Revised Environmental Conditions Report
(Natural Heritage Evaluation)

Prepared for

Shining Estates Collection Inc.

C/O Bazil Developments
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Project No. P2018-351

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1. Introduction

GeoProcess Research Associates Inc. (GRA) was retained by Shining Hill Estates Collection Inc. to complete an Environmental Conditions Report to inform the requested Official Plan Amendment that is detailed in the Planning Opinion Report prepared by Malone Given Parsons Ltd. (June 2019). The requested Official Plan Amendment will seek to remove the *Environmental Protection Oak Ridges Moraine* designation from the lands that are currently used as agricultural lands to permit a wide range of uses including residential, neighborhood commercial, institutional as well as parks and open spaces and a Natural Heritage System. The requested Official Plan amendment includes the protection of all key natural heritage features and key hydrological features and vegetation protection zones for these features.

This report includes the characterization of the natural heritage features, including wildlife studies, as well as the delineation of the development limit. The development limit on this site is represented by the dripline or edge of wetland through most of this site. Mapping showing the watercourses are also provided.

1.1. Study Area

The Subject Property is a part of the larger Shining Hill Estates Collection Inc. (Shining Hill) which is bounded to the south by St. John's Sideroad, to the west by Bathurst Street, to the east by Yonge Street and to the north by the Coventry Hills subdivision. The Shining Hill lands straddle both Aurora and Newmarket, however, this report focuses only on Phase 3A of development which comprises 84 ha of land entirely within Newmarket.

2. Methodology

2.1. Background Studies

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

- Provincial Policy Statement (2014)
- York Region Official Plan (2010)
- Town of Newmarket Official Plan (2010)
- Lake Simcoe Protection Plan (2009)
- Oak Ridges Moraine Conservation Plan (2017)
- Greenbelt Plan (2017)
- Endangered Species Act (2007) and Ontario Regulation 242/08
- East Holland Subwatershed Plan (2010)
- Natural Heritage Information Center Database information (current)
- Ontario Breeding Bird, Mammal and Herpetofaunal Atlas' (current)

2.2. Field Work Completed by GRA

GeoProcess Research Associates conducted field studies to characterize and inventory the natural heritage features and wildlife activity of the Subject Property and surrounding landscape. A summary of the field work details is provided below in **Table 1.**

Table 1 Field Work Summary

Study	Date	Staff
Dripline Assessment	April 25, 2019	Ian Roul
Vegetation Assessments	March 19, April 25, July 4	Ian Roul, Jenn Reader, Ben Angel
General Wildlife Surveys	May 31, June 7 and June 15, 2019	Don Graham
Breeding Bird Surveys	May 31, June 7 and June 15, 2019	Don Graham
General Aquatic Assessment	July 6, 2019	Ian Roul
Bobolink and Meadowlark specific surveys	May 31, June 7 and June 15, 2019	Don Graham

2.2.1. Vegetation Assessment

General vegetation assessments were conducted on March 19 and April, 25. A single season inventory of floristic species was completed on July 4, 2019. Species nomenclature and ranking is based on the Ministry of Natural Resources and Forestry Natural Heritage Information Centre database.

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.

2.2.2. Breeding Bird Surveys

Breeding bird surveys were undertaken over 15 hours of monitoring time by a breeding bird expert under appropriate weather conditions (See **Table 2**) between May 31st and June 15, 2017. The methodology of the Ontario Breeding Bird Atlas was adopted with slight modifications. Point Count surveys were conducted at ten survey stations for 20 minutes each to ensure a full survey of the Study Area and the adjacent features throughout the breeding season.

Table 2 Breeding Bird Survey Summary

Visit Date	Visit Time	Cloud Cover	Wind Speed (Beaufort Scale)
May 31	5:50-10:50 am	0-5%	0-1
June 7	5:45 – 10:45 am	0%	1-2
June 15	5:45 – 10:45 am	5-30%	1-2

2.2.3. Species at Risk Screening and Assessment

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

2.2.4. Significant Wildlife Habitat Screening and 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. Potential SWH identified was assessed for during the complementary field studies.

2.3. Provincial Policy Statement

The Provincial Policy Statement (PPS), 2014 is administered under section 3 of the Planning Act. It became effective April 30, 2014 and replaces the 2005 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 prescribes the building of strong communities, the wise use and management of resources, and the protection of public health and safety. Within the updated PPS the definition of a Natural Heritage System has been expanded and now reads, "*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*". This expanded definition includes linkages, providing greater consideration and further clarification on the components and functions of natural heritage features.

The PPS defines eight natural heritage features and provides planning polices for each:

- Significant wetlands;
- Coastal wetlands;
- Significant habitat of Endangered and Threatened species;
- Fish habitat;
- Significant woodlands;
- Significant valleylands;
- Significant Areas of Natural and Scientific Interest (ANSIs); and,
- Significant Wildlife Habitat.

Policies in Section 2.1 of the PPS deal with development and site alteration and areas where they shall not be permitted. These policies are included below in **Table 3** Applicable Policies of the Provincial Policy Statement.

Table 3 Applicable Policies of the Provincial Policy Statement

Policy Number	Policy
Policy 2.1.1	Natural features and areas shall be protected for the long term.
Policy 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.*
Policy 2.1.3	*Natural heritage systems* shall be identified in Ecoregions 6E & 7E[1], recognizing that *natural heritage systems* will vary in size and form in *settlement areas, rural areas*, and *prime agricultural areas*.
Policy 2.1.4	Development and site alteration shall not be permitted in: a) *significant wetlands* in Ecoregions 5E, 6E and 7E[1]; and, b) *significant coastal wetlands.*
Policy 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)[1]; c) *significant valleylands in Ecoregions 6E and 7E* (excluding islands in Lake Huron and St. Marys River)[1]; d) *significant wildlife habitat*; e) *significant areas of natural and scientific interest*; and f) *coastal wetlands* in Ecoregions 5E, 6E and 7E[1] 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*.
Policy 2.1.6	*Development* and *site alteration* shall not be permitted in *fish habitat* expect in accordance with *provincial and federal requirements.*
Policy 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*.

Policy 2.1.8	*Development* and *site alteration* shall not be permitted on *adjacent lands* to the *natural heritage features* and areas identified in policies 2.14, 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*.
Policy 3.1.1	*Development shall generally be directed to areas outside of:* *b) hazardous lands adjacent to river, stream and small inland lake systems which are impacted by flooding hazards and/or erosion hazards.*

2.4. Greenbelt Act

The Greenbelt Plan was originally enacted in 2005 and has since been updated (2017). It provides policies to protect the agricultural land base and the associated ecological and hydrological features and functions within the Greater Golden Horseshoe. Lands included in the Greenbelt Area are defined by O. Reg 59/05 and those Greenbelt lands which are contained within the Oak Ridges Moraine Area are to follow the policies of the Oak Ridges Moraine Conservation Act, 2001 under O. Reg 140/02. The western portion of the Subject Property is contained within Greenbelt lands located within the Oak Ridges Moraine.

