



BURNSIDE

**Natural Heritage Evaluation
Application for Zoning By-Law
Amendment and Revision to Draft
Plan Approved Plan of Subdivision
Part of Lot 5, Concession 10
City of Barrie**

**Mattamy (Salem) Limited
66 Wellington Street West
Toronto ON M5K 1G8**



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**R.J. Burnside & Associates Limited
1465 Pickering Parkway Suite 200
Pickering ON L1V 7G7 CANADA**

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Distribution List

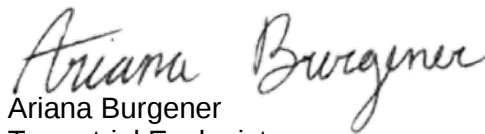
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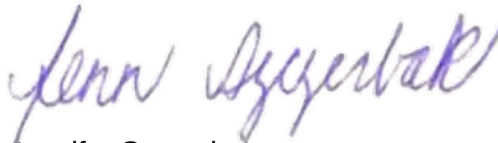
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R.J. Burnside & Associates Limited**Report Prepared By:**

Hannah Maciver
Project Coordinator / Senior Ecologist
HM:js



Ariana Burgener
Terrestrial Ecologist

Report Reviewed By:

Jennifer Szczerbak
Vice President Ecology, Land Development

Table of Contents

1.0	Introduction.....	6
1.1	Background	6
1.2	Approved Terms of Reference	6
1.3	Purpose and Scope of Work	7
2.0	Planning and Environmental Policy Considerations.....	8
2.1	Federal Species at Risk Act, 2002	8
2.2	Migratory Birds Convention Act, 1994.....	9
2.3	Provincial Endangered Species Act, 2007	10
2.4	Planning Act, 1990.....	11
2.5	Provincial Policy Statement, 2020.....	11
2.6	A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2020 ..	12
2.7	Lake Simcoe Protection Plan, 2009	12
2.8	Conservation Authorities Act, 1990	14
2.8.1	Ontario Regulation 41/24	14
2.8.2	Nottawasaga Valley Conservation Authority	15
2.8.3	Lake Simcoe Region Conservation Authority	15
2.9	Municipal Official Plans.....	16
2.9.1	Simcoe County Official Plan (2023).....	16
2.9.2	City of Barrie Official Plan (2023)	16
3.0	Background Records Review.....	20
4.0	Potential Species at Risk.....	21
5.0	Field Methodology	23
5.1	Vegetation Communities and Species	23
5.1.1	Ecological Land Classification and Botanical Inventories	23
5.2	Avifauna	23
5.2.1	Breeding Bird Surveys.....	23
5.2.2	Raptor Breeding Surveys	24
5.2.3	Nocturnal Owl Surveys.....	25
5.3	Amphibians.....	26
5.4	Mammals	27
5.4.1	Bat Habitat Surveys	27
5.4.2	Bat Acoustic Surveys	28
5.5	Anthropogenic Features / Incidental Wildlife Observations	29
5.6	Aquatic Habitat	30
6.0	Existing Conditions	30
6.1	Physiography and Topography	30
6.2	Surficial Geology	30
6.3	Vegetation Communities and Species	30
6.3.1	Ecological Land Classification	31
6.3.2	Botanical Inventories	32
6.4	Avifauna	33

6.4.1	Breeding Bird Surveys.....	33
6.4.2	Raptor Breeding Surveys	34
6.4.3	Nocturnal Owl Surveys.....	34
6.5	Amphibians.....	34
6.6	Mammals.....	35
6.6.1	Bat Habitat Surveys	35
6.6.2	Bat Acoustic Surveys	36
6.7	Anthropogenic Features / Incidental Wildlife Observations	37
7.0	Identification of Provincially Significant Features.....	39
7.1	Provincially Significant Wetlands	39
7.2	Significant Valleylands.....	40
7.3	Significant Woodlands	40
7.4	Significant Areas of Natural and Scientific Interest.....	42
7.5	Significant Wildlife Habitat	42
7.6	Habitat of Endangered and Threatened Species	45
7.6.1	Butternut	45
7.6.2	Bats.....	46
8.0	Delineation of Environmental Constraints	47
8.1	Ecological Offsetting Strategy	47
8.2	Low Constraint Stream Corridor (LOV8)	48
8.2.1	Previous Studies	48
8.2.2	LSRCA Site Walk.....	49
8.2.3	Slope Stability Assessment	49
8.3	Modification of Natural Core Area and Linkage Area	49
9.0	Proposed Development.....	53
9.1	Reid Drive Extension	53
9.2	Residential Lots	53
9.3	SWMF F Design	53
9.3.1	Preliminary Grading	54
9.3.2	Emergency Spillway and Outfall.....	54
9.4	Water Balance	54
10.0	Preliminary Impact Assessment, Avoidance and Mitigation Measures	54
11.0	Summary of Policy Conformity.....	66
12.0	Next Steps	74
13.0	Conclusions	74
14.0	References	76

Tables

Table 1: SAR Potentially Present on the Subject Lands	22
Table 2: Summary of Breeding Bird Call Survey Conditions	24
Table 3: Summary of Breeding Raptor Survey Conditions.....	25
Table 4: Summary of Breeding Owl Survey Conditions	26

Table 5: Summary of Amphibian Breeding Call Survey Conditions	27
Table 6: Bat Acoustic Survey Weather Conditions.....	29
Table 7: Summary of Amphibian Survey Results Conducted by Burnside Staff	35
Table 8: Leaf-on Candidate Tree Results	35
Table 9: Recorded Bat Calls.....	36
Table 10: SAR Species Detected at Each Station	37
Table 11: Summary of Incidental Wildlife Observations by Burnside Staff on the Subject Lands and Adjacent Lands	38
Table 12: Candidate and Confirmed SWH on the Subject Lands.....	43
Table 13: Preliminary Impact Assessment, Avoidance and Recommended Mitigation Measures	56
Table 14: Summary of Policy Conformity.....	66

Figures

Appendices

Appendix A Ecological Offsetting Strategy
Appendix B Terms of Reference
Appendix C Agency Correspondence
Appendix D Species at Risk Screening Results
Appendix E Plant List
Appendix F Breeding Bird Summary
Appendix G Significant Wildlife Habitat Screening
Appendix H Slope Stability Assessment

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1.0 Introduction

1.1 Background

R.J. Burnside & Associates Limited (Burnside) has been retained by Mattamy (Salem) Limited (Mattamy) to complete a Natural Heritage Evaluation (NHE) for lands located on part of Lot 5, Concession 10 (previously owned by the County of Simcoe (the County), as part of the Blauxham Tract). The parcel is south of Salem Road and west of Veterans Drive in the City of Barrie, Ontario (herein referred to as 'the subject lands').

Revisions have been made to the Draft Plan Approved Plan of Subdivision, therefore a zoning by-law amendment and redline application are now required. The subject lands will provide a stormwater management (SWMF) pond and 17 additional single detached dwellings along the extension of Reid Drive (proposed Street 'A'). Only a portion of the subject lands are planned for development, which throughout this report will be referred to as the 'area of impact'. The remainder of the land is designated as a Natural Heritage System (NHS). Any area within 120 m of the subject lands is defined as the 'adjacent lands.' The location and limits of the subject lands, as well as the area of impact are shown on Figure 1.

The subject lands are approximately 19.1 ha in size and the area of impact is approximately 4.59 ha in size. The subject lands fall within the jurisdiction of the City of Barrie, Lake Simcoe Region Conservation Authority (LSRCA), and Nottawasaga Valley Conservation Authority (NVCA); however, the area of impact falls within LSRCA jurisdiction only. The subject lands are in the Lovers Creek Subwatershed (LSRCA, 2012) and currently consist of naturalizing conifer plantation, as well as a combination of cedar coniferous, mixed deciduous and deciduous forest types. A dry 'valley' feature traverses the subject lands from west to east. Construction is currently underway for the subdivision directly south of the subject lands (Phase 1), whereas the area north of the subject lands is designated as future industrial land.

The subject lands are unique in that an ecological offsetting strategy agreement made between LSRCA, and the County. The City of Barrie Official Plan / Salem Secondary Area Plan designated parts of the Blauxham Tract for development in exchange for an ecological offsetting plan that will include afforestation of 11.42 ha and the protection of 18.99 ha of Natural Core Area, at a separate location within the County (letter dated November 1, 2021; see Appendix A). The removal of woodland and associated compensation will be the responsibility of the County. This agreement is discussed further in Section 8.0.

1.2 Approved Terms of Reference

A Terms of Reference (TOR) was originally prepared in support of an Environmental Impact Study (EIS) for a proposed SWMF development on the subject lands. The TOR

was circulated to LSRCA and NVCA for their review and input. During a conference call on April 25, 2022, it was agreed that LSRCA would take the lead on the review process moving forward. The final TOR, dated April 12, 2022, was approved via email on April 29, 2022 (Erin Fitzpatrick, Natural Heritage Ecologist, LSRCA). The TOR Checklist from LSRCA was for an EIS or NHE. The EIS report was drafted but not submitted to the agencies. As stated in Section 1.1, revisions have been made to the Draft Plan Approved Plan of Subdivision and a rezoning and redline application is now required for the subject lands.

This NHE report was prepared in accordance with the approved TOR (Appendix B), because studies completed in support of the EIS met LSRCA's requirements for an NHE. For the zoning by-law amendment and redline application, an NHE must also be prepared in accordance with the Section 2.1 (Natural Heritage) of the Provincial Policy Statement (PPS; MMAH, 2020), Growth Plan (2020), Lake Simcoe Protection Plan (LSPP; 2009) and City of Barrie Official Plan (OP; 2023) policies.

1.3 Purpose and Scope of Work

The purpose of this NHE is to demonstrate environmental policy conformity and provide an impact assessment in support of a zoning by-law amendment and redline application for the Draft Plan Approved Plan of Subdivision. As described in the Planning Justification Brief prepared under separate cover (The Jones Consulting Group Ltd., 2024), the rezoning goes to the principal of land use, so the delineation of the natural heritage limits, and assessment of impacts, is a foundational test that must be met according to the relevant policies listed below.

Field investigations were completed in accordance with the approved TOR, which included documentation of any confirmed or candidate Species at Risk (SAR) and / or SAR habitat. Additional studies were also completed in 2024 for the expanded area of impact for the rezoning and redline application. Field methodologies and findings are detailed below. Provincially significant features, including Significant Wildlife Habitat (SWH) and SAR, are discussed further in Section 7.0.

Specifically, the NHE will include the following:

- A demonstration that the development conforms to the requirements of the City and County Official Plans, LSPP and the PPS, as well as any other relevant policies and regulations.
- Identification pertaining to the significance of natural features at a Provincial and Regional level, with reference to standard information sources from the Province, LSRCA and NVCA.
- Identification of the significance of natural features according to the Official Plans and LSPP.
- Identification of the environmental features potentially impacted by development.
- A general description of the proposed development.

- A demonstration of how and where the proposed development can proceed without negative impact on the NHS and features and their ecological functions, and identification of preliminary mitigation and enhancement measures, where necessary.
- Quantification of impacts to any features within the NHS that may result from the proposed development.
- Conclusions and next steps.

2.0 Planning and Environmental Policy Considerations

The following policies, Acts and Regulations apply to features present on the subject lands. A summary of applicable natural heritage policy conformity is summarized in Section 11.0.

2.1 Federal Species at Risk Act, 2002

The *Species at Risk Act* (SARA) provides protection for Species at Risk (SAR) and their habitat. Schedule 1 of SARA is considered the official list of wildlife SAR that receive legal protection under the Act and includes species that have been assessed by the Committee on the Status of Endangered Wildlife in Canada (COESWIC) as Extirpated, Endangered, Threatened or Special Concern (Government of Canada, 2022).

To ensure the protection of SAR, Section 32(1) and (2) of the SARA states:

(1) No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species, or a threatened species

(2) No person shall possess, collect, buy, sell or trade an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species, or any part or derivative of such an individual

And Section 33 of the SARA states:

No person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered or threatened species, or that is listed as an extirpated species if a recovery strategy has recommended reintroduction of the species into the wild in Canada

SARA prohibitions pertaining to private lands include:

- Aquatic species listed on Schedule 1 as Endangered, Threatened or Extirpated;

- Migratory birds listed in the *Migratory Birds Convention Act, 1994* (MBCA) and listed on Schedule 1 as Endangered, Threatened or Extirpated; and
- May apply through an order, to other species listed on Schedule 1 (i.e., not an aquatic or migratory bird species) as Endangered, Threatened or Extirpated, if provincial / territorial legislation or voluntary measures do not adequately protect the species and its habitat.

Although Environment and Climate Change Canada (ECCC) is the overall administrator of SARA, responsibility for implementation of the Act is shared by ECCC and the Canadian Wildlife Service, Parks Canada and Department of Fisheries and Oceans (DFO). On private lands, ECCC oversees matters related to migratory birds, while DFO oversees matters related to aquatic species. In most cases pertaining to non-aquatic species on private lands, provincial laws (e.g., the *Endangered Species Act, 2007*) provide protection for critical habitat (i.e., habitat that is necessary for the survival or recovery of a listed endangered, threatened, or extirpated species). Alternatively, SARA prohibitions can be applied by an order, as described above, or through federal legislation (including SARA).

2.2 Migratory Birds Convention Act, 1994

The *Migratory Birds Convention Act* (MBCA) and Migratory Bird Regulations (MBR) are federal legislative requirements that are binding on members of the public and all levels of government, including federal and provincial governments. The legislation protect certain species¹, controls the harvest of others and prohibits the commercial sale of all species.

The MBCA has recently updated and modernized the MBR. The previous regulations protected the nests of all migratory birds, at all times, for as long as they existed, which meant that many nests were protected when they no longer benefited migratory birds. The new MBR provides protection to migratory bird nests when they are considered to have a high conservation value for migratory birds.

The nests of all migratory bird species are protected when they contain a live bird or a viable egg. The nests of 18 species (listed in Schedule 1 of the regulations), whose nests are reused by migratory birds, continue to have year-round nest protection, unless they have been shown to be abandoned. To be considered abandoned:

- Minister must be notified, via an online registration system, that the nest does not contain a live bird or viable egg; and
- Nest is to remain unused by migratory birds during the designated wait time for that species.

Of the 18 species, three are known to commonly breed in Southern Ontario: Great Blue Heron, Green Heron and Pileated Woodpecker.

Permits are available under limited circumstances and mostly relate to egg or nest destruction, or relocation “for the purpose of reducing the danger that they are causing or are likely to cause to human health or public safety or the damage they are causing or are likely to cause to agricultural, environmental or other interests.” Environment Canada and the Canadian Wildlife Service have compiled nesting calendars that show the variation in nesting intensity, by habitat type and nesting zone, within broad geographical areas distributed across Canada. While this does not mean nesting birds will not nest outside of these periods, the calendars can be used to greatly reduce the risk of encountering a nest. Environment Canada advises avoidance as the best approach.

2.3 Provincial Endangered Species Act, 2007

The *Endangered Species Act, 2007* (ESA) provides protection for SAR and their habitat. The ESA is administered by the Ministry of the Environment, Conservation and Parks (MECP) and provides policies for the protection of Extirpated, Endangered and Threatened species, as well as species of Special Concern. These four categories of species form the Species at Risk in Ontario (SARO) List, which are classified by the Committee on the Status of Species at Risk in Ontario (COSSARO). COSSARO is also responsible for maintaining criteria for assessing and classifying SAR.

The ESA helps protect species (Section 9) and their habitat (Section 10). Section 9(1)(a) of the ESA states,

no person shall 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.

Section 10(1)(a) of the ESA states,

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.

The ESA includes general habitat regulations, as well as species-specific habitat regulations. Species uplisted to Endangered or Threatened automatically receive general habitat protection under the ESA. The province is then required to prepare a species recovery strategy and establish a habitat regulation according to the requirements of the ESA.

The SARO List is updated from time to time, therefore, it is the proponent's responsibility to practice due diligence to ensure that the ESA and its regulations are not violated. It is the proponent's responsibility to be apprised of any amendments to the Act that may come into force for the duration of this project.

2.4 Planning Act, 1990

Section 2 of the *Planning Act* contains matters of provincial interest that approval authorities must have regard to in carrying out the responsibilities under the Act, including considering applications for Zoning By-law Amendments (Section 34 of the *Planning Act*) and Subdivision of Land (Sections 50 and 51 of the *Planning Act*).

The matters of provincial interest include the protection of ecological systems, including natural areas, features and functions.

2.5 Provincial Policy Statement, 2020

The Provincial Policy Statement (PPS) (MMAH, 2020) provides general policies on land use patterns, resources, and public health and safety that guide development across Ontario. This report will address Section 2.1 of the PPS (Natural Heritage).

Eight types of natural heritage features are identified in Sections 2.1.4 and 2.1.5 of the PPS where development and site alteration are not permitted unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions. The Natural Heritage Reference Manual (NHRM) (MNRF, 2010) provides criteria for identifying provincially significant features; these are listed below and described in more detail in Section 7.0 of this report.

1. *Significant Wetlands in Ecoregions 5E, 6E and 7E;*
2. *Significant Coastal Wetlands;*
3. *Significant Wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;*
4. *Significant Woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);*
5. *Significant Valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and St. Marys River);*
6. *Significant Wildlife Habitat (SWH);*
7. *Significant Areas of Natural and Scientific Interest (ANSIs); and*
8. *Coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b).*

Sections 2.1.6, 2.1.7, and 2.1.8 of the NHRM (2010) identify three additional development and site alteration prohibitions and exemptions, as follows:

1. *Fish habitat except in accordance with provincial and federal requirements;*
2. *Habitat of Endangered and Threatened species, except in accordance with provincial and federal requirements; and*
3. *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 adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features, or their ecological functions.*

The presence, or potential presence, of natural heritage features as well as the policy and planning implications of these features for development are discussed in detail in this report.

2.6 A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2020

The current Growth Plan for the Greater Golden Horseshoe (2020) provides a policy framework to build stronger, more prosperous communities by better managing growth. The Growth Plan focuses on building complete communities that are well-designed, offer transportation choices, and accommodate people at all stages of life, with a mix of housing, range of jobs, and easy access to stores and services to meet daily needs. In the Growth Plan, Section 6 (Simcoe sub-area), the City of Barrie is identified as the principal primary Settlement Area and Downtown Barrie is identified as the only Urban Growth Centre (UGC). According to the Planning Justification Brief (The Jones Consulting Group, 2024), the original subdivision and Zoning By-law Amendment applications that demonstrated conformity with the 2017 version of the Growth Plan were reviewed by Staff and were draft approved on August 8th, 2019.

2.7 Lake Simcoe Protection Plan, 2009

The Lake Simcoe Protection Plan (LSPP) is a policy and implementation document that guides efforts to protect and restore the ecological health of the Lake Simcoe watershed.

The Plan addresses long term environmental issues in Lake Simcoe and its watershed by:

- Promoting immediate action to address threats to the ecosystem, such as excessive phosphorus.
- Targeting new and emerging causes of stress such as invasive species and climate change.
- Protecting and restoring important natural areas such as shorelines and wetlands.
- Restoring the health of the fish and other aquatic life.

In fulfillment of the watershed policies of the LSPP, several consultants were retained to prepare a detailed Subwatershed Impact Study (SIS) that was reviewed and accepted by LSRCA, NVCA and the City of Barrie (Schaeffers Consulting Engineers, et al; December 2017).

The subject lands are located within a designated Settlement Area of the City of Barrie. However, this area was not a Settlement Area in 2009 at the time of the adoption of the LSPP.

The relevant policies of the LSPP shall apply to lands in the Lake Simcoe Watershed including the following:

- a) Development in or adjacent to a permanent or intermittent streams shall be subject to the LSPP policies 6.8-DP to 6.11-DP inclusive. – No watercourses are present on the subject lands according to the LSRCA Subwatershed Plan (2012) and Map 7 of the OP.
- b) Where a buffer or vegetation protection zone (VPZ) is required LSPP policies 6.27-DP, 6.28-DP and 6.29-DP shall apply. – The VPZ from Key Natural Heritage Features do not apply to the plantations on the subject lands that will be removed in the area of impact. The Dry-Fresh Sugar Maple – White Ash Deciduous Forest (FODM5-8) and FOMM7-2 however is not plantation and is therefore considered part of the KNHF of the greater woodlands beyond the site. As such, this ELC unit requires a 30 m VPZ under the LSPP. The limit of disturbance is well outside the 30 m VPZ as depicted on Figure 6 of this report.
- c) An application for major development as defined by the LSPP within a significant groundwater recharge area subject to LSPP policies 6.36-DP and 6.4—DP. – According to Map 7 of the City of Barrie OP (2023) and LSRCA Subwatershed Plan (2012), a SGRA is present immediately adjacent to the subject lands at the south-east corner of Salem Road and Veterans Drive. To date, LSRCA has not identified any Ecologically Significant Groundwater Recharge Areas (ESGRAs) on or adjacent to the subject lands (i.e., areas of land that are responsible for supporting groundwater systems that sustain sensitive features like coldwater streams and wetlands).

The policies of Sections 6.21-DP to 6.26-DP of the LSPP were addressed in part the Secondary Plan through the establishment of the NHS. Of the possible KNHFs incorporated into the Secondary Plan, Burnside has identified the potential for Significant Woodlands at the site. The Technical Definitions and Criteria for Identifying Key Natural Heritage Features and Key Hydrologic Features for the Lake Simcoe Protection Plan (MNRF, 2015) provides definitions of these features and rules for delineating them. In this document an exception to Significant Woodlands is given for plantations. As such, the plantation portions of the woodlands do not meet the definition of Significant

Woodlands under the LSPP. Therefore, policies related to Key Natural Heritage Features, Key Hydrological Features as defined by the LSPP (2009) and the required 30 m VPZ does not apply to the plantations on the subject lands.

A portion of the woodlands which is Dry-Fresh Sugar Maple – White Ash Deciduous Forest (FODM5-8) is plantation and is therefore considered part of the KNHF of the greater woodlands beyond the site. As such, this ELC unit requires a 30 m VPZ. The limit of disturbance is well outside the 30 m VPZ as depicted on Figure 6 of this report.

Per LSRCA and the County's ecological offsetting agreement (2021), the City of Barrie Official Plan / Salem Secondary Area Plan designated parts of the Blauxham Tract for development.

2.8 Conservation Authorities Act, 1990

On April 1, 2024, amendments to the *Conservation Authorities Act* governing the permitting process were proclaimed including a new section, "Part VI – Regulation of Areas Under Which Authorities Have Jurisdiction". A new Minister's regulation for all conservation authorities was approved on February 16, 2024, Ontario Regulation 41/24: Prohibited Activities, Exemptions and Permits, and also came into effect on April 1, 2024. This new, single regulation replaces all existing individual CA permit regulations, including CLOCA's Ontario Regulation 42/06.

Part VI of the CA Act sets out the Regulatory Powers of conservation authorities. Specifically, the CA Act prohibits, in the absence of a permit "activities to straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream or watercourse or to change or interfere in any way with a wetland." Development activities are also prohibited in hazardous lands, wetlands, river or stream valleys and shorelines in the absence of a permit.

2.8.1 Ontario Regulation 41/24

As of January 1, 2023, the Conservation Authority's role is limited to their core mandate (that is, regulated areas / natural hazards and wetlands). To implement, in part, the provisions of Part VI of the CA Act, Ontario Regulation 41/24 applies to all conservation authorities in the province. Effective April 1, 2024, Ontario Regulation 41/24 replaces the existing individual "Development, Interference with Wetlands and Alterations to Shorelines and Watercourses" regulations.

The *Conservation Authorities Act* and Ontario Regulation 41/24 contain the following provisions which establish regulatory boundaries and prohibit development and interference in any way in and around wetlands as well as the straightening, changing, diverting or interference with watercourses unless permission is granted by the Conservation Authority (CA) after it has been determined that specific legislated tests have been met:

Prohibited Activities (subsection 28(1) of the *Conservation Authorities Act*)

28(1) ... no person shall carry on the following activities, or permit another person to carry on the following activities...

4. Activities to straighten, change, divert or interfere in any way with the existing channel of a...watercourse or to change or interfere in any way with a wetland.

5. Development activities in areas that are...

ii. ...wetlands...

v. [areas within 30 metres of a wetland]

Permits (subsection 28.1(1) of the *Conservation Authorities Act*)

28.1(1) [The CA] may issue a permit to a person to engage in [a development] activity specified in the permit that would otherwise be prohibited by section 28, if, in the opinion of [the CA]

(a) the [development] activity is not likely to affect the control of flooding, erosion,

(b) the [development] activity is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property

The CA's will continue to require applications for a permit to undertake an otherwise prohibited development, interference, and alteration activities in regulated areas as defined under the *Conservation Authorities Act* and Ontario Regulation 41/24.

2.8.2 Nottawasaga Valley Conservation Authority

Development and site alteration are not proposed within NVCA's regulated area; therefore, a permit will not be required.

