Environmental Impact Statement

MAPLEVIEW DRIVE AND 20TH CONCESSION, BARRIE, ONTARIO.

Prepared for

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1. Introduction

GeoProcess Research Associates Inc. (GeoProcess) been retained by DIV Development (Barrie) Limited to complete an Environmental Impact Statement (EIS) for the development located at south of Mapleview Drive and west of 20th Sideroad in Barrie, Ontario (Map 1). This is herein referred to as the "subject property". The "study area" refers to subject property and all areas within 120m. It is GeoProcess' understanding that the subject property is approximately 80 hectares (ha) at the described location and is the proposed site of a residential and community development.

The subject property is located in a 'Designated Greenfield Area' according to the City of Barrie Official Plan (CBOP). In Appendix 2 of the plan, The Subject property exists on lands designated as "Neighborhood Area", "Natural Heritage System", "Greenspace", "Community Hub", and "Waste Disposal Assessment Area". Furthermore, the subject property is included in the Hewitt's Secondary Plan Area. The subject property contains natural heritage features including a *Natural Core Area* and a *High Constraint Stream Corridor*. Refer to Map 1 & 2 for review of these boundaries and property location.

Due to the presence of the *High Constraint Stream Corridor Area,* the wetlands located on the subject property and its location within and adjacent to natural heritage systems, an EIS is required. The EIS identifies natural heritage features in the study area, establishes a development limit, and recommends mitigation measures to avoid negatively impacting significant features and functions associated with natural heritage features and watercourses.

1.1. Site Description

The subject property (~ 80 ha) is on the southern edge of the City of Barrie's (the City) municipal boundary and is approximately 2.5 km south of Lake Simcoe. Natural heritage features are located centrally within the subject property and including a woodland and an unevaluated wetland. An additional unevaluated wetland is located in the northern portion of the property and contains a channelized watercourse (Sandy Cove Creek). The watercourse and wetland features are regulated by the Lake Simcoe Region Conservation Authority (LSRCA). Two homesteads previously existed on the subject property and have been demolished, however, the associated landscape trees remain.

2. Policy Context

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 relate to 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.

Policy Number	Policy
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. Endangered Species Act (2007)

The Endangered Species Act (ESA) (2007) provides protection to species designated as Threatened or Endangered on the Species at Risk in Ontario list (MECP 2019). The habitat of some species at risk is also protected under the ESA. Protected habitat is habitat identified as essential for life processes including breeding, rearing, feeding, hibernation and migration.

The ESA (Subsection 9(1)) states that:

"No person shall,

(a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;

(b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,

(i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,

(ii) any part of a living or dead member of a species referred to in subclause (i),

(iii) anything derived from a living or dead member of a species referred to in subclause (i); or

(c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii)."

Clause 10 (1)(a) of the ESA also states that:

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

An authorization or permit between the proponent and the MECP is required to authorize activities that would otherwise be prohibited by subsection 9(1) and 10(1) of the ESA.

There are three applicable regulations under the ESA, 2007; O. Reg. 230/08 - the Species at Risk in Ontario (SARO) List, O. Reg. 242/08 (General), and O. Reg 830/21 (Exemptions – Barn Swallow, Bobolink, Eastern Meadowlark and Butternut). These regulations serve to identify which species and habitats receive protection and provide direction on the current implementation of the ESA.

2.3. City of Barrie Official Plan (2023)

The City of Barrie Official Plan establishes a long-range planning blueprint for land uses and resource management within the municipality. The City's current Official Plan (OP) was approved with modifications by the Ministry of Municipal Affairs and Housing in April, 2023.

As per Appendix 1 – Conservation Authority Areas, the subject property contains watercourses which are regulated by the LSRCA. In addition, Map 2 of the City's OP identifies natural heritage system areas within the subject property limits.

Section 2.6.6 of the OP states that the natural heritage system is intended to identify natural heritage features and their associated lands that are essential to the landscape and the community, including their overall environmental and social values and health of the city and the wider region. As per Map 3 of the OP, the subject property contains Natural Core Area, High Constraint Stream Corridor Area – Special, and High Constraint Stream Corridor Area.

As per Section 5.4.3, Natural Core Area Overlay:

- Designation on Map 3 of the OP includes important natural heritage, hydrological and hydrogeological features or groupings of such features, including key natural heritage and hydrological features, together with required buffers and adjacent lands intended to protect the function of the features and ensure the long-term sustainability of the natural heritage system within an urban context.
- A core area approach focuses on protecting not only the features, but their ecological functions as well. The core areas were delineated based on an evaluation which considered a series of broad general ecological principles in conjunction with a range of site-specific factors. The factors are based on both features and functions and the boundaries include a 30-metre buffer from the edge of the wetlands and watercourses within the Natural Core Areas, a 10 metre buffer from the dripline of the woodland features and a 5 metre buffer where the boundary of the Natural Core Areas is an existing meadow or thicket. The general ecological principles considered included:
- Diversity – Areas of diverse habitats and/or supporting a rich assemblage of species;
- Size – Sufficient size to protect interior habitat;
- Contiguity – Designed to create contiguous units;
- Connectivity – The unit can be linked to other units;

- Significance – The area supports significant species or habitats; and,
- Overall watershed functionality including hydrologic processes which protect the flow regime of receiving streams.

Per Section 5.4, High Constraint Stream Corridor Area and High Constrain Stream Corridor Area Special,

a) High Constraint Stream Corridor Areas as designated on Map 3 of the OP include identified watercourses with associated riparian lands, and the Corridor Area shall include buffers measured from stable top-of-bank. These areas are located within Natural Core and Natural Linkage Areas.

b) High Constraint Stream Corridor Areas must be protected in their existing locations for hydrogeological and ecological reasons in accordance with the directions established in the City of Barrie, Drainage and Stormwater Management Master Plan, Intensification and Annexed Lands, 2013.

c) High (S) Constraint Stream Area - Special may be modified and/or relocated and consolidated with other watercourses provided that the watercourse feature, as well as the function of the watercourse, is maintained in accordance with the directions in the Drainage and Stormwater Management Master Plan, as well as Federal, Provincial and Conservation Authority regulations. In addition, the principles of natural channel design and bioengineering shall be considered as part of the process.

2.4. Hewitt's Secondary Plan (2023)

As per the City of Barrie Official Plan (2018), *the Hewitt's Secondary Plan is comprised of five residential districts and the Yonge Street mixed use corridor*. Moreover, Section 9.3 of the Official Plan states that the Natural Heritage System's focus is to protect important natural heritage and hydrological features and functions, to ensure their long-term sustainability in an urban context, while recognizing and maintaining linkages between and among natural area features. As per Schedule 9B of the Hewitt's Secondary Plan, the Subject Property contains Natural Core Area, High Constraint Stream Corridor Area – Special, High Constraint Stream Corridor Area, and Regulatory Floodplain (Figure 2).

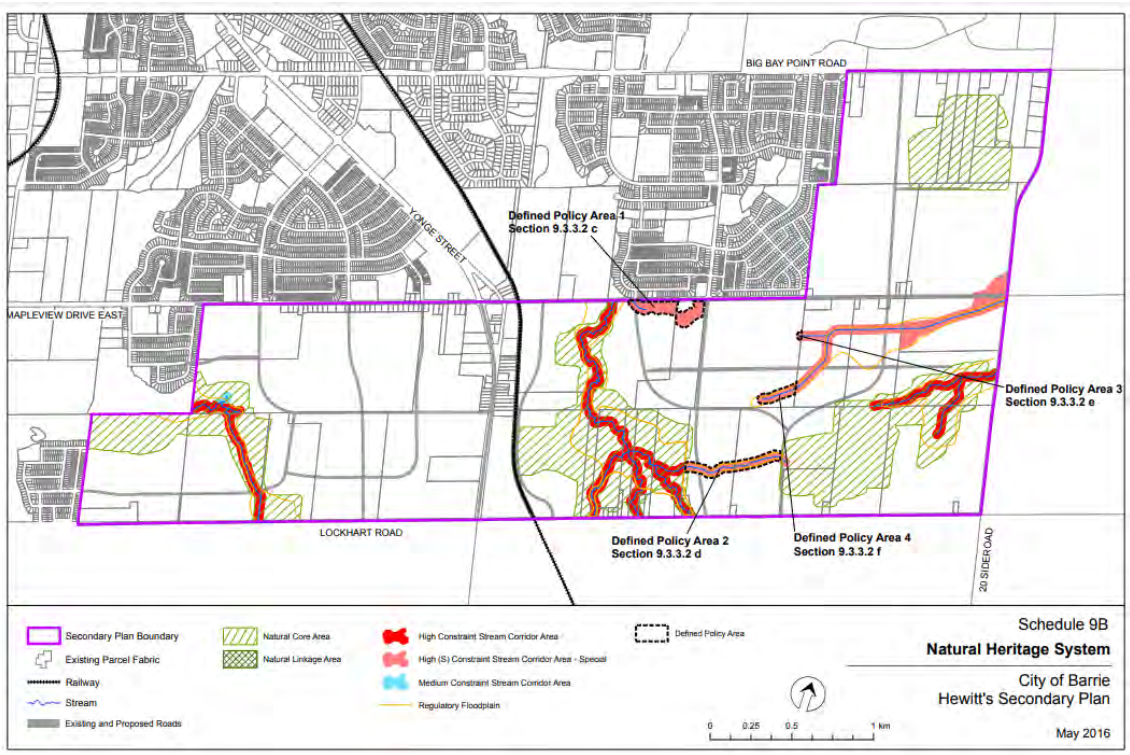

Figure 1. Hewitt's Secondary Plan (Schedule 9B, May 2016)

As per Section 9.3.2.1, Natural Core Area:

- Designation on Schedule 9B includes important natural heritage, hydrological and hydrogeological features or groupings of such features, including key natural heritage and hydrological features, together with required buffers and adjacent lands intended to protect the function of the features and ensure the long-term sustainability of the Natural Heritage System within an urban context.
- A core area approach focuses on protecting not only the features, but their ecological functions as well. The core areas were delineated based on an evaluation which considered a series of broad general ecological principles in conjunction with a range of site specific factors. The factors are based on both features and functions and the boundaries include a 30 metre buffer from the edge of the wetlands and watercourses within the Natural Core Areas, a 10 metre buffer from the dripline of the woodland features and a 5 metre buffer where the boundary of the Natural Core Areas is an existing meadow or thicket. The general ecological principles considered included:
- Diversity – Areas of diverse habitats and/or supporting a rich assemblage of species;
- Size – Sufficient size to protect interior habitat;
- Contiguity – Designed to create contiguous units;
- Connectivity – The unit can be linked to other units;
- Significance – The area supports significant species or habitats; and,
- Overall watershed functionality including hydrologic processes which protect the flow regime of receiving streams.

Per Section 9.3.2.3 High Constraint Stream Corridor Area and High Constrain Stream Corridor Area Special,

a) High Constraint Stream Corridor Areas as designated on Schedule 9B include identified watercourses with associated riparian lands, and the Corridor Area shall include buffers measured from stable top-of-bank. These areas are located within Natural Core and Natural Linkage Areas.

b) High Constraint Stream Corridor Areas must be protected in their existing locations for hydrogeological and ecological reasons in accordance with the directions established in the City of Barrie, Drainage and Stormwater Management Master Plan, Intensification and Annexed Lands, 2013.

c) High (S) Constraint Stream Area - Special may be modified and/or relocated and consolidated with other watercourses provided that the watercourse feature, as well as the function of the watercourse, is maintained in accordance with the directions in the Drainage and Stormwater Management Master Plan, as well as Federal, Provincial and Conservation Authority regulations. In addition, the principles of natural channel design and bioengineering shall be considered as part of the process.

2.5. Lake Simcoe Region Conservation Authority

The subject property is subject to the Lake Simcoe Region Conservation Authority's (LSRCA) policies for the administration of the *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses regulations (Ont. Reg. 179/06)*. This regulation applies to hazardous lands as defined by the Conservation Authorities Act that could be unsafe for development because of naturally occurring processes such as wetlands, erosion, or flooding. For the subject property, these regulations apply to a section of Sandy Cove Creek on the north end of the property and a second watercourse with associated wetlands in the central area of the subject property.

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 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. Policies of the LSPP were considered in this EIS.

3. Methodology

3.1. Background Studies

The following background documentation and related information sources were reviewed to identify natural heritage features and constraints in

- Ministry of Natural Resources and Forestry (MNRF) Land Information Ontario (LIO) digital mapping of natural heritage features (MNRF 2022)
- Satellite imagery (Google Earth Pro 2022)

A list of species at risk (SAR) and species of conservation concern (SOCC) with potential to occur in the Study Area was prepared by reviewing the following sources:

- Natural Heritage Information Centre (NHIC) Database, 1 km x 1 km square (Atlas ID: 17PK1212, 17PK1211);
- Atlas of the Breeding Birds of Ontario (2022)
- Ontario Reptile and Amphibian Atlas (2022)
- Ontario Butterfly and Moth Atlas (2022)
- i-Naturalist- NHIC Rare Species of Ontario
- eBird hotspots
- Ontario Regulation 230/08 Species at Risk in Ontario List
- Provincial and federal assessments, recovery strategies, and management plans

3.2. Field Work

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 2.

Table 2. Completed Field Work

Activity	Timing	Date	Staff
Amphibian survey	Spring	May 4, 2023	Scott Dowle
Amphibian survey	Summer	June 6, 2023	Scott Dowle
Amphibian survey	Summer	July 4, 2023	Scott Dowle
First tree inventory	Spring	April 20, 2022	Gillian L. & Meghan D.
Second tree inventory	Spring	April 21, 2022	Gillian L. & Meghan D.
Breeding bird survey	Summer	June 18, 2021	Meghan D. & Brittany Q.
Breeding Bird Survey	Summer	July 09, 2021	Meghan D. & Brittany Q.

3.2.1. Floristic Studies

Floristic surveys were completed for the study area. Species nomenclature and ranking was determined provincially by the Ministry of Natural Resources Natural Heritage Information Database (S_Ranks).

Vegetation communities were mapped and described according to the Ecological Land Classification (ELC) system for Southern Ontario (Lee et al., 2008). Vegetation community boundaries were determined using

desktop analysis and further refined in the field. The results of this assessment are found in Section 4.4.1 and Map 3.

3.2.2. Tree Inventory

GeoProcess conducted field studies on April 20 and 21, 2023, to identify and assess the tree resources within the subject property.

An assessment of individual trees included all trees 10 cm Diameter at Breast Height (DBH) or greater for the subject property. All trees within 6 m of the property limits were included in the tree inventory. Trees were further classified as public, private, boundary and neighbouring.

Trees were assessed for condition utilizing the following parameters:

- Tree # - numbers assigned to tree that corresponds to their surveyed/mapped location. • 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 (including 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).
    - Canopy Dieback (CDB): extent dead branching and canopy cover loss measured as a percentage of the entire crown.

GeoProcess surveyed the location of each tree using a handheld GPS tablet (+/- 3 m in accuracy). Location accuracy was improved using high-definition aerial imagery and driplines were estimated in-field using aerial imagery. Species nomenclature and ranking is based on the Ministry of Natural Resources and Forestry Natural Heritage Information Centre species list.

3.2.3. Breeding Bird Survey

Four breeding bird plots were established in the Study Area. The surveys were conducted under suitable conditions between 5:00 to 10:00 during the months of June and July, 2021.

Breeding bird surveys were completed by a breeding bird expert under appropriate weather conditions on two separate dates (May 31, 2023, & June 15, 2023). Point count methodology was based on protocols set by the Ontario Breeding Bird Atlas (OBBA, 2001, 2021). Bird species were observed for five minutes at each breeding bird plot following a five-minute period of silence upon arriving at the plot. The locations of breeding bird plots were selected based on subject property size, being a 100 m radius from plot centre, and

capturing the appropriate range of habitat characteristics. Due to the subject property size, only one plot was established. Only species observed within the 100 m radius were recorded. Flyovers did not count towards the total but were noted for reference. Additional incidental observations were also noted. The level of breeding evidence (using Ontario Breeding Bird Atlas [OBBA] protocols) was determined following completion of both surveys.

3.2.4. Bat Maternity Roost Surveys

A snag survey was completed following the MNRF Survey Protocol for Species at Risk Bats within Treed Habitats: Little Brown Myotis, Northern Myotis & Tri-Colored Bat (April 2017). An inventory of all trees with a DBH of ≥10cm was completed to assess the presence of potential SAR bat habitats within the subject property. Information recorded for identified roost trees included tree species, DBH, decay class, and the number, height, and type (e.g., cavity, crevice, sloughing bark, etc.) of potentially suitable roost sites.

3.2.5. Amphibian Surveys

Following the protocol for amphibian surveys, three separate rounds were conducted in June, July and August of 2023. Three rounds of amphibian call count surveys were completed in accordance with the Great Lakes Marsh Monitoring Program (Bird Studies Canada, 2009). Survey locations were selected based on aerial interpretation of potential habitat on the Study Area and were further refined or confirmed in the field. The surveys required three visits between mid-April and the end of June when there were light winds and air temperatures of 5°C, 10°C and 17°C respectively. Surveys began a half hour after dusk and were completed before midnight. Visits were also spaced out 15 days apart.

3.2.6. Incidental Wildlife Surveys

Formal surveys for mammals, reptiles, and insects were not completed, but incidental observations were completed during other survey times. The results are found in Section of 4.8. Incidental wildlife observations were recorded during all site investigations, with the results provided in Table 8. The Incidental wildlife recorded during the field investigations was comprised of species common to urban sites and tolerant of anthropogenic disturbances. Table 8 of Section 4.7

3.2.7. Watercourse Characterization

An assessment and characterization of the watercourse feature's habitat qualities and function was preformed following the Ontario Stream Assessment protocol. Background information and secondary sources including the MNRF and LSRCA fish records were utilized to further characterize the watercourse features for the subject property.

3.2.8. Species at Risk Screening and Assessment

An assessment and screening of potential Species at Risk was conducted for the study area based on Federal and Provincial status. Following the MECP (2019) Client's Guide to Preliminary SAR Screening, this screening was based on a review of the Natural Heritage Information Centre, the regional species list, atlases (breeding bird, butterfly, and moth) citizen science databases (i.e. iNaturalist), and any additional lists provided by the MECP. The preliminary screening was submitted as a memo to sar@ontario.ca for assignment to a

management biologist for review. The Species at Risk assessment results are found in Section 5. The results of the preliminary screening are found in Appendix C.