2.5. Oak Ridges Moraine Conservation Act

In 2001 the Oak Ridges Moraine Conservation Act was passed to direct the protection, restoration and enhancement of Ontario's most significant landform, the Oak Ridges Moraine, including it's ecological and hydrological features and functions. It is intended to control the permitted land and resource uses within its' boundaries and may set out land use designations. The Oak Ridges Moraine Conservation Plan [ORMCP] (O. Reg. 140/02), updated 2017, prescribes the land use designation, the policies associated with protecting the ecological and hydrological integrity of the area, and the specific land use policies.

The Subject Property is contained within the Oaks Ridges Moraine boundary, within the Settlement Area designation. As per Part Two, Section 18 of the ORMCP, urban growth is to be contained and focused within the designated Settlement Areas. Key natural heritage and key hydrologic features are to be enhanced and where possible improved or restored (S.18(2)(a)). Accommodation of a connected trail system is an objective of Settlement Areas (S.18(2)(b)).

Part Three of the Oak Ridges Moraine Plan 2017, entitled Protecting Ecological and Hydrological Integrity, provides the policies applicable to the support of connectivity between ecological features, the establishment of minimum areas of influence and minimum vegetation protection zones (VPZs), and provides descriptions and procedures for identifying and preserving key natural heritage features through natural heritage evaluations.

2.6. 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 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 contained within the boundaries of the Oak Ridges Moraine Conservation Plan Area and therefore policies relating to key hydrological features and natural heritage features are covered by the ORMCP.

2.7. Lake Simcoe Region Conservation Authority

The Lake Simcoe Region Conservation Authority (LSRCA) is responsible for O. Reg 179/06 – Development, Interference with Wetlands and Alterations to Shorelines and Watercourses, a regulation under the Conservation Authorities Act, 1990. This regulation prohibits development within the Regulation Limits set by the LSRCA applied to shorelines, rivers, stream valleys, hazardous lands, wetlands or areas adjacent to or within interference range of a wetland (O. Reg 179/06, s. 2). The Subject Property contains a series of watercourses/drainage features regulated by the LSCRA. Permission may be granted to develop (O. Reg. 179/06, s. 3 (1-2)) in the regulated areas or alter a channel (O. Reg. 179/06, s. 6 (1-2)) with or without conditions, by obtaining a permit from LSRCA.

2.8. Region of York Region Official Plan

The York Region Official Plan (YROP) 2010 provides policies and guidance for the planning and development within York Region. The YROP was adopted by Council in 2009 and was approved by the Ontario Minister of Municipal Affairs and Housing in 2010. Since approval (OMB File No. PL101128), multiple appeals have been resolved and some remain active (OMB File No's. PL101233, PL101237, PL101238).

As per Map 1: Regional Structure (April 2016) the Subject Property is classified as both Urban Area and Rural Area with a Regional Greenlands System overlay that relates to the Town of Newmarket EPA-ORM designation. A detailed description of how the Regional Official Plan applies to this site is provided in the Malone Given Parsons Planning Opinion Report (June 2019).

2.9. Town of Newmarket Official Plan

The majority of the Subject Property are currently designated as EPA-ORM within the Town of Newmarket Official Plan. The proposed Official Plan Amendment would re-designate the agricultural lands as Emerging Residential while creating the natural heritage system.

2.10. 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 MNRF, 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. Existing Conditions

3.1. Physiography and Geology

The Subject Property is located in the headwaters of the Holland River East Branch, at the edge of the Oak Ridges Moraine boundary. The East Holland River subwatershed runs approximately 27 Km in a northwest direction through one of the most populated and urbanized regions of the Lake Simcoe basin (LSRCA, 2010). At the subwatershed's greatest height on the top of the Oak Ridges Moraine, elevations reach approximately 400 MASL and consist of hummocky, irregular terrain and surficial sand and gravel deposits (LSRCA, 2010). The Subject Property is located on the border of the Oak Ridge Moraine and the Schomberg Clay Plain physiographic regions (LSRCA, 2010). This area is also mapped as the Kame Moraine and Clay Plain (Chapman and Putnam, 1984). To the west of the site is the edge of the elevated Moraine with evident topographical irregularity. To the east of the site the Schomberg Clay Plain feature begins, with gentle rolling relief and composed of low-lying deposits of fine-grained sediments lain over irregular till plain (LSRCA, 2010).

The Subject Property is located in an area of complex geology influenced by various geological events. The general surrounding bedrock is poorly fossiliferous, non-calcareous shale up to 60 m thick, but the site is located adjacent to the Laurentian Channel, a relatively deep ancient drainage system connecting to the two Lakes (LSRCA, 2010). This trench is accompanied by a much deeper Quaternary sediment thickness, up to 250 m plus, which corresponds to the hummocky topography features (LSRCA, 2010). Surficial geology on Subject Property consists of Glacial Lake (silt and clay) and Newmarket Till (sandy silt to sand till) adjacent to the west (LSRCA, 2010).

3.2. Natural Heritage System: Features and Connectivity

3.2.1. Key Hydrological Feature- Watercourses

There are four watercourses found on the property and are identified on Figure X as W-1, W-2, W-3 and W-4, and described below.

W-1 is a permanent watercourse which flows in a west to east direction across the northern portion of the property and is located within a well forested valley with step sided slopes. The substrate is primarily fine sediments with a wetted width (July) of 1-2 m and a stream depth ranging between 15-30 cm. The top of bank width is approximately 3-5 m. W-1 has shallow undercutting of the banks and woody debris throughout. The distance from the dripline of the forest ranges between 15 m and 115 m, with most of the reach approximately 50 m from the dripline.

W-2 is also a permanent watercourse which flows north through the white cedar mixed hardwood forest] before joining W-1 midway through the property. The substrate in W-2 is primarily fine sediments with a wetted width (July) of 1-1.5 m and a stream depth ranging between 10-25 cm. The top of bank width is approximately 2-3 m. W-2 has shallow undercutting of the banks which are steeper than W-1, and woody debris throughout. There is significant riparian vegetation (greater than 50 m on either side) through most of the length of W-2 however in one location W-2 flows through a farm crossing (corrugated steel culvert) in an area that is lacking riparian vegetation. Upgrading this crossing is one of the areas of restoration opportunity.

W-3 is a headwater drainage feature that conveys intermittent flow in a west to east direction across the middle of the property. This watercourse is located within a narrow riparian corridor that ranges between 5 m and 25 m. During the July visit, no flow was present, however there was small areas of ponding. This watercourse is bisected by a farm crossing that lacks riparian vegetation. Both the crossing and the potential buffers to this feature represent opportunities to enhance this watercourse.

W-4 a headwater drainage feature that conveys intermittent flow in a northeast direction and joins with W-3. Similar to W-3, this watercourse is located within a narrow band of riparian vegetation that ranges between 5 m and 20 m. Replanting the proposed buffers on this watercourse represent an important restoration opportunity.