2.8.3 Lake Simcoe Region Conservation Authority

A portion of the subject lands are within LSRCA jurisdiction including the entire area of impact. Development and site alteration are proposed within LSRCA's regulated area. LSRCA will assess any future permit applications to determine if the proposed works will affect regulated features, in accordance with their programs and policies.

Lands regulated by LSRCA on the subject lands include:

- Natural Hazard lands (stable top of slope from valley feature plus 6 m setback). Note, this is a dry valley feature (not a watercourse) and is discussed in detail in Section 8.0.

Lands regulated by LSRCA on adjacent lands include:

- Wetlands (unevaluated) west of the subject lands and within 30 m of the wetlands.
- Wetland (Lovers Creek Swamp PSW) and within 30 m of the wetland east of the subject lands and east of Veterans Drive.

The only feature on the subject lands within LSRCA's area of influence is the stable top of slope plus 6 m setback. Wetlands on adjacent lands are outside the area of influence (30 m). Section 10.0 of this report provides recommendations to ensure that regulated features, located within or adjacent to the subject lands, are not negatively impacted and, where applicable, recommends mitigation measures.

As stated in Section 2.7, according to Map 7 of the City of Barrie OP (2023) and LSRCA Subwatershed Plan (2012), a SGRA is present immediately adjacent to the subject lands at the south-east corner of Salem Road and Veterans Drive. To date, LSRCA has not identified any Ecologically Significant Groundwater Recharge Areas (ESGRAs) on or adjacent to the subject lands (i.e., areas of land that are responsible for supporting groundwater systems that sustain sensitive features like cold water streams and wetlands).

2.9 Municipal Official Plans

2.9.1 Simcoe County Official Plan (2023)

The County's OP provides a policy context for land use planning, taking into consideration the economic, social, and environmental impacts of land use and development decisions. According to Section 2.1 of the OP and corresponding Schedule 5.1 Land Use Designations, planning decisions on the subject lands are not subject to the provisions of this Plan as they are within the Settlement Area of the City of Barrie.

2.9.2 City of Barrie Official Plan (2023)

Various sections of the City's OP (2023) speak to the protection and preservation of natural heritage features. The subject lands are located within the City of Barrie Settlement Area boundary.

Section 2.4.2.3 Designated Greenfield Areas

The lands are identified to be within the "Designated Greenfield Area", as shown on Map 1 of the OP. Policy c) states that "development on Designated Greenfield Area lands will follow a logical progression where new development is contiguous with or abuts

developed areas and progresses outward, excepting where physical barriers or significant natural heritage features and areas prohibit this development pattern.”

Section 2.6.1 Neighbourhood Area Land Use Designation

The area of impact on the subject lands is partially within lands designated Neighbourhood Area as shown on Map 2 of the OP, which permits residential development.

The purpose of this designation is to recognize new and existing neighbourhoods and communities. Development on lands designated Neighbourhood Area is subject to the following policies and any other applicable policies of the Plan.

Section 2.6.1.1 Permitted Uses

The following uses shall be permitted in areas designated as Neighbourhood Area:

- a) Residential.
- b) Home occupation.
- c) Parks and other open space areas.
- d) Assisted living, long-term care homes, and other co-housing opportunities.
- e) Supportive housing.
- f) Public service facilities.
- g) Community facilities.
- h) Commercial, including small scale office, provided the use is located on a collector or arterial street as indicated on Map 4b (Mobility Network).
- i) Retail provided the use is located on a collector or arterial street as indicated on Map 4b.

Section 2.6.1.2 Land Use Policies of the Neighbourhood Area

A series of six Land Use policies is outlined in the OP, under this section.

Section 2.6.6 Natural Heritage System Land Use Designation

The area of impact on the subject lands is partially within lands designated NHS, as shown on Map 2 of the OP. Development on lands designated NHS is subject to the following policies and any other applicable policies of the Plan.

Section 2.6.6.1 Permitted Uses

The following uses shall be permitted in areas designated as NHS:

- a) Environmental conservation and preservation.
- b) Environmental stewardship, restoration, and rehabilitation.
- c) Flood or erosion control mechanisms, if demonstrated in the public interest.
- d) Hazard management, if demonstrated in the public interest.
- e) Naturalized trails, boardwalks and interpretive/wayfinding signage installed, or as

- permitted, by a public authority.
- f) Low impact recreational facilities and minor recreation uses.
 - g) Low intensity active transportation infrastructure installed by a public authority.
 - h) Invasive species management.

Section 2.6.6.2 Land Use Policies of the NHS

A series of six Land Use policies is outlined in the OP, under this section. The subject lands do not fall under the three levels of EPA protection depicted on Map 3 (see below); therefore, EPA policies do not apply.

Section 5.3 Natural Heritage System

The City's NHS is comprised of a network of features and areas, which are identified as EPA on Map 3 of the OP and which receive protection through the LSPP, as well as other provincial plans. The City's NHS is identified by the land use designation of the same name and is depicted on Map 2 of the OP. A series of 14 general NHS policies are outlined in this section of the OP.

Section 5.4 Natural Heritage Protection Overlays

The natural heritage protection overlay policies outlined in this section shall apply, in addition to the land use designations and the policies of Section 2 of the OP. The more restrictive policy shall apply if there is any conflict with other policies in this Plan.

Section 5.4.1 Overlay Boundaries

The boundaries of the natural heritage protection overlays, including for the Natural Core Area, Natural Linkage Area and high constraint stream area, are identified on Map 3 of the OP. Four general policies pertaining to the NHS overlays are outlined in the OP, under this section.

- a) The NHS shall be maintained generally in accordance with the underlying land use designations and the overlays shown on Map 3.
- b) Minor modifications may be considered to the boundaries of these overlays when the boundary is surveyed as part of the development review process to reflect differences in scale and level of detail.
- c) Any minor modifications shall not negatively impact the NHS as determined by the City, in consultation with the applicable Conservation Authority, nor shall such minor modifications result in any significant decrease in the size of the NHS.
- d) Any minor modification which might result in a change to the boundary of a provincially significant wetland shall require approval of the MNRF based on the submission of studies required by that Ministry. Any proposed changes to a provincially

significant wetland boundary shall be delineated by an expert certified in the Ontario Wetland Evaluation System (OWES).

Section 5.4.2 Environmental Protection Areas Overlay

The subject lands **do not** fall under the three levels of EPA protection depicted on Map 3 of the OP; therefore, the policies of this section do not apply to the subject lands.

The subject lands are designated on Map 3 as Natural Core Area, Natural Linkage Area and Low Constraint Stream Corridor Area. See description under Section 5.4.3 of the OP below.

Section 5.4.3 Natural Core Area Overlay

As stated above, the subject lands do not fall under the three levels of EPA protection depicted on Map 3 of the OP. However, the Natural Core Area overlay includes important natural heritage, hydrological and hydrogeological features or groupings of such features, together with required buffers and adjacent lands intended to protect the function of the features and ensure the long-term sustainability of the NHS within an urban context.

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 m buffer from the edge of the woodlands within the Lake Simcoe watershed, wetlands and watercourses within the Natural Core Areas, a 10 m buffer from the dripline of the woodland features and to woodlands outside of the Lake Simcoe watershed and a 5 m buffer where the boundary of the natural core areas is an existing meadow or thicket. The general ecological principles considered included:

- a) Diversity – Areas of diverse habitats and / or supporting a rich assemblage of species.
- b) Size – Sufficient size to protect interior habitat.
- c) Contiguity – Designed to create contiguous units.
- d) Connectivity – The unit can be linked to other units.
- e) Significance – The area supports significant species or habitats.
- f) Overall watershed functionality, including hydrologic processes which protect the flow regime of receiving streams.

The entire western portion of the subject lands is designated as Natural Core Area.

Section 5.4.4 Natural Linkage Area Overlay

The primary function of the natural linkage area overlay on Map 3 is to connect two or more natural core areas, or to connect a natural core area to habitats outside the NHS. Linkages are important for a variety of plants and wildlife, facilitating daily and seasonal

movements, as well as gene flow. In most cases, the natural linkage areas also provide available habitat.

The Natural Linkage Areas are primarily associated with stream corridors that connect two or more Natural Core Areas. To sustain potential movement between the Natural Core Areas, a minimum linkage width of 100 m was established. In addition, a number of linkage-specific criteria reflecting site-specific characteristics formed the basis for the establishment of the Natural Linkage Area overlay, which is generally 100 m in width or greater as reflected on Map 3.

A portion of the eastern section of the subject lands is designated as Natural Linkage Area.

Section 5.4.5 Constrained Stream Corridor Areas Overlay

Map 3 of the OP depicts four levels of stream corridor constraints (High, High-special, Medium, Low). The valley feature on the subject lands is mapped as Low Constraint Stream Corridor Area. The location of high constraint corridors and medium constraint corridors within Natural Core Areas are to be maintained. The location and boundaries of the high (S), medium and low constraint stream corridor areas **outside of** Natural Core Areas on Map 3 shall be determined in accordance with the directions in the Drainage and Stormwater Management Master Plan, federal, provincial and conservation authority regulations, and during the preparation of a SIS. Reach delineation and classification on the subject lands was originally assessed as part of the Drainage and Stormwater Master Plan for the Annexed Lands (AMEC, 2012) as “low constraint.” This classification was carried over into the SIS for the Annexed Lands (2017). The width of the stream corridors from an aquatic habitat perspective was based on the LSPP, which includes 30 m buffers from watercourses. Low rankings were assigned to watercourses with marginal fish habitat. These watercourses consisted of upper headwaters, provide catchment for downstream reaches, exhibit minimal channel and provide indirect fish habitat. The valley feature on the subject lands is no longer considered a “stream”; therefore, this constraint designation should be removed. See Section 8.0 below for further discussion regarding this low constraint corridor area.

3.0 Background Records Review

Aside from the planning policy documents reviewed in Section 2.0, the following background resources were reviewed in support of the NHE:

- Recent digital aerial photography (Google Earth Pro).
- Federal Fisheries Act (1985).
- Federal Migratory Birds Convention Act, 1994 and the Migratory Bird Regulations.
- Fisheries and Oceans Canada (DFO) Aquatic Species at Risk mapping.
- Ministry of Natural Resources and Forestry (MNRF) Land Information Ontario (LIO) database.

- MNR Aquatic Resource Area (ARA) summary data.
- Natural Heritage Information Centre (NHIC) database to identify records of rare wildlife species on, and in the vicinity of the subject lands (1x1 km² Squares 17PK0307, 17PK0408).
- Ontario Hydrology Network (OHN) mapping.
- The Ontario Breeding Bird Atlas (OBBA; Cadman, M.D., et al, 2007) for 2001-2005 records of birds breeding in the area (10x10 km² Square 17PK00).
- iNaturalist records.
- Ontario Reptile and Amphibian Atlas (ORAA; 10x10 km² Square 17PK00).
- Barrie Creeks, Lovers Creek, and Hewitt's Creek Subwatershed Plan (LSRCA, 2012).
- LSRCA and Simcoe County Ecological Offsetting for the Simcoe County Forest "Blauxham Tract" (letter dated November 1, 2021).
- City of Barrie Annexed Lands Natural Heritage Characterization Report (NRSI, April 2012).
- City of Barrie Annexed Lands Natural Heritage System Report (NRSI, September 2012).
- Subwatershed Impact Study Report (SIS) Revised and Updated - Salem Annexed Lands, City of Barrie (Schaeffers Consultation Engineers, et al.; December 2017).
- Natural Heritage Evaluation Blauxham Tract Salem Secondary Plan Area City of Barrie (Azimuth Environmental Consulting Inc., 2020).
- Planning Justification Brief, Applications for Zoning By-law Amendment & Revision to Draft Approved Plan of Subdivision (The Jones Consulting Group Ltd., May 2024).
- Technical Memorandum SWMF F Functional Design (Burnside, May 29, 2024).

4.0 Potential Species at Risk

As part of this NHE, Burnside contacted MECP Barrie District regarding SAR that may be present in or adjacent to the subject lands (March 30, 2022). A formal response from MECP was received on April 13, 2022 (Appendix C).

Species provided by MECP, and any additional SAR recorded during Burnside's background records review and field investigations, are included in the detailed SAR Screening Table in Appendix D and discussed in Section 7.0 of this report.

Based on the screening in Appendix D, the following provincially listed SAR have been identified as potentially present in, or adjacent to the subject lands (Table 1).

Table 1: SAR Potentially Present on the Subject Lands

Birds				
Common Name	Scientific Name	ESA Designation	SARA Designation	Source
Eastern Wood-pewee	<i>Contopus virens</i>	SC	SC	OBBA (2001-2005)
Olive-sided Flycatcher	<i>Contopus cooperi</i>	SC	THR	OBBA (2001-2005)
Wood Thrush	<i>Hylocichla mustelina</i>	SC	THR	NHIC (2022) OBBA (2001-2005)
Mammals				
Common Name	Scientific Name	ESA Designation	SARA Designation	Source
Eastern Small-footed Myotis	<i>Myotis leibii</i>	END	-	Burnside
Little Brown Myotis	<i>Myotis lucifugus</i>	END	END	Azimuth (2020)
Northern Myotis	<i>Myotis septentrionalis</i>	END	END	Azimuth (2020)
Tri-colored Bat	<i>Perimyotis subflavus</i>	END	END	Azimuth (2020)
Reptiles / Amphibians				
Common Name	Scientific Name	ESA Designation	SARA Designation	Source
Eastern Milksnake	<i>Lampropeltis triangulum</i>	-	SC	ORAA (2022) iNaturalist (2019)
Plants				
Common Name	Scientific Name	ESA Designation	SARA Designation	Source
Butternut	<i>Juglans cinerea</i>	END	END	Azimuth (2020)
END- Endangered THR- Threatened SC- Special Concern NHIC- Natural Heritage Information Centre (2022) Azimuth- NHE Blauxham Tract (2020) OBBA- Ontario Breeding Bird Atlas (2005) OBA- Ontario Butterfly Atlas (2022) ORAA- Ontario Reptile and Amphibian Atlas (2022)				

5.0 Field Methodology

5.1 Vegetation Communities and Species

5.1.1 Ecological Land Classification and Botanical Inventories

Vegetation surveys for Ecological Land Classification (ELC) and plant inventory were undertaken on May 4, 2022, and August 17, 2022. Previously reported vegetation communities delineated by Azimuth (2020) were used as background information, but ELC communities were independently verified on the subject lands to reflect current conditions. Vegetation communities were assessed and described using the ELC System for Southern Ontario (Lee et al., 1998), utilizing updated Second Approximation 2008 codes (Lee et al, 2008) (see Figure 2). All plant species observed on the subject lands, and immediately adjacent, are found in Appendix E. Species nomenclature is described according to the NHIC (2018). Species rarity analysis was based on:

- Species' status as listed on the SARO list (updated April 1, 2022), under the ESA.
- Species status, as determined by COSEWIC and listed under SARA.
- Species S-rank, as provided by the NHIC species lists (updated August 2021)
- Distribution and Status of the Vascular Plants of Central Region - Rarity for County of Simcoe (Riley, J.L., 1989)

The NHIC database identified an unevaluated wetland along the western edge of the subject lands. Based on ELC surveys completed in spring and summer 2022, as well as other background reports, it was confirmed that the boundary of the wetland is incorrect and is located on adjacent lands only. See Figure 1.

5.2 Avifauna

5.2.1 Breeding Bird Surveys

Standard breeding bird surveys were completed by an Avian Biologist, as described below. Weather conditions are summarized in Table 2. Surveys were completed according to the Ontario Breeding Bird Atlas (OBBA)'s General Instructions for Atlassing and Appendices (April 2021) and tailored to the needs of this project.

- Surveys were conducted between May 24 and July 10.
- Surveys were conducted twice and were evenly spaced throughout the survey period, between 7-10 days apart.
- Surveys were conducted under the following weather conditions: Counts were not completed if it was raining, there was thick fog, or if winds were greater than 19 km per hour (i.e., >3 on the Beaufort scale). Generally, weather conditions were conducive for auditory and visual surveys.
- At the time of the studies, the subject lands and adjacent lands were part of the publicly accessible Blauxham Tract; therefore, point count stations were distributed

throughout to allow for data collection in a variety of different habitat types within the forest / plantation (Figure 3).

- All birds observed and heard were recorded, including level of breeding evidence (refer to Appendix F).
- Field data was collected using a mobile data collection application (Fulcrum) on an iOS device.

Table 2: Summary of Breeding Bird Call Survey Conditions

Survey Date	Observer	Start Time (24 hr)	Weather Conditions		
			Sky Code ¹	Air Temp. (°C)	Wind (Beaufort Scale) ²
May 28, 2022	Dave Szmyr	8:37	2	11	2
June 21, 2022	Dave Szmyr	9:20	0	22	1

¹NAAMP/ Beaufort Sky Codes

0 = clear (no cloud cover)
 1 = partly cloudy (scattered or broken) or variable
 2 = cloudy or overcast
 3 = sandstorm, dust storm or blowing snow
 4 = fog, smoke, thick dust, or haze
 5 = drizzle or light rain
 6 = rain
 7 = snow or snow/rain mix

²Beaufort Wind Scale

0 = calm, smoke rises vertically (0-2km/hr)
 1 = Light air movement, smoke drifts (3-5)
 2 = Slight breeze, wind felt on face; leaves rustle (6-11)
 3 = Gentle breeze, leaves & twigs in constant motion (12-19)
 4 = Moderate breeze, small branches moving, raises dust & loose paper (20-30);
 5 = Fresh breeze, small trees begin to sway (31-39)
 6 = Strong breeze, large branches in motion (40-50)

5.2.2 Raptor Breeding Surveys

Surveys for breeding raptor surveys were completed by an Avian Biologist and were based on the presence of treed habitat (i.e., mature pine plantation) on the subject lands and adjacent lands (Figure 3). Surveys were conducted following the general principles for the Red-shouldered Hawk (*Buteo lineatus*) and Spring Woodpecker Survey detailed in the publication titled Wildlife Monitoring Programs and Inventory Techniques for Ontario (Konze, K. and McLaren, M., 1997). Appendix O of the SWH Technical Guide provides additional guidance for finding and identifying hawk nests. While Red-shouldered Hawk does not typically breed in mature pine plantation, the suggested timing of the surveys corresponds with other breeding raptors that may be expected on the subject lands, which include Red-tailed Hawk (*Buteo jamaicensis*), Cooper's Hawk (*Accipiter cooperii*) and Sharp-shinned Hawk (*Accipiter striatus*). These species typically commence breeding in early spring and are most vocal during the courtship and fledgling periods. The raptor breeding survey methodology is summarized below, with survey weather conditions in Table 3.

- Two surveys were conducted between the last two weeks of April and the first week of May.
- Surveys commenced after sunrise.

- The survey protocol states that surveys conform to the following weather conditions requirements: Counts should not be done if it is raining, there is thick fog, or if winds are greater than 19 km per hour (i.e., >3 on the Beaufort scale). Generally, weather conditions were conducive for auditory and visual surveys, with winds less than 19 km per hour, and no precipitation.
- Transects were conducted within the plantation and woodland habitats; a minimum of 4 km was walked during each survey.
- It should be noted that evidence of breeding raptors was not limited to April 22 and May 3; raptors were noted during all spring and summer surveys on the subject lands (i.e., standard breeding bird surveys, amphibian surveys, bat habitat surveys, etc.) (see Section 6.4).

Table 3: Summary of Breeding Raptor Survey Conditions

Survey Date	Observers	Start Time (24 hr)	Weather Conditions		
			Sky Code ¹	Air Temp. (°C)	Wind (Beaufort Scale) ²
April 22, 2022	Dave Szmyr	7:15	1	5	1
May 3, 2022	Dave Szmyr	7:58	1	10	1

¹NAAMP/ Beaufort Sky Codes

0 = clear (no cloud cover)
 1 = partly cloudy (scattered or broken) or variable
 2 = cloudy or overcast
 3 = sandstorm, dust storm or blowing snow
 4 = fog, smoke, thick dust, or haze
 5 = drizzle or light rain
 6 = rain
 7 = snow or snow/rain mix

²Beaufort Wind Scale

0 = calm, smoke rises vertically (0-2km/hr)
 1 = Light air movement, smoke drifts (3-5)
 2 = Slight breeze, wind felt on face; leaves rustle (6-11)
 3 = Gentle breeze, leaves & twigs in constant motion (12-19)
 4 = Moderate breeze, small branches moving, raises dust & loose paper (20-30);
 5 = Fresh breeze, small trees begin to sway (31-39)
 6 = Strong breeze, large branches in motion (40-50)

5.2.3 Nocturnal Owl Surveys

Nocturnal owl surveys were completed on March 29, 2022, December 8, 2022, and January 10, 2023. Based on the forested habitat present within the subject lands and adjacent lands as well as geographic location, owl species that may be present in this area include Great Horned Owl (*Bubo virginianus*), Eastern Screech Owl (*Megascops asio*), Northern Saw-whet Owl (*Aegolius acadicus*), Barred Owl (*Strix varia*) and Long-eared Owl (*Asio otus*). The surveys were completed following the general principles outlined in Bird Studies Canada's (BSC) Nocturnal Owl Surveys in Central Ontario protocol (2011) and BSC's OBBA Standardized Owl Surveys Instruction Manual (2002), tailored to the needs of this project. The survey methodology is summarized below with dates and survey weather conditions in Table 4.

- Surveys commenced one half hour after sunset.

- Generally, weather conditions were conducive for auditory and visual surveys, with winds less than 19 km per hour, no precipitation and air temperature warmer than - 15°C.
- One point count was located within the area of impact and the other point count was located outside the area of impact, along the edge of the conifer plantation and deciduous woodland. See Figure 3.
- The first portion of each survey consisted of seven minutes of silent listening and playback of Eastern Screech-Owl. Playback was also used for Great Horned Owl and sequenced last at each point count as they are a top predator, and their presence might indicate to smaller owl species to stay silent during the survey.
- The second portion of each survey consisted of playback for Eastern Screech-Owl and 12 minutes of playback of OBBA's Central Owl Survey. The Central Owl Survey playback consists of two minutes of passive listening, one set of Boreal Owl calls, and four sets of Barred Owl calls.

Table 4: Summary of Breeding Owl Survey Conditions

Survey Date	Observers	Start Time (24 hr)	Weather Conditions		
			Sky Code ¹	Air Temp. (°C)	Wind (Beaufort Scale) ²
March 29, 2022	Dave Szmyr Sylvia Radovic	20:15	0	-3 to -5	0
December 8, 2022	Sylvia Radovic Mackenzie Dawson	17:10	1	-1	0
January 10, 2023	Sylvia Radovic Mackenzie Dawson	17:44	1	-3	0

¹NAAMP/ Beaufort Sky Codes

0 = clear (no cloud cover)
 1 = partly cloudy (scattered or broken) or variable
 2 = cloudy or overcast
 3 = sandstorm, dust storm or blowing snow
 4 = fog, smoke, thick dust, or haze
 5 = drizzle or light rain
 6 = rain
 7 = snow or snow/rain mix

²Beaufort Wind Scale

0 = calm, smoke rises vertically (0-2km/hr)
 1 = Light air movement, smoke drifts (3-5)
 2 = Slight breeze, wind felt on face; leaves rustle (6-11)
 3 = Gentle breeze, leaves & twigs in constant motion (12-19)
 4 = Moderate breeze, small branches moving, raises dust & loose paper (20-30);
 5 = Fresh breeze, small trees begin to sway (31-39)
 6 = Strong breeze, large branches in motion (40-50)

5.3 Amphibians

Amphibian breeding calls surveys were completed on April 11, May 5 and June 14, 2022, to detect potential early, mid and late season amphibian breeding activity.

Survey stations were chosen based on previous station locations used in Azimuth's NHE (2020; Figure 3), as well as representative vegetation communities. Surveys were conducted at three stations. All stations were located on the subject lands; however,

none were situated within the area of impact because there was no appropriate habitat. The survey methodology is summarized below and in Table 5.

The Marsh Monitoring Program guidelines (BSC, 2009) state that three call surveys should be completed a minimum of 15 days apart, when nighttime air temperatures are greater than 5°C, 10°C, and 17°C, respectively and when wind strength is less than 19 km/h (<3 on the Beaufort Scale).

Amphibian calls are used to identify species presence and are quantified by assigning a Call Level Code and an Abundance Count. The purpose of the breeding amphibian surveys was to identify wildlife habitat, as well as any potential SWH, on the subject lands. SWH is discussed further in Section 7.0 and Appendix G.