For the purpose of the screening, SAR are defined as:

- Endangered and Threatened species that are on the Species at Risk in Ontario (SARO) list and protected by the provincial Endangered Species Act, 2007 (ESA)
- Endangered and Threatened aquatic species that are listed on Schedule 1 of the federal Species at Risk Act, 2002 (SARA) and protected by the SARA

Species of Conservation Concern (SOCC) are defined as:

- Special Concern species on the SARO list
- Endangered, Threatened and Special Concern terrestrial species listed on Schedule 1 of SARA, but not protected by the ESA.
- Species with provincial ranks of S1 to S3. Provincial ranks (S ranks) are used by the NHIC to set protection priorities for rare species and vegetation communities. They are based on the number of occurrences in Ontario and are not legal designations. Provincial S ranks are defined as follows:

  S1: Critically imperiled; usually fewer than 5 occurrences
  S2: Imperiled; usually fewer than 20 occurrences
  S3: Vulnerable; usually fewer than 100 occurrences
  S4: Apparently secure; uncommon but not rare, usually more than 100 occurrences
  S5: Secure, common, widespread, and abundant
  ? S-rank followed by a "?" indicates the rank is uncertain

3.2.9. 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 7E (January 2015) was conducted for the Subject Property. Potential SWH identified was assessed during the complementary field studies. The results of this assessment are found in Section 6.

4. Existing Conditions

The existing conditions of the study area are informed by a background review, general landscape position, physiography and geology, vegetation communities, watercourse characterization, tree inventory, breeding bird surveys, amphibian surveys, and incidental wildlife documentation.

4.1. General Landscape Position

The subject property is situated at the southwestern corner of the intersection of Mapleview Drive and 20th Sideroad in Barrie, Ontario. It is located within the Lake Simcoe Watershed and within the Innisfil Creeks Subwatershed at its most northern extent. The Lake Simcoe Watershed covers approximately 3,400 square kilometers and serves an important ecological corridor. The Innisfil Creeks Subwatershed spans from the

western edge of the Lake Simcoe Watershed to the shores of Lake Simcoe between its two southwestern 'tails'. Both the subwatershed and main watershed serve to connect Core Areas within and surrounding the region, and provide ecological corridors between Lake Simcoe and Georgian Bay.

4.2. Physiography and Geology

Within the larger landscape of northwestern south-central Ontario, Simcoe County – in which Barrie is located – is a region where the landscape abruptly changes from rolling agricultural hills in the south, to the rugged granite formations of the Canadian Shield in the north. Barrie, Ontario exists within the Trenton Limestone Bedrock Formation (Hoffman et al., 1962), located south of the southernmost extent of the Canadian Shield within Ontario. The Trenton Formation is comprised of outwash and glacial till along the shores of Lake Simcoe and is further broken down into soil series. Six different soil series exist on the subject property:

- Vasey – sandy loam
- Muck – muck
- Guerin – loam/sandy loam
- Dundonald – sandy loam
- Tioga – loamy sand to stony phase
- Sargent – gravely sandy loam to steep phase

The parent rock geology of the Trenton formation influences soil type and the resulting vegetation within Simcoe County. Commonly occurring trees noted in the tree inventory (Appendix B) are typical inhabitants of the well-drained and nutrient rich soil types found in this upland region (Hoffman et al., 1962).

4.3. Natural Heritage Systems

The key natural heritage systems within the study area are the Core Area located in the centre of the subject property, the wetlands located in the northeast and northwest corners of the subject property, and the high constraint and high (S) constraint watercourses running east to west across the subject property. The Core Area belongs to a larger network of natural heritage features that connect the shores of Lake Simcoe and Georgian Bay, facilitating wildlife movement between areas of high biodiversity. The Sandy Cove Creek (high constraint) and the unnamed creek (high (S) constraint) running eat-west through the subject property facilitate terrestrial and aquatic wildlife movement. Additionally, the two wetland areas on the subject property provide significant wildlife habitat for amphibians and birds of special concern.

4.4. Vegetation Communities

GeoProcess conducted a one-season flora assessment following the guidelines outlined by the Ecological Land Classification. 17 naturalized vegetation community type was identified within the study area. The locations of these communities are shown on Map 3 and the results are described below.

4.4.1. Ecological Land Classification

Table 3. Ecological land classification communities

ELC Code	Classification Description
SWTM3-6/MEFM1-1	Mixed willow mineral deciduous thicket swamp/goldenrod forb meadow
MEFM1-1	Goldenrod forb meadow
MAM2	Mixed mineral meadow marsh
SWC1-1	White cedar mineral coniferous swamp
SWMO4-2	Hemlock-hardwood organic mixed swamp
FOD5-2	Dry-fresh sugar maple-beech deciduous forest
THDM4-1	Native deciduous regeneration thicket
MAM2-2	Reed-canary grass graminoid mineral meadow marsh/meadow
MEMM4	Fresh-moist mixed meadow
SWM1-1	White cedar-hardwood mineral mixed swamp
OAGM1	Annual row crops
OAGM2	Perennial cover crops
TAGM5	Fencerow
CVR3	Single family residential
CVR3	Single family residential (abandoned)
MEMM3	Dry fresh mixed meadow
CUT1-1	Sumac deciduous shrub thicket type
MAM2	Graminoid mineral meadow marsh

4.5. Tree Inventory

GeoProcess conducted a tree inventory on April 20 and 21, 2022 to assess existing trees within the developable area of the subject property. An assessment was completed for all individual trees 10 cm in diameter at breast height (DBH) or greater following the protocols set forth by the City of Barrie's Tree Protection Guidelines (2019). Comprehensive tree inventory is located in Appendix B.

Table 4. Tree Inventory Results

Common Name	Scientific Name	S-Rank	Inventory Count
American Beech	*Fagus grandifolia*	S4	1
American Elm	*Ulmus americana*	S5	11
Apple sp.	*Malus sp.*	SNR	10
Basswood	*Tilia americana*	S5	17
Black Cherry	*Prunus serotina*	SNR	9
Black Locust	*Robinia pseudoacacia*	SNA (exotic)	10
Crack Willow	*Salix fragilia*	SNA (exotic)	3
Eastern White Cedar	*Thuja occidentalis*	S5	27
Fruit Tree	unknown	N/A	7
Hawthorne sp.	*Crataegus sp.*	N/A	2
Ironwood	*Ostrya virginiana*	S3	15
Manitoba Maple	*Acer negundo*	S2?	10
Norway Spruce	*Picea abies*	SNA (exotic)	8
Northern Catalpa	*Catalpa speciosa*	S5	1
Norway Maple	*Acer platinoides*	S5	57
Red Oak	*Quercus rubra*	S5	31
Red Pine	*Pinus resinosa*	S5	2
Sugar Maple	*Acer saccharum*	S5	61
Silver Maple	*Acer saccharinum*	S5	20
Scott's Pine	*Pinus sylvestris*	SNA (exotic)	7
Sweet cherry	*Prunus avium*	SNA (exotic)	1
Trembling Aspen	*Poplus tremuloides*	S5	5

Common Name	Scientific Name	S-Rank	Inventory Count
White Pine	*Pinus strobus*	D5	1
White Ash	*Fraxinus americana*	S4	46
White Birch	*Betula papyrifera*	SNR	1

Table 4.1. Summary of Tree Ownership within Study Area

Ownership	Number of Trees
Private	312
Public	5
Boundary	18
Neighbouring	52
Grand Total	**387**

Table 4.2. Percentage Composition of Native and Non-native Species within the Study Area

All Trees Assessed Within Study Area	
Native Species	301 (78%)
Non-Native Species	86 (22%)

4.6. Breeding Bird Surveys

Four breeding bird plots were established in the study area. The surveys were conducted under suitable conditions between 5:00 to 10:00 during the months of June and July (Table 5).

Table 5. Breeding Bird Survey Conditions

Visit Date	Visit Time (24hr)	Temperature (°C)	Cloud Cover (%)	Wind Speed (Beaufort Scale)	Comments
	08:45 to 09:40	20	100	3	Light Rain
	07:00 to 08:10	17	100	1	-

Species heard and/or observed within the 100 m plot were recorded and the level of breeding evidence (using Ontario Breeding Bird Atlas [OBBA] protocols) was determined after the completion of both surveys. Species heard and observed outside of the survey radius were not included in the tally but noted as incidental observations.

Table 6. Breeding Bird Survey Result Summary

Species	Station 1		Station 2		Station 3		Station 4		COSSARO/COSEWIC	S Rank
VISIT	18-Jun	09-Jul	18-Jun	09-Jul	18-Jun	09-Jul	18-Jun	09-Jul		
European starling	x	x	x	x			x	x		SNA (exotic)
American robin	x	x		x		x				S5
Blue jay	x		x	x	x		x			S5
Yellow warbler	x	x	x	x						S5
American crow	x	x	x		x	x	x			S5
Mourning dove	x		x					x		S5
American goldfinch	x	x	x	x	x			x		S5
Baltimore oriole	x			x	x	x				S4
Song sparrow	x	x	x	x	x	x	x	x		S5
Field Sparrow		x								S3
Chipping Sparrow								x		S3
Killdeer	x		x							S4
Red-winged blackbird	x		x	x			x	x		S5
Common yellowthroat			x	x			x	x		S3
Vesper sparrow		x	x	x		x		x		S4
Great-crested flycatcher			x							S5
Indigo bunting					x	x				S5
Red-eyed Vireo					x					S5
Eastern wood-pewee					**x**				**Special Concern / Special Concern**	**S4B**
Cedar waxwing		x		x	x					S5
Chipping sparrow							x			S3
House wren							x	x		S5
Black-capped chickadee				x		x	x			S5
Red Breasted Nuthatch						x				S5
Ovenbird						x				S5
Wild turkey							x			S5
Northern Cardinal		x		x			x			S5

Brown headed Cowbird			x	x		S5
Alder Flycatcher				x		S5
Common Grackle				x		S5

Breeding bird surveys confirmed the presence of one species at risk on site, the Eastern Wood-pewee.

4.7. Amphibian Calling Survey

Amphibian calling surveys were completed on May 4, June 6, and July 4, 2023. The surveys were delayed in their timing due to insufficient temperatures in the spring and early summer of 2023. Results of the calling surveys are shown in Table 7. Calling observed on site was limited to one instance during the first survey window.

Table 7. Amphibian Calling Survey Results

Visit	Start Time	Air Temp (°C)	Wind (Beau-fort)	Precipitation	Cloud Cover (10ths)	Species Calling (Call Code-Individuals)		Background Noise (Code – Notes)	Notes
						In Station	Out of Station		
Station A									
1 (>5°C)	20:30	9	1	Rain	10	SPPE 3	SPPE 3	2- Road Noise	SPPE Chorus coming from wooded area NE of Mapleview/20th Sideroad
2 (>10°C)	23:16	15	1	None	0	-	-	1 – Traffic	No amphibians heard or observed.
3 (>17°C)	22:55	22	0	None	2	-	-	1 – traffic	Amphibians heard calling from offsite. 3 individuals observed within 100 m of surveyor in study area. Massive chorus of Gray Tree Frogs east of 20th sideroad.
Station B									
1 (>5°C)	21:10	9	1	Rain	10	-	SPPE 3	1 – Road Noise	SPPE chorus >500m away
2 (>10°C)	22:48	16	2	None	1	-	-	2 – Traffic, airplanes.	No amphibians heard or observed.
3 (>17°C)	22:31	22	0	None	2	-	GRTR 3	1 – Traffic	Some Gray Tree Frog calling onsite, one Green Frog calling within 100m of surveyor. Majority of calling heard was coming from off site by Green Tree

Visit	Start Time	Air Temp (°C)	Wind (Beau-fort)	Precipita tion	Cloud Cover (10ths)	Species Calling (Call Code-Individuals)		Background Noise (Code – Notes)	Notes
						In Station	Out of Station		
									Frogs (east of 20th side road). No amphibians observed on site.

4.8. Incidental Wildlife

Incidental wildlife observations made during fieldwork for the Subject Property are in *Table 8*.

Table 8. Incidental Wildlife Observations

Common Name	Scientific Name	Date	Evidence	Abundance
Red-tailed Hawk	*Bueto jamaicensis*	04/21/2023	Visual	1
Woodcock nest	*Scolopax minor*	04/21/2023	Visual	1
Chorus frogs	*Pseudacris triseriata*	04/21/2023	Auditory	Multiple
Spring Peepers	*Pseudacris crucifer*	04/21/2023	Auditory	Multiple
Chickadee	*Poecile atricapillus*	04/21/2023	Visual	Multiple
White-breasted Nuthatch	*Sitta carolinensis*	04/21/2023	Visual	1
American Robin	*Turdus migratorius*	04/21/2023	Visual	Multiple
European Starling	*Sturnus vulgaris*	04/21/2023	Visual	Multiple
Common Grackle	*Quiscalus quiscala*	04/21/2023	Visual	1
Field Sparrow	*Spizella pusilla*	04/21/2023	Visual	1
Song Sparrow	*Melospiza melodia*	04/21/2023	Visual	1
Vesper Sparrow	*Pooecetes gramineus*	04/21/2023	Visual	1
Eastern Meadowlark	*Sturnella magna*	04/21/2023	Visual	1
Red-winged Blackbird	*Agelaius phoeniceus*	04/21/2023	Visual	1

Common Name	Scientific Name	Date	Evidence	Abundance
Turkey Vultures	*Cathartes aura*	04/21/2023	Visual	Multiple
American Crow	*Corvus brachyrhynchos*	04/21/2023	Visual	Multiple
Eastern Phoebe	*Sayornis phoebe*	04/21/2023	Visual	1
Northern Cardinal	*Cardinalis cardinalis*	04/21/2023	Visual	1
Blue Jay	*Cyanocitta cristata*	04/21/2023	Visual	1
White-tailed Deer tracks	*Odocoileus virginianus*	04/21/2023	Visual	3 sets

5. Species at Risk Screening

A list of SAR and SOCC with the potential to occur in the study area (9) was prepared by reviewing the following sources:

- MNRF Land Information Ontario (LIO) digital mapping of natural heritage features
- Natural Heritage Information Centre (NHIC) database (Atlas ID: 17PK1212, 17PK1211)
- Species at Risk in Ontario (SARO) List Schedule 2 & 3
- Species at Risk Act (SARA), Schedule 1
- Ontario Breeding Bird, Butterfly, Moth, Reptile and Amphibian Atlases (Atlas Square: 17PK11)
- iNaturalist and eBird (citizen science databases)

The desktop background review identified 19 SAR that have been previously documented as occurring in the atlas square or citizen science database associated with the Study Area (9). Observations of SAR within these squares do not necessarily represent observations within the boundaries of the Study Area.

Table 9. Screening Results

Species		Status		
Common Name	**Scientific Name**	**S_Rank**	**SARO**	**SARA**
		Birds		
Caspian Tern	*Hydroprogne caspia*	S3B,S5M	NAR	-
Eastern Wood-Pewee	*Contopus virens*	S4B	SC	SC
Bald Eagle	*Haliaeetus leucocephalus*	S4	SC	-
Horned Grebe	*Podiceps auritus*	S1B,S3N,S4M	SC	-
Red-headed Woodpecker	*Melanerpes erythrocephalus*	S3	END	END
Red-necked Grebe	*Podiceps grisegena*	S3	NAR	NAR
Cerulean Warbler	*Setophaga cerula*	S2B	THR	END
Golden-winged Warlber	*Vermivora chrysoptera*	S3B	SC	THR
Common Nighthawk	*Chordeiles minor*	S4B	SC	THR
Bank Swallow	*Riparia riparia*	S4B	THR	THR
Barn Swallow	*Hirundo rustica*	S4B	SC	THR
Wood Thrush	*Hylocichla mustelina*	S4B	SC	THR
Bobolink	*Dolichonyx orzyvorus*	S4B	THR	THR
Eastern Meadowlark	*Sturnella magna*	S4B,S3N	THR	THR
Canada Warbler	*Cardellina canadensis*	S5B	SC	THR
		Amphibians and Reptiles		
Blanding's Turtle	*Emydoidea blandingii*	S3	THR	END
Midland Painted Turtle	*Chrysemys picta*	S4	-	SC
Snapping Turtle	*Chelydra serpentina*	S4	SC	SC
		Insects		
Monarch	*Danaus plexippus*	S2N,S4B	SC	END

[1] NHIC Database
[2] OBBA
[3] Ontario Reptile and Amphibian Atlas
[4] eBird Database
[5] Ontario Buttefly Atlas
[6] DFO Aquatic SAR Map
[7] iNaturalist

5.1. Assessment

Table 10. Potential SAR Habitat Within Subject Property

Common Name	Habitat Description	Habitat in Study Area	Rationale/Impacts
Blanding's Turtle	Shallow water in large wetlands and shallow lakes with abundant aquatic plant life. Organic soil, sand, gravel and cobblestone bottoms. Overwintering sites requires a water depth of 1m or more.	Potential	Suitable habitat exists within the wetland located on site.
Snapping Turtle	Most of their lives are spent in shallow waters. However during the breeding season, females travel overland in search of gravel or sandy sites to lay their eggs.	Potential	Suitable habitat exists within the wetland located on site.
Red-headed Woodpecker	Open woodland and woodland edges, and is often found in parks, golf courses and cemeteries.	Potential	Suitable habitat exists within the woodland located on site.
Eastern Wood-pewee	Mid-canopy layer of forest clearings and edges of deciduous and mixed forests.	Yes	Found at Station 3.
Wood Thrush	Mature deciduous and mixed forests.	Potential	Potential habitat exists within the Dry-Fresh Sugar Maple-Beech Deciduous Forest

Based on the screening, in combination with vegetation communities and other environmental features observed during field work, the following species were identified for further assessment:

Possibly Occurring

- Red-headed Woodpecker;

The red-headed woodpecker was already assessed as a species of special concern when the *Endangered Species Act* took effect in 2008. Red-headed woodpecker populations have declined by more than 60 percent

in Ontario in the last 20 years due to habitat loss caused by forestry, agricultural uses, and the removal of dead trees. This species typically occurs in open woodland and woodland edge habitats and typically perch, forage, and nest in areas with many snag trees. The species has an insect diet in the summer and feeds on acorns and beechnuts in the winter months. The red-headed woodpecker is a medium-sized bird and is easily distinguishable for its vivid red head and neck. The bird's wings are black and white, and the body is a uniform white colour. This species typically returns to the same nesting sites every year and both parents take care of the young.

- 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 rusty brown on the upper parts, have 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. These migrants fly south to Mexico and Central America for the winter. Major threats include the loss and fragmentation of forest habitat from urban, suburban and cottage development, over-browsing by white-tailed deer which decreases the number and type of plants and trees in the forest where the Wood Thrush nests, and parasitic behaviour from brown-headed cowbirds, which lay their eggs in the nests of the Wood Thrush (and other birds).