The watercourses located on the property are headwater tributaries of Tannery Creek in the East Holland River watershed. Good information is available regarding the East Holland River in the East Holland River Subwatershed Plan and figures from this plan are excerpted in Appendix A. The watercourses on the Subject Propert are located in an area where fish surveys were completed as part of the East Holland River Subwatershed Plan. Results from the fish surveys found coldwater species present within the Subject Property (Figure 6-1, Appendix A). As a result, we have considered that the permanently flowing watercourses W-1 and W-2 to be coldwater systems. Benthic macroinvertebrates were also surveyed within the area of the Subject Property, with results identified as 'Inconclusive' as they relate to evidence of impairment of W-1 and W-2 (Figure 6-3, Appendix A). The Subwatershed Plan did not have identified barriers to fish passage nor were barriers on W-1 and W-2 identified during the field work for this study (Figure 6-4, Appendix A). The Subwatershed Plan identifies two areas of bank hardening and channelization of W-1 through the property (Figure 6-6, Appendix A) as well, the Subwatershed Plan identifies several areas of insufficient riparian vegetation (Figure 6-7, Appendix A).

3.3. Vegetation

3.3.1. Vegetation Communities

3.3.1.1. Ecological Land Classification

Based on the Ecological Land Classification of the site, the Subject Property includes a larger forest area made up of eight different ELC forest types and one wetland type. The forest types include white pine coniferous forest; white pine, sugar maple and cedar mixed forests; and, sugar maple and willow deciduous forests, as well as a willow swamp. Detailed descriptions of the ELC communities is provided below in Table 4.

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Table 4: Description of Terrestrial ELC Communities

ELC Code	Classification	Vegetation	Comments
Coniferous Forest Community Series			
FOCM3-2	Fresh-Moist Hemlock – White Pine Coniferous Forest Type	This includes a small polygon on the western limit composed of Eastern Hemlock (*Tsuga canadensis*) with White Pine (*Pinus strobus*) along a portion of the watercourse. Additional species include White Elm (*Ulmus americana*), Green Ash (*Fraxinus pennsylvanica*), Red Maple (Acer rubrum), Yellow Birch (*Betula alleghaniensis*), Black Cherry (*Prunus serotina*) and Sugar Maple (*Acer saccharum ssp. saccharum*). The understory exhibits low density and is composed primarily of Alternate-leaved Dogwood (*Cornus alternifolia*) and Highbush Cranberry (*Viburnum trilobum*). Groundlayer includes concentrated areas of Ostrich Fern (*Matteuccia struthiopteris*), Senstive Fern (*Onoclea sensibilis*), Blue Cohosh (*Caulophyllum giganteum*) and Fowl Manna Grass (*Glyceria striata*). Additional groundlayer species identified within this area include Red and White Trillium (*Trillium erectum* and *grandifolia*, respectively), Spinulose Wood Fern (*Dryopteris carthusiana*), Toothwort (*Cardamine diphylla*), Enchanter's Nightshade (Circea lutetiana), Bloodroot (*Sanguinaria canadensis*), Canada Mayflower (*Maianthemum canadense*), Starry Solomon's Seal (*Maianthemum stellatum*), Rosy Sedge (*Carex rosea*) and Bittersweet Nightshade (*Solanum dulcamara*).	

Mixed Forest Community Series			
FOMM2-3	Dry-Fresh White Pine-Hardwood Mixed Forest Type	Located along the northwest limit, this area includes a mature White Pine forest with hardwood associate species. Associate species include Sugar Maple, Eastern Hemlock, Scots Pine (*Pinus sylvestris*), White Elm, Black Cherry, White Ash (*Fraxinus americana*), White Birch (*Betula papyrifera*) and Ironwood (*Ostrya virginiania*). The understory ranges from low density to pockets of Common Buckthorn (*Rhamnus cathartica*), Choke Cherry (Prunus virginiana ssp. virginiana) and Alternate-leaved Dogwood. Common groundlayer species include Enchanter's Nightshade, Garlic Mustard (*Alliaria petiolata*), Avens (*Geum sp.*), with small pockets of Ostrich Fern.	Disturbance was noted within this community along the northern limit in the form of dumping of debris, spread of horticultural and invasive species, due to impacts from the neighbouring residential community.

FOMM6-1	Fresh-Moist Sugar Maple-Hemlock Mixed Forest	This community includes a mature north facing valley slope dominated by Sugar Maple with Eastern Hemlock. Disturbance was noted along the edge adjacent the existing agricultural lands in the form of invasive species and dumping of debris. Associate species include Black Cherry, American Beech (*Fagus grandifolia*), Red Oak (*Quercus rubra*), Ironwood, American Basswood (*Tilia americana*), White Elm, White Pine, Bitternut and Shagbark Hickory (*Carya cordiformis* and *ovata spp. ovata*), White and Green Ash and Ironwood. Understory and groundlayer species include Alternate-leaved Dogwood, Common Buckthorn, Choke cherry, Riverbank Grape (*Vitis riparia*) and Currants (*Ribes sp.*). Groundlayer species include Garlic Mustard, Enchanter's Nightshade, Jack-in-the-pulpit (*Arisaema triphyllum*), Red and White Trillium, Bloodroot, Canada Mayflower, Starry Solomon's Seal, Red Baneberry (*Actaea rubra*), Spinulose Wood Fern, Meadow Rue (*Thalictrum dioicum*), Christmas Fern (*Polystichum acrostichoides*) and Sensitive Fern.	Butternut (*Juglans cinerea*), a federally and provincially Endangered species, was noted throughout this feature along the valley slope. Butternut was not identified along the forest edge adjacent the agriculture lands.
FOMM7-2	Fresh-Moist White Cedar-Hardwood Mixed Forest Type	This community was identified within two areas of the property, along the southern portion of the east/west watercourse and along a small segment south of where the two watercourses converge. Dominated by White Cedar (*Thuja occidentalis*) with Crack Willow (*Salix fragilis*), White Elm, Red Maple and Green Ash. Additional species include Bebb's and Pussy Willow (*Salix bebbiana* and *discolor*, respectively), Red-osier Dogwood (*Cornus stolonifera*) and Nannyberry (*Viburnum lentago*) = along edges.	

Deciduous Forest Community Series			
FODM6-5	Fresh-Moist Sugar Maple-Hardwood Deciduous Forest Type	This includes a small mature polygon along the northwestern limit on a north and east facing valley slope. Dominated by Sugar Maple with American Beech, White Ash, Green Ash, Red Maple American Basswood, Red Oak, Shagbark and Bitternut Hickory, Black Cherry, Eastern Hemlock and Ironwood. Understory species include Alternate-leaved Dogwood, Common Buckthorn, Purple-flowering Raspberry (*Rubus odoratum*), Choke Cherry and Red Elderberry (*Sambucus racemosa*). Ground layer is similar in composition to FOMM6-1 but with a higher density and larger occurrence of Garlic Mustard. The limits of this community adjacent Bathurst Street and the agricultural lands are notably disturbed with a concentration of young Black Locust (*Robinia psuedoacacia*), Manitoba Maple, White Ash and Common Buckthorn. Piles of debris are noted within this area. Periwinkle (*Vinca minor*) and Garlic Mustard are dominant in the ground layer.	Butternut (*Juglans cinerea*), a federally and provincially Endangered species, was noted throughout this feature along the valley slope. Butternut was not identified along the forest edge adjacent the agriculture lands.