Table 5: Summary of Amphibian Breeding Call Survey Conditions

Survey Date	Observers	Start Time (24 hr)	Weather Conditions		
			Sky Code ¹	Air Temp. (°C)	Wind (Beaufort Scale) ²
April 11, 2022	Dave Szmyr Sylvia Radovic	20:38	0	8	0
May 5, 2022	Dave Szmyr Sylvia Radovic	20:57	0	13	0
June 14, 2022	Dave Szmyr Sylvia Radovic	21:34	0	21	0

¹NAAMP/ Beaufort Sky Codes

0 = clear (no cloud cover)
1 = partly cloudy (scattered or broken) or variable
2 = cloudy or overcast
3 = sandstorm, dust storm or blowing snow
4 = fog, smoke, thick dust, or haze
5 = drizzle or light rain
6 = rain
7 = snow or snow/rain mix

²Beaufort Wind Scale

0 = calm, smoke rises vertically (0-2km/hr)
1 = Light air movement, smoke drifts (3-5)
2 = Slight breeze, wind felt on face; leaves rustle (6-11)
3 = Gentle breeze, leaves & twigs in constant motion (12-19)
4 = Moderate breeze, small branches moving, raises dust & loose paper (20-30);
5 = Fresh breeze, small trees begin to sway (31-39)
6 = Strong breeze, large branches in motion (40-50)

5.4 Mammals

5.4.1 Bat Habitat Surveys

In April 2017, MNRF Guelph District released the Survey Protocol for Species at Risk Bats within Treed Habitats for three of Ontario's four Endangered bat species (Little Brown Myotis - *Myotis lucifugus*; Northern Myotis - *Myotis septentrionalis*; Tri-colored Bat - *Perimyotis subflavus*). These three species, along with Eastern Small-footed Myotis (*Myotis leibii*), as designated as Endangered under the ESA. These species receive species and general habitat protection under the ESA. Throughout eastern North America, a disease known as white-nose syndrome (WNS), which is caused by a fungus, has been the primary cause of the decline of Myotis populations.

Maternal summer roosting habitat for these species is often associated with the cavities and crevices of large diameter trees (25 to 44 cm DBH), exhibiting early stages of decay (Class 1-3; Watt and Caceres, 1999), in deciduous or mixed mature forest and wetland habitat types (Environment Canada, 2015). Additionally, Little Brown Myotis is also known to form maternity roosting colonies in abandoned or derelict structures, such as barns, old buildings and residential dwellings.

Leaf-Off Survey

A leaf-off survey was conducted on May 4, 2022, to look for candidate maternity roosting habitat for Little Brown Myotis and Northern Myotis. A further survey was conducted May 17, 2024, and focused on the updated area of impact. The following criteria were considered when identifying a candidate maternity roosting tree during the survey:

- Decay Class
- DBH
- Species
- Percent canopy cover
- Presence of habitat characteristics
- Peeling bark
- Within 10 m of another tree and / or snag
- Cavity height

Leaf-On Survey

Tri-colored Bat show strong preference to roosting in the foliage of Oak and Maple trees, especially those that feature dead or dying clusters of leaves. Maple and Oak information was extracted from the tree inventory results that were collected in October 2022 by Kuntz Forestry. All trees recorded were within the area of impact and are assumed to be removed as part of the proposed development. The following trees were documented:

- Oaks ≥ 10 cm DBH
- Maples ≥ 10 cm DBH

5.4.2 Bat Acoustic Surveys

Acoustic surveys are used to confirm presence or absence of bat species in candidate bat maternity habitat. Appropriate recording stations are determined through the criteria for leaf-off and leaf-on surveys, as shown on Figure 3. For each criteria assessed, a score is assigned, then the total score is calculated to determine which trees have the highest likelihood of supporting Little Brown Myotis and Northern Myotis (leaf-off), and Tri-colored Bat (leaf-on) maternity roosts. This method allows for an unbiased and replicable assessment of the quality of candidate roost trees and guides the selection of the best locations for acoustic monitoring.

In accordance with MNRF Guelph District's Survey Protocol for Species at Risk bats within Treed Habitats (2017), ten bat stations were deployed throughout the woodland. Each station was located adjacent to a candidate maternity roosting tree identified as having a relatively high potential to function as bat maternity roost habitat. At each station, a Wildlife Acoustics Song Meter SM4BAT FS bioacoustics recorder with an omnidirectional SMM-U2 external microphone was deployed and programmed to record automatically from 30 minutes before sunset to 30 minutes after sunrise, with the following adjustable settings:

- Gain: 12 dB
- Sample Rate: 256 kHz
- Minimum Trigger Frequency: 15 kHz

Ten bioacoustic recorders were deployed on June 17, 2022, and retrieved on June 28, 2022. The recorders were deployed for 11 nights (i.e., sunset to sunrise) of suitable weather conditions (i.e., ambient temperatures above 10°C and no rain) per MNRF protocols (2017). Table 6 lists weather conditions in Barrie during the survey period.

Table 6: Bat Acoustic Survey Weather Conditions

	Date	Nighttime Temp		Weather
1	June 17, 2022	Hi: 19	Lo: 10	Clear night
2	June 18, 2022	Hi: 19	Lo: 9	Clear night
3	June 19, 2022	Hi: 16	Lo: 12	Clear night
4	June 20, 2022	Hi: 19	Lo: 18	Clear night
5	June 21, 2022	Hi: 28	Lo: 22	Clear night
6	June 22, 2022	Hi: 24	Lo: 14	Clear night
7	June 23, 2022	Hi: 22	Lo: 13	Clear night
8	June 24, 2022	Hi: 24	Lo: 18	Clear night
9	June 25, 2022	Hi: 26	Lo: 19	Clear night
10	June 26, 2022	Hi: 25	Lo: 15	Clear night
11	June 27, 2022	Hi: 16	Lo: 12	Clear night

Recordings from the Song Meters were analyzed using the automatic identification feature of Wildlife Acoustics Kaleidoscope Pro v. 5.4.8 software. The analysis applied classifiers for eight bat species known from Ontario, including the four SAR bat species.

5.5 Anthropogenic Features / Incidental Wildlife Observations

Aside from structures that may be habitat for SAR bats (as discussed above), anthropogenic features may be present on the subject lands that could provide suitable habitat for other wildlife, such as snakes. Additional searches for man-made features were conducted during all site investigations and inspected for evidence of wildlife use. Results of these searches as they relate to other wildlife are discussed in Section 6.7.

General wildlife surveys were conducted concurrently with all field investigations. All observations and signs of species were recorded (e.g., tracks / trails, scat, burrows, dens, browse, vocalizations). The results are summarized in Section 6.7.

5.6 Aquatic Habitat

Background sources indicate the presence of a watercourse that traverses the subject lands from west to east. Contour maps and aerial photography show a 'valley' feature in this location. However, it has been determined through multiple sources, including the previous NHE conducted by Azimuth (2020) and a recent site walk with the LSRCA planners and ecologists (June 20, 2022), that no watercourse is present. During subsequent field investigations by Burnside staff during the spring and summer months, the absence of a watercourse was reconfirmed; therefore, LSRCA agreed that an aquatic habitat assessment was not required. A more detailed discussion is provided in Section 8.0.

6.0 Existing Conditions

6.1 Physiography and Topography

The subject lands are located entirely within the Peterborough Drumlin Field Physiographic Region. This Physiographic Region lies between the Oak Ridges Moraine and the area of shallow soils over limestone of the Gull River Formation. Within this region, the subject lands are in a drumlinized till plain Physiographic Landform (Chapman and Putnam, 1984 and 2007; LSRCA, 2012). The subject lands are flat overall, with a gentle dip down to the valley feature in the central portion.

6.2 Surficial Geology

The overburden within the Peterborough Drumlin Field was deposited as a series of advances and retreats of the Simcoe glacial ice lobe. This has resulted in drumlinized sheets of glacial till (Newmarket Till), stratified glaciolacustrine deposits of sand and gravel, littoral-foreshore deposits and massive-well laminated deposits of sand and gravel being common in this area. A review of the quaternary geology mapping for the area (OGS, 2003) indicates that the overburden sediments of the subject lands consist of glacio-fluvial ice contact deposits and silty to sandy till.

6.3 Vegetation Communities and Species

The mapped ELC communities completed for Azimuth's NHE (2020) were used as a baseline and were site-confirmed in 2022. Some minor revisions to the ELC communities were made, where applicable. A botanical inventory was conducted in spring (to ensure the inclusion of spring woodland ephemerals) and summer.

6.3.1 Ecological Land Classification

All communities are delineated on Figure 2.

Dry-Fresh Red Pine Naturalized Coniferous Plantation Type (FOCM6-2)

This vegetation community makes up a large portion of the subject lands. It is a Red Pine plantation that has naturalized with American Beech, White Pine, White Ash, and to a lesser extent Red Oak and White Spruce. The understory and ground layer are fairly open with scattered Raspberry species (*Ribes sp.*), Jack in the Pulpit (*Arisaema triphyllum*), Common Dandelion (*Taraxacum officinale*), Patridgeberry (*Mitchella repens*), Yellow Trout Lily (*Erythronium Americanum*), Intermediate Wood Fern (*Dropteris intermedia*), Spinulose Wood Fern (*Dropteris carthusiana*), Garlic Mustard (*Alliaria petiolate*) and Pennsylvania Sedge (*Carex pensylvanica*). Three Butternut (*Juglans cinerea*) (Endangered) were recorded in this community. A portion of this community overlaps with the area of impact.

Naturalized Coniferous Plantation (FOCM6)

This vegetation community is located west of the Dry-Fresh Red Pine plantation and east of the Dry-Fresh Sugar Maple-White Ash deciduous forest. Although similar to the other Red Pine plantation, this vegetation community has increased naturalization and the rows of plantation trees are further spaced out, allowing for other vegetation to establish. The community is dominated by White Spruce (*Picea glauca*) with White Ash, Sugar Maple, and Poplar species regenerating between the rows. Ground cover is sparse and contains Blue Cohosh (*Caulophyllum thalictroides*), Broad-leaved Enchanter's Nightshade, Bracken Fern (*Pteridium aquilinum*) and some Spotted Jewelweed (*Impatiens capensis*). Two Butternut (Endangered) were recorded in this community. A portion of this community overlaps with the area of impact.

Dry-Fresh Sugar Maple - White Ash Deciduous Forest Type (FODM5-8)

This vegetation community is located on the western side of the subject lands. This deciduous community is dominated by Sugar Maple and White Ash, with an abundance of White Birch, Beech, Ironwood, Basswood and American Elm. The understory and ground cover are sparse but False Solomon's Seal (*Maianthemum racemosum*), Jack-in-the-Pulpit, Red Trillium, Sensitive Fern, White Baneberry, New York Fern (*Parathelypteris noveboracensis*), Shinleaf (*Pyrola elliptica*) and Mapleleaf Viburnum (*Viburnum acerifolium*) are present. This community is not part of the area of impact.

Fresh-Moist White Cedar-Hardwood Mixed Forest Type (FOMM7-2)

This vegetation community is in the north-west portion of the subject lands. It is a small area within the Dry-Fresh Sugar Maple-White Ash Forest that is distinctly dominated by Eastern White Cedar (*Thuja occidentalis*). Other sparsely recorded trees are White Birch, Red Oak, American Beech and Maple sp. The ground cover is sparse due to the dense Cedar cover; however, Spinulose Wood Fern and Wild Lily-of-the-Valley (*Maianthemum canadense*) are present. This community is not part of the area of impact.

Fresh-Moist White Cedar Coniferous Forest Ecosite (Norway Spruce; FOCM4)

An appropriate ELC code for this Norway Spruce dominated naturalized plantation does not exist in Lee, 2008. This vegetation community is located through the center of the subject lands, along the dry valley feature. The community is dominated by plantation of Norway Spruce (not White Cedar as the vegetation community title suggests) with sporadic White Ash. The ground cover consists of Raspberry species, Yellow Wood Sorrel (*Oxalis stricta*), Broad-leaved Enchanter's Nightshade, Large-tick Trefoil (*Hyloidesmum glutinosum*), Tall Thimbleweed, Wall Lettuce, Common Burdock, Spinulose Wood Fern, Herb Robert, Coltfoot and Wild Basil. There are three areas within this community that have pockets of wetland indicator species, including Sensitive Fern and Spotted Jewelweed. These pockets are all less than 0.1 ha in size. A portion of this community overlaps with the area of impact.

Treed Hedgerow (HR)

The treed hedgerow is located along the southern portion of the subject lands, separating the established walking trail from the southern agricultural field. The hedgerow is dominated by Sugar Maple, with occasional Green Ash, White Birch, Beech, Ironwood and Basswood. Majority of the understory is saplings of species found in the canopy as well as Raspberry species, Red Baneberry (*Actaea rubra*), Broad-leaved Enchanter's Nightshade (*Circaea canadensis*) and Wild Sarsaparilla (*Aralia nudicaulis*). This hedgerow is dominated by deciduous species, in contrast to the other vegetation communities on the subject lands that include coniferous species. A portion of this community overlaps with the area of impact.

6.3.2 Botanical Inventories

A detailed list of plants identified on the subject lands can be found in Appendix E. The following summarizes the flora observed on the subject lands during field surveys:

- Sixty-four (64) plant taxa were observed. Of those, 60 were identifiable to species or subspecies level. Of those species, 50 (83%) were native and 10 (17%) were non-native to Ontario.
- No species were observed that are considered rare (R) to Simcoe (Riley, J.L., 1989).

- One (1) SAR flora species was observed on the subject lands - Butternut. Five individuals were recorded within the area of impact, or within 50 m of the areas of impact. See Figure 4. A Butternut Health Assessment was completed on these trees and is further discussed in Section 7.6.

6.4 Avifauna

6.4.1 Breeding Bird Surveys

Subject Lands

Nine resident bird species, exhibiting some level of breeding evidence (possible, probable, or confirmed) were observed on the subject lands during both targeted breeding bird surveys and other early spring surveys (i.e., raptor and amphibian surveys) (see Appendix F). Four of these were recorded in the area of impact where direct habitat removal will occur: Black-throated Green Warbler (*Setophaga virens*), Brown Creeper (*Certhia americana*), Pine Warbler (*Setophaga pinus*) and Red-breasted Nuthatch (*Sitta canadensis*). Five additional species were recorded on the subject lands but outside the area of impact: Blue Jay (*Cyanocitta cristata*), Common Yellowthroat (*Geothlypis trichas*), Eastern Wood-pewee (*Contopus virens*), Northern Flicker (*Colaptes auratus*) and Ovenbird (*Seiurus aurocapilla*).

According to MNRF's SWH Technical Guide (MNRF, 2000), "area sensitive" species are defined as species that require large areas of suitable habitat for long term population survival. Fragmentation of essential habitats can result in overall declines in populations. Four "area sensitive" bird species, as defined by MNRF, were observed on the subject lands in the area of impact where direct habitat removal will occur: Black-throated Green Warbler, Brown Creeper, Pine Warbler and Red-breasted Nuthatch.

One additional "area sensitive" bird species was recorded on the subject lands, but outside the area of impact: Ovenbird.

One bird species, listed as both provincially and federally significant, was observed on the subject lands, but outside the area of impact: Eastern Wood-Pewee (Special Concern). No SAR was recorded in the area of impact.

Adjacent Lands

Twenty-eight resident bird species, exhibiting some level of breeding evidence, were observed on adjacent lands during both targeted breeding bird surveys and other early spring surveys (see Appendix F).

One additional species was observed, but no breeding evidence was recorded: American Crow (*Corvus brachyrhynchos*).

Eight “area sensitive” bird species were recorded on adjacent lands: Black-throated Green Warbler, Brown Creeper, Least Flycatcher (*Empidonax minimus*), Ovenbird, Pileated Woodpecker (*Dryocopus pileatus*), Pine Warbler, Red-breasted Nuthatch and Winter Wren (*Troglodytes hiemalis*).

Two bird species, listed as both provincially and federally significant, were observed on adjacent lands during breeding bird surveys: Eastern Wood-Pewee (Special Concern) and Wood Thrush (*Hylocichla mustelina*) (Special Concern) (Threatened).

SAR and SWH Screening Tables for the subject lands and adjacent lands is included in Appendix D and G, respectively. SWH species are discussed in more detail in Section 7.5. The significance of SAR species is discussed in more detail in Sections 7.6

6.4.2 Raptor Breeding Surveys

No raptor species were recorded on the subject lands during targeted raptor surveys, or any other surveys. Red-tailed Hawk (*Buteo jamaicensis*) was incidentally recorded flying overhead during the raptor survey on April 22, 2022. While it was observed flying overhead outside the limits of the subject lands and adjacent lands, the record confirms its presence in the general vicinity.

6.4.3 Nocturnal Owl Surveys

No owl species were recorded during the three nocturnal owl surveys. Eastern Screech-Owl was incidentally recorded during amphibian surveys on June 14, 2022. While it was heard calling from a distance west of the subject lands in adjacent deciduous forest, the record confirms its presence in the general vicinity. A Barred Owl record at the Blauxham Tract was noted on eBird (Observer: Dave Szmyr), dated January 14, 2021.

6.5 Amphibians

No species of amphibians were documented calling at any station on the subject lands.

Results of the surveys are provided in Table 7. Station 3 (located in the area of impact) was eliminated after the first survey. As described in Section 5.6, the valley feature does not contain a watercourse or any standing water; therefore, it is not suitable amphibian breeding habitat.

Table 7: Summary of Amphibian Survey Results Conducted by Burnside Staff

Date	Species Observed	Station	Call Code ¹	Abundance Count ²
April 11, 2022	No species	1	-	-
	No species	2	-	-
	No species	3	-	-
May 5, 2022	No species	1	-	-
	No species	2	-	-
June 14, 2022	No species	1	-	-
	No species	2	-	-

¹Call Level Code: 1 = calls can be counted, calls not simultaneous; 2 = calls distinguishable, some simultaneous calling; 3 = full chorus, calls continuous and overlapping.

²Abundance Count: Estimated number of individuals present.

Spring Peeper (Code 3) and Gray Treefrog (Code 2) were incidentally recorded west of Station 1 during amphibian breeding surveys. Based on aerial photography, there is an open-water wetland (marsh) feature present.

6.6 Mammals

6.6.1 Bat Habitat Surveys

Leaf-off / Leaf-on

In total, 75 leaf-off candidate trees and 28 leaf-on candidate trees were inventoried within the area of impact. See Figure 5. Table 8 summarizes the leaf-on trees.

Twenty-two oak trees, the preferred tree type of roosting for Tri-colored Bat, were identified during the survey (MNRF, 2017).

Table 8: Leaf-on Candidate Tree Results

Species	10-24 cm DBH	26-36 cm DBH	38-48 cm DBH	>50 cm DBH	Total Leaf-on Candidate Trees
Red Maple	9 (no leaf clusters)	1	0	0	28
Sugar Maple	74 (no leaf clusters)	1	1	3	
Red Oak	10	2	3	7	

6.6.2 Bat Acoustic Surveys

Acoustic surveys were conducted to assess the presence of SAR bats that may be using the forest on the subject lands. The purpose of acoustic surveys is to identify the species of bat present. Bat calls were recorded using ten Wildlife Acoustics SM4BAT FS Song Meters and were verified using the more accurate Wildlife Acoustics Kaleidoscope Pro v. 5.4.8 software. Table 9 shows which bat species were detected by the heterodynes, how many events were recorded, and the level of confidence in the accuracy of the species identification, as verified by Kaleidoscope Pro software.

Table 9: Recorded Bat Calls

Station	Big Brown Bat	Eastern Red Bat	Hoary Bat	Silver-haired Bat	Eastern Small-footed Myotis	Little Brown Myotis	Northern Myotis	Tri-colored Bat	No ID	Noise
1	15		10	5					14	19
2			1						0	62
3			2		6		8		207	250
4	2		18	4					8	45
5	15		14	6		2			37	36
6	39		47	10	3	20	4		55	21
7	26		50	6	1	8			42	17
8			18	3					18	90
9	16		5	3		1			26	237
10	10		21	2	8	24			116	165

Cells shaded green indicated a high probability that the species is present ($p < 0.05$).

Cells shaded orange indicated a moderated probability that the species is present ($p < 0.1$).

Cells shaded red indicated a high probability of a false positive ($p > 0.1$).

The No ID and Noise files were manually reviewed for SAR bat calls. Using both the manual and Kaleidoscope Pro identified calls, Table 10 shows how many SAR calls were detected at each station and which species were present. All stations, except Station 1 detected SAR bats. Station 3, 9 and 10 were noteworthy, each detecting over 100 call events. These three stations correspond with the Hedgerow ELC community at the edge of the agricultural field, within the area of impact.

The Ontario Recovery Strategy (2019) states that peak foraging activity for Little Brown Myotis and Northern Myotis is approximately 8.0 m into fields from a woodland edge. This area of peak activity would be within the range of acoustic stations 2, 3, 8, 9 and 10, which includes those that detected the highest number of SAR bat calls. As such, it is likely that many of these calls were detected from bats foraging at the edge of the agricultural field, who may not be roosting in the trees near the stations.

Furthermore, it is important to note that the number of calls identified through bioacoustics monitoring does not indicate a specific number of individuals; one individual could pass by one or more detectors several times in a night, resulting in a high number of calls.

Table 10: SAR Species Detected at Each Station

	Little Brown Myotis	Northern Myotis	Eastern Small-footed Myotis	Total SAR Calls	Total # of Calls	% of SAR calls by station
Station 1	---	---	---	0	27	0%
Station 2	X	X	---	50	60	83%
Station 3	X	X	X	407	419	97%
Station 4	---	X	---	4	77	5%
Station 5	X	X	---	14	73	19%
Station 6	X	X	X	65	196	33%
Station 7	X	X	X	43	150	29%
Station 8	X	X	X	49	107	46%
Station 9	X	X	X	222	282	79%
Station 10	X	X	X	141	223	63%

Based on the combined Kaleidoscope Pro and manual analysis of bat recordings, there were a total of 1,614 bat calls recorded. Of these, 995 (62%) were from the combined calls of Little Brown Myotis Northern Myotis and Eastern Small-footed Myotis. Due to the number of calls recorded and the difficulty of manually distinguishing between these species, not all calls were identified to the species level. Tri-colored Bat were not detected on the subject lands.

6.7 Anthropogenic Features / Incidental Wildlife Observations

The only man-made features found on the subject lands were rock piles (part of an old fence line), located in the hedgerow along the southern boundary. It is possible these could provide habitat for wildlife, such as snake hibernacula (SWH) and multiple SAR bats. One Eastern Gartersnake (*Thamnophis sirtalis sirtalis*) was observed incidentally on May 4, 2022, during field investigations. Three additional Eastern Gartersnake were observed incidentally on June 17, 2022, in different locations on the subject lands, outside the window for hibernation. Potential for snake hibernacula is discussed further in Section 7.5. Potential for SAR bats is discussed further in Section 7.6.

It is anticipated that existing habitat on the subject lands would support common wildlife such as a variety of small mammals (i.e., mice, voles, squirrels, etc.), Raccoon (*Procyon lotor*), Red Fox (*Vulpes vulpes*), Coyote (*Canis latrans*), Striped Skunk

Natural Heritage Evaluation
June 2024

(*Mephitis mephitis*), Eastern White-tailed Deer (*Odocoileus virginianus*) and Eastern Cottontail (*Sylvilagus floridanus*).

Incidental observations of wildlife were collected during all field investigations. Observations were documented to provide a general characterization of the habitat functions of the site.

Provincial ranks (i.e., S1 to S5) are used to set protection priorities for rare species and natural communities. Species that were observed incidentally during site visits are not listed as provincially and / or federally significant and are classified as secure or apparently secure in Southern Ontario. These species are ranked as S5 or S4, which is defined by MNRF as species that are common, widespread and abundant in the province or uncommon, but not rare. Table 11 summarizes incidental observations to date.

Table 11: Summary of Incidental Wildlife Observations by Burnside Staff on the Subject Lands and Adjacent Lands

Common Name	Scientific Name	S-Rank	SARO Rank	Subject Lands	Adjacent Lands
Birds					
Canada Goose	<i>Branta canadensis</i>	S5		X	
Eastern Screech-Owl	<i>Megascops asio</i>	S5			X
Hooded Merganser	<i>Lophodytes cucullatus</i>	S5			X Overhead
Killdeer	<i>Charadrius vociferus</i>	S4B			X Overhead
Mallard	<i>Anas platyrhynchos</i>	S5			X Overhead
Red-tailed Hawk	<i>Buteo jamaicensis</i>	S5			X
Ring-billed Gull	<i>Larus delawarensis</i>	S5		X Overhead	
Ruby-crowned Kinglet	<i>Regulus caledula</i>	S5B, S3N			X
Rusty Blackbird	<i>Euphagus carolinus</i>	S4B, S3N	SC		X
Tree Swallow	<i>Tachycineta bicolor</i>	S4, S5B			X
Turkey Vulture	<i>Cathartes aura</i>	S5B, S3N			X Overhead
Wild Turkey	<i>Meleagris gallopavo</i>	S5			X
Wood Duck	<i>Aix sponsa</i>	S5B, S3N			X Overhead

Common Name	Scientific Name	S-Rank	SARO Rank	Subject Lands	Adjacent Lands
Yellow-bellied Sapsucker	<i>Sphyrapicus arius</i>	S5B, S3N			X
Yellow-rumped Warbler	<i>Setophaga coronata</i>	S5B, S4N			X
Mammals					
Grey Squirrel	<i>Sciurus carolinensis</i>	S5		X	X
Reptiles and Amphibians					
Eastern Gartersnake	<i>Thamnophis sirtalis sirtalis</i>	S5		X	X
Insects					
Mourning Cloak	<i>Nymphalis antiopa</i>	S5		X	

Rusty Blackbird was observed incidentally during the second Raptor Breeding Survey, on May 3, 2022. Although this species is classified as “area-sensitive” and is listed provincially as “Special Concern”, it was not recorded during any other surveys. No suitable breeding habitat is present on the subject lands or adjacent lands for this species (i.e., forested wetlands and swamps located in the Southern Shield to the Hudson Bay Lowlands); therefore, it can reliably be confirmed as a migrant.