- Snapping Turtle;

The Snapping Turtle is Canada's largest freshwater turtle and was designated a Special Concern in 2009. Snapping Turtles spend most of their lives in water. They prefer shallow waters so they can hide under the soft mud and leaf litter, with only their noses exposed to the surface to breathe. During the nesting season, from early to mid summer, females travel overland in search of a suitable nesting site, usually gravelly or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits. During the summer, many turtles cross roadways in search of mates, food and nest sites. This is risky for turtles as they are too slow to get out of the way of moving vehicles. Eggs in nests around urban and agricultural areas are subject to predators such as raccoons and striped skunks.

- Blanding's Turtle;

The Blanding's Turtle was already assessed as threatened when the Endangered Species Act took effect in 2008 and a reassessment in May 2017 confirmed this status. This species usually lives in large wetlands and shallow lakes with lots of water and plants. They prefer shallow water, but it is not unusual to find them hundreds of metres from the nearest water body, especially while they are searching for a mate or traveling to a nesting site. They use culverts and roadside ditches as corridors when moving during breeding season, and from late October to the end of April they hibernate in the mud at the bottom of permanent water bodies.

Confirmed Presence

- Eastern Wood-pewee (seen during breeding bird observation);

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.

6. Significant Wildlife Habitat Screening

Significant Wildlife Habitat (SWH) is considered natural heritage and is addressed in 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 and an assessment of the potentially or confirmed occurring SWH.

6.1. Screening

Significant (and/or sensitive) Wildlife Habitat features and functions as described within the OMNRF Significant Wildlife Habitat Ecoregion Criteria Schedule for Region 7E (OMNRF, 2015) were reviewed and evaluated for the Study Area. The documented groups wildlife habitat into five main categories:

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

The full screening found in Appendix D 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 results of the assessment indicated the potential presence of candidate and confirmed SWH within four of the five categories, including:

- Seasonal Concentration Areas of Animals:
    - Terrestrial waterfowl stopover and staging areas
    - Shorebird migratory stopover areas

    - Raptor wintering area
    - Bat maternity colonies
    - Turtle wintering areas
    - Reptile hibernaculum
    - Colonially nesting bird breeding habitat – cliff and ground
    - Land bird migratory stopover areas
- Rare Vegetation Communities: N/A
- Specialized Habitat for Wildlife:
    - Waterfowl nesting area
    - Bald eagle and osprey nesting, foraging and perching habitat
    - Woodland raptor nesting habitat
    - Seeps and springs
    - Amphibian breeding habitat – woodland and wetland
- Habitat for Species of Conservation Concern (not including END or THR species):
    - Marsh bird breeding habitat
    - Shrub/early successional bird breeding habitat
    - Terrestrial crayfish
- Animal Movement Corridors:
    - Possible amphibian movement corridor
    - Lek (sharp-tailed grouse)

7. Proposed Development

As per Map 2 of the City of Barrie Official Plan (OP) (2023), the Subject Property contains the following designations (*Figure 3*):

- Natural Heritage System;
- Neighbourhood Area;
- Waste Disposal Assessment Area; and,
- Community Hub.

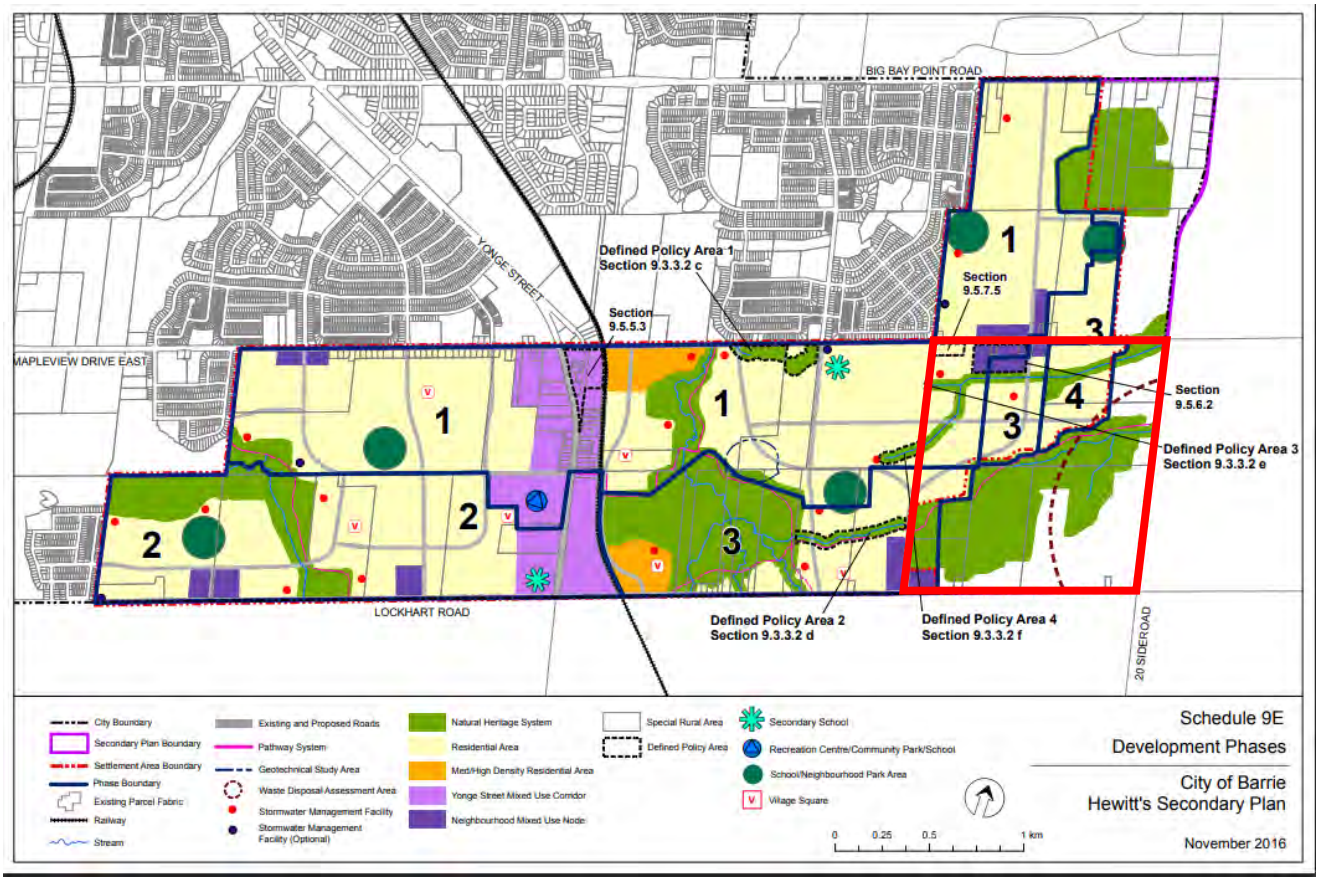

Figure 2. Land-use designations within Secondary Plan boundary and pertaining to the subject property (outlined in red).

The proposed works include the construction of stacked townhouses, condo townhouses, street townhouses, and single detached homes. A school and adjacent park, two parkettes and three stormwater management facilities are also proposed. A 30 m vegetation protection zone is proposed for the large NHS and the channelized watercourse in the north is to be redesigned as part of the Sandy Cove Creek realignment.

The proposed redesigned channel will include a naturalized watercourse with a natural meander and riffle/pool design. The associated channel corridor will be divided into two sub-corridors, including the wetland and the associated side slopes. Refer to for the proposed site plan.

7.1. Natural Heritage System Buffers

Natural heritage features and animal movement corridors exist within and throughout the subject property. A buffer of 30m has already been applied to the amphibian movement corridor and forested Natural Heritage feature in the center of the subject property. The corridor and natural heritage feature connect large, protected areas on both the eastern and western borders of the subject property. The movement corridor is located between a storm water management pond and a parkette, both of which are passive uses of land and will further buffer any negative impacts to the corridor.

7.2. Buffer Encroachments

To adhere to the required minimum lot setbacks, one small area of encroachment (52 m^2) into the 30 m wetland setback is proposed at the rear of two units on the south side of Street A. The depth of the encroachment is a maximum of 3.3 m and is adjacent to the reed canary grass meadow marsh wetland community which is a low sensitivity wetland as it relates to disturbance. This area of encroachment is offset in the 0.21 ha of environmental compensation land to the west of the proposed encroachment.

7.3. Sandy Cove Creek Realignment

Sandy Cove Creek is proposed to be realigned and naturalized as part of a separate permit review application with the LSRCA.

7.4. Stormwater Management, Grading, and Servicing Requirements

7.4.1. Grading

Grading is proposed in multiple locations along the edge of the 30 m wetland buffer. Grading encroachment is proposed in areas that are currently used for agriculture. These encroachments do not exceed 8 m into the buffer zone. It is proposed that these grading areas are revegetated to provide a naturalized buffer zone. See Map 4 for the proposed grading locations.

7.4.2. Functional Servicing and Stormwater Management

The Functional Servicing and Stormwater Management Report (FSR Report) for the proposed development was created by Shaeffers Consulting Engineers and included stormwater management criteria and design objectives.

Table 11. Selected Stormwater Management Design Criteria

Criteria	Control Measure
Quantity Control	Conform to the sub-watershed impact study (SIS) unitary release rates established for Sandy Cove Creek.
Quality Control	Enhanced stormwater quality must be provided for the site with 80% TSS removal from average annual flows via a treatment train solution.
Erosion Control	Runoff from a 25mm design storm to be detained and released over a period of at least 24 hours, as well as conforming to the requirements of sub-watershed studies.
Water Balance	BMPs should be used to match post-development infiltration volumes to pre-development levels on an annual basis due to the location of the subject property within a Significant Groundwater Recharge Area and Highly Vulnerable Aquifer area.
Phosphorous	LSRCA requires removal of 80% of annual Total Phosphorus load from all major development areas.

The stormwater management plan proposes the use of stormwater management ponds, including wet ponds that will achieve 80% TSS removal. Filtration cells will be included that conform with MECP guidelines to provide effective filtration effects. Erosion control will be addressed by controlling release rates based on storage and discharge rates set out in the SIS for each reach. LSRCA erosion control criteria pertaining to the extended detention of the 25mm storm event will also be addressed along with the SIS criteria. Some uncontrolled runoff toward the creek is expected from backyards which are anticipated to produce clean runoff.

7.4.3. Water Balance

A hydrogeological report prepared by R.J. Burnside dated January 2024 identifies the subject site within the Significant Groundwater Recharge Areas (SGRAs) and Highly Vulnerable Aquifer (HVA) areas, but not within the Wellhead Protection Q1/Q2 Areas (WHPAs). Therefore, BMP should be used to match post-development infiltration volumes to pre-development levels on an annual basis.

Schaeffers Consulting Engineers completed a detailed subdivision-wide water balance analyses as per the MECP Stormwater Management Planning and Design Manual. The parameters used in the analysis are obtained from R.J. Burnside's SIS and Hydrogeological reports, including annual precipitation, infiltration amount, runoff amount, and annual evapotranspiration. The analysis reveals a total pre-development annual infiltration amount of 90,819 m3 and it will drop to 30,840 m3 under post-development conditions if no mitigations are implemented. Thus, the combined annual pre-to-post-development infiltration deficit is calculated to be 59,979 m3. LID measures, like rain gardens in front lawns and bioretention swales in public boulevards, are proposed to meet the water balance deficits across the site. Rain gardens are included because they are more appropriate when the groundwater table is generally high due to their smaller depths. The proposed LID plan for the subdivision is available as part of the FSR Report prepared by Schaeffers which includes a map of the three catchments discussed in the northern and southern portions of the subject property.

The infiltration deficit for the northern area of the subject property is 14,727 m3/year. The mitigation measures proposed include a rain garden in the front yards of each single-detached residential lot and each townhouse lot. Each rain garden is sized at 1.50m x 1.50m x 0.30m (LxWxH) providing a volume retention of 0.27 m3. Bioretention swales are proposed along select boulevards identified in the LID plan with a width of 1.0m, a depth of 0.30m, and a total cumulative length of 99m. The final infiltration measure is the retention of 5mm in the site plan blocks. Overall, the combined effect of the mitigation measures provides an increase of 15,039 m3/year in infiltration, effectively eliminating the deficit. Detailed water balance calculations are found in Appendix D of the FSR Report.

The infiltration deficit for the southern area is determined to be 44,753 m3/year. The rain gardens for this portion of the subdivision will be proposed on each single-detached residential lot at 1.50m x 1.50m x 0.30m (LxWxH). Similarly to the northern area, bioretention swales are proposed on select boulevards which are determined to provide a 1m separation distance from the groundwater elevation. Additionally, narrow tanks along some boulevards will take minor storm flows and provide infiltration within 48 hours. Wider infiltration swales are proposed along the buffer zones of the natural heritage system area. The final infiltration measure is the retention of 5mm in the school block. These measures provide an increase of 44,522 m3/year in infiltration, leaving a minor deficit of 231 m3/year.

7.4.4. Phosphorous Control

The proposed phosphorous mitigation treatment approach are comprised of the wet pond, rain gardens, bioswales, and infiltration tanks. Each SWM pond should also be designed as a filter cell with Sorbtive media.

The phosphorous reduction values obtained from the LSRCA SWM Guidelines are listed as follows:

- Wet Pond: 63%
- Sorbtive Media: 79%
- Filtration Unit: 77% (based on the Jellyfish sizing report attached in Appendix D)
- Rain Gardens: 65%
- Bioretention Swales: 65%
- Infiltration Tanks: 60%
- Buffer Swales: 65%

Overall, the phosphorous removal efficiency for the subject site (52.21 ha) is calculated to be 92.1%. Phosphorus loading is expected to be reduced from 67.90 kg/year to 5.35 kg/year, which is less than the pre-development discharge load.

8. Environmental Impact Assessment

This section outlines the environmental impacts that might be expected to result from the proposed development. The potential impacts are outlined in terms of short- and long-term impacts. Appropriate mitigation measures have been recommended.

As is the case with most projects working within or adjacent to natural features, there is the potential for the proposed activities to create an impact on the natural feature. It is important to identify what these impacts may be and to provide measures to avoid the impacts if possible, or mitigate the impacts if avoidance is not possible. Impacts associated with development as proposed on the subject property tend to be either short term in nature, typically occurring during the construction period, or long term, usually related to permanent physical changes resulting from the development. If an impact cannot be avoided or completely mitigated, then a residual effect will remain. If a residual impact remains it must be determined if that impact is acceptable or not. If it is deemed to be unacceptable then adjustments to the proposed works are required to eliminate the residual effect.

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 that were considered in this assessment, the proposed activity associated with that component, potential short-term or long-term impacts, recommended mitigation measures, and discusses if any residual effects are anticipated.

Short term impacts are most likely to occur during the construction phase of the development. These impacts are considered transient, and only exist while the perturbation is occurring. Long term impacts are generally the result of land use changes that are permanent, or at least likely to be present in the foreseeable future. Examples of long-term impacts include the removal of natural heritage features, changes to flow regimes within watercourses and changing groundwater tables.

8.1. Direct Impact Assessment

Impacts to the natural heritage features associated with 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 each component, potential short-term and long-term impacts, recommended mitigation measures, and potential residual effects. Potential impacts were assessed using field collected data and secondary source information, including an overlay of the proposed site plan.

Table 12. Impact Assessment Table

Activity	Potential Impact	Mitigation Measures	Residual Effects
Short-term Impacts			
Noise from construction activity	Excessive noise could displace breeding birds within the study area. Noise may result in the avoidance of the adjacent areas during construction.	Since construction noise is very difficult to mitigate, the most effective measure is to limit construction activities during the breeding bird season during the time periods that birds are most active, at sunrise and sunset (April to August).	Noise impacts to wildlife may occur when construction is active. As the majority of the wildlife found within the local landscape are tolerant to disturbances, they are anticipated to return to the area once construction activities end. No residual effects expected.
Dust from construction activity	Dust from construction activities could drift into neighboring properties.	Water suppression of dust should occur for all construction activities during site grading when conditions are dry or strong winds are anticipated.	Residual effects are anticipated to be minor and short termed given appropriate mitigation measures are incorporated to reduce levels of dust due to construction.
Grading	Sediment and Erosion into watercourses & wetlands.	Sediment and erosion control (ESC) measures should be implemented prior to construction commencement. ESC should be continually monitored for effectiveness at preventing sediment transport into watercourses and associated wetlands, especially during high rainfall events.	Implementation of applicable mitigation measures is expected to reduce or eliminate impacts of sediment and erosion into watercourses and associated wetlands.
Site clearing/tree removal	Removal of 275 trees is required to accommodate proposed development. An additional 149 trees will be removed due to hazardous conditions.	Vegetation clearing should not occur between April 1st and August 31st as per the Migratory Birds Convention Act (MBCA, 1994). If clearing is to occur during this time, a nest survey must be completed by a qualified avian 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. Revegation of the proposed vegetation protection zones is expected to provide replacement and enhanced tree cover over time to offset tree removals.
Building Construction	Water contamination by oils, gasoline, grease and other materials	Control water contamination through good housekeeping practices such as safely storing all chemicals and fuels, having spill kits on-site, do not clean equipment near natural areas etc.	If mitigation measures are followed, no residual impacts are anticipated.
Long-term Impacts			

Activity	Potential Impact	Mitigation Measures	Residual Effects
Grading and drainage alteration	Grading may alter drainage volumes and patterns across the study area, which may impact the water balance of wetlands and watercourses.	Implement appropriate stormwater controls to maintain the water balance of wetlands and watercourses in the study area.	No residual effects expected.
Grading in the wetland buffer	Grading could impact the quality of the wetland buffer zone.	Plant the graded areas with native vegetation.	No residual effects expected.
Construction of roadways, sidewalks and impermeable surfaces	Potential for contaminated runoff (i.e. automotive chemicals, chlorides) to enter the adjacent natural area and negatively impact the Escarpment.	Construction of impermeable surfaces should be deliberately designed as to not allow contaminated runoff to enter wetlands or watercourses.	If mitigation measures are followed, no residual impacts are anticipated.
Stormwater	Stormwater runoff may contain contaminants as a result of increased residential uses in the study area.	Implement appropriate stormwater management best practices to treat stormwater runoff prior to its release into the watershed.	If mitigation measures are followed, no residual impacts are anticipated.
Residential development	Noise and light pollution from buildings can negatively affect wildlife behavior within remaining natural features.	Lights directed downward & and away from natural heritage features will reduce the amount of ambient light from the proposed development. Outdoor lighting should be avoided/minimized in areas facing the natural heritage system. Provide educational pamphlet to owners backing onto the natural heritage system which outlines the importance of reducing outdoor lighting adjacent to the natural area. Planting within the proposed natural heritage buffers should also help to reduce light impacts to the natural heritage system, particularly as the trees and shrubs mature and grow in height, helping to block light generated from the development.	Due to the disruptive effect lighting can have on wildlife (including insects), it is important to make efforts to reduce its impacts. The shielding and downward casting lights are good steps to reducing impacts. This combined with an educational component should help address the concern.
Residential development	Dumping or disposal of trash into natural features.	Provide owners a manual to promote stewardship.	Fencing combined with the natural heritage feature buffers should help to reduce dumping into the natural heritage system.