FODM7	Fresh-Moist Lowland Deciduous Forest Type	This community is associated with the watercourses located on the property. Composed of a mix of deciduous species including Trembling Aspen (Populus tremuloides), American Basswood, Sugar Maple, Ironwood, White Pine, White Birch, Manitoba Maple, Crack Willow, Green Ash, White Elm, Tamarack (*Larix laricina*) and White Cedar. Understory species include Common Buckthorn, Red-osier Dogwood, Nannyberry, small pockets of Staghorn Sumac (*Rhus typhina*), Alternate-leaved Dogwood, Highbush Cranberry and pockets of Red Raspberry. Groundlayer species include Jack-in-the-pulpit, Mayapple, Reed-canary Grass, pockets of Common Reed (*Phragmites australis*), Enchanter's Nightshade, Zig-Zag Goldenrod, Garlic Mustard, Blue cohosh and Bloodroot.	Higher levels of disturbance within this community due the size and proximity to existing agricultural lands.
FODM7-2	Fresh-Moist Willow Lowland Deciduous Forest Type	Dominated by mature Crack Willow along the watercourses. Additional species include White Elm, Manitoba Maple, Bur Oak (*Quercus macrocarpa*), Green Ash, and Balsam Poplar (Populus balsamifera). Understory species include Pussy Willow, Peachleaf Willow (*Salix cf. amygdaloides*?), Red-osier and Round leaved Dogwood (*Cornus rugosa*) and pockets of Common Buckthorn. Groundlayer species include Reed-canary Grass (*Phalaris arundinacea*), Meadow Horsetail (*Equisetum pratense),* Enchanter's Nightshade, Bittersweet Nightshade, Spotted Touch-me-not (Impatiens capensis) and pockets of Sensitive Fern.	This community transitions along the northern half with the SWDM4-1 community.

FODM4	Dry-Fresh Upland Deciduous Forest Type	Located adjacent to the pond along a ravine slope, this forest community includes young to mid-age Silver Maple, White Birch, Green Ash (*Fraxinus pennsylvanica*), Trembling Aspen (*Populus tremuloides*), White Elm (*Ulmus americana*), Black Cherry (*Prunus serotina*), Manitoba Maple, American Basswood (*Tilia americana*), White Pine (*Pinus strobus*), and a small percentage of Crack Willow primarily near the edge the pond. Understory species include Common Buckthorn, Red Raspberry (*Rubus idaeus ssp. melanolasius*), Choke Cherry (*Prunus virginiana*), Tatarian Honeysuckle (*Lonicera tatarica*) and Wild Black Currant (*Ribes americanum*). Common species within the herbaceous layer include Spotted Touch-me-not (*Impatiens capensis*), Reed canary Grass (*Phalaris arundinacea*), Fowl Manna Grass (*Glyceria striata*), Canada Goldenrod (*Solidago canadensis)* and Enchanter's Nightshade (*Circaea lutetiana ssp. canadensis*).	The community has been fragmented by existing recreational use, including an informal trail along the perimeter of the pond through the forest and dumping of debris within the ravine. The non-native, invasive species, Common Buckthorn, is dominant within the understory and herbaceous layer.

Deciduous Swamp			
SWDM4-1	Willow Mineral Deciduous Swamp Type	Similar in composition to the FODM7-2 community, this community includes a larger extent of meadow marsh, and in some areas, organic marsh, within the floodplain along the watercourse. Dominated by Crack Willow with occurrences of White Elm and Green Ash. Understory species include regenerating Crack Willow, Pussy Willow, Bebb's Willow, Red-osier Dogwood and Nannyberry. The groundlayer is very dense and composed of Sensitive Fern, Spotted Touch-me-not, Meadow Horsetail, Reed-canary Grass, Spotted Joe-pye-weed (*Eutrochium maculatum*), Boneset (*Eupatorium perfoliatum*), Marsh Bedstraw (*Galium palustre*), Bittersweet Nightshade, Black Bulrush (*Scirpus atrovirens*), Bladder sedge (*Carex intumescens*), Softstem Bulrush (*Schoenoplectus tabernaemontani*), Swamp Milkweed (*Asclepias incarnata*), New England Aster (*Symphyotrichum novae-anglaie*) and Fowl Manna Grass.	

3.4. Breeding Bird Surveys

A total of 57 species were observed throughout the survey with varying evidence of breeding. Four species are listed as Species at Risk in the Ontario Region [SARO] including: Barn Swallow (Threatened), Bobolink (Threatened), Chimney Swift (Threatened) and Eastern Wood-Pewee (Special Concern). Barn Swallow and Chimney Swift did not displayed breeding evidence or habitat, while Eastern Wood Peewee and Bobolink demonstrated probable breeding evidence.

Table 5 - Breeding Bird Survey Results

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.

SPECIES	Quantity	Breeding Level	COSSARO/ COSEWIC	Comment
Great Blue Heron	2	X		Over site
Green Heron	1	X		Over site
Canada Goose	3	H		
Mallard	4	P		
Wood Duck	3	P		
Wild Turkey	18	FY		
Turkey Vulture	1	X		Over site
Osprey	1	X		Over site
Cooper's Hawk	2	H		
Red-tailed Hawk	2	NE		Nest
Killdeer	7	A		
Rock Pigeon	13	T		
Mourning Dove	17	T		
Chimney Swift	1	X	THR/THR	Over site
Downy Woodpecker	3	T		
Hairy Woodpecker	3	T		
Red-bellied Woodpecker	1	S		
Northern Flicker	2	T		
Pileated Woodpecker	2	T		
Eastern Wood Pewee	4	T	SC/SC	See SAR discussion
Great Crested Flycatcher	5	T		
Eastern Kingbird	4	T		

SPECIES	Quantity	Breeding Level	COSSARO/ COSEWIC	Comment
Willow Flycatcher	2	T		
Least Flycatcher	1	S		
Red-eyed Vireo	7	T		
Warbling Vireo	2	S		
Blue Jay	6	T		
American Crow	12	T		
Horned Lark	1	S		
Barn Swallow	6	X	THR/THR	Over site
Cliff Swallow	4	X		Over site
Black-capped Chickadee	10	FY		
White-breasted Nuthatch	1	H		
House Wren	3	T		
Winter Wren	1	S		
American Robin	10	T		
Gray Catbird	1	S		
European Starling	60	FY		
Yellow Warbler	3	S		
Chestnut-sided Warbler	1	T		
Pine Warbler	1	S		
American Redstart	1	S		
Mourning Warbler	3	T		
Common Yellowthroat	1	S		
Savannah Sparrow	10	T		
Song Sparrow	13	T		
Northern Cardinal	8	FY		
Rose-breasted Grosbeak	5	N		
Indigo Bunting	7	T		
Bobolink	5	T	THR/THR	See SAR discussion
Red-winged Blackbird	20	T		
Common Grackle	1	H		
Brown-headed Cowbird	5	P		
Baltimore Oriole	4	T		

SPECIES	Quantity	Breeding Level	COSSARO/ COSEWIC	Comment
Orchard Oriole	2	S		
American Goldfinch	7	P		
House Finch	4	P		

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

4. 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 (SAR), 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 whom 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.