7.0 Identification of Provincially Significant Features

Section 2.5 of this report states that the NHRM (MNRF, 2010) provides criteria for identifying provincially significant features. The following provides a summary of how provincially significant features were identified on the subject lands. The policies of Sections 6.21-DP to 6.26-DP of the LSPP were addressed in the Secondary Plan through the establishment of the NHS. Per LSRCA and the County’s ecological offsetting agreement (2021), the City of Barrie Official Plan / Salem Secondary Area Plan designated parts of the Blauxham Tract for development. Therefore, policies related to Key Natural Heritage Features, Key Hydrological Features as defined by the LSPP (2009) and the required 30 m VPZ does not apply to the plantations on the subject lands.

7.1 Provincially Significant Wetlands

Section 6.0 of the PPS (MMAH, 2020) defines significant wetlands as “*an area identified as provincially significant by the Ministry of Natural Resources using evaluation procedures established by the province, as amended from time to time.*”

No records of PSWs are present on the subject lands. Lovers Creek Swamp PSW is located on adjacent lands, east of Veterans Drive. Development will occur within 120 m of the Lovers Creek Swamp PSW and flows from the proposed SWMF pond will outlet

into reach LOV8 of Lovers Creek that connects with the PSW. Potential impacts and recommended mitigation measures are discussed further in Section 10.0.

7.2 Significant Valleylands

The NHRM (MNRF, 2010) provides criteria for identifying Significant Valleylands, including a variety of landform related functions and attributes, as well as ecological features and functions. According to the NHRM a Significant Valleyland is defined as:

a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year. Large, well-defined valleylands are often significant landscape features essential to the character of an area

The NHRM further defines the recommended Significant Valleyland evaluation criteria and standards for areas with well-defined valley morphology (i.e., floodplains, meander belts, and valley slopes). One of the criteria is that features having an average width of 25 m are considered significant.

Additionally, the PPS (2020) defines Significant Valleylands as:

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

Although the valley is greater than 25 m in width, the main definition of a landform with flowing or standing water is not met. The City of Barrie includes Significant Valleylands in their Environmental Protection Area-Level 1 and Environmental Protection Area-Level 2 that help make up the City's NHS. The subject lands or adjacent lands are not classified as EPA. Based on a review of the criteria and background sources, it is concluded that no Significant Valleylands are present on the subject lands or adjacent lands.

7.3 Significant Woodlands

Significant Woodlands are typically identified by the local municipality. According to the PPS (MMAH, 2020), significant woodland is defined as:

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

The PPS indicates that significant woodland is to be identified using criteria established by MNRF. Significant Woodlands are typically identified by the local municipality by applying the NHRM Evaluation (MNRF, 2010) criteria as they apply to that municipality. The City of Barrie has already undertaken the identification of Significant Woodlands as part of their recent OP update (2023) and has included Significant Woodlands that meet the size requirements set out in the NHRM in their Environmental Protection Area – Level 1 and Environmental Protection Area -Level 2 that comprise the City's NHS, as depicted on Map 3 of the OP. The City did not designate the subject lands as an EPA. Furthermore, the development is in an area governed by the LSPP policies. Policies 6.21-DP – 6.26-DP govern Key Natural Heritage Features and Key Hydrological Features. These features have been incorporated into the City of Barrie OP designations. The Technical Definitions and Criteria for Identifying Key Natural Heritage Features and Key Hydrologic Features for the Lake Simcoe Protection Plan (MNRF, 2015) provides definitions of these features and rules for delineating them. In this document an exception to Significant Woodlands is given for plantations.

As such, the plantation portions of the woodlands do not meet the definition of Significant Woodlands under the LSPP. Therefore, policies related to Key Natural Heritage Features, Key Hydrological Features as defined by the LSPP (2009) and the required 30 m VPZ do not apply to the plantations on the subject lands:

Notwithstanding the above, significant woodlands do not include:

- a plantation managed for production of fruits, nuts, maple syrup or other *tree syrups, Christmas trees or nursery stock*;
- a plantation managed for tree products with an average rotation of less than 20 years (e.g., hybrid poplar or willow);
- a plantation established and continuously managed for the sole purpose of complete removal at rotation, as demonstrated with documentation acceptable to the planning authority or the Ministry of Natural Resources and Forestry, without a forest restoration objective.

Additional exclusions may be considered for communities which are dominated by the invasive non-native tree species buckthorn (Rhamnus species) or Norway maple (Acer platanoides) that threaten good forestry practices and environmental management. Such exceptions may be considered where native tree species cover less than 10% of the ground and are represented by less than 100 stems of any size per hectare. Exclusions occur where it can be demonstrated to the satisfaction of the planning authority by a qualified professional (such as a forester, ecologist or a person with equivalent qualifications) that the woodland meets the above criteria.

It is Burnside's opinion that the plantations (FOCM4, FOCM6-2, FOCM6) located on the subject lands, as managed County of Simcoe forests, meet the exception criteria of a continuously managed plantation.

The Dry-Fresh Sugar Maple – White Ash Deciduous Forest (FODM5-8) and FOMM7-2 however is not plantation and is therefore considered part of the KNHF of the greater woodlands beyond the site. As such, this ELC unit requires a 30 m VPZ under the LSPP. The limit of disturbance is well outside the 30 m VPZ as depicted on Figure 6 of this report.

7.4 Significant Areas of Natural and Scientific Interest

According to the PPS (MMAH, 2020), ANSIs are defined as:

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

According to the NHRM (MNRF, 2010), provincially significant ANSIs include some of the most significant and best examples of these features in the province, and only include ANSIs identified as provincially significant.

No ANSIs are present on the subject lands or adjacent lands.

7.5 Significant Wildlife Habitat

Determination of SWH is broadly categorized and described in the NHRM (MNRF, 2010). Additionally, MNRF's SWHTG (MNRF, 2000) and SWH Criteria Schedule for Ecoregion 6E (MNRF, 2015) are further supplemental documents intended to assist in identifying SWH. The four categories of SWH are identified as:

1. Habitats of seasonal concentrations of animals
2. Rare vegetation communities or specialized habitat for wildlife
3. Habitat of species of conservation concern
4. Animal movement corridors

Appendix G includes a screening of the various categories of Candidate and Confirmed SWH for the subject lands and adjacent lands, based on background records review, agency records and aerial photo interpretation, as well as Burnside's field investigations on the subject lands.

Table 12 summarizes Candidate and Confirmed SWH on the subject lands.

Table 12: Candidate and Confirmed SWH on the Subject Lands

Seasonal Concentration Areas of Animals
Candidate Raptor Wintering Area
Candidate Bat Maternity Colonies (Big Brown Bat)
Candidate Reptile Hibernaculum
Specialized Habitats for Wildlife Considered Significant Wildlife Habitat
Confirmed Woodland Area-Sensitive Bird Breeding Habitat: Black-throated Green Warbler, Brown Creeper, Ovenbird, Pine Warbler, Red-breasted Nuthatch
Habitat for Species of Conservation Concern Considered Significant Wildlife Habitat
Confirmed Special Concern and Rare Wildlife Species: • Eastern Wood-pewee (Special Concern under ESA and SARA) • Eastern Milksnake (Special Concern under SARA)

Candidate and Confirmed habitat on the subject lands are associated with the following vegetation communities: FOCM6-2 (Red Pine Naturalized Coniferous Plantation) with some FOCM6 (Naturalized Coniferous Plantation), FOCM4 (White Cedar Coniferous Forest) and Hedgerow. Confirmed SWH will be directly removed within the area of impact: Woodland Area-sensitive Bird Breeding Habitat and Habitat for Species of Conservation Concern, Eastern Milksnake (Special Concern under SARA). These habitats are discussed below.

Although deer yarding areas were identified by the MNRF (Land Information Ontario open data, 2004) and are SWH, they are not considered present. Stratum II deer yards are considered winter staging areas for White-tailed Deer. 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%. Stratum I habitat was not identified within the subject or adjacent lands. According to MNRF's SWH Mitigation Support Tool (2014), not all northern deer yards are considered SWH; while Stratum II is not considered as sensitive as Stratum I, a local MNRF office should be contacted to determine if the Stratum II deer yard is significant where the development is proposed. Tracks, scat, or browsing were not noted during any of the field investigations within the subject lands including the area of impact. See Section 8.0 for further discussion regarding the absence of this feature on the subject lands and adjacent lands.

Woodland area-sensitive bird breeding habitat will be directly removed for the following species: Black-throated Green Warbler, Brown Creeper, Pine Warbler and Red-breasted Nuthatch. Ovenbird was noted on the subject lands but not within the area of impact; however, indirect impacts are expected from the removal of a portion of the forest block. Despite these direct and indirect negative impacts, forest cover will remain

high within the contiguous woodland and wetland features associated with the NHS on adjacent lands.

Eastern Wood-pewee was confirmed on the subject lands, but not within the area of impact. This species breeds in deciduous and mixed woods; it prefers open space near the nest that is often provided by forest edges and forest gaps (Cadman, M.D., et al, 2007). The removal of coniferous plantation is not expected to have a negative impact on this species; with the SWMF proposed in this location, it is anticipated this species may benefit from the insect supply provided by the pond and the creation of a new forest edge that is planted with herbaceous and woody vegetation.

Eastern Milksnake was incidentally recorded on July 25, 2019, along the eastern boundary of the subject lands near Veterans Drive (retrieved from iNaturalist records) within the area of impact. This species is a habitat generalist and is found in a wide variety of habitats including woodlands and woodland edges. They are often in or near farm outbuildings, barns and sheds, and are attracted to piles of rocks, logs, firewood, or building materials, or any place that offers shelter to snakes and their prey (rodents). There are no outbuildings, barns, or old stone foundations on the subject lands. Numerous rock piles are present along the southern fence line (as discussed in Section 5.7) that may be suitable hibernacula for snakes, but it is not known how many of these extend below the frost line. Five are proposed for removal, within the area of impact, but 38 remain on the landscape and will not be impacted. Despite the removal of coniferous plantation for the proposed development, forest cover will remain high within the contiguous woodland and wetland features associated with the NHS on adjacent lands. It is expected that sufficient habitat for this species is present on the landscape generally in this location. This species may benefit from the creation of a new forest edge that is planted with herbaceous and woody vegetation (i.e., edge microhabitat that facilitates thermoregulation).

Mitigation measures are proposed to help offset any long-term negative impacts to SWH and are discussed in Section 10.0. Additionally, the approved offsetting strategy (2021) between the County and LSRCA will offset future woodland loss and provide an ecological net gain to the NHS within LSRCA's watershed. This is described further in Section 8.0.

7.6 Habitat of Endangered and Threatened Species

Burnside's background database review, consultation with agencies, and field investigations in 2022-2024 revealed the potential for species listed as Endangered or Threatened under the ESA on the subject lands and adjacent lands (Appendix D). Butternut and SAR Bats were confirmed on the subject lands and are further discussed in the subsections below.

7.6.1 Butternut

Butternut is listed as Endangered under the ESA due to widespread infection with Butternut Canker (*Ophiognomonia clavigignenti-juglandacearum*), a fungal disease that typically results in tree mortality. Butternut is protected under the ESA. Section 9 and 10 of the ESA prohibit activities such as killing, harming, or taking and against damage or destruction of the habitat of a Butternut tree. However, exemptions for activities that would otherwise be prohibited by the Act are allowed under O. Reg. 830/21. Under O.Reg. 830/21 a Butternut Health Assessment (BHA) is required to assess the health of the tree(s), as it relates to infection with Butternut Canker. The health assessment determines to which Category (1-'non-retainable', 2 'retainable', 3-'archivable') the tree belongs, and if the tree is a hybrid.

Butternut trees are divided into three categories:

Category 1 – In the advanced stages of the disease because of butternut canker ("non - retainable") and its habitat is 25 m from the trunk or stem and includes the immediate habitat conditions surrounding the tree that support the growth and persistence of the tree over its lifetime.

Category 2 – The tree does not have butternut canker, or disease, is not as advanced ("retainable") and its habitat is 25 m from the trunk or stem and includes the surrounding habitat conditions, supporting the core nut dispersal and seedling establishment areas up to 50 m from a parent tree.

Category 3 – Could be useful in determining how to prevent or resist butternut canker ("archivable").

Category 1 (non-retainable) and hybrid trees are not protected under the ESA. Category 2 (retainable) and 3 (archivable) trees are protected under the ESA. The general habitat for Butternut trees includes suitable areas within a 50 m radius, centred on the trunk or stem of each Butternut tree in Ontario (regardless of its size). Category 1 habitat is 25 m from the trunk or stem and includes the immediate habitat conditions surrounding the tree that support the growth and persistence of the tree over its lifetime. Category 2 habitat is 25-50 m from the trunk or stem and includes the surrounding habitat conditions, supporting the core nut dispersal and seedling establishment areas up to 50 m from a parent tree. Under the ESA, a maximum of 15 Category 2 trees and / or a

maximum of 5 Category 3 trees may be registered as being affected (i.e., killed, harmed, or taken) by any one development application. Beyond this threshold, remaining trees must be retained, or an Overall Benefit Permit is required.

A BHA was conducted in 2019 by another consultant (Brett Dixon, BHA #407), adhering to requirements of O. Reg 242/08 (now outdated) and the Butternut Assessment Guidelines (MNRF, 2014). It was confirmed with MECP that a BHA should be conducted again on Butternut trees having the potential to be impacted by the proposed SWMF pond, as regulations and assessment guidelines had been updated. An updated BHA was conducted adhering to the requirements of O. Reg. 830/21, the Butternut Assessment Guidelines (Government of Ontario, 2021). The BHA was conducted on August 10, 2022, by a certified Butternut Health Assessor (Sylvia Radovic, BHA# 712) and Butternut Health Expert (MacKenzie Dawson, ISA #ON-2643A). The BHA was submitted on September 20, 2022. Five Butternut trees were found within, or adjacent to the subject lands. Additionally, genetic material for hybridity testing was collected from the specimens and submitted to NatureMetrics and resulted in hybridity being found in none of the submitted samples. Three Butternut were found to be Category 1, one Butternut was found to be Category 2 and one Butternut was found to be Category 3.

A further survey was conducted May 17, 2024, by Butternut Health Expert, Mackenzie Dawson (ISA #ON-2643A). This survey was focused on the updated development limits and found no additional Butternut.

Both the Category 2 and Category 3 Butternut are anticipated to be removed, as a part of the development. These will be registered via a Notice of Butternut Impact, submitted to the provincial registry. A payment to the SAR Conservation Trust will be completed as compensation, as required under O. Reg 830/21.

7.6.2 Bats

The proposed development will permanently remove approximately 3.79 ha of woodland, containing 75 roost trees, which are habitat for Little Brown Myotis (END) and Northern Myotis (END). These impacts are considered minimal due to the remaining woodland habitat that will still be available to Little Brown Myotis and Northern Myotis, respectively, within their home range. An IGF with these findings was submitted to MECP on May 24, 2023. On November 20, 2023, MECP completed their review of the IGF and determined that an Overall Benefit Permit would be required to compensate for the removal of SAR bat habitat. The required C-Permit Application Form was submitted to MECP on April 10, 2024, which outlined the actions that will be taken to provide training, mitigation measures, overall benefit actions and the methods that will be used for monitoring surveys. This memorandum will be resubmitted to MECP in the near future to reflect the updated development limits and additional candidate SAR bat trees that were identified in 2024.

Eastern Small-footed Myotis calls were detected, but it is highly unlikely that they are roosting on the subject lands. The Eastern Small-footed Myotis Recovery Strategy (Humphrey, C. 2017), states that summer habitats are very poorly understood. The lack of data for the species makes it difficult to confirm their presence on the subject lands, as maternity roosting sites are not well understood, or easily identified. According to the recovery strategy, in Ontario, MYLE are primarily found roosting in old buildings, rock faces, cliffs and rock barrens. None of these features are present on the subject lands. Further research in the U.S. states that summer roosts for MYLE have also been found in a variety of anthropogenic sites that mimic natural sunny, rocky habitats. They include large areas of rocky rip rap, crevices in road cuts, waste rock piles, and crevices in concrete bridges and other concrete structures (Humphrey, C. 2017). Based on this broader concept of candidate roosting habitat, five waste rock piles with potential roosting cavities were identified on the subject lands. However, these rock piles are small, partly buried and would likely not retain the heat that a pregnant or lactating bat would require for a maternity roost. It is not expected that any of these piles are being used as maternity roosting sites.

Eastern Small-footed Myotis have been documented to forage up to 13.2 km away from day roosts (Humphrey, C. 2017); a high-level search within 13.2 km of the subject lands was conducted for possible roosting sites. Eighteen quarries are located within that radius. Many of these contain rock features which should provide superior maternity roosting habitat for MYLE. It is expected that the MYLE detected through acoustic surveys are using the site to forage only and are roosting off-site. Therefore, it is Burnside's opinion that the proposed development will not negatively impact MYLE. These findings were submitted to MECP, who agreed that Eastern Small-footed Myotis are not using the subject lands for roosting.

Based on the negligible amount of habitat being removed for the proposed development, compared to the large amount of habitat available to each SAR bat species within their home range, Burnside believes there will be no negative impacts to SAR bats.

8.0 Delineation of Environmental Constraints

8.1 Ecological Offsetting Strategy

Based on the background review, field investigations and agency consultations, environmental constraints are limited within the area of impact for the proposed development. The City of Barrie Official Plan / Salem Secondary Area Plan designated parts of the Blauxham Tract for development and an ecological offsetting strategy agreement was made between LSRCA, and the County (2021) to approve the removal of a portion of the subject lands for development. Therefore, in this unique situation, no buffers from natural features have been proposed. Because a new NHS "edge" is being created, LSRCA's TOR checklist requires that an Edge Management Plan be prepared during detailed design that will guide how the new edge to the NHS will be managed.

Per the approved strategy (2021), the County and LSRCA agreed to work cooperatively to provide for offsetting of the future woodland loss, which would provide an ecological net gain to the NHS within LSRCA's watershed. Offsetting will occur through land acquisition, reforestation and / or ecological enhancement of a total of 40 ha of land within both the County and the Lake Simcoe Watershed.

The County has acquired an 85.17 ha farm property within the Township of Ramara, which is adjacent to the Simcoe County Forest Rathburn Tract. It is noted that 60.06 ha of the 85.17 ha of property is within the Lake Simcoe Watershed and is identified as NHS Core Area. 11.42 ha of fallow agricultural area on the property will be afforested and a further 18.99 ha of land will be protected from potential loss. The County will also take steps to remove and manage identified invasive exotic species (Scots Pine). Additionally, there will be a substantial increase in the creation of interior forest habitat. See Appendix A.

8.2 Low Constraint Stream Corridor (LOV8)

As stated in Section 2.9.2, the valley feature on the subject lands is mapped as Low Constraint Stream Corridor Area on Map 3 of the OP (2023). This reach is referred to in background documents and in this report as LOV8 of Lovers Creek. According to the SIS (2017), low rankings were assigned to watercourses with marginal fish habitat. These watercourses consisted of upper headwaters, provide catchment for downstream reaches, exhibit minimal channel and provide indirect fish habitat. The following sections provide updated descriptions of this reach and argue that this corridor no longer meets the criteria of a "stream corridor."

During all of Burnside's site investigations in 2022-2024 (amphibian breeding surveys, ELC, breeding bird surveys, etc.), the valley feature was dry.

8.2.1 Previous Studies

According to the SIS (2017), the City of Barrie NHS for the Salem Secondary Plan area was delineated and approximately mapped through aerial interpretation and in-situ field inventories (terrestrial and aquatic) in 2011-2012. The edges of the NHS were not surveyed in-situ using GPS or Ontario land surveyor. NHS feature edge stakings were then completed for participating landowner parcels in 2014-2016, which did *not* include the subject lands as they were not a participating landowner (previously owned by the County and labeled as Parcel 33). All stakings for participating landowner parcels were reviewed in-situ and approved by the NVCA and LSRCA for properties within their respective watersheds. This staking exercise to refine and confirm the NHS boundary was necessary to apply the policy mandated buffers (setbacks) in the Salem Secondary Plan policies, NVCA and LSRCA policies, and the LSPP. However, because the subject lands were not a participating landowner, the NHS feature edges were not refined and confirmed by LSRCA at that time.

NRSI's Natural Heritage Characterization report (2012) indicates that a Brook Trout spawning survey occurred at the mapped watercourse crossing at Veterans Drive, in October 2011, and no channel was observed, and site conditions were dry. During a previous Environmental Impact Study (EIS) completed for the Blauxham Tract (Azimuth, 2020), on-site evaluations were completed for the low constraint corridor identified on the subject lands. No evidence of recent flows was observed.

8.2.2 LSRCA Site Walk

A site walk was conducted on June 20, 2022, with attendees including staff from LSRCA, Burnside, Mattamy, Crozier and R-PE Surveying. The site walk was initially set up to complete a top of bank staking of the valley that had a mapped watercourse running west to east traversing the subject lands. While on site, it was discussed that the previous EIS for the Blauxham Tract (Azimuth, 2020) stated that no watercourse was present within the valley, as well that Burnside staff that had completed studies earlier in the season had not observed any water flowing. The valley floor was walked as a group and it was determined that there were no defined banks to ascertain where water would flow if it was present, and it was noted that the valley floor was highly vegetated which provided indication that water did not flow through this area. It was agreed upon by LSRCA staff that no watercourse was present within the subject lands and that there was no longer a need to stake the top of bank, as there was no watercourse feature to protect. It was confirmed that the setback applied to the top of the valley would need to be determined through a geotechnical assessment and would not be related to an ecological feature.

During the LSRCA site walk, agency staff (Erin Fitzpatrick) confirmed that using the 6 m setback as a boundary for the development block was sufficient if supported by a geotechnical engineer. The top of slope was surveyed and staked, and a 6 m setback was applied, per DS Consultants Slope Stability Assessment described below (letter dated June 28, 2022).

8.2.3 Slope Stability Assessment

DS Consultants Ltd. was retained by the Client to complete a Slope Stability Assessment (letter dated June 28, 2022). The analysis concluded that from a geotechnical standpoint, a setback of 6 m from the stable top of slope is acceptable for the development and SWMF pond. A site visit was conducted on June 8, 2022, and noted that the valley floor was dry. See Appendix H.

8.3 Modification of Natural Core Area and Linkage Area

As stated in Section 8.2, the NHS feature edges were not refined or confirmed by LSRCA at that time the Secondary Plan studies were completed. Based on the background natural heritage reports completed for the City of Barrie Annexed Lands and the NHS (NRSI, 2012), the Natural Core Areas delineation was based on a

Natural Heritage Evaluation
June 2024

systems-based approach that reviewed background research and publications and are identified based on a number of factors including size, integrity, shape, rare species and other significant designations, as well as other factors. Linkages, or corridors, are components of the NHS that allow the movement of wildlife and plant species.

The primary function of a linkage is to connect two or more cores, or to connect a core to habitats outside the study area. Linkages are important for a variety of wildlife including amphibians, reptiles and mammals, facilitating seasonal movement and gene flow. The appropriate corridor and linkage dimensions are related to species-specific requirements. In some cases, the linkages also provide available habitat within them.

Aside from the continuous tree cover between Core #3 on the west side of the subject lands (and extends further west) and Core #4 on the east side of Veterans Drive that provides a natural linkage, it would seem that the Natural Linkage Area delineation on the subject lands between Core #3 on the west side of the subject lands (and extends further west) and Core #4 on the east side of Veterans Drive was identified in part because of reach LOV8 which was previously identified as a watercourse (and therefore considered a feature to maintain as part of the ecological function of the linkage). The edges of the NHS were not surveyed in-situ using GPS or Ontario land surveyor. As stated in NRSI's report (2012), *"in this location a linkage associated with a broad valley with a headwater of Lover's Creek and a portion of deciduous forest to the south have been squared off and a portion of plantation included in the core...the plantations between the core and Veterans Drive have not been included in their entirety."*



Source: City of Barrie Annexed Lands Natural Heritage System Report, Figure 5A (NRSI, September 2012)

The rezoning and redline application will provide a SWMF pond and 17 additional single detached dwellings along the extension of Reid Drive within the area of impact. The

proposed development plan removes a small portion of the Natural Core Area. Modification of the western portion of the Natural Linkage Area width, depicted on the City's OP Map 2 (Land Use Designations), is also proposed. Post-development, the modified Natural Linkage Area on the subject lands will be between 73 m at the narrowest point and up to 174 m at the widest point; the majority of the linkage will exceed the minimum width of 100 m, as outlined in Section 5.4 of the OP (2023). It is understood that to sustain potential movement between the natural core areas, a minimum linkage width of 100 m was previously established. The OP states that *"any minor modifications shall not negatively impact the NHS as determined by the City...nor shall such minor modifications result in any significant decrease in size of the NHS"*.