Activity	Potential Impact	Mitigation Measures	Residual Effects
Residential development	Disturbance to Species at Risk and Significant Wildlife Habitat	The proposed natural heritage buffers should provide a suitable buffer to mitigate the effects of residential dwellings to any wildlife utilizing the natural heritage system. Provide owners a manual to promote stewardship and describe the impacts of human disturbance on local ecosystems and wildlife. Landscape plantings should consist of native, non-invasive species.	If native, non-invasive landscape plantings are utilized in the buffers along with the provision of educational materials for residents, no residual effects are expected.

8.2. Indirect Impact Assessment

Indirect impacts stem from activities that have secondary consequences rather than direct outcomes. They often arise from factors such as an increase in population or density, and modifications to transportation networks. An example of an indirect impact could be light pollution disrupting the navigation of migrating birds during the night, leading to potential window collisions. Indirect impacts can still have a significant affect on the surrounding wildlife and environment.

The proposed development will increase the population in the local area, which will result in more traffic, noise, and light. These factors can all have negative impacts on natural areas. In the case of this development, and specifically at the subject property, the development will result in a shift in wildlife use and interactions because of the increased population density and its associated daily activities. Light pollution could be an issue with the increase in nighttime lighting. It has been shown to confuse insects, especially moths and lead to death from exhaustion. It is recommended that outdoor lighting is kept to a minimum, is down casting, covered on its sides to reduce horizontal projection, and window coverings are used to reduce its effects when lights are kept on for extended periods in the night.

As the property will only support wildlife habitat for those species most tolerant of an urban setting, it is unlikely future wildlife utilizing the property will be impacted by the increase in traffic and noise. Species utilizing the site will be accustomed to urbanization and generally thrive in these types of settings. This included animals such as grey squirrel, raccoon, mice, fox, and common backyard bird feeder birds. Residence planting pollinator gardens can have a positive influence on many insects, including bees and butterflies.

8.3. Cumulative Impacts

Cumulative impacts refer to alterations in the environment resulting from historical, current, and expected future activities. The study area is a combination of agricultural areas and natural environment, the change to a residential development will be within the agricultural areas with the natural heritage areas protected.

The proposed development is occurring within a rural landscape, resulting in natural areas that have already undergone and continue to undergo anthropogenic stressors. These stressors have played a role in the form and function the surrounding natural areas, including ambient noise and light conditions, shifts in insect communities, shifts towards urban tolerant wildlife, and changes in both surface and groundwater flow and volumes. The proposed development will result in a continuation of a shift towards an urban landscape that supports species most adept at living with anthropogenic disturbances and stressors. Recognizing the role that urbanization has on adjacent natural areas, and will continue to have, the proposed development has included mitigation measures to reduce these cumulative impacts, in an effort to limit them as much as possible. This includes measures such as using native species reflective of the local area in the planting plans and including wildlife habitat structures where possible.

9. Mitigation Measures and Recommendations

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.

9.1. Natural Heritage System Measures

- Minimize outdoor lighting and direct it down and away from natural areas.
- Plant the 30 m setback with native trees and shrubs and include wildlife habitat structures such as bat boxes, raptor perching poles, brush and stone piles.
- Plant native trees throughout the development (i.e., along roads, landscaping, parks and open space areas, etc.)

9.1.1. Tree Preservation Measures

The findings of the study indicate a total of 450 individual trees on and within six metres of the proposed development. The removal of 275 individual trees is required to accommodate the proposed development and channel reconstruction. The removal of an additional 149 trees is recommended due to poor and/or hazardous condition. Preservation of 34 individual trees will be possible with the use of the recommended tree protection measures. The following recommendations are suggested to minimize impacts to trees identified for preservation.

- Tree protection barriers and fencing should be erected at locations as prescribed in the tree protection plan. All tree protection measures should follow the guidelines as set out in the tree preservation plan notes and the tree preservation fencing detail.
- Branches and roots that extend beyond prescribed tree protection zones that require pruning must be pruned by a certified arborist or other tree professionals. All pruning of tree roots and branches must be in accordance with Good Arboricultural Standards.
- Site visits, during all phases of construction (pre, during and post) is recommended by either a certified arborist (I.S.A.) or registered professional forester (R.P.F.) to ensure proper utilization of tree protection barriers. Trees should also be inspected for damage incurred during construction to ensure appropriate pruning or other measures are implemented.
- Five of the trees proposed for removal are protected by City By-laws and require written consent and or a permit for removal. The party responsible for injury to the trees shall replace the trees based on the appraisal methods outlined by the City of Barrie.

This Tree Preservation Plan was prepared to address tree saving requirements of the City of Barrie Tree By-Law 2014-115 and the Tree Protection Manual version 4, dated Jan. 2019. For construction projects longer than 2 weeks (10 business days), the minimum Tree Protection (TPZ) must be delineated by a preservation fence following the City of Barrie Standard Details BSD-1232 (Figure 4). This may be used in conjunction with siltation control.

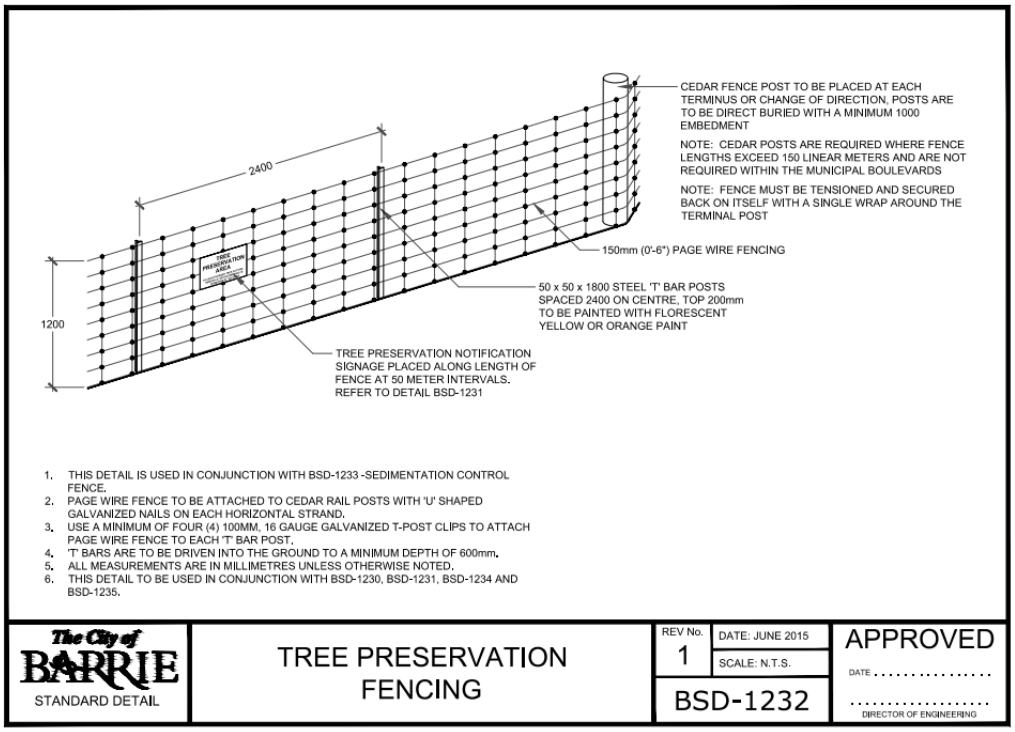

Figure 3. City of Barrie Standard Details BSD-1232.

The following is a list of the basic rules of surrounding work near or under a TPZ:

- No excavating or trenching is permitted within the minimum TPZ;
- Directional micro tunnelling and boring is permitted within (under) a TPZ as long as it is at a minimum depth of 1 metre; and,
- When using open face cuts, root pruning must be completed by a qualified arborist or approved tree professional.

A sign that is similar to 5 may be required to be mounted on all sides of a Tree Protection Barrier for trees protected by the Trees on City Streets By-law and the Private Tree By-law. The sign should be a minimum of 40cm x 60cm and made of white gator board or equivalent material.

Figure 4. City of Barrie Standard Details BSD-1231

9.2. Construction Measures

General construction related mitigation measures include the following:

- Tree removal should occur outside of the breeding bird window and the bat roosting windows of May to October.
- 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.
- 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;
- 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.

10. Policy Conformity

An outline of the applicable policies, including federal, provincial, and municipal protection and planning policies and regulations, relative to the study area was provided in Section 2 of this report. In conformity with the policies identified within the PPS, City of Barrie Official Plan, LSRCA regulations, and the Lake Simcoe Protection Plan, an evaluation of how the study area complied with these policies concludes that the proposed development meets the requirements of mitigating impacts on wildlife habitat and natural functions of the Study Area.

11. Summary and Recommendations

In conformity with the policies identified within the PPS, City of Barrie OP (2023) an evaluation of how the Subject Property complied with these policies, as well as correspondence with the DFO, City of Barrie staff and the LSRCA concludes that the proposed development limit respects the Natural Heritage System.

Based on minimum lot setbacks, one small area of encroachment (52 m^2) into the 30 m setback is proposed at the rear of two units on the south side of Street A. The depth of the encroachment is a maximum of 3.3 m and is adjacent to the reed canary grass meadow marsh wetland community which is a low sensitivity wetland as it relates to disturbance. This area of encroachment is offset in the 0.21 ha of environmental compensation land west of the proposed encroachment.

Any potential impacts associated with the proposed development can be mitigated through appropriate mitigation measures. Impacts on species at risk is expected to be minimal if proper mitigation measures are implemented since all potential SAR habitat is located within the protected NHS. Planning, design, and offsetting identified for the Subject Property will promote the protection of natural features outlined in this report.

12. References

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Barrie DIV EIS Restructuring

Prepared for DIV Development (Barrie) Limited

May 14, 2024

Prepared by: A. Ul-Ain, L. Barnett, & D. Hock

Devin Hock
Ecologist & Water Resources Specialist

Reviewed by:

Ian Roul
Senior Ecologist

Disclaimer

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Information obtained during the site investigations or received from third parties does not exhaustively cover all possible environmental conditions or circumstances that may exist in the study area. If a service is not expressly indicated, it should not be assumed that it was provided. Any discussion of the environmental conditions is based upon information provided and available at the time the conclusions were formulated.

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Project Number P2022-635

Maps

Legend

Subject Property

N

0 1 2 km

Prepared using QGIS and Google Satellite Imagery

GeoProcess RESEARCH ASSOCIATES

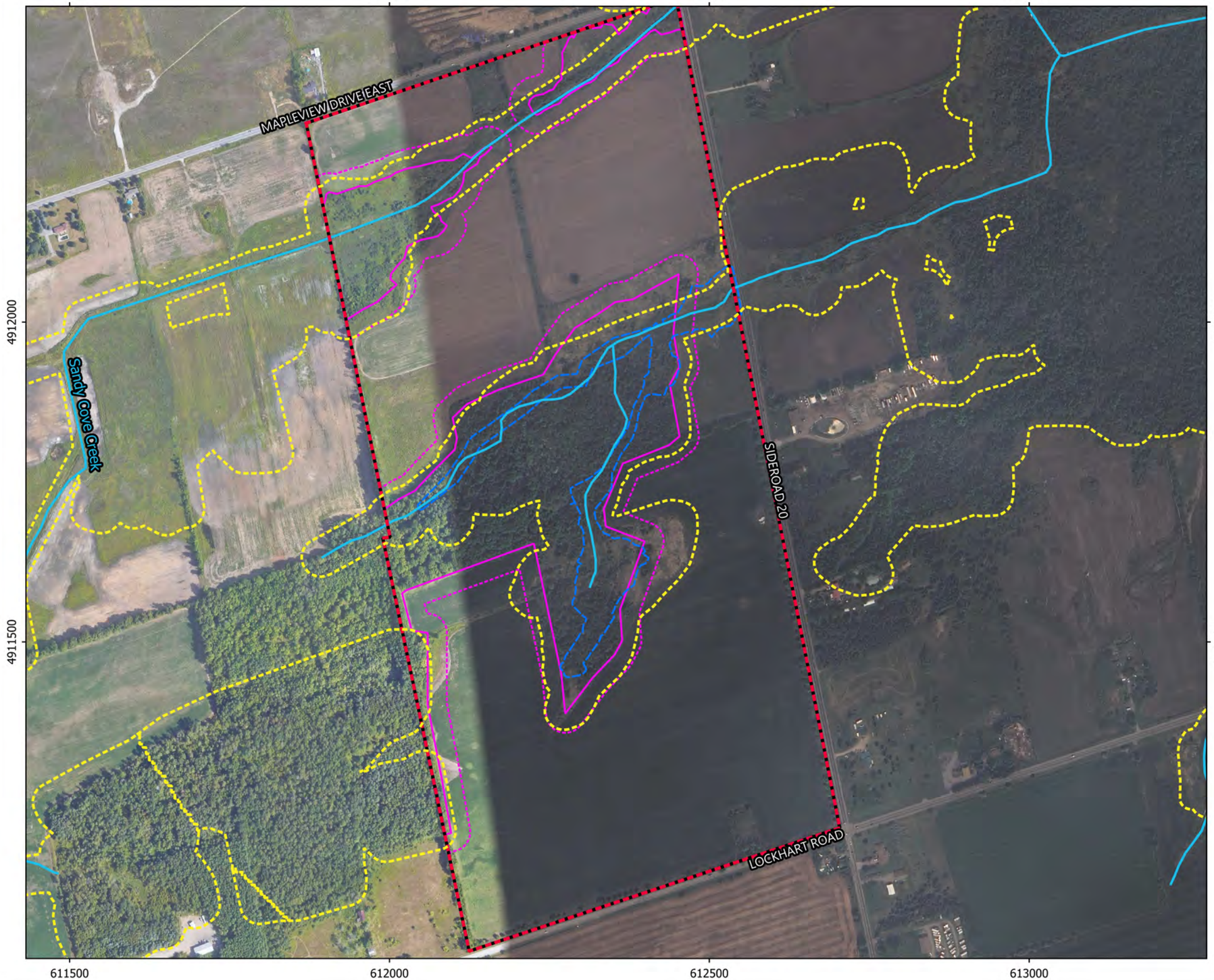
CREATED BY:	DH	PROJECT NO.:	P2022-635
CHECKED BY:	IR	DATE:	Apr 11, 2024

Map 1.

Key Map

Development Limit Confirmation
Mapleview Drive and 20th Sideroad
DIV Development (Barrie) Limited

G:\Shared drives\Projects-2022\P2022-635 Barrie DIV Lands\GIS\Project\Dorsay.qgz



Legend

- Subject Property
- Watercourses
- LSRCA Regulated Area
- Existing Regional Floodline
- Wetland Limits - Staked with LSRCA
- 30 m Wetland Buffer

N

0 50 100 150 200 250 m

Prepared using QGIS and Google Satellite Imagery

GeoProcess RESEARCH ASSOCIATES

CREATED BY:	DH	PROJECT NO.:	P2022-635
CHECKED BY:	IR	DATE:	May 02, 2024

Map 2.

Regulatory and Natural Heritage Feature Limits

Development Limit Confirmation
Mapleview Drive and 20th Sideroad
DIV Development (Barrie) Limited

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611500 612000 612500 613000

4912000

4911500

MAPLEVIEW DRIVE EAST

Sandy Cove Creek

LOCKHART ROAD

SIDEROAD 20

Legend

- Subject Property
- Watercourses
- ELC Polygon
- Amphibian Survey Points
- Breeding Bird Points

Ecological Land Classification

1) SWTM3-6 / MEFM1-1: Mixed Willow Mineral Deciduous Thicket Swamp / Goldenrod Forb Meadow
2) MEFM1-1: Goldenrod Forb Meadow
3) MAM2: Mixed Mineral Meadow Marsh
4) SWC1-1: White Cedar Mineral Coniferous Swamp
5) SWMO4-2: Hemlock- Hardwood Organic Mixed Swamp
6) FOD5-2: Dry - Fresh Sugar Maple - Beech Deciduous Forest
7) THDM4-1: Native Deciduous Regeneration Thicket
8) MAM2-2: Reed-canary Grass Graminoid Mineral Meadow Marsh/Meadow
9) MEMM4: Fresh - Moist Mixed Meadow
10) SWM1-1: White Cedar - Hardwood Mineral Mixed Swamp
11) OAGM1: Annual Row Crops
12) OAGM2: Perennial Cover Crops
13) TAGM5: Fencerow
14) CVR3: Single Family Residential
15) CVR3: Single Family Residential (abandoned)
16) MEMM3: Dry Fresh Mixed Meadow
17) CUT1-1: Sumach Deciduous Shrub Thicket Type
18) MAM2: Gramminoid Mineral Meadow Marsh

N

0 50 100 150 200 250 m

Prepared using QGIS and Google Satellite Imagery

GeoProcess RESEARCH ASSOCIATES

CREATED BY:	DH	PROJECT NO.:	P2022-635
CHECKED BY:	IR	DATE:	May 02, 2024

Map 3.