4.1. Screening

Screening for possibly present Species at Risk was conducted using various sources of information. A summary of the screening findings is presented below.

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 has informed 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 grids 17PJ2175, 17PJ2275, and 17PJ2274. The list presents the species by common and scientific name, the last observed date in that unit 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 2018-09-26) does not identify the presence of any Species at Risk or Species of Special Concern.

4.2. Assessment

Based on the results of the SAR screening and the observations made in field, the following species were brought forward for species site assessment review due to their designation as either Endangered, Threatened or of Special Concern in Ontario.

- Barn Swallow (*Hirundo rustica*) – **Threatened**
- Chimney Swift (*Chaetura pelagica*) - **Threatened**
- Bobolink (*Dolichonyx oryzivorus*) - **Threatened**
- Eastern Wood-pewee (*Contopus virens*) – **Special Concern**
- Butternut (*Juglans cinereal*) - **Endangered**
- Little Brown Myotis (*Myotis lucifugus*) - **Endangered**
- Northern Myotis (*Myotis septentrionalis*) - **Endangered**
- Tri-coloured Bat (*Perimyotis subflavus*) -**Endangered**

4.2.1. Barn Swallow

The Barn Swallow was listed January 13, 2012 as Threatened. It is found throughout southern Ontario and to the north as far as Hudson Bay. This species uses almost exclusively human-made structures to mount their cup-shaped nests on. Males show a glossy colouring of steel-blue on their back and breast band, while females have a pale underbelly and short tail feathers. The tail feathers form a distinction deep fork with a line of white spots across the end. Since the mid-1980's the population has been in decline due to causes not well understood. Modernization of buildings, especially barns, and the use of agricultural pesticides are probable threats.

A maximum of 3 individuals were recorded aerial foraging above the two large fields in the northern portion of the site. Site investigations determined that there are no on-site outbuildings that could provide nesting habitat for this species in the open areas searched. There are likely suitable buildings that are occupied on the 162 St. john's Sideroad property that may support Barn Swallow breeding. Prior to the removal of the buildings at 162 St. John's Sideroad, more detailed nest searches are recommended. Barn Swallows seen may also be breeding off-site and aerial foraging only on site.

4.2.2. 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.

A total of 4 singing males were recorded from the woodland dominated by deciduous species. The entire woodland habitat is considered suitable breeding habitat for the species. Due to the retention of the forested system and applied buffers, no impact to this species is expected. The mitigation measures applied to the woodland vegetation protection zone can enhance the edge integrity and increase the interior forest habitat area.

4.2.3. Bobolink

Bobolink was listed as Threatened in the Province of Ontario September 28, 2010. The preferred breeding habitat for Bobolink consists of hayfields, pastures, and meadows which are dominated by a mixture of grasses and broad-leaved forbs (e.g., red clover, dandelion, timothy). It also occurs in wet prairie, graminoid peatlands, abandoned fields, no-till cropland, small-grain fields, and reed beds. It does not *typically* occupy agricultural fields of row crops such as corn, soybean, and wheat.

Bobolink density is significantly higher in areas with relatively low amounts of total vegetative cover, low alfalfa cover, and low total legume cover but with high litter cover and high grass-to-legume ratios (e.g. hayfields ≥ 8 yrs. old). The nests tends to be sited in wet habitats, transitional between drier soils and areas providing poor drainage and are always on ground, often at base of large forbs such as meadow rue, golden alexander, clover, etc. Bobolink avoids nesting in habitats dominated by overly dense shrubs and overly deep litter layer (>2cm). Bobolink density and likelihood of occurrence increase as a function of distance from forest edges (Martin et al., 1995; COSEWIC 2010).

The Bobolink recorded in the grassland/pasture portions of the site are considered confirmed breeders due to the observation of a female carrying food there on June 15th, 2019. Birds found in the grassland/pasture portion of are considered territorial and probably breeding based on their presence there on May 31st, June

7th and June 15th, 2019. The entirety of the grassland/pasture portions should be considered suitable breeding habitat for Bobolink.

The portions of agricultural fields that have been cut to stubble should not be considered suitable breeding habitat for Bobolink.

4.2.4. 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 30 m 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 beings 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.

A number of butternut specimens were identified with the northern woodland tract, ELC polygons FOMM6-1 and FODM 6-5 (Shown on **Figure 2**). All individual species were located away from the existing edge. No impacts to these specimens are expected due to the retention of the woodland tract and its applied vegetation protection zone.

4.2.5. Little Brown Myotis

This mammal species, a bat, was designated Endangered on January 23, 2013. Its population is wide spread 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 -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 use by these bats (humid and cold). Mass dies offs are possible at more than 75% of Ontario's hibernation sites due to the fungus' affect on hibernation cycles, metabolism and fat storage.

The woodland contains sufficiently large trees to be considered potential habitat for little brown myotis. As such, measures are to be applied to the retained woodland and watercourse vegetation protection zones to enhance roosting habitat for this, and related, species.

4.2.6. Northern Myotis

The Northern Myotis is a species at risk, designated Endangered in January 2013, impacted by the white nose syndrome. Prior to the spread of the fungal disease across North America, the North 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, have 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 woodland contains sufficiently large trees to be considered potential habitat for northern myotis. As such, measures are to be applied to the retained woodland and watercourse vegetation protection zone to enhance habitat for this, and related, species.

4.2.7. Tri-coloured bat

This species was enlisted on June 15, 2016 as Endangered due to the impacts of white nose syndrome on the population. 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 woodland contains sufficiently large trees to be considered potential habitat for tri-coloured bats. As such, measures are to be applied to the retained woodland and watercourse vegetation protection zone to enhance habitat for this, and related, species.

5. Significant Wildlife Habitat

Significant Wildlife Habitat (SWH) is protected as per Section 2.1 of the Provincial Policy Statement, 2014. 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. This section will provide a screening in the form of a summary table followed by an assessment of the potentially or confirmed occurring SWH.

5.1. SWH 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 6**, 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. In the case of potential SWH, Confirmed Defining Criteria Studies were reviewed, and applicable mitigation measures (in summary form) were also provided in Column 5. The findings of this screening are assessed in the following section.

Table 6 Significant Wildlife Habitat Screening

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale and Mitigation Measures Summary
	ELC Ecosite Codes	ELC Ecosite Codes		
Seasonal Concentration Areas of Animal				
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 or species aggregation.
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	No habitat features on site.

		• No sewage treatment or storm water management ponds.		
Raptor Wintering Area	Combo of one of each Community Series from one of each: 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 .	Yes	Raptors identified during the breeding bird survey.
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. *Building 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 dbh) wildlife trees. •Prefer snags in early stages of decay (class 1-3 or class 1 or class 2).	Yes	The vegetation protection zone will protect potential bat maternity colonies.