This section of the report aims to demonstrate that no negative impacts on the natural features (Core or Linkage Area), or their ecological functions, are expected to occur with the proposed removal of a small portion of the Natural Core Area and modification of the Natural Linkage Area, based on the following considerations:

This site is unique in that the City of Barrie Official Plan / Salem Secondary Area Plan designated parts of the Blauxham Tract for development and an ecological offsetting strategy agreement was made between LSRCA, and the County (2021) that approves the removal of a portion of the conifer plantation for development. It is important to note that while 3.71 ha of woodland will be permanently removed for the proposed development, 11.42 ha of fallow agricultural area will be afforested on an off-site property. This strategy will offset future woodland loss, which would provide an ecological net gain to the NHS within the LSRCA watershed. Offsetting will occur through land acquisition, reforestation and / or ecological enhancement of a total of 40 ha of land within both the County and the Lake Simcoe Watershed.

- Reach LOV8 of Lovers Creek (shown as a Low Constraint stream corridor in the City's OP) is a dry feature and does not contain direct or indirect fish habitat. Additionally, LSRCA and others have confirmed this reach is not a watercourse and is to be identified as a dry valley feature, with a setback from stable top of slope.
- Studies completed by Burnside confirm there is no amphibian, raptor or owl breeding habitat present on the subject lands, or area of impact.
- SWH for deer yards is not present on the subject lands. Previous studies (NRSI, 2012; Azimuth; 2020) have identified potential for White-tailed Deer yarding areas in this area. MNRF open data (2004) show that Stratum II (winter staging areas) may overlap with the development block and is not considered as sensitive as Stratum I. Stratum I (core deer yards) are located within a Stratum II area and is critical for deer survival in areas where winters become severe. Stratum I habitat was not identified within the subject, or adjacent lands; the closest Stratum I is located east of Veterans Drive. None of the background studies (NRSI, 2012; Azimuth, 2020), or Burnside's current field studies to date, have recorded evidence of deer (tracks, scat, browsing) in the proposed area of impact during field investigations. An absence of mature white cedar or eastern hemlock understory, which are preferable for yarding, is

absent. Azimuth's report (2020) states that conditions do not meet the criteria for significance according to the Significant Wildlife Habitat screening. It is Burnside's conclusion that Stratum I or II deer habitat is absent west of Veterans Drive and will not be impacted by the modification of the NHS linkage.

- As noted in previous studies (NRSI, 2012; Azimuth; 2020), Veterans Drive is proposed to be a major north-south roadway; therefore, encouraging deer yarding immediately adjacent to Veterans Drive was not recommended (to prevent deer-vehicle collisions). The limits of the City's NHS were intentionally reduced to make the forest and plantation communities west of Veterans Drive less desirable for deer and ultimately prevent potential future accidents involving deer. Therefore, with the proposed (future) Reid Drive extension, developments proposed west of Veterans Drive, the widening of Veterans Drive (it is Burnside's understanding that the reinstated culvert will not accommodate large mammals), and industrial land development proposed north of the NHS linkage area, any previous concerns related to deer yards being impacted in this area are no longer relevant.
- Significant Woodlands are not present within the area of impact on the subject lands. Additionally, vegetation removals in the linkage comprise cultural plantation and a small portion of Norway Spruce coniferous forest required for the emergency spillway. Only plantation ecosite types will be directly impacted (FOCM6, FOCM4, FOCM6-2). The forest ecosite types on the subject lands will remain; additionally, the edges of these forest ecosites abutting the plantation ecosite types will remain intact (no new edge).
- The edges of the NHS were not previously surveyed in-situ, using GPS or Ontario land surveyor, during previous phases of work on the subject lands. The top of slope on the subject lands was walked and surveyed with LSRCA on June 20, 2022, for the proposed development. The development block extends to the 6 m stable slope setback on the south side of the valley feature and has been aligned with the natural topography of this area; therefore, this may be considered the new southern edge of the NHS on the subject lands.
- The majority of the Natural Core Area within the greater development limits will be retained. A significant portion of the Linkage Area will also be retained. Therefore, the function of the Core and Linkage will still remain and is not expected to be negatively impacted, provided avoidance, mitigation and restoration measures are applied.
- The Natural Linkage Area width modification is where the extension of Reid Drive (future) may occur. This extension will bisect the west side of the linkage corridor in a north-south direction, but it is assumed it will also be designed to maintain wildlife passage (i.e., ecopassage) under the road for small mammals and herpetofauna, between the Natural Core Areas. Perhaps by gradually narrowing the NHS as it approaches the future road location, it may help funnel wildlife under the road, rather than crossing it.
- Because a new NHS "edge" is being created, LSRCA's TOR checklist requires that an Edge Management Plan be prepared during detailed design that will guide how

the new edge to the NHS will be managed. A Landscape / Restoration / Planting Plan will also be required. Therefore, appropriate mitigation and restoration measures will be considered as part of the proposed development.

A comprehensive Environmental Constraints map is depicted on Figure 6 and shows the proposed development overlaid with the relevant existing natural heritage constraint features and vegetation communities that will be removed.

9.0 Proposed Development

The proposed development is depicted in Figure 7 and shows preliminary temporary and permanent impacts, overlaid with the relevant existing natural heritage constraint features and vegetation communities that will be removed.

9.1 Reid Drive Extension

The rezoning and redline application will provide access to the SWMF pond and 17 additional single detached residential lots along the extension of Reid Drive (proposed Street 'A') within the area of impact on the subject lands. This roadway is proposed on the western side of the lots and extends in a north-south direction. It will remove the eastern portion of FOCM6, which is a naturalized coniferous plantation type.

9.2 Residential Lots

Seventeen additional single detached dwellings are proposed along the extension of Reid Drive within the area of impact on the subject lands. The lots will remove the eastern limit of FOCM6 and western limit of FOCM6-2, which are both a naturalized coniferous plantation type.

9.3 SWMF F Design

A detailed description of the proposed SWMF F design is provided in the Technical Memorandum SWMF F Functional Design (Burnside, May 29, 2024). The following is a summary of the SWMF design.

Phase 2 is currently undergoing a draft plan revision to expand the developable limits and include the SWMF F block. The stormwater from Phase 2 is proposed to drain to SWMF F and is located at the northeast corner of the Phase 2 development. This facility is proposed to be a wet pond that will discharge to reach LOV8 of Lovers Creek and will provide both quality and quantity control. The SWMF pond has been designed based on the approved geotechnical setback of 6 m from the stable top of slope, as calculated by DS Consultants Ltd. (letter dated June 28, 2022). The design builds upon the approved Functional Servicing and Stormwater Management Report (FSSR) - H&H Capital Salem Subdivision Residential Development – Phase 1 (C.F. Crozier & Associates Inc.,

February 2018). The functional design has been prepared in accordance with all applicable regulatory requirements and criteria.

The SWMF pond will contain the following features: maintenance access road, permanent pool, extended detention, active storage, top of pond and an emergency overflow weir (spillway). After draft plan approval, further details will be provided in the first detailed design submission in the form of a detailed SWMF report, including thermal mitigation considerations.

9.3.1 Preliminary Grading

The preliminary grading design, proposed as part of the original FSSR for the Phase 2 lands, has been taken into consideration with the proposed facility grading. Grading will be required for the emergency spillway and transitional grading along the west side of the proposed Reid Drive extension and is contained within the area of impact depicted on the figures in this report. See Figure 6 of this report. Please refer to Section 3.2.7 of Burnside's SWMF Technical Memorandum (2024) for specific grading details.

9.3.2 Emergency Spillway and Outfall

A spill weir has been proposed to convey flows directly to reach LOV8 of Lovers Creek. The spillway will be constructed with appropriate erosion control matting to withstand the velocities and shear forces occurring during the regional storm event. Details of the spill weir will be completed at the detailed design stage and the SWMF will be refined to reduce the spillway width. The outfall is proposed at the northeast corner of the pond block, discharging to reach LOV8 consistent with the Salem SIS (Schaeffers et al, 2017). During the detailed design, specific details will be provided.

9.4 Water Balance

Per Burnside's SWMF Technical Memorandum (2024), the water balance as presented within the FSSR, will be updated under separate cover to accompany the redline draft plan submission. Once the deficit has been finalized, sizing of the proposed LID can be completed at detailed design. The same methodology to achieve the site's volume control requirements will be utilized to satisfy the water balance. Sizing will either be sufficient or will be increased pending the outcome of the deficit.

10.0 Preliminary Impact Assessment, Avoidance and Mitigation Measures

The following preliminary evaluation of environmental impacts and recommended mitigation measures is based on an assessment of the potential effects that could occur to natural heritage features and functions over the short and long-term, following the implementation of the proposed development plan (Table 13). This section also

identifies planning, design and construction practices that will pinpoint avoidance, mitigation and / or restoration opportunities as well as net effects and monitoring measures, if applicable. Net effects are defined as negative environmental effects of a project and related activities that will remain after mitigation and impact management measures have been applied.

This impact assessment will need to be refined during detailed design. The proposed development is depicted on Figure 7 and shows preliminary temporary and permanent impacts overlaid with the relevant existing natural heritage constraint features and vegetation communities that will be removed.

Table 13: Preliminary Impact Assessment, Avoidance and Recommended Mitigation Measures

Environmental Component	Potential Environmental Effects	Avoidance, Mitigation and / or Restoration Measures	Net Effects	Recommended Monitoring Activities																																										
Natural Heritage System (Natural Core Areas and Natural Linkage Areas)	Direct effects of site alteration and development will include removal and permanent modification of a portion of the Natural Core Area and Natural Core Linkage Area limits. Specifically, the following vegetated ecosites will be permanently or temporarily impacted: Removals within NHS Core <table><tr><td></td><td>ELC</td><td>m²</td><td>ha</td></tr><tr><td rowspan="4">Perm</td><td>HR</td><td>182.5355</td><td>0.018254</td></tr><tr><td>FOCM6</td><td>5510.194</td><td>0.551019</td></tr><tr><td>FOCM4</td><td>1.518413</td><td>0.000152</td></tr><tr><td>FOCM6-2</td><td>1842.562</td><td>0.184256</td></tr><tr><td rowspan="2">Temp</td><td>HR</td><td>49.16659</td><td>0.004917</td></tr><tr><td>FOCM6</td><td>873.5544</td><td>0.087355</td></tr></table> Removals within NHS Linkage <table><tr><td></td><td>ELC</td><td>m²</td><td>ha</td></tr><tr><td rowspan="2">Perm</td><td>FOCM4</td><td>970.3299</td><td>0.097033</td></tr><tr><td>FOCM6-2</td><td>7823.826</td><td>0.782383</td></tr><tr><td rowspan="2">Temp</td><td>FOCM4</td><td>225.3523</td><td>0.022535</td></tr><tr><td>FOCM6-2</td><td>3937.11</td><td>0.393711</td></tr></table> Site alteration activities may temporarily disrupt wildlife movement and linkages.		ELC	m ²	ha	Perm	HR	182.5355	0.018254	FOCM6	5510.194	0.551019	FOCM4	1.518413	0.000152	FOCM6-2	1842.562	0.184256	Temp	HR	49.16659	0.004917	FOCM6	873.5544	0.087355		ELC	m ²	ha	Perm	FOCM4	970.3299	0.097033	FOCM6-2	7823.826	0.782383	Temp	FOCM4	225.3523	0.022535	FOCM6-2	3937.11	0.393711	As described in Section 8.3, a portion of the NHS limits will be permanently modified as a result of the proposed development. General Avoidance and Mitigation See also Wildlife and General Wildlife Habitat, Significant Wildlife Habitat. The remaining forest habitat that is located within the NHS will be protected and will act as the Natural Area Linkage, as per the City of Barrie Official Plan. Native species of trees / shrubs should be included in the landscape plans for the SWMF pond; the connectivity between the pond and surrounding natural habitats can be enhanced by vegetation management (i.e., construction of gently sloping banks, which facilitate the growth of aquatic and semi-aquatic vegetation and allow for wildlife to move through this area without becoming trapped).	See below under Vegetation Communities and Woodlands. See also Woodlands below, and the approved offsetting strategy (2021) between the County and LSRCA. No net effects are anticipated for the Natural Areas Linkage, as defined in the City of Barrie OP. It is expected that there will be a “net gain” for wildlife linkages and corridors by the addition of a culvert at Veterans Drive. Currently, there is no culvert at this location; forest cover present on the subject lands extends across to the east side of Veterans Drive (i.e., Lovers Creek PSW). Wildlife must cross Veterans Drive to access habitat on either side of the road, which likely results in high rates of road mortality. The installation of a culvert in this location will permit small to medium-sized wildlife to safely cross under the road and allow for better flow of wildlife movement between natural features. A possible extension of Reid Drive (future) may also present an opportunity for a wildlife ecopassage at this location (however, this is outside the scope of this development application).	See below under Vegetation Communities and Woodlands.
	ELC	m ²	ha																																											
Perm	HR	182.5355	0.018254																																											
	FOCM6	5510.194	0.551019																																											
	FOCM4	1.518413	0.000152																																											
	FOCM6-2	1842.562	0.184256																																											
Temp	HR	49.16659	0.004917																																											
	FOCM6	873.5544	0.087355																																											
	ELC	m ²	ha																																											
Perm	FOCM4	970.3299	0.097033																																											
	FOCM6-2	7823.826	0.782383																																											
Temp	FOCM4	225.3523	0.022535																																											
	FOCM6-2	3937.11	0.393711																																											
Vegetation Communities	3.79 ha of conifer plantation communities will be permanently impacted on the subject lands. Direct effects of site alteration and development will include clearing of both herbaceous and woody vegetation within the area of impact. In summary, the following vegetated ecosites will be permanently, or temporarily impacted:	Avoidance Only plantation ecosite types will be directly impacted (FOCM6, FOCM4, FOCM6-2). The forest ecosite types (FODM5-8 and FOMM7-2) on the subject lands will remain; additionally, the edges of these forest ecosites	Conifer plantation communities will be permanently removed. These are cultural communities and contain many non-native species.	Fencing shall be inspected regularly to ensure damage is repaired in a timely manner, and that sediment transport to offsite features is minimized.																																										

Environmental Component	Potential Environmental Effects	Avoidance, Mitigation and / or Restoration Measures	Net Effects	Recommended Monitoring Activities																														
	Total Vegetation Removal <table><tr><td></td><td>ELC</td><td>m²</td><td>ha</td></tr><tr><td rowspan="4">Perm</td><td>HR</td><td>839.0165</td><td>0.083902</td></tr><tr><td>FOCM6</td><td>6078.775</td><td>0.607877</td></tr><tr><td>FOCM4</td><td>971.8483</td><td>0.097185</td></tr><tr><td>FOCM6-2</td><td>30009.42</td><td>3.000942</td></tr><tr><td rowspan="4">Temp</td><td>HR</td><td>1495.727</td><td>0.149573</td></tr><tr><td>FOCM6</td><td>873.5544</td><td>0.087355</td></tr><tr><td>FOCM4</td><td>225.3523</td><td>0.022535</td></tr><tr><td>FOCM6-2</td><td>5432.697</td><td>0.54327</td></tr></table> Other direct impacts expected during site alteration activities may include soil compaction and changes in soil moisture. Potential indirect effects include the increase to edge habitats, which presents a number of potential effects, such as windthrow and sunscald. Additionally, the spread of invasive plant material, offsite soil compaction, equipment laydown and spills.		ELC	m ²	ha	Perm	HR	839.0165	0.083902	FOCM6	6078.775	0.607877	FOCM4	971.8483	0.097185	FOCM6-2	30009.42	3.000942	Temp	HR	1495.727	0.149573	FOCM6	873.5544	0.087355	FOCM4	225.3523	0.022535	FOCM6-2	5432.697	0.54327	abutting the plantation ecosite types will remain intact (no new edge). General Mitigation The limit of disturbance will be minimized as much as possible. LSRCA's TOR checklist requires a Landscape / Restoration / Planting Plan to be provided during detailed design. Native species of plants, including those which support pollinator foraging, should be included when establishing planting plans for naturalized areas and erosion and sediment control planting. Construction Mitigation The limits of the construction area should be delineated with silt fencing prior to the commencement of construction activities. Double-layer heavy-duty silt fencing should be placed along all limits of construction area to protect the remaining vegetation community. This will prevent pedestrian access, prevent the unnecessary encroachment / disturbance by humans and machinery into vegetation communities, and also prevent wildlife from entering the construction areas. Construction fencing should be installed and inspected prior to any land disturbance. To reduce the risk of disturbing breeding birds (and contravening the <i>Migratory Birds Convention Act, 1994</i>), timing constraints shall be applied to avoid vegetation clearing (including grubbing) during the core breeding bird period – broadly from April 1 to August 31 for most species (regardless of the calendar year) (see Avifauna for more details).	See also Woodlands below and the approved offsetting strategy (2021) between the County and LSRCA.	
	ELC	m ²	ha																															
Perm	HR	839.0165	0.083902																															
	FOCM6	6078.775	0.607877																															
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	FOCM6-2	5432.697	0.54327																															
Wetlands and Provincially Significant Wetlands (Lovers Creek Swamp)	There is an unevaluated wetland west of the subject lands that is greater than 30 m from the area of impact and will not be impacted. Note that based on ELC surveys completed in spring and summer 2022, as well as other background reports, it was confirmed that the boundary of the wetland shown on MNRF mapping is incorrect and is located on adjacent lands only.	Avoidance No work is proposed within 30 m of a wetland. There are no wetland communities within the area of impact or within the limits of the subject lands. General Mitigation	See Vegetation Communities above for additional details. No net effects to wetlands west of the subject lands; net effects to Lovers Creek PSW Complex from the SWMF emergency spillway will be assessed	An Environmental Monitoring Plan (EMP) will be required during construction to confirm that erosion and sediment control measures and spill prevention and response measures are installed and functioning, as designed. Remedial																														

Environmental Component	Potential Environmental Effects	Avoidance, Mitigation and / or Restoration Measures	Net Effects	Recommended Monitoring Activities
	Site alteration and development will not occur within 30 m of Lovers Creek Swamp PSW. No direct impacts to wetland features will occur; Veteran’s Drive divides the two areas from one another. Temporary indirect impacts to wetland communities in the Lovers Creek PSW Complex may occur during the construction phase (i.e., sediment). Permanent direct impacts may occur when the SWMF becomes operational. A spill weir has been proposed for the SWMF to convey flows directly to reach LOV8 of Lovers Creek and possibly east, towards the PSW. The outfall is proposed at the northeast corner of the pond block, discharging to reach LOV8, consistent with the Salem SIS (Schaeffers et al, 2017).	See Vegetation Communities above for additional details. Specific details for the emergency spillway and outfall location will be provided and assessed further during detailed design, once impacts are better understood. Per Burnside’s SWMF Technical Memorandum (2024), the water balance as presented within the FSSR will be updated under separate cover to accompany the redline draft plan submission. Once the deficit has been finalized, sizing of the proposed LID can be completed at detailed design. The same methodology to achieve the site’s volume control requirements will be utilized to satisfy the water balance. Sizing will either be sufficient or will be increased, pending the outcome of the deficit. Construction Mitigation The spillway will be constructed with appropriate erosion control matting to withstand the velocities and shear forces occurring during the regional storm event. Details of the spill weir will be completed at the detailed design stage and the SWMF will be refined to reduce the spillway width. An Erosion and Sediment Control (ESC) Plan will be developed during detailed design, in consultation with LSRCA, and will conform to industry best management practices and recognized standard specifications, such as Ontario Provincial Standards Specification (OPSS). All disturbed areas of the worksite should be stabilized immediately, and re-vegetated as soon as conditions allow with a site-appropriate seed mix of native grasses and wildflowers, that includes Milkweed (<i>Asclepias</i> spp.).	further during detailed design once impacts are better understood.	measures should be implemented as soon as possible if deficiencies, or unanticipated negative effects are identified during monitoring. A Qualified Environmental Inspector should be on site daily during any dewatering. The inspector should ensure that the filter bag is working appropriately, and that no sediment is entering the natural feature.
Woodlands	Permanent removal of 3.71 ha of woodland, which are all plantation type ecosites (FOCM6, FOCM4, FOCM6-2). The hedgerow is contiguous with the woodland and is included in total area removed (see Vegetation Communities above for totals). The removal of a portion of these ecosites had previously been approved by LSRCA and the County.	Avoidance The remaining woodland habitat that is located within the NHS on the subject lands and adjacent lands will be protected and will act as the Natural Area Linkage, as per the City of Barrie Official Plan.	See Vegetation Communities above for additional details. It is important to note that while 3.71 ha of woodland will be permanently removed for the proposed development, 11.42 ha of fallow	An Arborist should inspect tree protection barriers prior to excavation and any potential root pruning. See Vegetation Communities above for additional details.

Environmental Component	Potential Environmental Effects	Avoidance, Mitigation and / or Restoration Measures	Net Effects	Recommended Monitoring Activities
	Permanent removal of a portion of the woodland may have indirect effects on the remaining woodlands and include: • Potential changes in form and function of the woodland, due to edge effects associated with removal of surrounding vegetation. Temporary removal of 0.88 ha of woodland, which are all plantation type ecosites (FOCM6, FOCM4, FOCM6-2).	The proposed plan does not remove Significant Woodland. Additionally, vegetation removals in the linkage comprise cultural plantation and a small portion of Norway Spruce coniferous forest, required for the emergency spillway. Only plantation ecosite types will be directly impacted (FOCM6, FOCM4, FOCM6-2). The natural forest ecosite types (FODM5-8 and FOMM7-2) on the subject lands will remain; additionally, the edges of these forest ecosites abutting the plantation ecosite types will remain intact (no new edge). General Mitigation See Vegetation Communities above for additional details. All temporary impacts to woodland habitat will be replanted with trees. A Landscape / Restoration / Planting Plan and Edge Management Plan will be required during detailed design. Because a new NHS “edge” is being created, LSRCA’s TOR checklist requires that an Edge Management Plan be prepared during detailed design that will guide how the new edge to the NHS will be managed. Construction Mitigation Tree protection barriers (the same as the ESC fencing) should be installed at the limit of disturbance and provide protection to remaining trees. Trees should be felled so that they fall into the development footprint to avoid damage to retained trees, including both trunks and roots. As the limit of disturbance is not buffered from trees that will remain, it is likely that excavation will impact the root system of adjacent trees. Any root pruning should be approved by an Arborist prior to pruning to ensure tree stability going forward. The ISA Root Management Best Management Practices document should be adhered to.	agricultural area will be afforested on an off-site property per the approved offsetting strategy (2021) between the County and LSRCA. This strategy will offset future woodland loss, which would provide an ecological net gain to the NHS within LSRCA’s watershed. Offsetting will occur through land acquisition, reforestation and / or ecological enhancement of a total of 40 ha of land within both the County and the Lake Simcoe Watershed. The County has acquired an 85.17 ha farm property within the Township of Ramara, which is adjacent to the Simcoe County Forest Rathburn Tract. It is noted that 60.06 ha of the 85.17 ha of property is within the Lake Simcoe Watershed and is identified as NHS Core Area. In addition to the 11.42 ha of afforested land, a further 18.99 ha of land will be protected from potential loss. The County will also take steps to remove and manage identified invasive exotic species (Scots Pine). Additionally, there will be a substantial increase in the creation of interior forest habitat.	