Ecological Land Classification and Survey Locations

Development Limit Confirmation
Mapleview Drive and 20th Sideroad
DIV Development (Barrie) Limited

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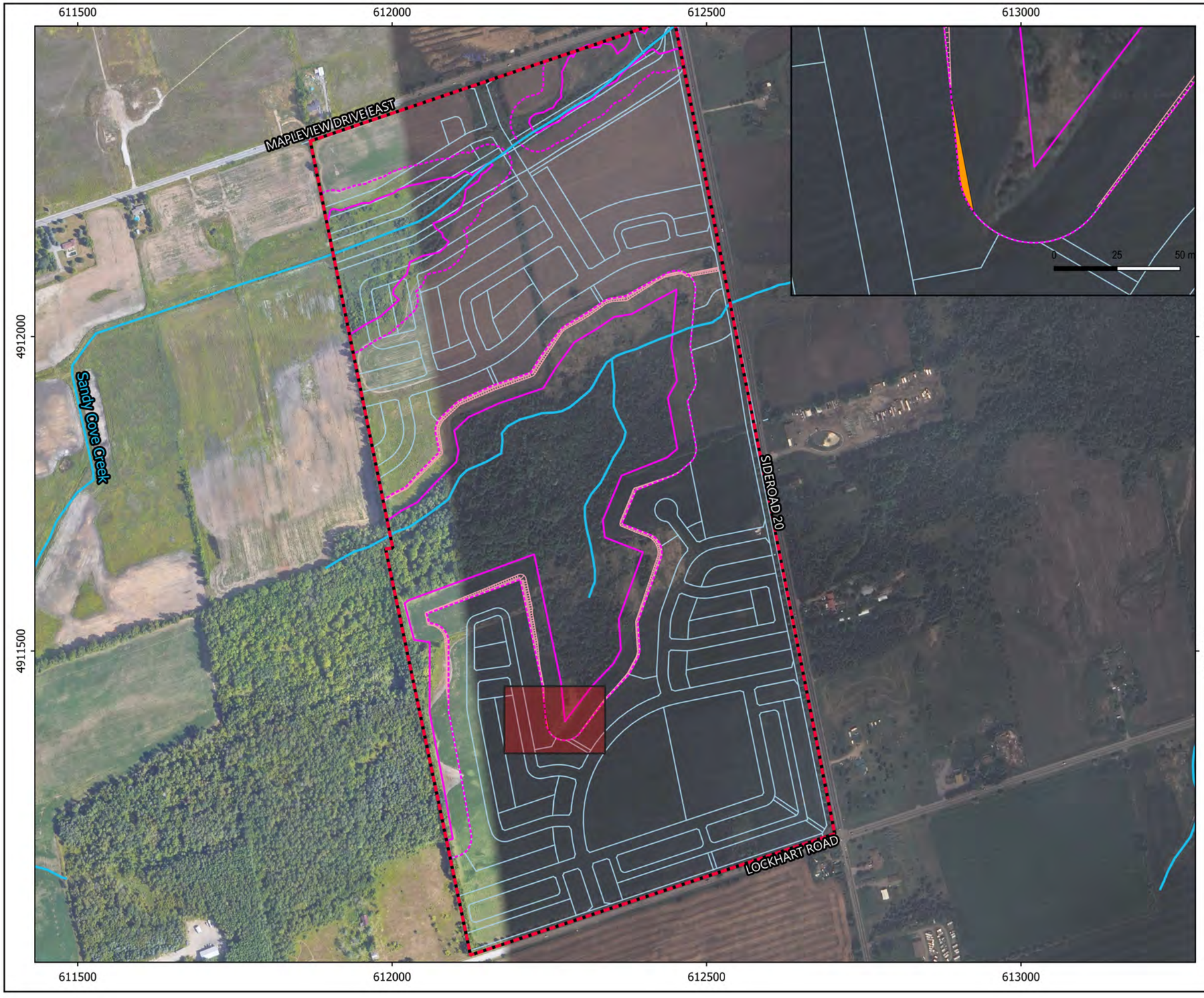


Legend

- Subject Property
- Watercourses
- Wetland Limits - Staked with LSRCA
- 30 m Wetland Buffer
- Wetland Buffer Encroachment Area
- Grading

N

0 50 100 150 200 250 m

Prepared using QGIS and Google Satellite Imagery

GeoProcess RESEARCH ASSOCIATES

CREATED BY:	DH	PROJECT NO.:	P2022-635
CHECKED BY:	IR	DATE:	May 02, 2024

Map 4.

Proposed Site Plan

Development Limit Confirmation
Mapleview Drive and 20th Sideroad
DIV Development (Barrie) Limited

G:\Shared drives\Projects-2022\P2022-635 Barrie DIV Lands\GIS\Project\Dorsay.qgz

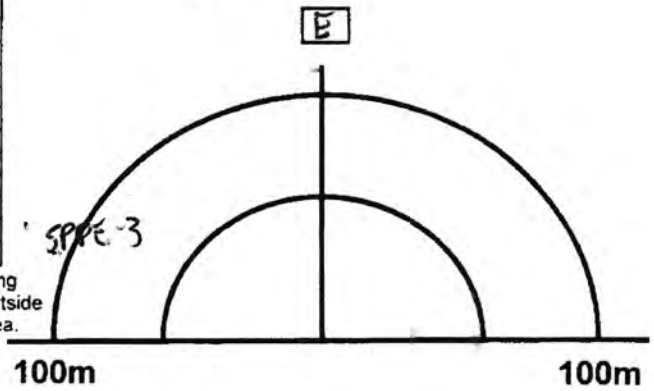
Appendix A

Field Sheets from Amphibian Survey

Species	In*	Out*
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	√	√
WOFR		

* Check if species calling from inside and/or outside 100-metre station area.

Station A ELC18



Amphibian Data Form

Return by 31 July to Aquatic Surveys Officer, Bird Studies Canada, P.O. Box 160, Port Rowan, Ontario, Canada, N0E 1M0

Please write legibly (in pen).

Observer: SD		
Route name:		
Date (dd-mm-yr): 04 05 23	Visit No.: 1	Start time (24 hr clock):
Beaufort Wind Scale No.: 1	Cloud Cover (10ths): 10	Air Temp (°C or °F): 9°C
Precipitation (check one): None/dry:____ Damp/Haze/Fog:____ Drizzle:____ Rain:√		
Has the habitat on your route changed from previous years: Yes:____ No:____ Not applicable:____		
Remarks:		

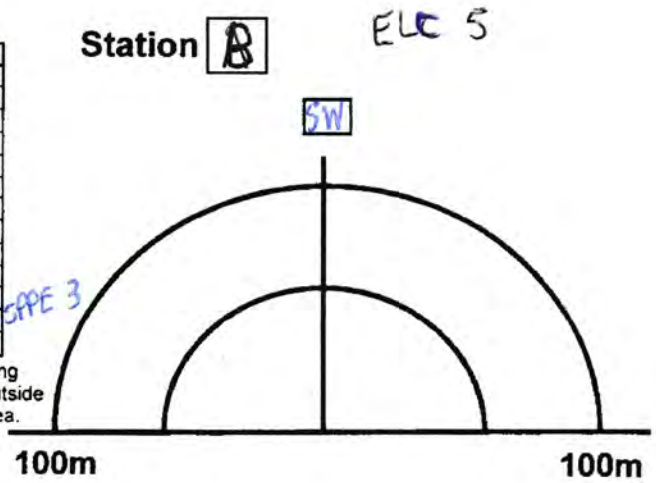
CALL LEVEL CODES
Code 1: Calls not simultaneous, number of individuals can be accurately **counted**
Code 2: Some calls simultaneous, number of individuals can be reliably **estimated**
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

Background Noise Code 1-4: ROAD NOISE

Comments: SPPE CHORUS COMING FROM WOODED AREA NE OF MAPLEVIEW/20th SIDEROAD

Species	In*	Out*
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		✓
WOFR		

* Check if species calling from inside and/or outside 100-metre station area.



Amphibian Data Form

Return by 31 July to Aquatic Surveys Officer, Bird Studies Canada, P.O. Box 160, Port Rowan, Ontario, Canada, N0E 1M0

Please write legibly (in pen).

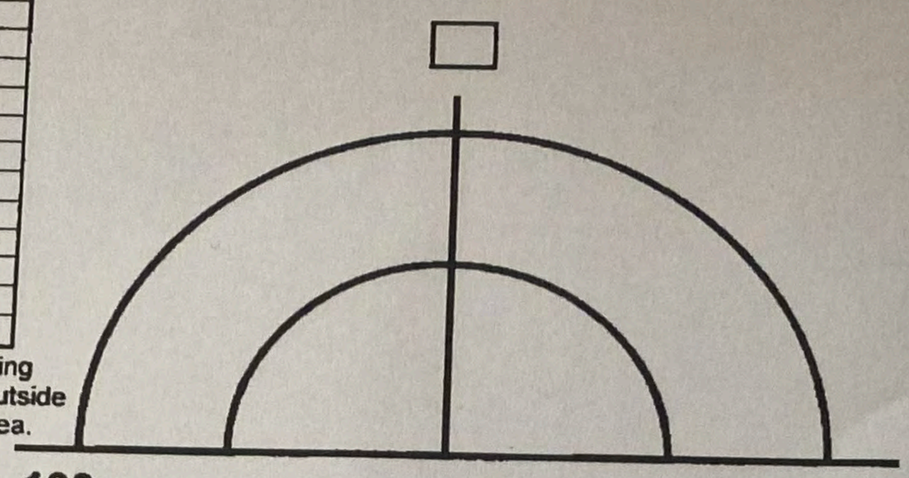
Observer: SD		
Route name:		
Date (dd-mm-yr): 04 05 23	Visit No.: 1	Start time (24 hr clock): 21:10
Beaufort Wind Scale No.: 1	Cloud Cover (10ths): 10	Air Temp (°C or °F): 9°C
Precipitation (check one): None/dry: ✓	Damp/Haze/Fog:____	Drizzle:____ Rain:____
Has the habitat on your route changed from previous years: Yes:____	No:____	Not applicable:____
Remarks:		

CALL LEVEL CODES
Code 1: Calls not simultaneous, number of individuals can be accurately **counted**
Code 2: Some calls simultaneous, number of individuals can be reliably **estimated**
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

Background Noise ROAD NOISE
Code 1-4:
Comments: CHORUS OF SPPE ~~DIRECTLY~~ BEHIND, + 500 METRES AWAY

Species	In*	Out*
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species calling from inside and/or outside 100-metre station area.



Amphibian Data Form

Return by 31 July to Aquatic Surveys Officer, Bird Studies Canada, P.O. Box 160, Port Rowan, Ontario, Canada, N0E 1M0

Please write legibly (in pen).

Observer: Britt Quesnel		
Route name: Barrie DIV - forested wetland		
Date (dd-mm-yr): 06-06-23	Visit No.: 2	Start time (24 hr clock): 22:48
Beaufort Wind Scale No.: 2	Cloud Cover (10ths): 1	Air Temp (°C or °F): 16
Precipitation (check one): None/dry: ✓	Damp/Haze/Fog:_____	Drizzle:_____ Rain:_____
Has the habitat on your route changed from previous years: Yes:_____	No:_____	Not applicable:_____
Remarks:		

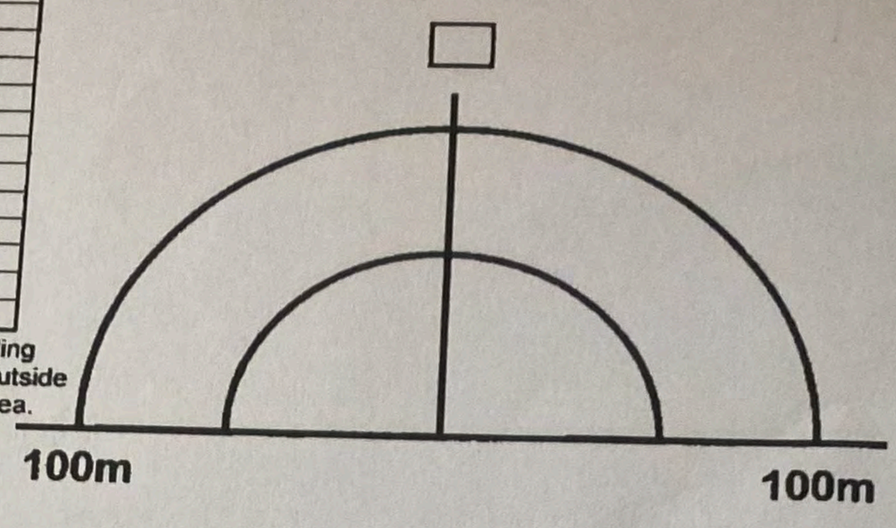
CALL LEVEL CODES
Code 1: Calls not simultaneous, number of individuals can be accurately **counted**
Code 2: Some calls simultaneous, number of individuals can be reliably **estimated**
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

Background noise: 2
- some traffic
- light wind
- airplane overhead

Species	In*	Out*
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species calling from inside and/or outside 100-metre station area.

Station H



20th Sideroad

Mapleview

Amphibian Data Form

Return by 31 July to Aquatic Surveys Officer, Bird Studies Canada, P.O. Box 160, Port Rowan, Ontario, Canada, N0E 1M0

Please write legibly (in pen).

Observer: Britt Quesnel		
Route name: Barrie DIV - Mapleview / 20th Sideroad		
Date (dd-mm-yr): 06-06-23	Visit No.: 2	Start time (24 hr clock): 23:16
Beaufort Wind Scale No.: 1	Cloud Cover (10ths): 0	Air Temp (°C or °F): 15
Precipitation (check one): None/dry: 6	Damp/Haze/Fog:____	Drizzle:____ Rain:____
Has the habitat on your route changed from previous years: Yes:____	No: 6	Not applicable:____
Remarks:		

CALL LEVEL CODES
Code 1: Calls not simultaneous, number of individuals can be accurately **counted**
Code 2: Some calls simultaneous, number of individuals can be reliably **estimated**
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

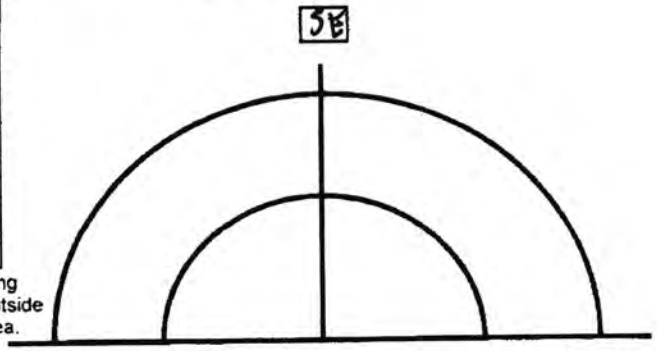
Background noise: 1
- light traffic

INTERSECTION

Species	In*	Out*
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species calling from inside and/or outside 100-metre station area.

Station A



NONE

Amphibian Data Form

Return by 31 July to Aquatic Surveys Officer, Bird Studies Canada, P.O. Box 160, Port Rowan, Ontario, Canada, N0E 1M0

Please write legibly (in pen).

Observer: SD		
Route name: MAPLE VIEW DRIVE BARRIE		
Date (dd-mm-yr): 04-07-23	Visit No.: 3	Start time (24 hr clock): 2255
Beaufort Wind Scale No.: 0	Cloud Cover (10ths): 2	Air Temp (°C or °F): 22°C
Precipitation (check one): None/dry: ✓	Damp/Haze/Fog:____	Drizzle:____ Rain:____
Has the habitat on your route changed from previous years: Yes:____	No:____	Not applicable:____
Remarks:		

CALL LEVEL CODES
Code 1: Calls not simultaneous, number of individuals can be accurately **counted**
Code 2: Some calls simultaneous, number of individuals can be reliably **estimated**
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

Background Noise Code 1-4: 3
Comments: 3 INDIVIDUAL GRTR BEHIND ME WITHIN 100 METRES BUT MASSIVE CHORUS OF GRTR ACROSS ROAD OPP PROPERTY/ ROAD NOISE

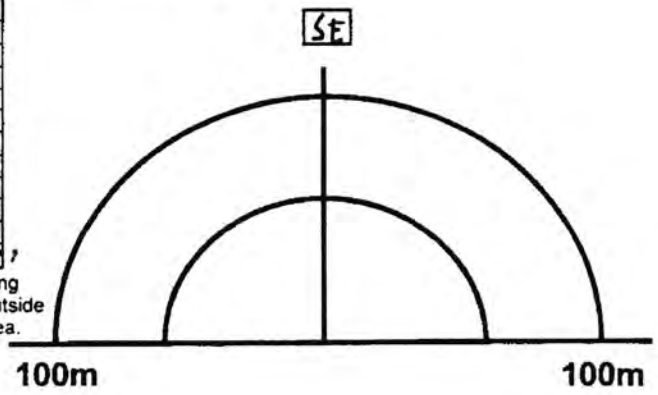
INLAND

Species	In*	Out*
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		✓
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

GRFR 3

* Check if species calling from inside and/or outside 100-metre station area.

Station B



Amphibian Data Form

Return by 31 July to Aquatic Surveys Officer, Bird Studies Canada, P.O. Box 160, Port Rowan, Ontario, Canada, N0E 1M0

Please write legibly (in pen).