		•SIlver-haired Bats prefer older mixed or deciduous forests with at least 21 snags/ha.		
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 has to 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 on site.
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. •Five-lined skink prefer mixed forests with rock outcrop openings providing	No	No habitat features on site.

		cover rock overlaying granite bedrock with fissures		
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, recently (2 years) disturbed soil areas or liscenced 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). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 –	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.

	6; MAS1 – 3; CUM,CUT,CUS			
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.
Landbird Migratory Stopover Areas	All Ecosites within: FOC,FOM,FOD,SWC ,SWM,SWD	Woodlots >10ha 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 Yarding Areas	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC. Or these ELC Ecosites; CUP2 CUP3 FOD3 CUT	Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. • OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual. •Woodlots with high densities of deer due to artificial feeding are not significant	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 will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands • 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				
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), thicketlike (SBS1), or more closed and treed (SBT1). Tree	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.	No	No habitat features on site.

	cover always < or equal to 60%	• Vegetation can vary from patchy and barren to tree covered, but less than 60%.		
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 animals 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 areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest. • Characterized by heavy mortality or turnover of overstorey 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. Dominant tree species in the forest are not >140 years old nor are characteristics of old growth forest present. .

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.	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 Techinical Guide (OMNR, 200), Appendix M for Provincially Rare S1,S2 and S3 ELC Vegetation Types.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in Appendix M. •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	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.	No	Waterfowl breeding was not observed during the breeding bird surveys.

	MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4. * Note: includes adjacency to Provincially Significant Wetlands	•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.		
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 >10ha 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.	Yes	Adjacent woodland tracts may be suitable in size, but the woodland has limited interior habitat based on the 200 m distance. No impacts are expected to occur from the proposed site plan with the allocated vegetation protection zones plantings buffering the woodland from the proposed development. The integrity of the woodland edge and the area of interior forest is expected to increase from this measure.

		• In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest.		
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) >500 m2 (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 >500m2 (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.	No	No habitat features on site.

		• Bullfrogs require permanent water bodies with abundant emergent vegetation.		
Woodland Area-Sensitive Bird Breeding Habitat	All Ecosites withing: 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.	Yes	Adjacent woodland tracts may be suitable in size, but no impacts are expected to occur from the proposed site plan. Vegetation protection zones with restorative plantings shall increase the integrity of the forest edge and increase the area of interior forest.
Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)				
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 observation of breeding marsh birds during surveys.
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	No	No habitat features on site.

		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.		
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 rowcropping, 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. All Special Concern and Provincially Rare plant and animal species.	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	Yes	Eastern Wood Peewee found. See discussion in Section 4.2.2.
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.	No	No habitat features on site.
Deer Movement Corridors	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH. A deer wintering habitat identified by the OMNRF as SWH will have corridors that the deer use during fall migration and spring dispersion •Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges).	No	No habitat features on site.

Exceptions for EcoRegion 6E				
Mast Producing Areas (Black Bear) •EcoDistrict 6E-14	All Forested habitat represented by ELC Community Series: FOM FOD	Black bears require forested habitat that provides cover, winter hibernation sites, and mast producing tree species. • Forested habitats need to be large enough to provide cover and protection for black bears Criteria •Woodland ecosites >30ha with mast-producing tree species, either soft (cherry) or hard (oak and beech)	No	Site not located within EcoDistrict 6E-14
Lek (Sharp-tailed grouse) •EcoDistrict 6E-17	CUM CUS CUT	The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography. • Leks are typically a grassy field/meadow >15ha with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated. Criteria •Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying) • Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting	No	Site not located within EcoDistrict 6E-17

6. Proposed Development

The development proposed for the entire Shining Hill landholdings is illustrated in the Concept Plan prepared by Malone Given Parsons (**Figure 5**). The Subject Lands are a subset of the entire landholdings and are outlined in yellow. The concept envisions a complete community that straddles both the Town of Newmarket and Town of Aurora municipal boundary consisting of a mix of low, medium and high-density residential uses, parks and open spaces, an elementary school, stormwater management uses and service commercial uses. At full build-out, the development concept proposes approximately 3,000 residential units at a density of over 70 residents and jobs per hectare (net of the proposed natural heritage areas). A community hub is envisioned at the centre of the development at the intersection of two new proposed primary collector roads. The hub will consist of medium and higher density residential uses, community commercial uses, a potential school block, a neighbourhood park and multiple trail connections.

Key themes of the proposed development include:

Range and Mix of Housing

The proposed development consists of a wide-ranging mix of housing options to serve the needs of the Town of Aurora and Newmarket. The Shining Hill lands represent one of the few remaining vacant properties in both Towns within the settlement area that can accommodate this scale of ground-oriented housing (in conjunction with higher density housing and a mix of other uses). The proposed development provides an opportunity to deliver an appropriate range of housing in context with the surrounding area that locates: higher density housing in proximity to rapid transit corridors (Phase 4 and 5) and along primary collector roads; and compact ground-oriented residential units interspersed throughout the development.

Road Network

A new east-west Primary Collector road (26.0m right-of-way "ROW") will provide access from Yonge Street to Bathurst Street via the extension of Street 'A', which has been protected for as part of the approved Phase 1 development. An additional north-south Primary Collector road is proposed to connect to the east-west road and St. John's Sideroad, which will align with Willow Farm Lane to the south. The remainder of the local roads within this development will be 18.0m ROW. The condominium roads, which will provide access to the rear-lane townhome dwellings, are proposed to have a 9.0m ROW.

Open Space System

With such a large collection of land, the proposed conceptual plan provides the opportunity to develop a well thought out and robust open space system composed of a hierarchy of parks, parkettes, trails and other passive/active recreational uses. The sole ownership of the lands will allow the Towns of Aurora and Newmarket to easily extend their existing trail/path system and to connect systems that may have terminated at these lands prior to Shining Hill.

Natural Heritage System

The entire Shining Hill landholdings measure approximately 156 ha (385 acres). The development concept proposes to develop on lands that are currently being farmed and to protect the extensive natural heritage system that exists. Through the development process, these lands will be unlocked from private ownership and conveyed to the public. It is estimated that as this development is approved, approximately 76 hectares

of natural heritage lands will be conveyed and made publicly accessible. The Towns can then program this space to meet their recreational space needs that may not have been possible before. Additionally, conveyance of these lands will allow the Towns to develop a wildlife corridor stretching from just south of Conventry Hill Trail to St. John's Sideroad.

6.1. Natural Heritage Feature Buffers

There are many factors that require consideration in determining the appropriate buffer to natural heritage features. The required buffer is influenced by the nature of the natural heritage system that is to be protected, the anticipated stressors from the land use change, physiographic considerations (slope), the nature of the buffer itself and project objectives.