Environmental Component	Potential Environmental Effects	Avoidance, Mitigation and / or Restoration Measures	Net Effects	Recommended Monitoring Activities
		See also Construction Mitigation measures outlined in the Vegetation Communities section, above.		
Wildlife and General Wildlife Habitat	Permanent removal of portions of the following ELC communities that are confirmed wildlife habitat: FOCM6, FOCM4 and FOCM6-2. Temporary displacement of, and disturbance to, wildlife and wildlife habitat during the site alteration phase (i.e., vegetation removals, noise, light trespass), including SAR and area-sensitive species. Development may limit wildlife movement and reduce useable habitat. The development will permanently remove naturalized plantation lands that some common rural wildlife species are known to use for foraging and movement. See also Avifauna and Area-Sensitive Species and Significant Wildlife Habitat.	Avoidance Only plantation ecosite types will be directly impacted (FOCM6, FOCM4, FOCM6-2). The forest ecosite types (FODM5-8 and FOMM7-2) that are more ecologically diverse on the subject lands will remain; additionally, the edges of these forest ecosites abutting the plantation ecosite types will remain intact (no new edge). The majority of higher quality wildlife habitat is located within the NHS and will be protected. The remaining forest habitat that is located within the NHS will be protected and will continue to act as the Natural Area Linkage, as per the City of Barrie Official Plan. Construction Mitigation Construction fencing should be installed prior to commencement of construction activities to prevent wildlife from entering the construction areas. Construction fencing should be installed and inspected prior to any land disturbance. Fencing should be installed at the dripline of any trees to be preserved. The excluded area shall be searched immediately following fencing installation for any wildlife that may have become trapped. Any wildlife shall be safely relocated, or permitted to escape to a suitable habitat. All works shall stop immediately in the area and MECP contacted should a SAR be encountered within the construction area, to ensure compliance with the ESA. If an animal or nesting bird is encountered during construction and does not move from the construction zone, the Contract Administrator shall be notified. If the construction activities are such that continuing construction in the area would result in harm to wildlife, construction activities in that location shall temporarily stop and the Project Ecologist, MNRF or MECP shall be contacted for direction. Avoid vegetation clearing, or disturbance, during sensitive times of the year for local wildlife (i.e., when many animals bear their young or migrate between	Permanent removal of vegetation communities that are confirmed wildlife habitat. See Woodlands above for additional details on LSRCA and the County's offsetting strategy.	A Biologist is required on-site, as needed, if wildlife is trapped within the construction zone and requires removal and relocation to land outside of the construction zone or should a species that is protected under the <i>ESA</i> be identified within, or adjacent to the construction site. The Biologist may be required to confirm the presence and identification of a species before contacting MECP for further advice. Fencing should be monitored by a Qualified Environmental Inspector, at intervals, as recommended in the ESC Guide (TRCA, 2019), to ensure there is no damage that may result in a decrease in function, or opportunities for injury or death to wildlife species. An Avian Biologist may be required on-site, as needed, should a nesting migratory bird (or SAR protected under the <i>ESA</i>) be identified within, or adjacent to the construction site. The Avian Biologist may be required to confirm the presence and identification of an active nest, and / or breeding bird, prior to contacting MECP for further advice.

Environmental Component	Potential Environmental Effects	Avoidance, Mitigation and / or Restoration Measures	Net Effects	Recommended Monitoring Activities
		wintering and summer habitats). The specific timing of works should be determined, in consultation with the appropriate Agency. Generally, the following avoidance windows apply if working within any of these habitats: - Breeding birds and/or birds protected under the MBCA, 1994 (trees / shrubs / vegetation): April 1 to August 31. - SAR Bats (trees / structures): April 1 to September 31. - Breeding Amphibians (wetlands / open water features): April to June.		
Avifauna and Area-Sensitive Species	Permanent removal of portions of the following ELC communities: FOCM6, FOCM4, FOCM6-2, that are confirmed avifauna and area-sensitive species habitat. Temporary indirect impacts to avifauna habitat recorded outside the area of impact may occur during the site alteration phase. Potential for disturbance or destruction of migratory breeding birds and their habitat (prohibitions under the Migratory Birds Convention Act, 1994) during construction, including area-sensitive species. SWH and SAR habitat are discussed separately, below.	Avoidance and General Mitigation To reduce the risk of contravening the <i>Migratory Birds Convention Act, 1994</i>, timing constraints shall be applied to avoid any limited vegetation clearing (including grubbing), and / or structure works (construction, maintenance) during the breeding bird period – broadly from April 1 to August 31 for most species (regardless of the calendar year). Active nests (i.e., nests with eggs or young birds) of protected migratory birds, including SAR protected under the Endangered Species Act (ESA), 2007, cannot be destroyed at any time of the year. The destruction of inactive nests for some species may also be prohibited. Construction Mitigation If a nesting migratory bird (or SAR protected under <i>ESA</i>) is identified within or adjacent to the construction Site (or during operations and maintenance activities), and the activities are such that continuing works in that area would result in a contravention of the <i>Migratory Birds Convention Act, 1994</i> or <i>ESA</i>, all activities will stop and the Contract Administrator (with assistance from an Avian Biologist) shall discuss mitigation measures. Should SAR be identified, all activities will stop and MECP will be contacted immediately to ensure compliance with the <i>ESA</i>. The Contract Administrator shall instruct the Contractor on how to proceed based on the mitigation measures established through discussions with the City, MECP and / or Environment Canada.	Permanent removal of avifauna and area-sensitive breeding bird habitat for the following non-SAR species: - Black-throated Green Warbler; - Brown Creeper; - Pine Warbler; and - Red-breasted Nuthatch. One additional “area sensitive” non-SAR bird species was recorded on the subject lands, but outside the area of impact: Ovenbird. Forest cover will remain high within the contiguous woodland and wetland features associated with the NHS on the subject lands and/or adjacent lands. See Woodlands above for additional details on LSRCA and the County’s offsetting strategy.	An Avian Biologist may be required on-site, as needed, should a nesting migratory bird (or SAR protected under <i>ESA</i>) be identified within, or adjacent to the construction site. The Avian Biologist may be required to confirm the presence and identification of an active nest and / or breeding bird before contacting MECP for further advice.

Environmental Component	Potential Environmental Effects	Avoidance, Mitigation and / or Restoration Measures	Net Effects	Recommended Monitoring Activities
Significant Wildlife Habitat	As a result of vegetation removal, direct impacts are expected to the following SWH within the area of impact: • Candidate Raptor Wintering Area • Candidate Reptile Hibernaculum • Confirmed Woodland Area-Sensitive Bird Breeding Habitat (Black-throated Green Warbler, Brown Creeper, Pine Warbler, Red-breasted Nuthatch) • Confirmed Special Concern and Rare Wildlife Species (Eastern Wood-pewee, Eastern Milksnake) See also Vegetation Communities and Wildlife, General Wildlife Habitat, Avifauna and Area-Sensitive Species.	Avoidance and General Mitigation See also Wildlife and General Wildlife Habitat, Avifauna and Area-Sensitive Species. Generally, avoid vegetation clearing during sensitive times of the year for local wildlife, such as spring and early summer (i.e., when many animals bear their young or migrate between wintering and summer habitats). Opportunities should be explored to enhance wildlife habitat within the setback from stable top of slope and the remaining NHS, such as the creation of reptile nesting and hibernaculum sites. Where possible, pedestrian access to the NHS should be limited to ensure that degradation and disturbance of sensitive habitats are minimized as much as possible, post-development (i.e., rear yard fencing). MNRF have published a Significant Wildlife Habitat Mitigation and Support Tool (2014). This document provides advice and recommendations for mitigating development effects in, and adjacent to SWH, and should be used as a guide. Candidate Raptor Wintering Area, Candidate Bat Maternity Colonies, Confirmed Woodland Area-Sensitive Bird Breeding Habitat: The remaining forest habitat that is located within the NHS on the subject lands and adjacent lands will be protected and will continue to act as a Natural Area Linkage, as per the City of Barrie Official Plan. These remaining communities are also more ecologically diverse and would be expected to better support these SWH features compared to the plantation ecosite types proposed for removal. Confirmed Special Concern Species (Eastern Wood-pewee): This species was confirmed on the subject lands, but not within the area of impact. This species breeds in deciduous and mixed woods; it prefers open space near the nest that is often provided by forest edges and forest gaps (Cadman, M.D., et al, 2007). Extensive habitat for this species is present in the greater	Permanent removal of Candidate and Confirmed SWH. Impacts to vegetation communities have been minimized and mitigated, as described in the sections above. Forest cover will remain high within the contiguous woodland and wetland features associated with the NHS on adjacent lands. The removal of these habitats can be replicated through the addition of native plantings and habitat enhancements in the NHS and elsewhere. Per the approved offsetting strategy (2021), the County and LSRCA agreed to work cooperatively to provide for offsetting of the future woodland loss, which would provide an ecological net gain to the NHS within LSRCA's watershed. Offsetting will occur through land acquisition, reforestation and / or ecological enhancement of a total of 40 ha of land within both the County and the Lake Simcoe Watershed. The County has acquired an 85.17 ha farm property within the Township of Ramara, which is adjacent to the Simcoe County Forest Rathburn Tract. It is noted that 60.06 ha of the 85.17 ha of property is within the Lake Simcoe Watershed and is identified as NHS Core Area. 11.42 ha of fallow agricultural area on the property will be afforested and a further 18.99 ha of land will be protected from potential loss. The County will also take steps to remove and manage identified	See Wildlife and General Wildlife Habitat.

Environmental Component	Potential Environmental Effects	Avoidance, Mitigation and / or Restoration Measures	Net Effects	Recommended Monitoring Activities
		NHS that will be protected both on the subject lands and adjacent lands. With the development of a SWM pond in this location, it is anticipated this species may benefit from the insect supply provided by the pond and the creation of a new forest edge that is planted with herbaceous and woody vegetation. Because a new NHS “edge” is being created, LSRCA’s TOR checklist requires that an Edge Management Plan be prepared during detailed design that will guide how the new edge to the NHS will be managed. Feature replacement is also proposed to address unavoidable impacts (i.e., per the approved offsetting strategy (2021), between the County and LSRCA). See Avifauna and Area-Sensitive Species above for timing of vegetation removals to avoid direct impacts to this species during the active breeding window. Candidate Reptile Hibernaculum and Confirmed Special Concern and Rare Wildlife Species: Numerous rock piles are present along the southern fence line that may be suitable hibernacula for snakes. Five are proposed for removal within the area of impact but 38 remain on the landscape and will not be impacted. Despite the removal of coniferous plantation for the proposed development, forest cover will remain high within the contiguous woodland and wetland features associated with the NHS on adjacent lands. It is expected that sufficient habitat for this species is present on the landscape generally in this location. This species may benefit from the creation of a new forest edge that is planted with herbaceous and woody vegetation (i.e., edge microhabitat that facilitates thermoregulation). Construction Mitigation Prior to construction works commencing, installation of construction fencing is recommended along the perimeter to prevent pedestrian access around the limit of construction, which includes all areas required for excavation and stockpile areas, vehicle and worker access and material laydown. This prevents any wildlife	invasive exotic species (Scots Pine). Additionally, there will be a substantial increase in the creation of interior forest habitat. Furthermore, SWMF ponds can provide the addition of quality “wetland” habitat and vegetation communities that are currently not present on the subject lands.	

Environmental Component	Potential Environmental Effects	Avoidance, Mitigation and / or Restoration Measures	Net Effects	Recommended Monitoring Activities
		from attempting to access the construction zone during construction works. If designated areas are created during construction for the stockpiling of materials, especially fill, soil and gravel, the Contractor shall install temporary construction fencing around the perimeter of these areas to prevent any reptile species from entering the area and attempting to nest (i.e., reptiles are attracted to these materials for nesting). If temporary construction fencing is used at a location, it shall be installed to allow wildlife to leave the fenced area during vegetation clearing. Once the work area has been cleared, it can be securely fenced to prevent wildlife from returning. The excluded area should be searched immediately following fencing installation for any wildlife (including SAR) that may have become trapped. Any wildlife should be safely relocated, or permitted to escape, to a suitable habitat no more than 200 m away from the work zone. Wildlife shall be released no more than 200 m away from the work zone in a similar ecosystem type. All works should stop immediately and MECP contacted should a SAR be encountered within a construction, or operational area, to ensure compliance with the <i>ESA</i>.		
Habitat of Endangered and Threatened Species	Three confirmed SAR listed as Endangered and Threatened are located within the subject lands within the area of impact and will be permanently removed: - Butternut (species) - Little Brown Myotis (habitat) - Northern Myotis (habitat) Five Butternut trees were found within, or adjacent to the subject lands. Three Butternut were found to be Category 1, one was found to be Category 2 and one was found to be Category 3. One Category 3, and one Category 2 Butternut are located within the area of impact. Little Brown Myotis and Northern Myotis habitat has been confirmed within the area of impact. The proposed development will remove	Avoidance and General Mitigation For SAR where specific exemptions under the <i>ESA</i> regulations are detailed (i.e., Butternut), all requirements under the <i>ESA</i> must be met. A Butternut Health Assessment was completed and submitted to MECP. Both Butternut are proposed to be removed and will be registered under O. Reg 830/21 prior to removal. An IGF was submitted to MECP on May 24, 2023. On November 20, 2023, MECP completed review of the IGF and determined that an Overall Benefit Permit would be required to compensate for the removal of SAR bat habitat. The required C-Permit Application Form was	No net effects to Butternut are anticipated if all requirements under the <i>ESA</i> are met. In consultation with MECP, direct impacts to SAR bat habitat will be limited due to the amount of SAR bat habitat that will remain after development. Any permits or compensation required after further MECP consultation will be completed to their satisfaction.	No monitoring will be required for Butternut, as the client has decided to move forward with the SAR Conservation Trust payment as compensation. SAR Bat habitat monitoring is unknown at present. Possible monitoring may include the monitoring of bat boxes, artificial rock roosts, and compensation plantings. Further information on required compensation will be determined once mitigation and monitoring options have been confirmed with MECP.

Environmental Component	Potential Environmental Effects	Avoidance, Mitigation and / or Restoration Measures	Net Effects	Recommended Monitoring Activities
	woodland habitat, resulting in the removal of 75 SAR bat maternity roosting snags. Indirect impacts to retained SAR bat habitat may be caused by increased recreational pressures from local residents.	submitted to MECP on April 10, 2024, which outlined the actions that will be taken to provide training, mitigation measures, overall benefit actions and the methods that will be used for monitoring surveys. This memorandum will be resubmitted to MECP in the near future to reflect the updated development limits and additional candidate SAR bat trees that were identified in 2024.	See Woodlands above for additional details on LSRCA and the County's offsetting strategy.	

11.0 Summary of Policy Conformity

This section of the report provides a summary of how the proposed development is in conformity with the relevant provincial and municipal land use and natural heritage policies, detailed in Table 14 below.

Table 14: Summary of Policy Conformity

Applicable Policy	Proposed Development and Assessment of Policy Conformity	Does the Proposed Development Confirm to Applicable Policy? (Yes or No)
Planning Act, 1990		
The protection of ecological systems, including natural areas, features and functions.	Revisions have been made to the Draft Plan Approved Plan of Subdivision, therefore a zoning by-law amendment and redline application are now required. The subject lands will provide a SWMF pond and 17 additional single detached dwellings along the extension of Reid Drive (proposed Street 'A') within the area of impact on the subject lands. These changes will modify the limits of the Natural Core Area and Natural Linkage Area but will not negatively impact natural heritage features – the modification of these Areas is supported by the considerations outlined in Section 8.0 of this report.	Yes, this report has demonstrated that the higher quality ecological systems, features and functions will be protected outside the area of impact on the subject lands and adjacent lands (with modifications to the NHS proposed), provided avoidance and mitigation measures are applied.
Provincial Policy Statement, 2020		
Development and site alteration are not permitted unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions, as well as on adjacent lands.	Revisions have been made to the Draft Plan Approved Plan of Subdivision, therefore a zoning by-law amendment and redline application are now required. The subject lands will provide a SWMF pond and 17 additional single detached dwellings along the extension of Reid Drive (proposed Street 'A') within the area of impact on the subject lands. These changes will modify the limits of the Natural Core Area and Natural Linkage Area but will not negatively impact natural heritage features or functions – the modification of these Areas is supported by the considerations outlined in Section 8.0 of this report. The following provincially significant features are not present on the subject lands: wetlands, woodlands, valleylands, ANSIs and fish habitat. The ecological function of adjacent lands has been evaluated and no negative impacts on the natural features, or their ecological functions are anticipated from the proposed development. The site is bound to the east by Veterans Drive. Adjacent lands west of the area of impact will remain as part of the Natural Core Area.	Yes, this report has demonstrated that the higher quality ecological systems, features and functions will be protected outside the area of impact on the subject lands and adjacent lands (with modifications to the NHS proposed), provided avoidance and mitigation measures are applied.

	Significant Wildlife Habitat Previous studies (NRSI, 2012; Azimuth Environmental; 2020) identified potential for White-tailed Deer yarding areas in this area (SWH). MNRF open data (2004) show that Stratum II (winter staging areas) may overlap with the development block and is not considered as sensitive as Stratum I. Stratum I (core deer yard) is located within a Stratum II area and is critical for deer survival in areas where winters become severe. Stratum I habitat was not identified within the subject or adjacent lands; the closest Stratum I is located east of Veteran’s Drive. None of the background studies (NRSI, 2012; Azimuth, 2020), or Burnside’s current field studies to date, have recorded evidence of deer (tracks, scat, browsing) in the proposed area of impact during field investigations. An absence of mature white cedar or eastern hemlock understory, which are preferable for yarding, is absent. Azimuth’s report (2020) states that conditions do not meet the criteria for significance according to the Significant Wildlife Habitat screening. It is Burnside’s conclusion that Stratum I or II deer habitat is absent west of Veterans Drive and should not be a concern as it relates to the reduction in NHS linkage width. Habitat for Endangered and Threatened Species Butternut (Endangered) Both the Category 2 and Category 3 Butternut are anticipated to be removed, as a part of the development. These will be registered via a Notice of Butternut Impact, submitted to the provincial registry. A payment to the SAR Conservation Trust will be completed as compensation, as required under O. Reg 830/21. A further survey was conducted May 17, 2024, by Butternut Health Expert, Mackenzie Dawson (ISA #ON-2643A). This survey was focused on the updated development limits and found no additional Butternut. SAR Bats (Endangered) Permanent removal of 3.71 ha of woodland, which are all plantation type ecosites (FOCM6, FOCM4, FOCM6-2) containing 75 roost trees, which are habitat for Little Brown Myotis (END) and Northern Myotis (END). These impacts are considered minimal due to the suitable habitat that will remain available to Little Brown Myotis and Northern Myotis, respectively, within their home range. An IGF with these findings was submitted to MECP on May 24, 2023. On November 20, 2023, MECP completed review of the IGF and determined that an Overall Benefit Permit would be required to compensate for the removal of SAR bat habitat. The required C-Permit Application Form was submitted to MECP on April 10, 2024, which outlined the actions that will be taken to provide training, mitigation measures, overall benefit actions and the methods that will be used for monitoring surveys. This memorandum will be resubmitted to MECP in the	
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Applicable Policy	Proposed Development and Assessment of Policy Conformity	Does the Proposed Development Confirm to Applicable Policy? (Yes or No)
	near future to reflect the updated development limits and additional candidate SAR bat trees that were identified in 2024.	
The Growth Plan for the Greater Golden Horseshoe, 2020		
In Section 6 (Simcoe sub-area), the Growth Plan identifies the City of Barrie as the principal primary Settlement Area and Downtown Barrie is identified as the only Urban Growth Centre (UGC).	The original subdivision and Zoning By-law Amendment applications that demonstrated conformity with the 2017 version of the Growth Plan were reviewed by Staff and were draft approved on August 8, 2019.	Yes The proposed revisions to the draft approved plan of subdivision and concurrent Zoning By-law Amendment application will remove portions of the Natural Core Area and Natural Linkage Area. There will be no negative impacts on natural features or functions on the subject lands and adjacent lands (with modifications to the NHS proposed). The communities that live adjacent to the NHS will continue to have access to these green spaces via the natural heritage that remains.
Lake Simcoe Protection Plan, 2009		
The relevant policies of the LSPP shall apply to lands in the Lake Simcoe Watershed including the following: a) Development in or adjacent to a permanent or intermittent streams shall be subject to the LSPP policies 6.8-DP to 6.11-DP inclusive. b) Where a buffer or VPZ is required LSPP policies 6.27-DP, 6.28-DP and 6.29-DP shall apply. c) An application for major development as defined by the LSPP within a significant groundwater recharge area subject to LSPP policies 6.36-DP and 6.4—DP. The policies of Sections 6.21-DP to 6.26-DP of the LSPP were addressed in the Secondary Plan through the establishment of the NHS. Policies related to Key Natural Heritage Features, Key Hydrological Features as defined by the LSPP (2009) and the required 30 m VPZ does not apply to the plantations on the subject lands.	In fulfillment of the watershed policies of the LSPP, several consultants were retained to prepare a detailed Subwatershed Impact Study (SIS) that was reviewed and accepted by LSRCA, NVCA and the City of Barrie (Schaeffers Consulting Engineers, et al; December 2017). a) No watercourses are present on the subject lands according to the LSRCA Subwatershed Plan (2012) and Map 7 of the OP. b) The VPZ from Key Natural Heritage Features do not apply to the plantations on the subject lands that will be removed in the area of impact. The Dry-Fresh Sugar Maple – White Ash Deciduous Forest (FODM5-8) and FOMM7-2 however is not plantation and is therefore considered part of the KNHF of the greater woodlands beyond the site. As such, this ELC unit requires a 30 m VPZ under the LSPP. The limit of disturbance is well outside the 30 m VPZ as depicted on Figure 6 of this report. c) According to Map 7 of the City of Barrie OP (2023) and LSRCA Subwatershed Plan (2012), a SGRA is present immediately adjacent to the subject lands at the south-east corner of Salem Road and Veterans Drive. To date, LSRCA has not identified any Ecologically Significant Groundwater Recharge Areas (ESGRAs) on or adjacent to the subject lands (i.e., areas of	Yes

Applicable Policy	Proposed Development and Assessment of Policy Conformity	Does the Proposed Development Confirm to Applicable Policy? (Yes or No)
6.10-DP Where, in accordance with the policies of the Plan, development or site alteration is permitted within 120 m of the Lake Simcoe shoreline, other lakes in the Lake Simcoe watershed, or any permanent or intermittent stream or a wetland, the development or site alteration should be integrated with and should not constrain ongoing or planned stewardship and remediation efforts.	land that are responsible for supporting groundwater systems that sustain sensitive features like coldwater streams and wetlands).	
City of Barrie Official Plan, 2023		
The subject lands are located within the City of Barrie Settlement Area boundary. Section 2.4.2.3 Designated Greenfield Areas Policy c) states that “development on Designated Greenfield Area lands will follow a logical progression where new development is contiguous with or abuts developed areas and progresses outward, except where physical barriers or significant natural heritage features and areas prohibit this development pattern.”	The proposed applications follow a logical progression, where the development is contiguous with and abuts developed areas to the south (Phase 1) and is located within an existing Settlement Area. Phase 1 is currently under construction.	Yes
Section 2.6.1 Neighbourhood Area Land Use Designation The area of impact on the subject lands is partially within lands designated Neighbourhood Area as shown on Map 2 of the OP, which permits residential development. The purpose of this designation is to recognize new and existing neighbourhoods and communities. Development on lands designated Neighbourhood Area is subject to the following policies and any other applicable policies of the Plan.	According to Section 2.6.1.1 Permitted Uses, residential and home occupation uses are permitted. A portion of the subject lands is planned for residential development.	Yes
Section 2.6.6 Natural Heritage System Land Use Designation The area of impact on the subject lands is partially within lands designated NHS, as shown on Map 2 of the OP. Development on lands designated NHS is subject to the following policies and any other applicable policies of the Plan.	According to Section 2.6.6.1 Permitted Uses, the following uses are permitted in areas designated as NHS: i) Environmental conservation and preservation. j) Environmental stewardship, restoration, and rehabilitation. k) Flood or erosion control mechanisms, if demonstrated in the public interest. l) Hazard management, if demonstrated in the public interest. m) Naturalized trails, boardwalks and interpretive/wayfinding signage installed, or as permitted, by a public authority. n) Low impact recreational facilities and minor recreation uses. o) Low intensity active transportation infrastructure installed by a public authority. p) Invasive species management.	Yes, with modifications to the NHS proposed

Applicable Policy	Proposed Development and Assessment of Policy Conformity	Does the Proposed Development Confirm to Applicable Policy? (Yes or No)
	Revisions have been made to the Draft Plan Approved Plan of Subdivision, therefore a zoning by-law amendment and redline application are now required. The subject lands will provide a SWMF pond and 17 additional single detached dwellings along the extension of Reid Drive (proposed Street 'A') within the area of impact on the subject lands. A portion of the proposed development encroaches into the existing NHS Core Area and NHS Linkage area (where these uses are not permitted). The modification of the Natural Core Area and Natural Linkage Area width are supported by the considerations outlined in Section 8.0 of this report.	
Section 2.6.6.2 Land Use Policies of the NHS The features and ecological functions of the Natural Heritage System shall be protected, preserved and enhanced over the long term. Development on lands designated NHS and considered EPA Area 1 or 2, as per Map 3, shall not be permitted, with some exceptions.	While a modification of the Natural Core Area and Natural Linkage Area is being proposed, the remaining features and ecological functions of the NHS will be protected, preserved and enhanced over the long term, as described in this NHE report. The subject lands do not fall under the three levels of EPA protection depicted on Map 3 (see below). Therefore, policies pertaining to the EPA do not apply.	Yes, with modifications to the NHS proposed
Section 5.3 Natural Heritage System The City's NHS is identified by the land use designation of the same name and is depicted on Map 2 of the OP. The following NHS policies apply to the subject lands: b) The City will protect its natural heritage features and areas for the long term. d) The City will seek to maintain, restore, and where possible improve the diversity and connectivity of natural heritage features in an area, and the long-term ecological function and biodiversity of the Natural Heritage System. e) The City will seek to maintain and enhance ecological linkages between and among natural heritage features and areas, surface water features and ground water features to ensure a connected and resilient Natural Heritage System. g) The policies of Section 6.6.4 regarding stormwater management and Section 6.6.5 regarding low impact development should be addressed when seeking to enhance the Natural Heritage System.	b) The majority of the Natural Core Area and a significant portion of the Natural Core Linkage Area will remain. d) and e) While a modification of the Natural Core Area and Natural Linkage Area is being proposed, the remaining features and ecological functions of the NHS will be protected, preserved and enhanced over the long term, as described in this NHE report. It is expected that the Linkage will continue to act as a long-term ecological function of the NHS and will maintain connectivity of the features in the area. The modification of the Natural Core Area and Natural Linkage Area width is supported by the considerations outlined in Section 8.0 of this report. g) A detailed description of the SWMF design and management is found in Burnside's Technical Memorandum SWMF F Functional Design (Burnside, May 29, 2024). The functional design has been prepared in accordance with all applicable regulatory requirements and criteria. m) and n) see PPS, 2020 (above)	