Observer:	SD
Route name:	MAPLEVIEW DRIVE BARRIE

Date (dd-mm-yr): 04-07-23	Visit No.: 3	Start time (24 hr clock): 22:31
Beaufort Wind Scale No.: 0	Cloud Cover (10ths): 2	Air Temp (°C or °F): 22C
Precipitation (check one): None/dry: ✓	Damp/Haze/Fog:____	Drizzle:____ Rain:____
Has the habitat on your route changed from previous years: Yes:____	No:____	Not applicable:____
Remarks:		

CALL LEVEL CODES
Code 1: Calls not simultaneous, number of individuals can be accurately **counted**
Code 2: Some calls simultaneous, number of individuals can be reliably **estimated**
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

Background Noise Code 1-4: SOME GRTR WITHIN SUBJECT PROPERTY BUT MOST ~~ARE~~ ACROSS THE ROAD (EAST SIDE OF 20TH SIDEROAD)

Comments: ONE GREEN FROG CALL BUT NOT WITHIN RADIUS, WITHIN 100 METRE BEHIND ME

ROAD NOISE

Appendix B

Tree Inventory Field Data

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
1	Private	White Ash	*Fraxinus americana*	17	G	G	G	2	Remove	
2	Private	Red Oak	*Quercus rubra*	28.5	G	G	G	3	Remove	LDD cases
3	Private	Red Oak	*Quercus rubra*	28.5	G	G	G	3	Remove	LDD case
4	Private	Red Oak	*Quercus rubra*	16.5	G	G	G	2	Remove	LDD
5	Private	Red Oak	*Quercus rubra*	27	G	G	G	3	Remove	LDD, and grape vine
6	Private	Red Oak	*Quercus rubra*	14	G	F	F	2	Remove	canopy competition
7	Private	Red Oak	*Quercus rubra*	13	G	F	G	2	Remove	canopy comp
8	Private	Red Oak	*Quercus rubra*	12	G	G	G	2	Remove	LDD
9	Private	Red Oak	*Quercus rubra*	21.5	G	G	G	3	Remove	LDD eggs, canopy comp
10	Private	Red Oak	*Quercus rubra*	10.5/28.5	G	G	G	3	Remove	
11	Private	Norway Maple	*Acer platanoides*	20	G	G	G	2	Remove	
12	Private	Norway Maple	*Acer platanoides*	26.5	G	G	G	3	Remove	
13	Private	Norway Maple	*Acer platanoides*	46	G	G	G	4	Remove	
14	Private	White Birch	*Betula papyrifera*	27	G	G	G	3	Remove	LDD egg masses
15	Private	Norway Maple	*Acer platanoides*	53	G	G	G	6	Remove	cankers
16	Private	Silver Maple	*Acer saccharinum*	27/25/26	F	F	F	3	Remove	included bark, crack in trunk
17	Private	Norway Maple	*Acer platanoides*	34.5	G	F	G	4	Remove	cracked lower stem
18	Private	Silver Maple	*Acer saccharinum*	44.5,17.5,36	F	G	G	5	Remove	included bark
19	Private	Silver Maple	*Acer saccharinum*	37	G	G	G	4	Remove	
20	Private	Silver Maple	*Acer saccharinum*	51	G	G	G	6	Remove	
21	Private	Silver Maple	*Acer saccharinum*	52	F	G	G	6	Remove	one weak trunk
22	Private	Silver Maple	*Acer saccharinum*	45	G	G	G	5	Remove	
23	Private	Silver Maple	*Acer saccharinum*	7*10-20	F	F	G	4	Remove	trunk competition from multi-stem growth
24	Private	Silver Maple	*Acer saccharinum*	46	G	G	G	5	Remove	
25	Private	Silver Maple	*Acer saccharinum*	44	F	F	G	4	Remove	epicormic branching, new

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
										trunk growth from main trunk
26	Private	Silver Maple	*Acer saccharinum*	26	G	G	G	4	Remove	
27	Private	Silver Maple	*Acer saccharinum*	41.5	F	G	G	4	Remove	trunk crack
28	Private	Norway Maple	*Acer platanoides*	37.5	G	G	G	4	Remove	
29	Private	Norway Maple	*Acer platanoides*	40.5	G	G	G	4	Remove	
30	Private	Norway Maple	*Acer platanoides*		F	F	F	5	Remove	flaking bark
31	Private	Silver Maple	*Acer saccharinum*	32	F	F	G	4	Remove	lower dead branches
32	Private	Norway Maple	*Acer platanoides*	20.5,15,13.5	G	G	G	3	Remove	
33	Private	Manitoba Maple	*Acer negundo*	22/19.5	F	G	G	3	Remove	
34	Private	Norway Maple	*Acer platanoides*	28	G	G	G	3	Remove	
35	Private	Manitoba Maple	*Acer negundo*	46.5	F	F	F	5	Remove	
36	Private	Norway Maple	*Acer platanoides*	37	G	G	G	3	Remove	Crimson King"
37	Private	Norway Maple	*Acer platanoides*	31	G	G	G	2	Remove	LDD eggs
38	Private	Norway Maple	*Acer platanoides*	13.5-19*4	F	G	G	7	Remove	inclusion bark low to ground,
39	Private	Norway Maple	*Acer platanoides*	21/19/15	G	G	G	3	Remove	
40	Private	Norway Maple	*Acer platanoides*	29	P	F	F	3	Remove	rotten trunk
41	Private	Norway Maple	*Acer platanoides*	31.5	F	G	G	3	Remove	crack in trunk, LDD
42	Private	Norway Maple	*Acer platanoides*	29.5,22.5	G	G	G	3	Remove	LDD,
43	Private	Norway Maple	*Acer platanoides*	47	G	G	G	6	Remove	db lower
44	Private	Norway Maple	*Acer platanoides*	32	P	F	F	6	Remove	rotted trunk
45	Private	Norway Maple	*Acer platanoides*	19-25	G	G	G	5	Remove	MS,
46	Private	Norway Maple	*Acer platanoides*	43.5	F	G	G	6	Remove	exposed root trunks
47	Private	Norway Maple	*Acer platanoides*	50	G	G	G	6	Remove	bleaching

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
48	Private	Silver Maple	*Acer sacharinum*	37, 37	F	G	G	6	Remove	pot for split lower base
49	Private	Silver Maple	*Acer sacharinum*	23, 17	G	G	G	5	Remove	old rotting wood at base
50	Private	Silver Maple	*Acer sacharinum*	70, 35	G	G	G	6	Remove	cd, db
51	Private	Silver Maple	*Acer sacharinum*	38, 20	G	G	G	5	Remove	Cd
52	Private	Silver Maple	*Acer sacharinum*	51	G	G	G	4	Remove	
53	Private	Silver Maple	*Acer sacharinum*	50	G	G	G	5	Remove	
54	Private	Silver Maple	*Acer sacharinum*	48	F	G	G	5	Remove	included bark
55	Private	Norway Maple	*Acer platanoides*	55	G	G	G	4	Remove	
56	Private	Norway Maple	*Acer platanoides*	47	G	G	G	5	Remove	
57	Private	Norway Maple	*Acer platanoides*	53	G	G	G	5	Remove	exposed roots
58	Private	Norway Maple	*Acer platanoides*	43	G	G	G	5	Remove	dead lower branches
59	Private	Norway Maple	*Acer platanoides*	29	G	G	G	2	Remove	'Crimson King"
60	Private	Norway Maple	*Acer platanoides*	28.5	G	G	G	2	Remove	'Crimson King"
61	Private	Norway Maple	*Acer platanoides*	31.5	G	G	G	2	Remove	'Crimson King"
62	Private	Norway Maple	*Acer platanoides*	24	F	G	G	2	Remove	divot in trunk, epicormic branching
63	Private	Sugar Maple	*Acer saccharum*	40	P	F	F	4	Remove	trunk rot cavity
64	Private	Sugar Maple	*Acer saccharum*	70	D	D	D	0	Remove	
65	Private	Sugar Maple	*Acer saccharum*	80	P	P	P	5	Remove	rotten trunk, lightening damage
66	Private	Sugar Maple	*Acer saccharum*	71	P	P	P	5	Remove	snag habitat, hazard branch, cracks, cavities
67	Private	American Elm	*Ulmus americana*	19	P	P	P	4	Remove	DSV, dead maple trunk next to trunk
68	Private	Sugar Maple	*Acer saccharum*	109	F	F	F	6	Remove	snag habitat, db, cavities, crack, exposed roots

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
69	Private	Sugar Maple	*Acer saccharum*	57	P	P	P	5	Remove	
70	Private	Sugar Maple	*Acer saccharum*	50	D	D	D	5	Remove	dead trunk
71	Private	Sugar Maple	*Acer saccharum*	60	G	F	F	6	Remove	
72	Private	Sugar Maple	*Acer saccharum*	55	P	F	F	6	Remove	snag, cracks in trunk, cavities
73	Private	Sugar Maple	*Acer saccharum*	80	F	F	G	7	Remove	cavity, cracks, snag
74	Private	Sugar Maple	*Acer saccharum*	65	D	D	D	6	Remove	snag
75	Private	Sugar Maple	*Acer saccharum*	60	F	F	F	5	Remove	cavity,
76	Private	White Ash	*Fraxinus americana*	16	F	F	F	2	Remove	EAB
77	Private	Northern Catalpa	*Catalpa speciosa*	25	P	P	P	3	Remove	almost dead
78	Private	American Elm	*Ulmus americana*	60	D	D	D	4	Remove	dead
79	Private	Norway Maple	*Acer platanoides*	33	G	G	G	5	Remove	man made hole next to trunk
80	Private	Norway Maple	*Acer platanoides*	12	P	P	P	2	Remove	
81	Private	Norway Maple	*Acer platanoides*	20	G	G	G	2	Remove	bleaching on trunk
82	Private	Norway Maple	*Acer platanoides*	22.5	G	G	G	2	Remove	
83	Private	Red Pine	*Pinus resinosa*	24	G	G	G	3	Remove	
84	Private	Back Locust	*Robinia pseudoacacia*	40	F	F	F	4	Remove	crack in trunk
85	Private	Black Locust	*Robinia pseudoacacia*	13	D	D	D	2	Remove	dead
86	Private	Red Pine	*Pinus resinosa*	22	G	G	G	2	Remove	
87	Private	Eastern White Cedar	*Thuja occidentalis*	15.5	D	D	D	-	Remove	dead
88	Private	Eastern White Cedar	*Thuja occidentalis*	15	F	F	F	2	Remove	lean, dead stem, cd
89	Private	Black Locust	*Robinia pseudoacacia*	60	D	D	D	-	Remove	dead
90	Private	Black Locust	*Robinia pseudoacacia*	35	D	D	D	-	Remove	dead
91	Private	Black Locust	*Robinia pseudoacacia*	14	F	F	F	2	Remove	nail in trunk

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
92	Private	Black Locust	*Robinia pseudoacacia*	12.5	F	F	F	2	Remove	
93	Private	Black Locust	*Robinia pseudoacacia*	32	F	F	F	3	Remove	
94	Private	Silver Maple	*Acer sacharinum*	27,40	F	G	G	5	Remove	cd, epicormic branching, lean
95	Private	Eastern White Cedar	*Thuja occidentalis*	10	G	G	G	2	Remove	
96	Private	Eastern White Cedar	*Thuja occidentalis*	12	G	G	G	2	Remove	
97	Private	Eastern White Cedar	*Thuja occidentalis*	16	G	G	G	2	Remove	
98	Private	Eastern White Cedar	*Thuja occidentalis*	17	G	G	G	2	Remove	
99	Private	Black Locust	*Robinia pseudoacacia*	28, 24	G	G	G	3	Remove	
100	Private	Black Locust	*Robinia pseudoacacia*	23.5	F	F	F	2	Remove	
101	Private	Black Locust	*Robinia pseudoacacia*	11, 14	F	F	F	2	Remove	
102	Private	Sugar Maple	*Acer saccharum*	22	G	G	G	2	Remove	
103	Private	Black Locust	*Robinia pseudoacacia*	95	D	D	D	-	Remove	dead, rotten trunk
104	Private	Eastern White Cedar	*Thuja occidentalis*	10,14,15	G	G	G	2	Remove	ms
105	Private	Nothern Catalpa	*Catalpa speciosa*	40	F	F	F	4	Remove	broken branch
106	Private	Sugar Maple	*Acer saccharum*	17.5, 24.5	G	G	G	2	Remove	cd, included bark
107	Private	Sugar Maple	*Acer saccharum*	22	G	G	G	2	Remove	
108	Private	Sugar Maple	*Acer saccharum*	16	G	G	G	2	Remove	
109	Private	Eastern White Cedar	*Thuja occidentalis*	17-May	G	G	G	2	Remove	
110	Private	Sugar Maple	*Acer saccharum*	50	F	F	G	5	Remove	LDD, flaking bark, cracks, crevices
111	Private	Sugar Maple	*Acer saccharum*	24.5/22	G	G	G	3	Remove	
112	Private	fruit tree	*UNK*	26	G	G	G	3	Remove	

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
113	Private	White Ash	*Fraxinus americana*	85	G	F	F	7	Remove	
114	Private	Hawthorne sp.	*Crataegus sp.*	21	G	G	G	2	Remove	
115	Private	White Ash	*Fraxinus americana*	92	F	F	F	6	Remove	
116	Private	White Ash	*Fraxinus americana*	22, <65	P	P	P	6	Remove	
117	Private	Red Oak	*Quercus rubra*	16	G	G	G	2	Remove	
118	Private	Red Oak	*Quercus rubra*	26	G	G	G	3	Remove	LDD
119	Private	Red Oak	*Quercus rubra*	30.5	G	G	G	3	Remove	
120	Private	Red Oak	*Quercus rubra*	15.5	F	G	G	2	Remove	trunk from larger tree causing abrasions
121	Private	Red Oak	*Quercus rubra*	24.5	G	G	G	3	Remove	LDD
122	Private	Red Oak	*Quercus rubra*	12.5	G	G	G	2	Remove	
123	Private	Red Oak	*Quercus rubra*	28	G	G	G	3	Remove	LDD
124	Private	Red Oak	*Quercus rubra*	19.5	G	G	G	2	Remove	LDD
125	Private	Red Oak	*Quercus rubra*	36	G	G	G	3	Remove	LDD
126	Private	Red Oak	*Quercus rubra*	34	G	G	G	3	Remove	
127	Private	Red Oak	*Quercus rubra*	23	G	G	G	2	Remove	LDD
128	Private	Red Oak	*Quercus rubra*	40.5	G	G	G	3	Remove	LDD
129	Private	Red Oak	*Quercus rubra*	15	G	G	G	2	Remove	
130	Private	Red Oak	*Quercus rubra*	23	G	G	G	2	Remove	
131	Private	Red Oak	*Quercus rubra*	27	G	G	G	3	Remove	canopy comp
145	Private	Scots Pine	*Pinus sylvestris*	16.5	G	F	F	2	Remove	
146	Private	Eastern White Cedar Hedgerow	*Thuja occidentalis*	56* 2-18 cm	G	G	G	-	Remove	cluster of cedars
147	Private	Eastern White Cedar	*Thuja occidentalis*	10	G	G	G	2	Remove	
148	Private	Eastern White Cedar	*Thuja occidentalis*	17	G	G	G	2	Remove	
149	Private	Crack Willow	*Salix fragilis*	>100	G	G	G	8	Remove	ms, db, combined dbh greater than 100
150	Private	Fruit Tree	*Unknown*	12.5	P	P	P	2	Remove	lean, snapped at base
151	Private	Fruit Tree	*Unknown*	15-20	G	G	G	2	Remove	
152	Private	Fruit Tree	*Unknown*	15-20	G	G	G	2	Remove	growing in a fence
153	Private	Fruit Tree	*Unknown*	25-Dec	G	G	G	2	Remove	growing through fence
154	Private	Fruit Tree	*Unknown*	15-Dec	G	G	G	2	Remove	growing through fence

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
155	Private	Apple spp.	*Malus sp.*	20-Oct	G	G	G	2	Remove	fence through trunk
156	Private	Apple spp.	*Malus sp.*	15-20	G	G	G	2	Remove	
157	Private	Apple spp.	*Malus sp.*	15-28	P	F	F	3	Remove	
158	Private	Apple spp.	*Malus sp.*	15-20	P	F	F	2	Remove	
159	Private	Sugar Maple		66	G	G	G	6	Remove	DB in canopy
160	Private	Black Cherry	*Prunus serotina*	26	F	F	F	3	Remove-hazard	vitis riparia, db in canopy, large broken limb and sap
161	Private	Basswood	*Tilia americana*	13,18,10	G	F	F	2	Retain	comp with ash
162	Private	White Ash	*Fraxinus americana*	43	F	G	G	4	Remove-hazard	bleaching, eab,
163	Private	American Elm	*Ulmus americana*	42	G	G	G	4	Remove	,vitis riparia
164	Private	Apple sp.	*Malus sp.*	14	G	G	G	2	Remove	
165	Private	White Ash	*Fraxinus americana*	14	F	F	F	2	Remove-hazard	comp with malus, eab
166	Private	Apple sp.	*Malus sp.*	15-20	P	P	P	2	Remove-hazard	2 dead stems, fence
167	Private	White Ash	*Fraxinus americana*	30	D	D	D	-	Remove-hazard	dead
168	Private	White Ash	*Fraxinus americana*	13	D	D	D	-	Remove-hazard	dead
169	Private	Apple sp.	*Malus sp.*	15	F	F	F	2	Remove-hazard	4 fruit trees in fence
170	Private	White Ash	*Fraxinus americana*	15, 14	P	P	P	2	Remove-hazard	
171	Private	White Ash	*Fraxinus americana*	13	P	P	P	2	Remove-hazard	almost dead
172	Private	White Ash	*Fraxinus americana*	14	P	P	P	2	Remove-hazard	
173	Private	White Ash	*Fraxinus americana*	15	P	P	P	2	Remove-hazard	
174	Private	White Ash	*Fraxinus americana*	26	P	P	P	3	Remove-hazard	
175	Private	White Ash	*Fraxinus americana*	22, 22	P	P	P	2	Remove-hazard	cd
176	Private	Apple spp.	*malus*	17-Oct	F	F	F	2	Remove-hazard	fence
177	Private	White Ash	*Fraxinus americana*	22	P	P	P	2	Remove-hazard	
178	Private	Sugar Maple	*Acer saccharum*	22-29	G	G	G	4	Retain	comp with ash, cd
179	Private	White Ash	*Fraxinus americana*	23x3	P	P	P	2	Remove-hazard	bleaching

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
180	Private	White Ash	*Fraxinus americana*	26.5	P	P	F	2	Remove-hazard	bleaching
181	Private	Sweet Cherry	*prunus avium*	24	F	F	F	2	Remove-hazard	
182	Private	White Ash	*Fraxinus americana*	50	P	P	P	4	Remove-hazard	almost dead
184	Private	White Ash	*Fraxinus americana*	15	P	P	P	2	Remove-hazard	vine
185	Private	White Ash	*Fraxinus americana*	43	P	P	P	3	Remove-hazard	tag 452, adjacent property of fence
186	Private	American Elm	*Ulmus americana*	18	G	F	F	2	Remove-hazard	canopy comp
187	Boundary	White Ash	*Fraxinus americana*	15	P	P	P	2	Remove-hazard	
188	Neighbouring	White Ash	*Fraxinus americana*	48	P	P	P	3	Remove-hazard	
189	Private	Norway Maple	*Acer platanoides*	14	G	G	G	2	Remove	
190	Private	White Ash	*Fraxinus americana*	48,60	P	P	P	4	Remove-hazard	cd, dead almost
191	Private	American Elm	*Ulmus americana*	40	G	G	G	4	Remove	off property
192	Private	Apple spp.	*Malus spp.*	15-20	G	G	G	2	Remove	off property
193	Private	White Ash	*Fraxinus americana*	15	F	F	F	2	Remove-hazard	OP
194	Private	White Ash	*Fraxinus americana*	28, 24	D	D	D	-	Remove-hazard	dead
195	Boundary	White Ash	*Fraxinus americana*	20	P	P	P	2	Remove-hazard	fence
196	Private	White Ash	*Fraxinus americana*	21.5	P	P	P	2	Remove-hazard	
197	Boundary	White Ash	*Fraxinus americana*	38	P	P	P	3	Remove-hazard	
198	Boundary	American Elm	*Ulmus americana*	14	G	F	G	2	Retain	competition
199	Boundary	American Elm	*Ulmus americana*	14	F	F	F	2	Remove-hazard	competition
200	Boundary	White Ash	*Fraxinus americana*	30	P	P	P	3	Remove-hazard	
201	Neighbouring	Ironwood	*Ostrya virginiana*	19.5	G	G	G	2	Retain	
202	Neighbouring	Ironwood	*Ostrya virginiana*	14	G	F	G	2	Retain	canopy competition
203	Neighbouring	Sugar Maple	*Acer Saccharum*	30	G	G	G	3	Retain	
204	Neighbouring	American Elm	*Ulmus americana*	18	G	G	F	2	Retain	vine comp

