance". The 32 'healthy' trees mentioned in your letter, dated May 26/09, includes trees in the Tree Inventory that were in good and fair condition, base don a visual assessment. According to the Town of Newmarket Tree Preservation, Protection, Replacement and Enhancement Policy (2006), all trees are to be preserved, protect or replace if they meet ALL of the following criteria: • Significant (>30 cm DBH) • In good condition • Located within 4.5 m of existing property line	GRA is in agreement with Azimuth's comment response that the feature does not meet the criteria as an urban woodland with social significant per the LSRCA criteria. The feature does not meet the size threshold to qualify as an urban woodland per LSRCA criteria. Refer to GRA's compensation plan, section 11.3 for details on compensation of the removal of trees on the property.

Comment #	LSRCA Comments per Azimuth EIS dated May 26, 2009	Azimuth Comment Response dated	GRA
		Native, non-exotic, and non-invasive species or identified on the Town's most current Recommended Plant List. Above the top of bank area, there are only 4 trees of significant size (>30cm dbh) and in good condition: 2 Colorado Blue Spruce, 1 Black Walnut, and 1 Scots Pine. Although only the 1 Black Walnut truly meet she species criteria, we recommend replacing the 4 trees, following the "Aggregate Inch Replacement" method. The total requirement, based on the Towns Tree Preservation, Protection, Replacement and Enhancement Policy is 190 cm of diameter (sum of diameters of the 4 trees to be removed). The tree replacement will total 190 cm of diameter, for example 23 trees of 8 cm diameter + 1 tree of 6 cm diameter, or other combinations of caliper to compensate of the total diameter removed. This meets the requirements so the policy. Another Scots Pine was including in the Tree Inventory is locate below top of bank and therefore excluded from this discussion since in our opinion will remain undisturbed. We suggest that the species of the tree replacements be prepare din coordination with the site plan. This will provide the opportunity to enhance the site with suitable species and sizes of trees. New trees could be planted on the slope of the top of bank or within top of bank buffer on the open tablelands or in a combination of areas. For this application potential survival rate, and also logistics of planting, we suggest that small size trees are more appropriate than large diameter trees.	

Comment #	LSRCA Comments per Azimuth EIS dated May 26, 2009	Azimuth Comment Response dated	GRA
		In our opinion. Existing trees below and/or near top of bank and on adjacent properties, will remain undisturbed by the proposed development of this property. Additional buffer for protection of roots in not required.	
4	Please include a description of the MAM2-2 as it has not been included in Table 1 (pg 9).	Table updated in Addendum.	No comment.

Appendix E

Compensation Plan Drawing

Buffer zone

Proposed bioretention swale

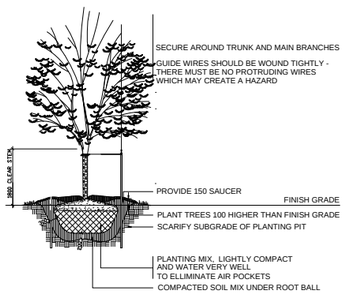
3 m road widening

Trembling Aspen (Populus tremuloides) 94

White Cedar (Thuja occidentalis) 293

White Birch (Betula papyifera) 40

Understorey Enhancement Area (1.4 ha)
- Sugar Maple (Acer saccharum) 80
- Black Walnut (Juglans nigra) 70
- White Oak (Quercus rubra) 85
- American Beech(Fagus grandifolia) 95
- Eastern Hemlock (Tsuga canadensis) 80
- White Pine (Pinus strobus) 95



NOTE:

1. WOODEN STAKES TO BE REMOVED AT END OF WARRANTY PERIOD.
2. PLANTING MIX SHALL CONSIST OF 6 PARTS SANDY LOAM, 2 PARTS WELL-ROTTED MANURE, TO 1 PART PEAT MOSS.
3. REMOVE TREE WRAP PRIOR TO INSPECTION BY CITY
4. CALIPER TO BE MEASURED 305 ABOVE FINSH GRADE.

Potted Tree Planting (N.T.S.)

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55 EAGLE STREET
MILFORD DEVELOPMENTS

Scale: N.T.S.	Drawn By: ITR	Figure No. E1
Date Issued: 25-09-2020	Checked By: ITR	