The following buffer functions require consideration:

Water Quantity and Quality (Watercourse and Wetlands Only)

- Attenuation of storm water flows
- Groundwater recharge
- Sediment attenuation
- Nutrient attenuation / transformation
- Toxin and heavy metal attenuation / transformation
- Water temperature moderation

Land Use Changes (All features)

- Wind and noise attenuation
- Light dampening
- Screening from physical disturbances (e.g., human activities)

Hazard Mitigation (All Features)

- Streambank / slope stabilization
- Provide setback from potential large branch or tree fall

Core Habitat Protection (All Features)

- Maintaining microclimate conditions
- Protecting or enhancing interior habitat
- Maintenance of protected area's biotic integrity
- Limiting spread of invasive species
- Providing area for tree roots

For the purpose of the Official Plan Amendment application to establish the principle of development, we are proposing a minimum buffer of 10 m to the woodlands and 30 m to the watercourses and wetlands. This is based on an assessment of the primary functions that buffers are expected to perform, the nature of the

existing features and the proposed land use changes. This proposed minimum buffer should be further evaluated during more a detailed development application following the OPA. The Development Limit based on these recommendations are shown on **Figure 6**.

6.2. Ecological Linkages

Landscape level ecological linkages are an important part of the Subject Property. These linkages connect the larger natural area of Thornton Bales Conservation Area (west of the site) though this site to the McKenzie wetland, treed areas of St. Andrew's golf course and onto Bailey Ecological Park. The extensive natural heritage system that is proposed to be created will include two major west-east linkages with a north-south connection between the linkages.

The northernmost linkage includes the complex of mixed forest, deciduous forest, swamps and meadow marshes and extends from Bathurst Street to existing residential development along Yonge Street, before heading south through the open space to connect with Yonge Street. This linkage is a high quality corridor based on the lower edge to interior ratio, the complexity of the vegetation communities and the limited number of crossings. This linkage ranges between 100 m and 250 m in width (including the proposed vegetation protection zone).

The southern west-east linkage connects large woodlands on Shining Hill Estates Inc. Phase 2 lands with the open space west of the residential development on Yonge Street through the W3 watercourse. This linkage is a moderate to high quality corridor with a higher edge to interior ratio, less complexity in the vegetation communities and limited number of crossings. This linkage is a secondary wildlife linkage on the site and ranges between 50 m and 100 m in width (including the proposed vegetation protection zones).

Both of these west-east linkages are connected by the W2 watercourse and associated forest vegetation in an 80 m wide corridor that runs north between the two.

7. Summary and Conclusion

This Environmental Conditions Report was prepared to inform the requested Official Plan Amendment described in the Malone Given Parsons Planning Opinion Report prepared July 2019. Based on the field work completed to date, the lands include both agricultural lands that are suitable for development as well as natural heritage features that warrant protection. The natural heritage features proposed for protection will maintain the landscape level linkages through the property. The requested Official Plan Amendment holds the natural heritage features in an Environmental Protection Designation and provides a minimum 10 m buffer to woodlands and 30 m buffer to wetlands and watercourses. The concept plan includes the complete retention of all natural heritage features and maintains the landscape level linkage through the forested valley system that connects Thornton Bales Conservation Area with the large forests on the Shining Hill lands. The proposed conceptual plan will place approximately 76 ha of natural lands into public ownership.

8. Policy Conformity – York Region Official Plan

The York Region Official Plan has significant requirements related to Natural Heritage and the proposed plan was assessed for conformity with the OP. The proposed plan meets the objectives of the York Region OP as detailed below.

Objective 1: To identify, protect and enhance the Regional Greenlands System and its functions to ensure a healthy system rich in native biodiversity.

The proposed plan identifies a Regional Greenland system that includes large forested valleys, riparian corridors and watercourses. These connections are provided in both the east-west direction through the site and north-south to protected lands in Aurora.

Objective2: To ensure that *key natural heritage features* and *key hydrologic features* and functions are protected and enhanced where possible.

The proposed plan protects all key natural heritage features and will include restored buffer lands. It further enhances the key natural features through the restoration of linkage areas and enhancements in the wetland buffer areas.

Objective 3: To ensure that the *key natural heritage features* and *key hydrologic features* on the Oak Ridges Moraine, Greenbelt and the *Lake Simcoe Watershed* are protected in accordance with Provincial Plans.

The proposed plan protects all key natural heritage features according to the Oak Ridge Moraine plan, the Greenbelt plan and the Lake Simcoe Protection Plan.

Objective 4: To protect endangered, threatened and special concern species and their habitats to ensure that biological diversity within the Region is not diminished.

A screening level review of species at risk was completed as part of the Environmental Conditions Report. The proposed plan protects the key natural features and the habitat of potential species at risk.

Objective 5: To protect *significant woodlands* and their biodiversity and encourage reforestation to provide environmental, social and economic benefits for the residents of York Region.

All significant wodlands on the property have been identified and protected in the proposed plan.

Objective 6: To ensure no loss of wetland function or area in the Region.

All wetland areas have been identified and protected with an appropriate buffer in the proposed plan.

Objective 7: To encourage and support the conservation of significant landscapes, views and vistas.

The conservation of landscapes, views and vistas will be studied as part of the detailed Secondary Plan that is proposed to be completed for this project.

Objective 8: To maintain and enhance water system health to ensure water quality and quantity, and to maintain the natural hydrologic function of water systems.

> The hydrologic function of the water system is maintained through the preservation of the watercourses and their riparian zones, the application of buffers to the watercourses and through the proposed stormwater management techniques.

Objective 9: To minimize risks to human health and safety and property associated with natural hazards.

> All hazard land is contained within the proposed natural heritage system. Permits for any activity within the hazard lands will be required and received from the LSRCA.

Objective 10: To protect and restore the ecological health of Lake Simcoe, consistent with the provisions of the Lake Simcoe Protection Plan.

> The proposed plan meets the requirements of the Lake Simcoe Protection Plan and the protection of natural features and the provision of buffers.

Objective 11: To protect and enhance water resources through the implementation of watershed plans.

> The proposed plan was informed by the watershed planning process implemented by the LSRCA.

Objective 12: To ensure the careful management of stormwater through the use of innovative techniques.

> The proposed plan will be subject to detailed stormwater engineering design through the Secondary Plan process. It will meet the requirements of the LSRCA and utilize innovative techniques for volume control, as well as stormwater quality.

9. References

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Figures

GeoProcess RESEARCH ASSOCIATES

Shining Hill Estate Collection Inc.
Phase 3

Figure 1. Key Map

CREATED BY:	BA	PROJECT NO.:	P2019-351
CHECKED BY:	IR	DATE:	Jul 08, 2019

Legend

Subject Property

N

0 1 2 3 4 kilometers

Prepared using QGIS and Google Satelitte.

G:/My Drive/Projects/P2019-351 Shining Hill Phase 2 Aurora NCD/GIS/Basemap (Copied from SH south).qgs

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Shining Hill Estate Collection Inc.
Phase 3

Figure 2. Ecological Land Classification

CREATED BY:	BA	PROJECT NO.:	P2019-351
CHECKED BY:	IR	DATE:	Jul 25, 2019

Legend

ELC Polygons

ELC Codes

FOCM3-2: Fresh - Moist Hemlock - White Pine Coniferous Forest Type
FODM6-5: Fresh - Moist Sugar Maple - Hardwood Deciduous Forest Type
FODM7: Fresh - Moist Lowland Deciduous Forest Ecosite
FODM7-2: Fresh - Moist Green Ash - Hardwood Lowland Deciduous Forest Type
FODM7-3: Fresh - Moist Willow Lowland Deciduous Forest Type
FOM: Mixed Forest
FOMM2-3: Dry - Fresh White Pine - Hardwood Mixed Forest Type
FOMM6-1: Fresh - Moist Sugar Maple - Hemlock Mixed Forest Type
FOMM7-2: Fresh - Moist White Cedar - Hardwood Mixed Forest Type
MEMM4: Fresh - Moist Mixed Meadow Ecosite
SWDM4-1: White Cedar - Hardwood Organic Mixed Swamp Type

N

0 100 200 300 meters

Prepared using QGIS and Bing Satelitte.