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
205	Neighbouring	White Ash	*Fraxinus americana*	35	P	P	P	3	Remove-hazard	
206	Neighbouring	White Ash	*Fraxinus americana*	35	P	P	P	3	Remove-hazard	
207	Neighbouring	Ironwood	*Ostrya virginiana*	20	G	G	G	2	Retain	
208	Neighbouring	Ironwood	*Ostrya virginiana*	17	G	G	G	2	Retain	
209	Neighbouring	Ironwood	*Ostrya virginiana*	22	G	G	G	2	Retain	
210	Neighbouring	White Ash	*Fraxinus americana*	25	P	P	P	2	Remove-hazard	
211	Neighbouring	Ironwood	*Ostrya virginiana*	13-Dec	G	G	G	2	Retain	vine competition
212	Neighbouring	White Ash	*Fraxinus americana*	33	P	P	P	3	Remove-hazard	
213	Neighbouring	Ironwood	*Ostrya virginiana*	10	G	G	G	2	Retain	
214	Neighbouring	White Ash	*Fraxinus americana*	22	P	P	P	2	Remove-hazard	
215	Neighbouring	Ironwood	*Ostrya virginiana*	21.5/16	G	G	G	2	Retain	
216	Neighbouring	Ironwood	*Ostrya virginiana*	15	F	G	G	2	Retain	competition with trunks
217	Boundary	Ironwood	*Ostrya virginiana*	16	G	G	G	2	Retain	
218	Neighbouring	White Ash	*Fraxinus americana*	2*17	P	P	P	3	Remove-hazard	
219	Private	White Ash	*Fraxinus americana*	22.5	P	P	P	2	Remove-hazard	
220	Neighbouring	White Ash	*Fraxinus americana*	20	P	P	P	2	Remove-hazard	
221	Boundary	Ironwood	*Ostrya virginiana*	18-Oct	G	G	G	2	Retain	
222	Boundary	Fraxinus americana	*Fraxinus americnaa*	29,42	P	P	P	4	Remove-hazard	
223	Boundary	Sugar Maple	*Acer saccharum*	30	G	G	G	4	Retain	
224	Neighbouring	Ironwood	*Ostrya virginiana*	10	G	G	G	2	Retain	
225	Neighbouring	White Ash	*Fraxinus americana*	43	P	P	P	4	Remove-hazard	
226	Private	Sugar Maple	*Acer saccharum*	29	G	G	G	3	Retain	
227	Private	Sugar Maple	*Acer saccharum*	38.5	G	G	G	4	Remove	
228	Neighbouring	Sugar Maple	*Acer saccharum*	47	G	G	G	5	Remove	
229	Boundary	Ironwood	*Ostrya virginiana*	16.5	G	G	G	2	Retain	
230	Boundary	White Ash	*Fraxinus americana*	16.5	P	P	P	2	Remove-hazard	
231	Private	Hawthorne sp.	*Crataegus sp.*	15	G	G	G	2	Retain	
232	Boundary	Sugar Maple	*Acer saccharum*	21	G	G	G	2	Retain	dark bark

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
233	Neighbouring	American Elm	*Ulmus americana*	16	F	F	F	2	Remove-hazard	
234	Private	Sugar Maple	*Acer saccharum*	70	F	G	G	7	Remove-hazard	
235	Private	Sugar Maple	*Acer saccharum*	17.5	F	F	F	2	Remove-hazard	comp
236	Private	Sugar Maple	*Acer saccharum*	36	G	F	F	3	Remove	dead main canopy branches
237	Neighbouring	Black Cherry	*Prunus serotina*	30.5	F	F	F	3	Remove	one trunk dead
238	Private	Sugar Maple	*Acer saccharum*	75	G	G	G	6	Remove	
239	Private	Sugar Maple	*Acer saccharum*	33	G	G	G	4	Remove	
240	Private	Sugar Maple	*Acer saccharum*	65	G	G	G	7	Remove	
241	Private	Sugar Maple	*Acer saccharum*	17	G	P	P	2	Remove	dead canopy
242	Private	Sugar Maple	*Acer saccharum*	16	P	P	P	2	Remove	
243	Private	American Basswood	*Tilia americana*	27/49/50	G	G	G	5	Remove	
244	Private	American Basswood	*Tilia americana*	21	F	P	P	2	Remove	in btw 2 trees
245	Private	Sugar Maple	*Acer saccharum*	53	G	G	G	6	Remove	
246	Neighbouring	American Basswood	*Tilia americana*	11.5	G	G	G	2	Retain	
247	Neighbouring	Sugar Maple	*Acer saccharum*	60	G	G	G	6	Retain	
248	Neighbouring	Sugar Maple	*Acer saccharum*	45	G	G	G	5	Retain	
249	Private	White Ash	*Fraxinus americana*	43.5	G	G	G	5	Remove	
250	Neighbouring	Ironwood	*Ostrya virginiana*	14.5	G	G	G	2	Retain	slight lean
251	Neighbouring	Black Cherry	*Prunus serotina*	32	G	G	G	3	Retain	
252	Neighbouring	Sugar Maple	*Acer saccharum*	55	G	G	G	6	Retain	
253	Neighbouring	Ironwood	*Ostrya virginiana*	14	F	F	F	2	Remove-hazard	comp
254	Neighbouring	Sugar Maple	*Acer saccharum*	86	F	G	G	8	Retain	some cracks on trunk
255	Neighbouring	White Ash	*Fraxinus americana*	15.5	G	G	G	2	Retain	
256	Neighbouring	Sugar Maple	*Acer saccharum*	21	G	G	G	2	Retain	

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
257	Boundary	Sugar Maple	*Acer saccharum*	52	P	F	F	6	Remove-hazard	comp
258	Neighbouring	Black Cherry	*Prunus serotina*	43	G	G	G	5	Retain	tr to north is pr ser
259	Neighbouring	White Ash	*Fraxinus americana*	15	G	G	G	2	Retain	
260	Neighbouring	Sugar Maple	*Acer saccharum*	67.5	G	G	G	6	Retain	
261	Boundary	Sugar Maple	*Acer saccharum*	53	G	G	G	6	Retain	
262	Private	Sugar Maple	*Acer saccharum*	113	G	G	G	8	Remove	
263	Private	American Beech	*Fagus grandifolia*	10	G	G	G	2	Retain	
264	Private	Sugar Maple	*Acer saccharum*	75	F	F	F	6	Retain	DB, crack, cavities
265	Private	Red Oak	*Quercus rubra*	17.5	G	G	G	2	Remove	
266	Private	Sugar Maple	*Acer saccharum*	79	P	P	F	8	Remove	Snag, crack, cavities, dead branch, Fungus growing on trunk
267	Private	Sugar Maple	*Acer saccharum*	84	P	F	F	8	Remove	dead branch, split trunk, suitable snag, fungus
268	Private	Sugar Maple	*Acer saccharum*	78	P	F	F	5	Remove	Gouge in trunk, crack, co-dominant, second trunk dead
269	Private	Norway Maple	*Acer plantanoides*	31	G	G	G	3	Remove	
270	Private	Red Oak	*Quercus rubra*	26	G	G	G	2	Remove	
271	Private	Scot's Pine	*Pinus sylvestris*	17	G	G	G	2	Remove	
272	Private	Red Oak	*Quercus rubra*	26	G	G	G	3	Remove	LDD
273	Private	Red Oak	*Quercus rubra*	18	G	G	G	2	Remove	LDD
274	Private	Red Oak	*Quercus rubra*	13	G	G	G	2	Remove	LDD
275	Private	Sugar Maple	*Acer saccharum*	81	P	F	F	8	Remove	Trunk split, dead half way up the tree, crack, cavities, suitable snag
276	Private	Red Oak	*Quercus rubra*	14	G	G	G	2	Remove	LDD
277	Private	Sugar Maple	*Acer saccharum*	72	P	P	P	7	Remove	EUST nest, snag, 30% alive, dead/rotting trunk
278	Private	Sugar Maple	*Acer saccharum*	69	P	P	P	7	Remove	Snag, snag fallen on tree, cavities
279	Private	Red Oak	*Quercus rubra*	21	G	G	G	2	Remove	CDX4

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
280	Private	Norway Maple	*Acer plantanoides*	32, 29	G	G	G	3	Remove	
281	Private	Norway Maple	*Acer plantanoides*	33	G	G	G	3	Remove	LDD
282	Private	Norway Maple	*Acer plantanoides*	32, 29	G	G	G	3	Remove	
283	Private	Norway Maple	*Acer plantanoides*	35, 13	G	G	G	3	Remove	LDD, Broken branch, co-dominant
284	Private	Norway maple	*Acer plantanoides*	13,15,22,11	G	G	G	2	Remove	CD X4
285	Private	Norway Maple	*Acer plantanoides*	30	G	G	G	3	Remove	
286	Private	Norway Maple	*Acer plantanoides*	31	G	G	G	3	Remove	LDD
287	Private	Norway Maple	*Acer plantanoides*	28	G	G	G	4	Remove	Comp with Manitoba Maple
289	Private	White Ash	*Fraxinus americana*	29	P	P	P	3	Remove	EAB, Epics, almost dead
290	Private	White Ash	*Fraxinus americana*	14	D	D	D	-	Remove	Dead
291	Private	Norway Maple	*Acer plantanoides*	10 to 28	G	G	G	4	Remove	MSX7, inclusions at base
292	Private	White Ash	*Fraxinus americana*	21	P	P	P	3	Remove	EAB, Epics at base
293	Private	Norway Maple	*Acer plantanoides*	21	G	G	G	2	Remove	Vine competition
294	Private	Norway Maple	*Acer plantanoides*	21	G	G	G	2	Remove	Epics, co-dominant
295	Private	Norway Maple	*Acer plantanoides*	40, 32	G	G	G	4	Remove	CD
296	Private	Norway Maple	*Acer plantanoides*	31, 15, 17	G	G	G	3	Remove	CDX3, LDD, DB
297	Private	Norway Maple	*Acer plantanoides*	21, 13, 38	G	G	G	4	Remove	CDx3, LDD, Inclusion bark
298	Private	Norway Maple	*Acer plantanoides*	24,32	F	G	G	2	Remove	CD, LDD, Inclusion bark, canker
299	Private	Norway Maple	*Acer plantanoides*	17.5	G	G	G	2	Remove	LDD
300	Private	Norway Maple	*Acer plantanoides*	23.5	G	G	G	2	Remove	
301	Private	Norway Maple	*Acer plantanoides*	24	G	G	G	2	Remove	LDD
302	Private	Norway Maple	*Acer plantanoides*	26, 16	G	G	G	2	Remove	CD, LDD eggs
303	Private	Manitoba Maple	*Acer negundo*	14.5	F	F	F	2	Remove	Stunted, epics, lean

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
304	Private	Norway maple	*Acer plantanoides*	21	G	G	G	2	Remove	Broken branch, dead branch
305	Private	Manitoba maple	*Acer negundo*	15	F	F	F	2	Remove	Lean, canker at base
306	Neighbouring	Norway Maple	*Acer plantanoides*	24, 17	F	G	G	2	Remove	LDD, CD
307	Neighbouring	Basswood	*Tilia americana*	17,41,35,28	G	G	G	4	Remove	MSX4
308	Neighbouring	Basswood	*Tilia americana*	48, 32	F	F	F	3	Remove	CD
309	Neighbouring	Basswood	*Tilia americana*	31.5, 28	G	G	G	3	Remove	CDX2, Comp, LDD, cav, suitable snag
310	Neighbouring	Basswood	*Tilia americana*	38,27, 15	G	G	G	3	Remove	CDX3, Comp, LDD, cav, suitable snag
311	Neighbouring	Basswood	*Tilia americana*	41.5, 31,21,13	G	G	G	4	Remove	MSX4, Comp
312	Neighbouring	Hawthorn sp.		24,24	P	P	P	2	Remove	Rotten base
313	Neighbouring	Black Cherry	*Prunus nigra*	40, 45, 34	P	P	P	4	Remove	MS, one trunk dead
314	Neighbouring	Basswood	*Tilia americana*	34	G	G	G	3	Remove	Vine comp.
315	Private	Manitoba maple	*Acer negundo*	25	G	G	G	3	Remove	Lean
316	Private	American Elm	*Ulmus americana*	20	F	F	F	2	Remove	Vine comp.
317	Private	Black Cherry	*Prunus nigra*	28- 34	F	F	F	3	Remove	Boundary Tree and off property. Vine, american woodcock nest at basae
318	Private	Manitoba maple	*Acer neguno*	15	G	G	G	2	Remove	lean
319	Private	Manitoba Maple	*Acer negundo*	18	G	G	G	2	Remove	Lean, vine
320	Private	Manitoba Maple	*Acer negundo*	17.5	G	G	G	2	Remove	Lean, comp, off property
321	Private	Manitoba Maple	*Acer negundo*	19	G	G	G	2	Remove	lean, hawthorn comp
322	Boundary	Basswood	*Tilia americana*	est. 24	G	G	G	2	Remove	Off property, boundary tree
323	Private	Black Cherry	*Prunus nigra*	30, 35, 40, 42	P	F	F	4	Remove	Off property, MS, competition
324	Private	Sugar Maple	*Acer saccharum*	16	G	G	G	2	Remove	Off property
325	Neighbouring	Sugar Maple	*Acer saccharum*	18	G	G	G	4	Remove	Off property

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
326	Neighbouring	Sugar Maple	*Acer saccharum*	41	G	G	G	3	Remove	growing through fence, competition
327	Neighbouring	American Elm	*Ulmus americana*	36	G	G	G	3	Remove	Competition
328	Neighbouring	Basswood	*Tilia americana*	55,61,63, 45	G	G	G	6	Remove	Off property, MS, competition
329	Neighbouring	Sugar Maple	*Acer saccharum*	135	P	G	G	7	Remove	Snag, fence through tree, cracks, cavities, rot
330	Neighbouring	Black Cherry	*Prunus nigra*	21	P	P	F	2	Remove	DB
331	Boundary	Basswood	*Tilia americana*	30-45	G	G	G	3	Remove	MS X 5
332	Boundary	Basswood	*Tilia americana*	17,15,13	G	G	G	2	Remove	
333	Private	Basswood	*Tilia americana*	15-30	G	G	G	3	Remove	MS X8
334	Private	Black Cherry	*Prunus nigra*	29	F	F	F	3	Remove	
335	Private	Basswood	*Tilia americana*	33, 29, 18	G	G	G	3	Remove	
336	Private	Sugar Maple	*Acer saccharum*	16	G	G	G	2	Remove	
337	Private	Basswood	*Tilia americana*	31	G	G	G	3	Remove	
343	Private	Eastern White Cedar	*Thuja occidentalis*	20	G	G	G	2	Remove	
344	Private	Eastern White Cedar	*Thuja occidentalis*	21	G	G	G	2	Remove	
345	Private	Eastern White Cedar	*Thuja occidentalis*	27	G	G	G	3	Remove	
346	Private	Eastern White Cedar	*Thuja occidentalis*	19,15	G	G	G	2	Remove	
347	Private	Eastern White Cedar	*Thuja occidentalis*	31	G	G	G	3	Remove	
348	Private	Eastern White Cedar	*Thuja occidentalis*	18	G	G	G	2	Remove	
349	Private	Eastern White Cedar	*Thuja occidentalis*	34	G	G	G	3	Remove	
350	Private	Eastern White Cedar	*Thuja occidentalis*	22	G	G	G	2	Remove	

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
351	Private	Eastern White Cedar	*Thuja occidentalis*	15	G	G	G	2	Remove	
352	Private	Eastern White Cedar	*Thuja occidentalis*	17	F	F	F	2	Remove	
353	Private	Eastern White Cedar	*Thuja occidentalis*	14	G	G	G	2	Remove	
354	Private	Eastern White Cedar	*Thuja occidentalis*	22	G	G	G	2	Remove	
355	Private	Eastern White Cedar	*Thuja occidentalis*	13	F	F	F	2	Remove	
356	Private	Sugar Maple	*Acer saccharum*	86	P	P	F	6	Remove	Split trunk, broken branches, broken trunk, external damages
357	Private	Sugar Maple	*Acer saccharum*	68	F	F	F	5	Remove	suitable snag, trunk split, broken branches, cavity, trunk rot, fallen tree on tree.
358	Private	Norway Spruce	*Picea abies*	45.5	D	D	D	5	Remove	Dead
359	Private	Norway Spruce	*Picea abies*	68	F	F	F	7	Remove	
360	Public	Norway Spruce	*Picea abies*	24, 16	P	P	P	2	Remove	CD,
361	Public	Norway Spruce	*Picea abies*	45, 28	P	P	P	4	Remove	
362	Public	Norway Spruce	*Picea abies*	65	F	G	G	7	Remove	damage to branches
363	Public	Norway Spruce	*Picea abies*	53	P	P	P	5	Remove	trunk broken in half, external damages
364	Public	Norway Spruce	*Picea abies*	57	F	F	F	5	Remove	
365	Private	Norway Spruce	*Picea abies*	56	F	F	F	5	Remove	branch and trunk damage, broken branches, dead branches
366	Private	Sugar Maple	*Acer saccharum*	81	P	P	P	7	Remove	almost dead, cracks and broken trunk
367	Private	Sugar Maple	*Acer saccharum*	61	F	G	G	6	Remove	trunk broken near top

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
368	Private	Sugar Maple	*Acer saccharum*	96	P	P	P	8	Remove	snapped trunk, growing through fence, cracks, cavities, suitable snag
369	Private	Trembling Aspen	*Populus tremuloides*	15	F	G	G	2	Remove	second trunk broken/dead. CD
370	Private	Trembling Aspen	*Populus tremuloides*	21	G	G	G	2	Remove	
371	Private	White Pine	*Pinus strobus*	19	G	G	G	2	Remove	
372	Private	Scot's Pine	*Pinus sylvestris*	23	G	G	G	2	Remove	
373	Private	Scot's Pine	*Pinus sylvestris*	18	F	G	G	2	Remove	Strong lean
374	Private	Scot's Pine	*Pinus sylvestris*	19	P	F	F	2	Remove	trunk broken in half
375	Private	Scot's Pine	*Pinus sylvestris*	20	D	D	D	2	Remove	Dead
376	Private	Scot's Pine	*Pinus sylvestris*	21	D	D	D	2	Remove	
381	Private	Trembling Aspen	*Populus tremuloides*	13.5, 16	G	G	G	2	Remove	
382	Private	Balsam Poplar	*Populus balsamifera*	10	G	G	G	2	Remove	
383	Private	Willow Species	*Salix spp.*	19.5	G	G	G	2	Remove	
384	Private	Balsam Poplar	*Populus balsamifera*	10.5	G	G	G	2	Remove	
385	Private	Willow Species	*Salix spp.*	14, 10	G	G	G	2	Remove	
386	Private	Balsam Poplar	*Populus balsamifera*	10	G	G	G	2	Remove	
387	Private	Balsam Poplar	*Populus balsamifera*	10	G	G	G	2	Remove	
388	Private	Balsam Poplar	*Populus balsamifera*	11, 10	G	G	G	2	Remove	
389	Private	Balsam Poplar	*Populus balsamifera*	11	G	G	G	2	Remove	
390	Private	Balsam Poplar	*Populus balsamifera*	10	G	G	G	2	Remove	
391	Private	Balsam Poplar	*Populus balsamifera*	10	G	G	G	2	Remove	
392	Private	Balsam Poplar	*Populus balsamifera*	10	G	G	G	2	Remove	
393	Private	Balsam Poplar	*Populus balsamifera*	10	G	G	G	2	Remove	
394	Private	Balsam Poplar	*Populus balsamifera*	11	G	G	G	2	Remove	
395	Private	Balsam Poplar	*Populus balsamifera*	12	G	G	G	2	Remove	