Applicable Policy	Proposed Development and Assessment of Policy Conformity	Does the Proposed Development Confirm to Applicable Policy? (Yes or No)
m) Development shall not be permitted in the habitat of endangered species and threatened species, except in accordance with provincial and federal requirements. n) Development shall not be permitted in significant wildlife habitat and/or significant areas of natural and scientific interest unless it has been demonstrated that there will be no negative impacts on natural features or their ecological functions.		
Section 5.4.1 Overlay Boundaries The boundaries of the natural heritage protection overlays, including for the natural core area, natural linkage area and high constraint stream area, are identified on Map 3 of the OP. Four general policies pertaining to the NHS overlays are outlined in the OP under this section. a) The NHS shall be maintained generally in accordance with the underlying land use designations and the overlays shown on Map 3. b) Minor modifications may be considered to the boundaries of these overlays when the boundary is surveyed as part of the development review process to reflect differences in scale and level of detail. c) Any minor modifications shall not negatively impact the NHS as determined by the City, in consultation with the applicable Conservation Authority, nor shall such minor modifications result in any significant decrease in the size of the Natural Heritage System. d) Any minor modification which might result in a change to the boundary of a provincially significant wetland shall require approval of the Ministry of Natural Resources and Forestry, based on the submission of studies required by that Ministry. Any proposed changes to a provincially significant wetland boundary shall be delineated by an expert certified in the Ontario Wetland Evaluation System.	While a modification of the Natural Core Area and Natural Linkage Area is being proposed, the remaining features and ecological functions of the NHS will be protected, preserved and enhanced over the long term, as described in this NHE report, and will not result in a change to the boundary of a PSW located on adjacent lands east of Veterans Drive. The modification of the Natural Core Area and Natural Linkage Area width are supported by the considerations outlined in Section 8.0 of this report.	Yes, with modifications to the NHS proposed
Section 5.4.2 Environmental Protection Areas Overlay	The subject lands do not fall under the three levels of EPA protection depicted on Map 3 and described in Section 2.9.2. Rather, the subject lands are designated on Map 3 as “Natural Core Area”, “Natural Linkage Area” and “Low Constraint Stream Corridor Area.”	Yes

Applicable Policy	Proposed Development and Assessment of Policy Conformity	Does the Proposed Development Confirm to Applicable Policy? (Yes or No)
The subject lands do not fall under the three levels of EPA protection depicted on Map 3 of the OP.		
Section 5.4.3 Natural Core Area Overlay As stated above, the subject lands do not fall under the three levels of EPA protection depicted on Map 3 of the OP. However, the Natural Core Area overlay includes important natural heritage, hydrological and hydrogeological features or groupings of such features, together with required buffers and adjacent lands intended to protect the function of the features and ensure the long-term sustainability of the NHS within an urban context. Buffers from features include: 30 m buffer from the edge of the woodlands within the Lake Simcoe watershed, wetlands and watercourses within the Natural Core Areas 10 m buffer from the dripline of the woodland features and to woodlands outside of the Lake Simcoe watershed 5 m buffer where the boundary of the natural core areas is an existing meadow or thicket.	As discussed in Section 7.3, the Dry-Fresh Sugar Maple – White Ash Deciduous Forest (FODM5-8) and FOMM7-2 on the subject lands is considered part of the KNHF of the greater woodlands beyond the site. As such, this ELC unit requires a 30 m VPZ under the LSPP. The plantations within the area of impact do not require a 30 m VPZ under the LSPP. An ecological offsetting strategy agreement made between LSRCA and the County (2021) approves the removal of a portion of the subject lands for development. Therefore, in this unique situation, no buffers from natural features within the area of impact have been proposed. A new NHS “edge” is being created and removal is being offset at a location outside the limits of the subject lands. See Appendix A.	Yes
Section 5.4.4 Natural Linkage Area Overlay As depicted on Map 3 of the OP, the natural linkage areas are primarily associated with stream corridors that connect two or more natural core areas. In order to sustain potential movement between the natural core areas, a minimum linkage width of 100 m was established. In addition, a number of linkage-specific criteria reflecting site-specific characteristics formed the basis for the establishment of the natural linkage area overlay, which is generally 100 m in width or greater as reflected on Map 3.	The Natural Linkage Area on the subject lands was previously associated with a stream corridor and connects two Natural Core Areas. However, the “stream corridor” does not contain water and is considered a ‘dry’ valley feature, as described in detail in Section 8.0 of this report. During a site walk with LSRCA and others on June 20, 2022, it was agreed upon by LSRCA staff that no watercourse was present within the subject lands and that there was no longer a need to stake the top of bank, as there was no watercourse feature to protect. Therefore, a stable top of slope was surveyed, and a 6 m setback applied (DS Consultants Ltd., letter dated June 28, 2022). The modification of the Natural Core Area and Natural Linkage Area width are supported by the considerations outlined in Section 8.3 of this report.	Yes, with modifications to the NHS proposed
Section 5.4.5 Constrained Stream Corridor Areas Overlay As depicted on Map 4 of the OP, the valley corridor on the subject lands is mapped as “Low Constraint Stream Corridor Area.” The location of high constraint corridors and medium constraint corridors within natural core areas are to be maintained. The location and boundaries of the high (S),	Reach delineation and classification on the subject lands was originally assessed as part of the Drainage and Stormwater Master Plan for the Annexed Lands (AMEC, 2012) as “low constraint.” This classification was carried over into the SIS for the Annexed Lands (2017). The width of the stream corridors from an aquatic habitat perspective was based on the LSPP, which includes 30 m buffers from watercourses. Low rankings were assigned to watercourses with marginal fish habitat. These watercourses consisted of upper headwaters, provide catchment for downstream reaches, exhibit minimal channel and provide indirect fish habitat.	Yes

Applicable Policy	Proposed Development and Assessment of Policy Conformity	Does the Proposed Development Confirm to Applicable Policy? (Yes or No)
medium and low constraint stream corridor areas <i>outside of natural core areas</i> on Map 3 shall be determined in accordance with the directions in the Drainage and Stormwater Management Master Plan, federal, provincial and conservation authority regulations, and during the preparation of a SIS.	The “stream corridor” does not contain water and is considered a ‘dry’ valley feature, as described in detail in Section 8.0 of this report.	

12.0 Next Steps

It is acknowledged that additional refinement of the design and supporting impact and mitigation measures are anticipated during the development of the detailed design and through consultation with regulatory agencies. These include, but are not limited to, impacts related to the function of the SWMF and impacts to adjacent features (i.e., water balance, emergency spillway and outfall, thermal mitigation considerations, etc.) to confirm that existing hydrologic inputs to features within vicinity of the proposed development will be maintained.

Future work during detailed design will also include preparing an Edge Management Plan and a Landscape / Restoration / Planting Plan.

13.0 Conclusions

The purpose of this NHE is to demonstrate environmental policy conformity and provide an impact assessment in support of a zoning by-law amendment and redline application for the Draft Plan Approved Plan of Subdivision. The delineation of the natural heritage limits, and a preliminary assessment of impacts and recommended mitigation measures has been completed.

The subject lands are approximately 19.1 ha in size and the area of impact is approximately 4.59 ha in size. Approximately 3.79 ha of vegetation will be permanently impacted by the proposed development and 0.89 ha of vegetation will be temporarily impacted. The remaining 14.51 ha will remain protected as NHS. Per LSRCA and the County's ecological offsetting strategy (2021), the City of Barrie Official Plan / Salem Secondary Area Plan designated parts of the Blauxham Tract for development. The ecological offsetting plan will include afforestation of 11.42 ha and the protection of 18.99 ha of Natural Core Area, at a separate location within the County (letter dated November 1, 2021; see Appendix A).

The policies of Sections 6.21-DP to 6.26-DP of the LSPP were addressed in the Secondary Plan through the establishment of the NHS. Therefore, policies related to Key Natural Heritage Features, Key Hydrological Features as defined by the LSPP (2009) and the required 30 m VPZ does not apply to the plantations on the subject lands.

The edges of the NHS on the subject lands had not previously been surveyed in-situ using GPS or Ontario land surveyor during the background studies completed for the City of Barrie Annexed Lands and Salem Secondary Plan. Therefore, a site walk and feature staking with LSRCA occurred in 2022 for the valley feature. It was confirmed as a dry feature with a setback applied from stable top of slope (hazard lands constraint). There is no watercourse feature to protect. A detailed review of background reports and

studies provides support that reach LOV8 of Lovers Creek present on the subject lands should no longer be considered an ecological constraint and should be removed from the City's OP designation as a "low constraint corridor".

Modification of the City of Barrie's Natural Core Area and Natural Linkage Area limits is proposed in this report, based on the absence Key Natural Heritage Features, Key Hydrological Features (described in Section 8.3) within the area of impact and the exclusive removal of cultural plantation. None of the natural woodland ecosites present on the subject lands will be removed. Post-development, the modified Natural Linkage Area on the subject lands will be between 73 m at the narrowest point and up to 174 m at the widest point; most of the linkage will exceed the minimum width of 100 m, as outlined in Section 5.4 of the OP (2023) and will continue to function as a wildlife corridor and linkage. Consideration was also given to the future development impacts on adjacent lands, including the development of industrial lands to the north and the proposed extension of Reid Drive that would bisect the NHS at the western edge of the Linkage Area in a north-south direction.

As described in detail in Section 7.6, authorization for removal of habitat for Endangered species confirmed on the subject lands within the area of impact (Butternut and SAR bats) is currently being managed with MECP through the appropriate Regulations and permitting process prescribed under the ESA.

Both the Category 2 and Category 3 Butternut are anticipated to be removed, as a part of the development. These will be registered via a Notice of Butternut Impact, submitted to the provincial registry. A payment to the SAR Conservation Trust will be completed as compensation, as required under O. Reg 830/21.

An IGF was submitted to MECP on May 24, 2023. On November 20, 2023, MECP completed review of the IGF and determined that an Overall Benefit Permit would be required to compensate for the removal of SAR bat habitat. The required C-Permit Application Form was submitted to MECP on April 10, 2024, which outlined the actions that will be taken to provide training, mitigation measures, overall benefit actions and the methods that will be used for monitoring surveys. This memorandum will be resubmitted to MECP in the near future to reflect the updated development limits and additional candidate SAR bat trees that were identified in 2024. Based on the negligible amount of habitat being removed for the proposed development, compared to the large amount of habitat available to each SAR bat species within their home range, Burnside believes there will be no long-term negative impacts to SAR bats.

For the reasons described above and in the body of this report, the proposed development is in conformity with the relevant provincial and municipal land use and natural heritage policies and provides detailed justification to support modifications to the City's Natural Core Area and Natural Core Linkage Area limits on the subject lands.

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Figures



- Area of Impact (additional lands that are part of a Zoning By-law Amendment and Redline Revision to a Draft Plan of Subdivision)
- Natural Core (City of Barrie Official Plan, April 2023)
- Natural Linkage Area (City of Barrie Official Plan, April 2023)
- Unevaluated Wetland (MNR; Burnside site confirmed on subject lands, 2022)
- Provincially Significant Wetland (MNR)
- Subject Lands



Sources:

- Ministry of Natural Resources and Forestry, © Queen's Printer for Ontario.
- Natural Resources Canada, © Her Majesty the Queen in Right of Canada.

Disclaimer:

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Datum: North American 1983 CSRS	
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Metres



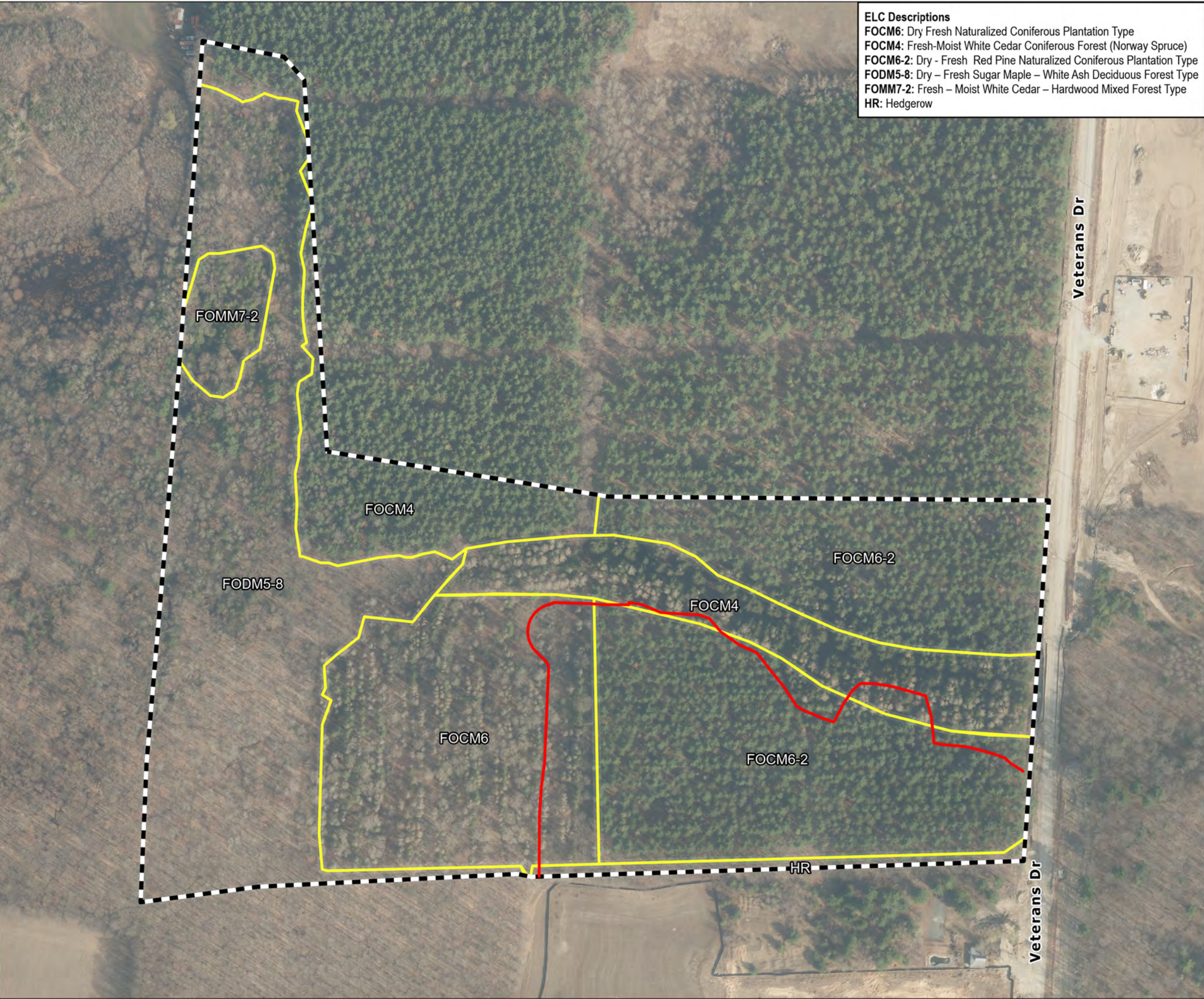
Client

MATTAMY (SALEM) LIMITED

Figure Title

**SALEM
NATURAL HERITAGE EVALUATION
SUBJECT LANDS**

Drawn	Checked	Date	Figure No.
HN	HM	2024/06/05	1
Scale		Project No.	
H 1:5,000		300053571	



ELC Descriptions
FOCM6: Dry Fresh Naturalized Coniferous Plantation Type
FOCM4: Fresh-Moist White Cedar Coniferous Forest (Norway Spruce)
FOCM6-2: Dry - Fresh Red Pine Naturalized Coniferous Plantation Type
FODM5-8: Dry - Fresh Sugar Maple - White Ash Deciduous Forest Type
FOMM7-2: Fresh - Moist White Cedar - Hardwood Mixed Forest Type
HR: Hedgerow

Area of Impact (additional lands that are part of a Zoning By-law Amendment and Redline Revision to a Draft Plan of Subdivision)

Ecological Land Classification

Subject Lands

Sources:

1. Ministry of Natural Resources and Forestry, © Queen's Printer for Ontario.
2. Natural Resources Canada, © Her Majesty the Queen in Right of Canada

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Page Orientation: -15.27°	Scale Factor: 0.99960

Grid North

0 50 100 150 200
Metres



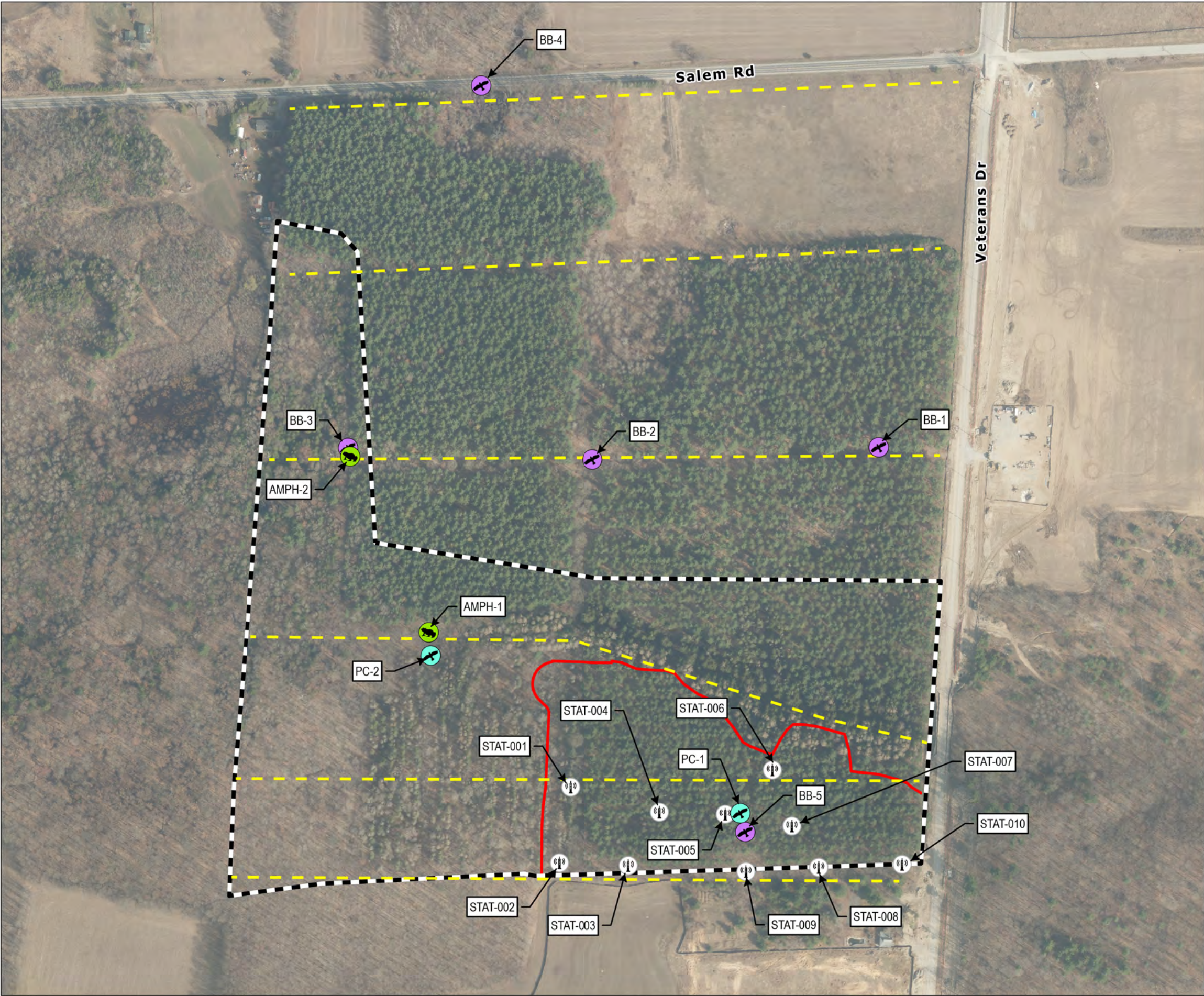
Client

MATTAMY (SALEM) LIMITED

Figure Title

**SALEM
NATURAL HERITAGE EVALUATION
ECOLOGICAL LAND CLASSIFICATION**

Drawn	Checked	Date	Figure No. 2
HN	HM	2024/06/03	
Scale		Project No.	
H 1:2,750		300053571	



- Acoustic Survey Station
- Amphibian Breeding Survey Station
- Breeding Bird Point Count Station
- Owl Survey Point Count Station
- Raptor Survey Transect
- Area of Impact (additional lands that are part of a Zoning By-law Amendment and Redline Revision to a Draft Plan of Subdivision)
- Subject Lands

Sources:

- Ministry of Natural Resources and Forestry, © Queen's Printer for Ontario.
- Natural Resources Canada, © Her Majesty the Queen in Right of Canada

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False Easting: 500,000m	False Northing: 0m
Page Orientation: -15.27°	Scale Factor: 0.99960

Client

MATTAMY (SALEM) LIMITED

Figure Title

**SALEM
NATURAL HERITAGE EVALUATION
FIELD SURVEY STATIONS**

Drawn	Checked	Date	Figure No. 3
HN	HM	2024/06/03	
Scale	Project No.		
H 1:3,500		300053571	



Butternut Tree

- Category 1
- Category 2
- Category 3

Area of Impact (additional lands that are part of a Zoning By-law Amendment and Redline Revision to a Draft Plan of Subdivision)

Subject Lands

Sources:

1. Ministry of Natural Resources and Forestry, © Queen's Printer for Ontario.
2. Natural Resources Canada, © Her Majesty the Queen in Right of Canada

Disclaimer:

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This map is the product of a Geographic Information System (GIS). As such, the data represented on this map may be subject to updates and future reproductions may not be identical.