G:/My Drive/Projects/P2019-351 Shining Hill Phase 2 Aurora NCD/GIS/Basemap (Copied from SH south).qgs

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Shining Hill Estate Collection Inc.
Phase 3

Figure 3. Watercourses

CREATED BY:	BA	PROJECT NO.:	P2019-351
CHECKED BY:	IR	DATE:	Jul 08, 2019

Legend

Watercourses

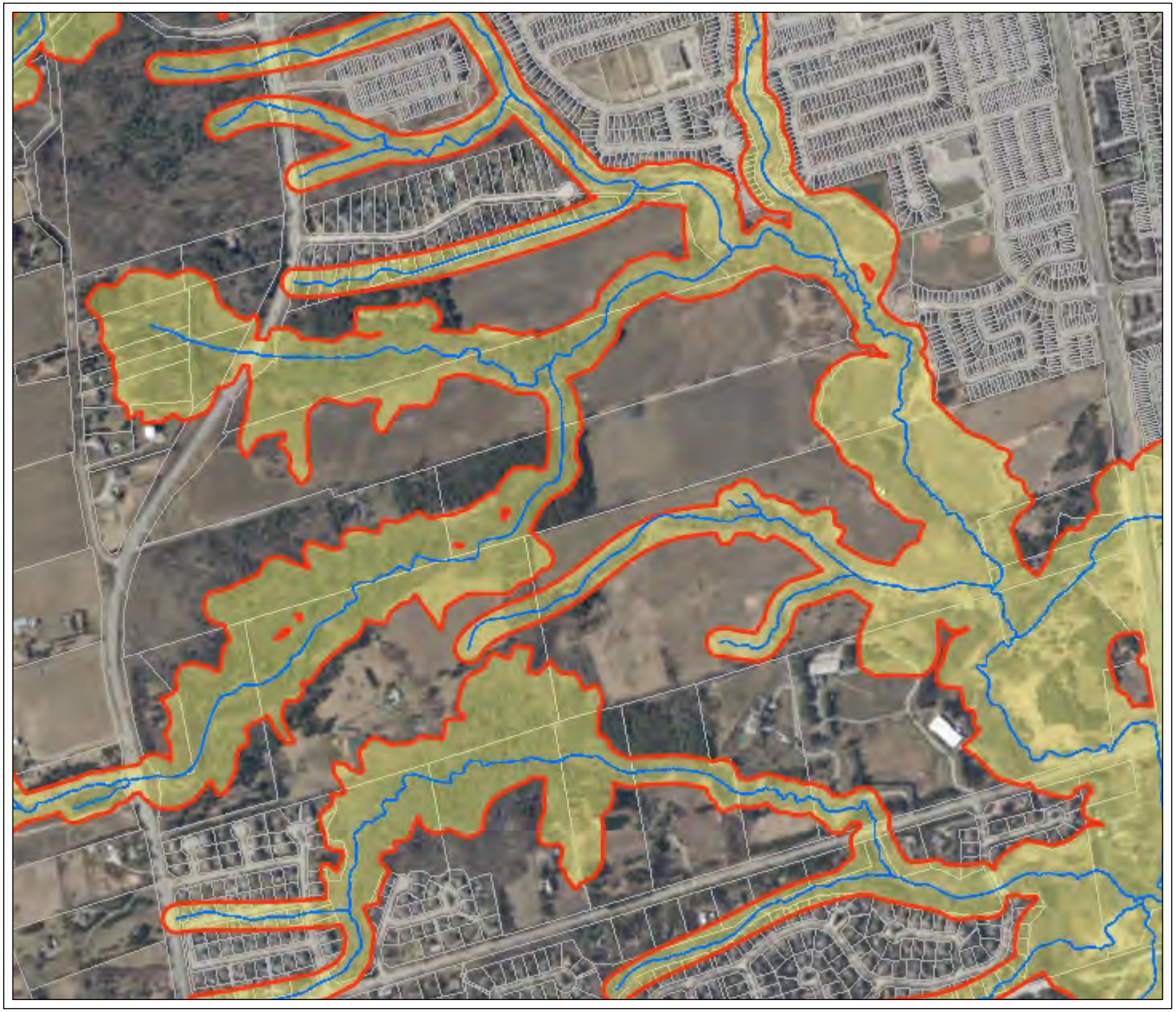
N

0 100 200 300 metres

Prepared using QGIS and Google Satelitte.

G:/My Drive/Projects/P2019-351 Shining Hill Phase 2 Aurora NCD/GIS/Basemap (Copied from SH south).qgs

Lake Simcoe Region conservation authority



Features

- LSRCA Watershed Boundary
- Lake Couchiching
- Watercourse
- Regulated Area Boundary
- Regulated Area
- Assessment Parcel

Printed On:
7/7/2019

WGS_1984_Web_Mercator_Auxiliary_Sphere

Mapped By:

Scale 1: 12,982

659 0 330 659 Meters

SHINING HILL ESTATE COLLECTION INC.
CONCEPT PLAN

LAND USE AREAS	AREA	UNITS
Low Density	32.3 ha.	889 units
Medium Density	7.7 ha.	±875 units
High Density	3.7 ha.	±490 units
Service Commercial	0.6 ha.	
School	2.4 ha.	
Neighbourhood Park	6.1 ha.	
SWM	7.0 ha.	
Vista's	2.3 ha.	
Restoration/Trail	1.5 ha.	
Roads	18.6 ha.	
Laneways	3.0 ha.	
Total Net Developable Area	**85.3 ha.**	**±2,254 UNITS**
NHS	70.1 ha.	
TOTAL OWNERSHIP	**155.4 ha.**	
SUBJECT LANDS	**82.9 ha**	

Lot depths are 30m

TRAIL SYSTEM
- Existing Paved Trail
- Existing Mixed Surface Trail
- Planned / Proposed Trail System
- Potential Trail Linkages through Site
- Potential Wildlife Corridor
- Oak Ridges Moraine Boundary

FOR DISCUSSION PURPOSES ONLY

Air Photography: Google Earth 2015
Date: June 4, 2019

MGP Malone Given Parsons.
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GeoProcess RESEARCH ASSOCIATES

LEGEND

DRIPLINE

WETLAND LIMIT

DEVELOPMENT LIMIT

0 100 200

SCALE

SHINING HILL NORTH
PROPOSED NATURAL HERITAGE SYSTEM

Scale: 1:5,000	Drawn By: KG	Figure No. 6
Date Issued: OCT, 2019	Checked By: IR	