Tree Number	Ownership	Common Name	Scientific Name	DBH (cm)	TI	CS	CV	DL	Action	COMMENTS
396	Private	Balsam Poplar	*Populus balsamifera*	18	G	G	G	2	Remove	
397	Private	Eastern White Cedar	*Thuja occidentalis*	19	G	G	G	2	Remove	
398	Private	Willow Species	*Salix spp.*	18	G	G	G	2	Remove	
402	Private	Green Ash	*Fraxinus pennsylvanica*	11	G	G	G	2	Remove	
403	Private	Manitoba Maple	*Acer negundo*	14	G	G	G	2	Remove	
404	Private	Crack Willow	*Salix fragilis*	62	F	F	F	6	Remove	broken limbs and stem
405	Private	Crack Willow	*Salix fragilis*	60	F	F	F	6	Remove	broken branches
406	Private	Willow Species	*Salix spp.*	42	G	F	G	4	Remove	broken limb
407	Private	Willow Species	*Salix spp.*	40	G	G	G	4	Remove	
408	Private	Willow Species	*Salix spp.*	30	G	G	G	4	Remove	
409	Private	Willow Species	*Salix spp.*	21	F	G	G	2	Remove	lean
410	Private	Willow Species	*Salix spp.*	26	F	G	G	3	Remove	lean
411	Private	Eastern White Cedar	*Thuja occidentslis*	12	G	G	G	2	Remove	
412	Private	Eastern White Cedar	*Thuja occidentslis*	11	G	G	G	2	Remove	
413	Private	Trembling Aspen	*Populus tremuloides*	10	G	G	G	2	Remove	
414	Private	Trembling Aspen	*Populus tremuloides*	10	G	G	G	2	Remove	

Appendix C

Species at Risk Screening Resources

Table A 1. SAR screening resources

Screening Resource	Description
Natural Heritage Information Center (NHIC)	The Natural Heritage Information Center (NHIC), operated by the Ontario Ministry of Natural Resources and Forestry, collects, reviews, manages and distributes information on Ontario's biodiversity. Data distributed by the NHIC is used in conservation and natural resource management decision making and was a primary resource for this report. Through the NHIC Make-a-Map tool, 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. The mapping interface provides current and historical occurrences of SAR within the specified grid unit. The database also identifies environmental designations which provide insight into habitat potential including wetland, areas of natural and scientific interests and woodlands.
Breeding Bird Atlas	The atlas divides the province into 10×10 km squares and then birders find as many breeding species as possible in each square. Atlassers who know birds well by song complete 5-minute "Point Counts", 25 of which are required to provide an index of the abundance of each species in a square. Data from every square are mapped to show the distribution of each species. Point count data from each square show how the relative abundance of each species varies across the province.
eBird	eBird data document bird distribution, abundance, habitat use, and trends through checklist data collected within a simple, scientific framework. Birders enter when, where, and how they went birding, and then fill out a checklist of all the birds seen and heard during the outing. eBird's free mobile app allows offline data collection anywhere in the world, and the website provides many ways to explore and summarize your data and other observations from the global eBird community. eBird hotspots that are within 1 km of the Study Area are selected for species review.
Ontario Moth Atlas	The Ontario Moth Atlas is a project of the Toronto Entomologists' Association. The atlas currently covers about 250 species from 7 of the best-known families. The atlas presently includes 62,000 records. The last update of the atlas was in April 2020. The atlas is updated at least every 3 months. Most atlas data come from iNaturalist records. However, there is some data from Chris Schmidt of Agriculture Canada, the BOLD (Barcode of Life Datasystems) project of the University of Guelph, and from other records submitted directly to the TEA. The atlas uses the same 10×10 km squares at the Breeding Bird Atlas.
Ontario Butterfly Atlas	The Ontario Butterfly Atlas is a project of the Toronto Entomologists' Association (TEA). The TEA has been accumulating records and publishing annual seasonal summaries (Ontario Lepidoptera) for 50 years, with the first edition appearing in 1969. Atlas data comes from eButterfly records, iNaturalist records, BAMONA records, and records submitted directly to the TEA. The atlas uses the same 10×10 km squares at the Breeding Bird Atlas.
i-Naturalist	i-Naturalist is a nature app that helps public identify plants and animals. Using algorithms as well as scientists and taxonomic experts' multiple observations can be identified at a research scale. This data generated by the iNat community can be used in science and conservation. The program actively distributes the data in venues where scientists and land managers can find it. I-Naturalist has a project group for (NHIC) Rare species of Ontario. GeoProcess only records observations with-in 1 km of the Study Area.
Fisheries and Ocean Aquatic Species at Risk Maps	The DFO has compiled critical habitat and distribution data for aquatic species listed under the Species at Risk Act (SARA). The interactive map is intended to provide an overview of the distribution of aquatic species at risk and the presence of their critical habitat within Canadian waters. The official source of information is the Species at Risk Public Registry. Using this map, a 1 km radius circle is outlined around aquatic features located within the Study Area.

Appendix D

Significant Wildlife Habitat Screening

EcoRegion 6E/7E

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	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.	**Yes**	CUT1-1 ecosite present on site.	•Any mixed species aggregations of 100+ individuals • the flooded field plus 100-300m radius, dependant on localized site and adjacent land us • Annual Use of Habitat is documented from information sources or field studies •Specific evaluation methods required
Waterfowl Stopover and Staging Areas (Aquatic)	MAS1,MAS2,MAS3,SAS1, SAM1,SAF1,SWD1,SWD2, SWD3,SWD4,SWD5,SWD 6,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.	•Aggregations of 100 + of species listed for 7 days, results in > 700 waterfowl use days. •Areas with annual staging for ruddyducks, canvasbacks and redheads. •The combined area of the ELC ecosites and a 100m radius area. •Wetland area and shorelines associated with sites identified within the SWHTG, Appendix K, are significant wildlife habitat.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
					•Annual Use of Habitat is documented from information sources or field studies • Specific evaluation methods required
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 or storm water management ponds.	**Yes**	MAM2 ecosite present on subject property.	•Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. •Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. •The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area. •Annual Use of Habitat is documented from information sources or field studies • Specific evaluation methods required
Raptor Wintering Area	Combo of one of each Community Series from one of each: Forest (FOD,FOM,FOC) and Upland (CUM,CUT,CUS,CUW).	A combination of fields and woodlands that provide roosting, foraging and resting	**Yes**	FOD5-2 and CUT1-1 ecosites present on subject property.	•One or more Short-eared Owls or; •One of more Bald Eagles or;

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm…
	ELC Ecosite Codes	ELC Ecosite Codes			
	Bald Eagle: Forest on shoreline area adjacent to large rivers and lakes.	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.			• At least 10 individuals and two of the listed hawk/owl species. •To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. •for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Specific evaluation methods required
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.	•All sites with confirmed hibernating bats are SWH. • area includes 200m radius around the entrance of the hibernaculum for most development types and 1000m for wind farms. •Studies are to be conducted during the peak swarming period (Aug. – Sept.).

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
					• Specific survey methods required
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 dbh) 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**	FOD5-2 ecosite present on subject property.	•Confirmed use by: >10 Big Brown Bats >5 Adult female Silver Haired Bats. •The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. • Specific evaluation methods required
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	**Yes**	SWM1-1, SSWTM3-6, SWMO4-2, MAM2, MAM2-2, OAGM1, OAGM2,	•Presence of 5 over-wintering Midland Painted Turtles is significant •One or more Northern Map Turtle or Snapping Turtle over-wintering

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		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.			within a wetland is significant • The mapped ELC ecosite area with the over wintering turtles is the SWH. • If the hibernation site is within a stream or river, the deepwater pool where the turtles are over wintering is the SWH. • Search for congregations in Basking Areas in spring and fall.
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	**Yes**	Multiple riparian zones and habitat features that are not very wet, but moist. Open spaces in agricultural fields would provide sunning spots for snakes.	•Presence of snake hibernacula used by - a minimum of five individuals of a snake sp. or; - individuals of two or more snake spp.. •Congregations of -a minimum of five individuals of a snake sp. or; -individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		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 cover rock overlaying granite bedrock with fissures			(Apr/May) and Fall (Sept/Oct). • If there are Special Concern Species present, then site is SWH. •The feature in which the hibernacula is located plus a 30 m radius area is the SWH. • Hibernacula are used annually, often by the same individuals (strong site fidelity) and other life processes often take place near by
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 licenced Mineral Aggregate Operation.	**Yes**	CUT1-1 ecosite present in subject property. No cliff faces present, but presence of sand piles is possible.	•Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests. •Field surveys to observe and count swallow nests are to be

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
					completed during the breeding season. • Specific evaluation methods required
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.	•Presence of 5 or more active nests of Great Blue Heron or other listed species. •The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH. •Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells.
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)	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	**Yes**	Close proximity to watercourses in open fields, CUT1-1 and MAM2 ecosites present on subject property.	•Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm…
	ELC Ecosite Codes	ELC Ecosite Codes			
	MAM1 – 6; MAS1 – 3; CUM,CUT,CUS	proximity to streams and irrigation ditches within farmlands.			•Presence of 5 or more pairs for Brewer's Blackbird. •Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. •The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH. •Studies would be done during May/June when actively nesting. • Specfic evaluation methods required
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	No	Habitat features are present on site (CUT1-1 and FOD5-2), but not within 5km of Lake Erie or Ontario,	•Presence of Monarch Use Days (MUD) during Fall migration (Aug/Oct) •Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. •MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		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.			is to be considered significant.
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	**Yes**	FOD5-2, SWM1-1, SWC1-1 ecosites present on subject property, however, the subject property is not within 5 km of Lake Erie or Ontario.	•Use of the habitat by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. •Studies should be completed during spring (Mar to May) and fall (Aug to Oct) migration using standardized assessment techniques. • Specific evaluation methods required

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		within 5km of Lake Erie and Lake Ontario are Candidate SWH.			
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	No	Based on a review of Land Information Ontario (LIO) mapping, no Deer Yards exist on the Subject Property	No Studies Required: • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. • Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via LIO. • Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		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			complete these field investigations. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule.
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	No	No habitat features on site.	•Will be mapped by MNRF. • All woodlots exceeding the criteria are significant unless

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		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.			determined to be not by the MNRF. •Studies to be completed during winter when >20 cm of snow is on the ground, using aerial survey or pellet count.
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	No	No habitat features on site.	•Confirm any ELC Vegetation Type for Cliffs or Talus Slopes

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		the Niagara Escarpment.			
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 cover always < or equal to 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.	•Confirm any ELC Vegetation Type for Sand Barrens. •Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.
Alvar	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2, Five Alvar Indicator Species: 1) Carex crawei 2) Panicum philadelphicum	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	No	No habitat features on site.	•Studies that identify four of the five Alvar Indicator Species at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). •The alvar must be in excellent condition and

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
	3) Eleocharis compressa 4) Scutellaria parvula 5) Trichostema brachiatum	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.			fit in with surrounding landscape with few conflicting land uses.
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	No	FOD and SWM ecosites present on subject property, but feature lacks interior areas greater than 10 ha and 100	•If dominant trees species of the area are >140 years old, then the area containing these trees is Significant Wildlife Habitat. • The forested area containing the old growth characteristics

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm…
	ELC Ecosite Codes	ELC Ecosite Codes			
		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.		m buffer at forest edge.	will have experienced no recognizable forestry activities • The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest forest area containing the old growth characteristics
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.	•Field studies confirm one or more of the Savannah indicator species found in Appendix N, Ecoregion 6E of the SWHTG, OMNR (2000). •Entire area of the ELC Ecosite is SWH. •Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic species).
Tallgrass Prairie	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses.	No	No habitat features on site.	•Field studies confirm one or more of the Prairie indicator species in Appendix N,

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		•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.			Ecoregion 6E of The SWHTG, OMNR (2000). •Area of the ELC Ecosite is the SWH. •Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.)
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.	•Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG, OMNR (2000). •Area of the ELC Vegetation Type polygon is the SWH.
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	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	**Yes**	MAM2, MAM2-2 ecosites present on subject property in addition to	•Presence of 3 or more nesting pairs for listed species excluding Mallards OR •Presence of 10 or more nesting pairs for

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
	SWD1 SWD2 SWD3 SWD4. * Note: includes adjacency to Provincially Significant Wetlands	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.		multiple wetland areas.	listed species including Mallards. •Any active nesting site of an American Black Duck is considered significant. •Nesting studies should be completed during the spring breeding season (April - June). •Specific evaluation methods required •A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest.
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.	**Yes**	FOD5-2, SWM1-1, SWC1-1 ecosites present on subject property. These ecosites are adjacent to riparian areas of rivers and wetlands.	One or more active Osprey or Bald Eagle nests in an area. •Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm…
	ELC Ecosite Codes	ELC Ecosite Codes			
		•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.			•For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH. *with additional requirements •For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. * with additional requirements •To be significant a site must be used annually. •When found inactive, the site must be known to be inactive for > 3 years or suspected of not being used for >5 years before being considered not significant. •Observational studies to determine nest site use, perching sites and foraging areas need to be done from early March to mid August. • Specific evaluation methods required
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	**Yes**	SWM1-1, SWC1-1 ecosites present on	Presence of 1 or more active nests from species list is considered significant.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		>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. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest.		subject property.	•Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH. (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest) •Barred Owl – A 200m radius around the nest is the SWH. •Broad-winged Hawk and Coopers Hawk,– A 100m radius around the nest is the SWH. •Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. • Conduct field investigations from early March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area.
Turtle Nesting Areas	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2	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,	No	No habitat features on site.	Presence of: - 5 or more nesting Midland Painted Turtles OR

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
	MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	raccoons or other animals. •For an area to function as a turtlenesting 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.			- One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. •The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat. •Field investigations should be conducted in prime nesting season typically late spring to early summer. •Observational studies observing the turtles nesting is a recommended method.
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	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system.	No	No seeps or springs in agricultural area	Presence of a site with 2 or more seeps/springs should be considered SWH. •The area of a ELC forest ecosite or an eco-element within

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
	areas of a stream could have seeps/springs.				ecosite containing the seeps/springs is the SWH. •The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat.
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) >500m2 (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.	**Yes**	SWC, SWM and FOD ELC community series ecosites found on subject property. We meet this criteria offsite east and west of property	Presence of breeding population of: - 1 or more of the listed newt/salamander species or - 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or - 2 or more of the listed frog species with Call Level Codes of 3. •A combo fo observational and call count surveys required during the spring (March-June) . •The habitat is the wetland area plus a 230m radius of woodland area. • If a wetland area is adjacent to a

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
					woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat.
Amphibian Beeding 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. • Bullfrogs require permanent water bodies with abundant emergent vegetation.	**Yes**	Two wetland ecosites isolated from woodland ecosites exist on northern end of subject property. We meet this criteria offsite east and west of property	Presence of breeding population of: -1 or more of the listed newt/salamander species or -2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or -2 or more of the listed frog/toad species with Call Level Codes of 3. or; -Wetland with confirmed breeding Bullfrogs are significant. •The ELC ecosite wetland area and the shoreline are the SWH. •A combo of observational and call count surveys will be required during the spring (March-June). •If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered.

Wildlife Habitat	**Candidate SWH Habitat Criteria**		**Potential on Site**	**Rationale**	**Confirmed Defining Criteria=** **Studies to confirm…**
	ELC Ecosite Codes	ELC Ecosite Codes			
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.	Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. *any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer. • Specific evaluation methods required
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..	**Yes**	MAM2, MAM2-2 ecosites present on subject property	Presence of: - 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes or; -breeding by any combination of 5 or more of the listed species. •any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. •Area of the ELC ecosite is the SWH. •Breeding surveys

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	ELC Ecosite Codes	ELC Ecosite Codes			
					should be done in May/June. • Specific evaluation methods required
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.	Presence of nesting or breeding of: -2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. •The area of SWH is the contiguous ELC ecosite field areas. •Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Specific evaluation methods required.

Wildlife Habitat	**Candidate SWH Habitat Criteria**		**Potential on Site**	**Rationale**	**Confirmed Defining Criteria=** **Studies to confirm…**
	ELC Ecosite Codes	ELC Ecosite Codes			
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.	**Yes**	CUT1-1 ecosite present on subject property.	Presence of nesting or breeding of - 1 of the indicator species and at least 2 of the common species. •A habitat with breeding Yellowbreasted Chat or Golden-winged Warbler is to be considered as SWH. •The area of the SWH is the contiguous ELC ecosite field/thicket area. •Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Specific evaluation methods required
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.	**Yes**	MAM2, MAM2-2, SWM1-1 ecosites present on subject property.	Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm…
	ELC Ecosite Codes	ELC Ecosite Codes			
		•Usually the soil is not too moist so that the tunnel is well formed. •Can often be found far from water.			• Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. •Surveys should be done April to August in temporary or permanent water. • Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult.
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	N/A	See SAR Screening Section	Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. •The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
					species e.g. specific nesting habitat or foraging habitat.
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.	**Yes**	Confirmed amphibian breeding habitat offsite east of 20th side road, and confirmed summer habitat located in within subject property. Therefore, a corridor exists connecting the two habitats. It is broken by 20th side road, but protected with a 30m+ buffer on either side.	Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m. Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat.
Deer Movement Corridors	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer	Movement corridor must be determined when Deer	No	No habitat features on site.	• Studies must be conducted at the time of year when deer are migrating or moving to

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
	Wintering Area has potential to contain corridors.	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).			and from winter concentration areas. • Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas. • Corridors should be at least 200m wide with gaps <20m and if following riparian area with at least 15m of vegetation on both sides of waterway •Shorter corridors are more significant than longer corridors.