Datum: North American 1983 CSRS	
Coord. System: NAD 1983 CSRS UTM Zone 17N	
Projection: Transverse Mercator	
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False Easting: 500,000m	False Northing: 0m
Page Orientation: -15.27°	Scale Factor: 0.99960

Grid North

Metres



Client

MATTAMY (SALEM) LIMITED

Figure Title

**SALEM
NATURAL HERITAGE EVALUATION
BUTTERNUTS**

Drawn	Checked	Date	Figure No. 4
HN	HM	2024/06/05	
Scale	Project No.		
H 1:2,750		300053571	



- Confirmed Roost Tree
- Area of Impact (additional lands that are part of a Zoning By-law Amendment and Redline Revision to a Draft Plan of Subdivision)
- Subject Lands

Sources:

1. Ministry of Natural Resources and Forestry, © Queen's Printer for Ontario.
2. Natural Resources Canada, © Her Majesty the Queen in Right of Canada

Disclaimer:

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Coord. System: NAD 1983 CSRS UTM Zone 17N	
Projection: Transverse Mercator	
Central Meridian: 81°0'0.00"W	
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Grid North

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Metres



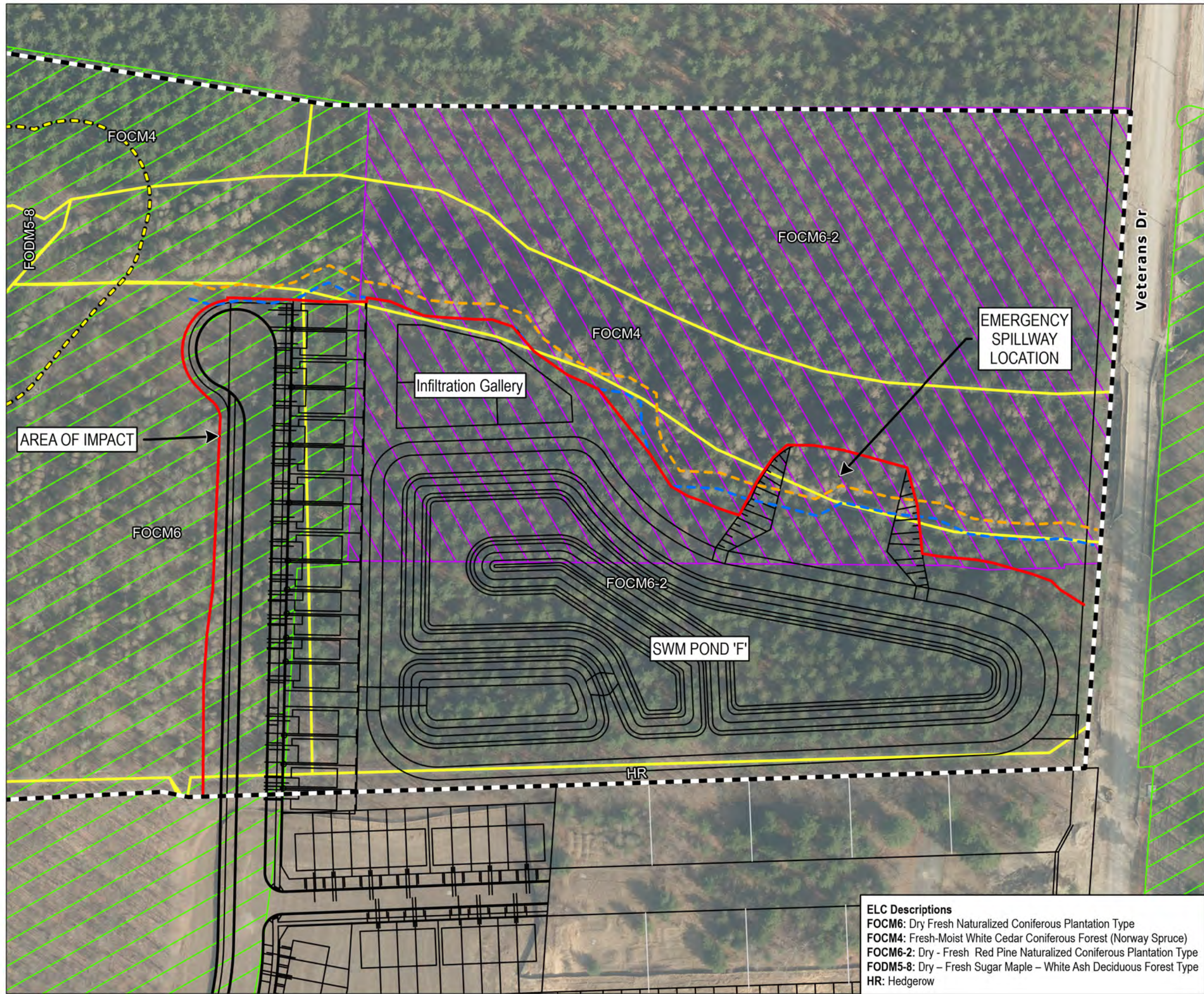
Client

MATTAMY (SALEM) LIMITED

Figure Title

**SALEM
NATURAL HERITAGE EVALUATION
CONFIRMED SAR BAT HABITAT**

Drawn	Checked	Date	Figure No. 5
HN	HM	2024/06/05	
Scale		Project No.	
H 1:2,750		300053571	



- Area of Impact (additional lands that are part of a Zoning By-law Amendment and Redline Revision to a Draft Plan of Subdivision)
- Stable Top of Slope
- 6 m Setback from Stable Top of Slope
- Ecological Land Classification
- 30m Vegetation Protection Zone
- Natural Core (City of Barrie Official Plan, April 2023)
- Natural Linkage Area (City of Barrie Official Plan, April 2023)
- Subject Lands

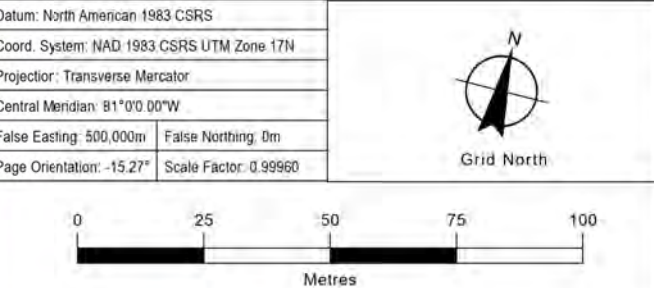
Sources:

1. Ministry of Natural Resources and Forestry, © Queen's Printer for Ontario.
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Client

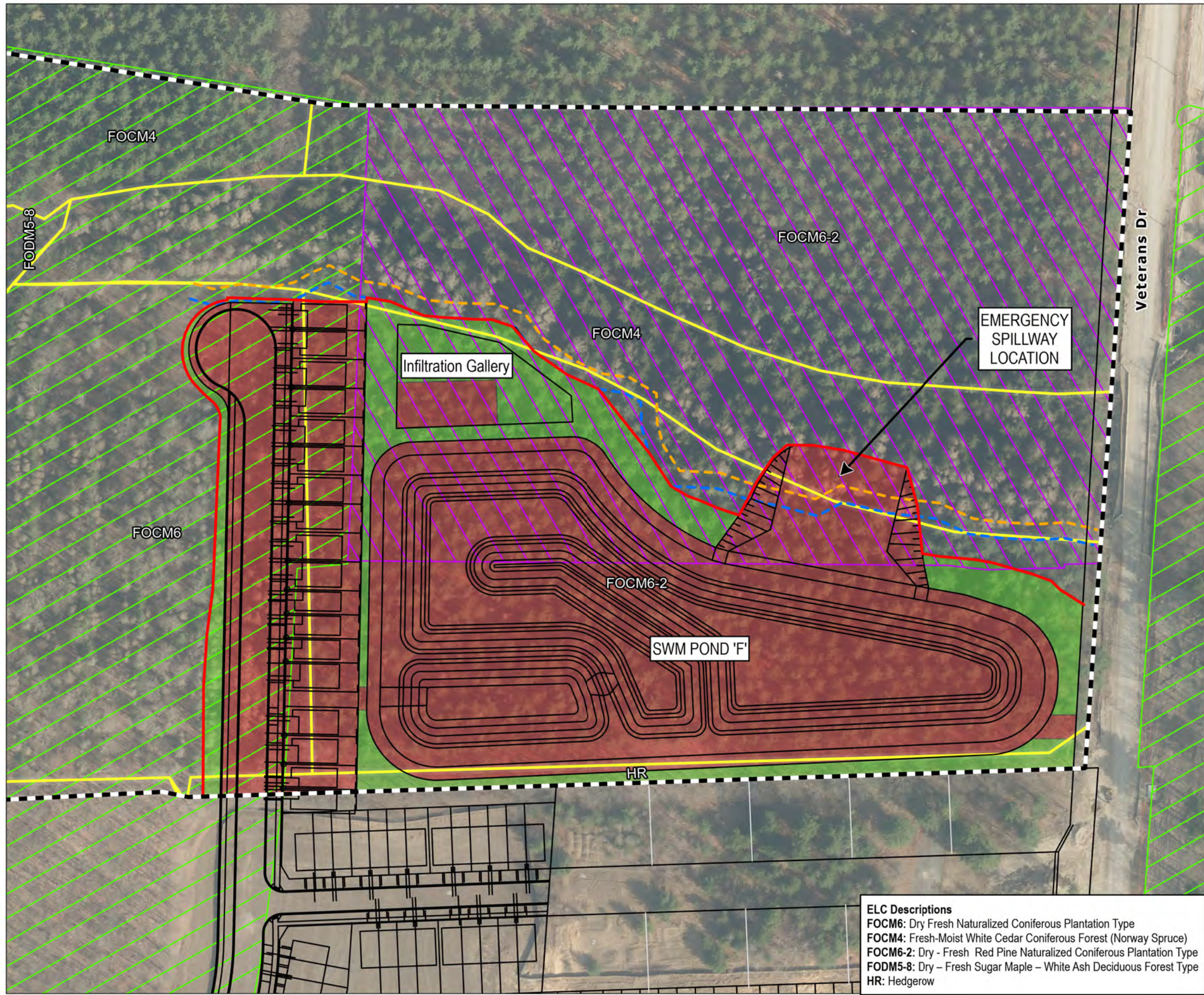
MATTAMY (SALEM) LIMITED

Figure Title

**SALEM
NATURAL HERITAGE EVALUATION
PROPOSED DEVELOPMENT AND
ENVIRONMENTAL CONSTRAINTS**

Drawn	Checked	Date	Figure No.
HN	HM	2024/06/12	6
Scale	Project No.		
H 1:1,500	300053571		

ELC Descriptions
FOCM6: Dry Fresh Naturalized Coniferous Plantation Type
FOCM4: Fresh-Moist White Cedar Coniferous Forest (Norway Spruce)
FOCM6-2: Dry - Fresh Red Pine Naturalized Coniferous Plantation Type
FODM5-8: Dry - Fresh Sugar Maple - White Ash Deciduous Forest Type
HR: Hedgerow



- Area of Impact (additional lands that are part of a Zoning By-law Amendment and Redline Revision to a Draft Plan of Subdivision)
- Stable Top of Slope
- 6 m Setback from Stable Top of Slope
- Permanent Impact (37,899m²)
- Temporary Impact (8,027m²)
- Natural Core (City of Barrie Official Plan, April 2023)
- Natural Linkage Area (City of Barrie Official Plan, April 2023)
- Ecological Land Classification
- Subject Lands

Sources:

- Ministry of Natural Resources and Forestry, © Queen's Printer for Ontario.
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This map is the product of a Geographic Information System (GIS). As such, the data represented on this map may be subject to updates and future reproductions may not be identical.

Datum: North American 1983 CSRS		
Coord. System: NAD 1983 CSRS UTM Zone 17N		
Projection: Transverse Mercator		
Central Meridian: 81°00'00"W		
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Page Orientation: -15.27°		Scale Factor: 0.99960

0 25 50 75 100
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Client

MATTAMY (SALEM) LIMITED

Figure Title

**SALEM
NATURAL HERITAGE EVALUATION
TEMPORARY AND PERMANENT IMPACTS**

Drawn	Checked	Date	Figure No. 7
HN	HM	2024/06/10	
Scale	Project No.		
H 1:1,500		300053571	

ELC Descriptions

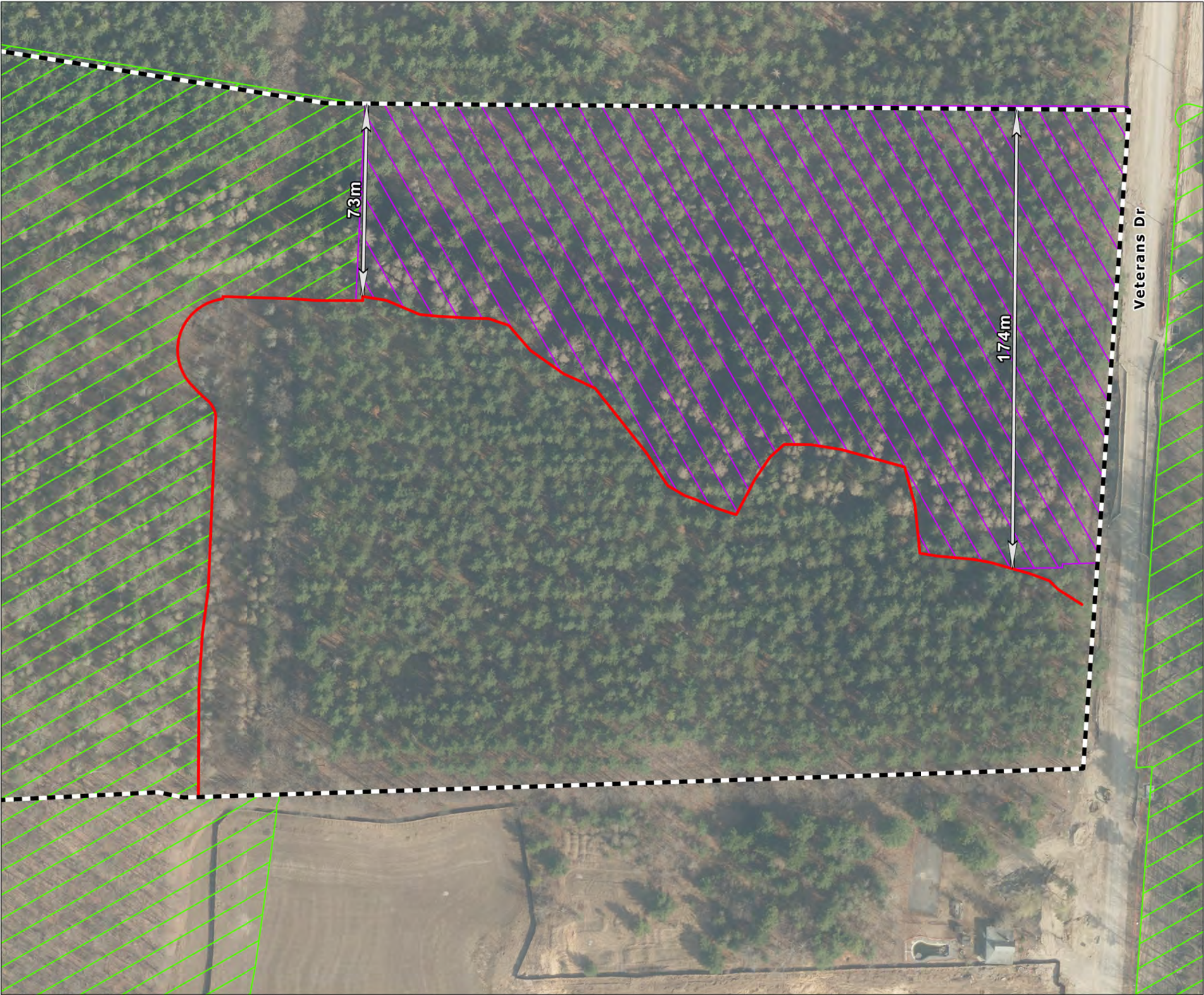
FOCM6: Dry Fresh Naturalized Coniferous Plantation Type

FOCM4: Fresh-Moist White Cedar Coniferous Forest (Norway Spruce)

FOCM6-2: Dry - Fresh Red Pine Naturalized Coniferous Plantation Type

FODM5-8: Dry - Fresh Sugar Maple - White Ash Deciduous Forest Type

HR: Hedgerow



- Area of Impact (additional lands that are part of a Zoning By-law Amendment and Redline Revision to a Draft Plan of Subdivision)
- Proposed New Natural Core
- Proposed New Natural Linkage Area
- Subject Lands

Sources:

1. Ministry of Natural Resources and Forestry, © Queen's Printer for Ontario.
2. Natural Resources Canada, © Her Majesty the Queen in Right of Canada

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Coord. System: NAD 1983 CSRS UTM Zone 17N	
Projection: Transverse Mercator	
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Page Orientation: -15.27°	Scale Factor: 0.99960

Grid North

0 25 50 75 100
Metres



Client

MATTAMY (SALEM) LIMITED

Figure Title

**SALEM
NATURAL HERITAGE EVALUATION
PROPOSED NEW NHS LIMITS**

Drawn	Checked	Date	Figure No. 8
HN	HM	2024/06/04	
Scale	Project No. 300053571		
H 1:1,500			



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Appendix A

Ecological Offsetting Strategy



Sent via e-mail: Graeme.Davis@simcoe.ca

November 1, 2021

FILE: APID-402602

Graeme Davis, R.P.F.
Forester
County of Simcoe Forestry Department
The Town of Newmarket 1110 Highway 26,
Midurst, ON L9X 1N6

Dear Mr. Davis,

RE: Ecological Offsetting Strategy for the Simcoe County Forest "Blauxham Tract"

Thank you for providing the *Compensation Strategy for the Simcoe County Forest "Blauxham Tract"* (Simcoe County Document, November 1, 2021). LSRCA staff have reviewed the proposed strategy in the context of the Letter of Intent signed between Lake Simcoe Region Conservation Authority and the Corporation of the County of Simcoe on July 3, 2019 and confirm acceptance of this strategy. A summary is provided below.

Background

The City of Barrie Official Plan / Salem Secondary Area Plan designated parts of the Blauxham Tract for development. This will result in the potential loss of up to 20 ha of woodland within the Blauxham Tract. The County and the LSRCA agreed through the Letter of Understanding to work cooperatively to provide for offsetting of the future woodland loss which would provide an ecological net gain to the natural heritage system within the LSRCA watershed and in accordance with the Lake Simcoe Ecological Offsetting Plan.

Offsetting Measures

As outlined in the Letter of Intent as well as the provided offsetting / compensation strategy, the County agreed to offsetting, through land acquisition, reforestation and/or ecological enhancement of a total of 40 ha of land within both Simcoe County and the Lake Simcoe Watershed.

It is understood that Simcoe County has acquired an 85.17 ha farm property within the Township of Ramara which is adjacent to the Simcoe County Forest Rathburn Tract. It is noted that 60.06 ha of the 85.17 ha of property is within the Lake Simcoe Watershed and is identified as Natural Heritage System Core Area. 11.42 ha of fallow agricultural area on the property will be afforested and a further 18.99 ha of land will be protected from potential loss. The County will also take steps to remove and manage identified invasive exotic species (scots pine). Additionally, there will be a substantial increase in the creation of interior forest habitat.

Summary / Conclusion

The required measures to address the loss of 20 ha of woodland within the Blauxham Tract, as committed to by Simcoe County through the Letter of Intent (July 3, 2019), have been appropriately outlined in the proposed offsetting strategy and we confirm acceptance of this strategy. Please note, per the commitment in the Letter of Intent, if the offsetting measures have not been completed by 2029, LSRCA and Simcoe County will revisit the Letter of Intent.

If you have any questions concerning the above, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read 'M.B.', followed by a long horizontal line and a vertical line at the end.

Melinda Bessey, MSc, MCIP, RPP
Director, Planning

c. Rob Baldwin, LSRCA
Glenn MacMillan, LSRCA



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Appendix B

Terms of Reference



April 12, 2022

Via: Email

Melinda Bessy
Director- Planning
Lake Simcoe Region Conservation Authority
120 Bayview Parkway
Newmarket, ON L3Y 3W3

Dear Ms. Bessy:

**Re: Environmental Impact Study, Terms of Reference
Salem Rd, Innisfil, Ontario
Project No.: 300053571.0000**

1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) has been retained by Mattamy Development Corporation (Mattamy) to conduct an Environmental Impact Study (EIS) for a proposed SWM pond development for a parcel of land located in the City of Barrie at the southwest corner of Salem Road and Veterans Drive (Figure 1), hereafter referred to as the subject lands. Currently Mattamy is in the process of developing the parcel south of the subject lands. The subject lands include the Natural Heritage System (NHS) and forested area along the southern boundary, as seen on Figure 1. The portion of the parcel north of the NHS is not planned to be purchased by Mattamy and therefore is not included in the assessment. The approximate size of the subject lands undergoing investigations is 19.3 ha.

This letter provides the proposed Terms of Reference (TOR) for the EIS. At this time, we are seeking your input and would appreciate any comments on our approach, as well as any additional information you may have that is relevant to our study.

We are also interested in discussing a previous agreement between LSRCA and the County of Simcoe regarding compensation for the impact to this parcel. It is our understanding that compensation for impacts to this parcel, as part of the Salem Secondary Plan, are the responsibility of the County of Simcoe and a previous agreement to compensate elsewhere in the County has been approved by LSRCA. A letter titled *Ecological Offsetting Strategy for the Simcoe County Forest "Blauxam Tract"* was provided by LSRCA to the County, dated November 1, 2021 (Appendix A).

The TOR are organized as follows:

- Part I: Summary of Background Secondary Source Information.

- Part II: Proposed EIS Methodology, including:
 - Fieldwork methodology;
 - Criteria for evaluating the significance, sensitivity, and rarity of features on, and in the vicinity of the subject lands;
 - Analysis and recommendations; and
 - Reporting.
- Part III: Information Requests.

2.0 Environmental Field Study Framework

Part 1: Background Secondary Source Information

Burnside has reviewed the following existing background data sources:

- Federal Fisheries Act (1985).
- Federal Migratory Birds Convention Act, 1994 (MBCA) and the Migratory Bird Regulations (MBR).
- Fisheries and Oceans Canada (DFO) Aquatic Species at Risk mapping.
- Provincial Policy Statement (PPS) (2020).
- Provincial Endangered Species Act (2007).
- Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF)
- NDMNRF Land Information Ontario (LIO) database
- NDMNRF Aquatic Resource Area (ARA) summary data. Make a Map: Natural Heritage Areas and Natural Heritage Information Centre (NHIC) database for significant species and designated natural features.
- Aerial photographic imaging and 1:10,000 Ontario Base Mapping (OBM).
- Ontario Hydrology Network (OHN) mapping.
- Ontario Breeding Bird Atlas (OBBA) database for avian species records within the general area.
- Ontario Reptile and Amphibian Atlas (ORAA) database for herpetofaunal species records within the general area.
- iNaturalist records.
- eBird records.
- LSRCA regulated features and mapping.
- City of Barrie Official Plan (Final Version January 31, 2022)
- City of Barrie Secondary Plan, Background Studies & Infrastructure Master Plan, Intensification & Annexed Lands, Drainage and Stormwater Management Master Plan (AMEC, 2013).
- Environmental Impact Study Blauxham Tract Salem Secondary Plan (Azimuth, 2020).
- Simcoe County Official Plan (2016).
- Lake Simcoe Protection Plan (MMAH, 2009).
- Natural Heritage System and Restoration Strategy (Beacon Environmental & LSRCA, 2018).

Based on this review, the following applicable environmental policies and legislative framework is summarized in Table 1.

Table 1: Applicable Environmental Policies and Legislative Framework

Policy or Guidance Document	Land Use Designations and/or Applicable Policies
Fisheries Act, 1985	Construction activities that have the potential to impact fish, or fish habitat, must be built and operated in compliance with the federal Fisheries Act.
Fisheries and Oceans Canada (DFO)	If the “death of a fish by means other than fishing”, or the “harmful alteration, disruption or destruction of fish habitat” is likely to occur as a result of the project, the proponent responsible for the activities is required to obtain an Authorization from DFO as per Paragraphs 34.4(2) and 35(2)(b) of the Fisheries Act.
Migratory Birds Convention Act, 1994	The legislation protects certain species and the “incidental take” of migratory birds; the disturbance, destruction or taking of the nest of a migratory bird is prohibited.
Species at Risk Act, 2002	The Act provides protection for federally listed Species at Risk (SAR) and their habitat. SARA prohibitions may pertain to private lands for certain aquatic species, birds and other species if provincial / territorial legislation or voluntary measures do not adequately protect the species and its habitat.
Endangered Species Act, 2007	The Act provides protection for SAR and their habitat. The ESA is now administered by the MECP and provides policies for the protection of Extirpated, Endangered and Threatened species. NDMNRF provides direction on impacts to species of Special Concern. Background records indicate the potential for SAR, on or adjacent to the subject lands, including but not limited to: • Butternut (<i>Juglans cinerea</i>)- END • Snapping Turtle (<i>Chelydra serpentina</i>) - SC • Blanding’s Turtle (<i>Emydoidea blandingii</i>) - THR • Monarch (<i>Danaus plexippus</i>) - SC • Bank Swallow (<i>Riparia riparia</i>) - THR • Barn Swallow (<i>Hirundo rustica</i>) - THR

Policy or Guidance Document	Land Use Designations and/or Applicable Policies
	• Bobolink (<i>Dolichonyx oryzivorus</i>) - THR • Eastern Meadowlark (<i>Sturnella magna</i>) - THR • Common Nighthawk (<i>Chordeiles minor</i>) - SC • Wood Thrush (<i>Hylocichla mustelina</i>)- SC • Evening Grosbeak (<i>Coccothraustes vespertinus</i>) - SC • Grasshopper Sparrow (<i>Ammodramus savannarum</i>)- SC • Olive-sided Flycatcher (<i>Contopus cooperi</i>)- SC
Provincial Policy Statement (PPS) (2020) under the Planning Act (1990)	All planning decisions are required to be consistent with the applicable provisions of the PPS.
City of Barrie Official Plan (Final Version January 31, 2022)	Schedule A- Land Use Schedule B- Planning Area Schedule F- Conservation Authority Regulation Limits & Watercourses Schedule G- Drinking Water System Vulnerable Areas Schedule H- Natural Heritage Resources
LSRCA Regulated Areas (Ontario Regulation 179/06)	Lands regulated by LSRCA on the subject lands include: • Area surrounding watercourse (east to west).Wetlands (unevaluated) along western boundary. • Within Source Protection Area. South half of site within Highly Vulnerable Aquifer (HVA).
LSRCA Ontario Regulation 179/06 Implementation Guidelines (in effect as of January 3, 2022)	Provides LSRCA's updated watershed planning and regulation policies. These policies provide the parameters against which LSRCA administers Ontario Regulation 179/06 related to the Development, Interference with Wetlands and Alteration to Shorelines and Watercourses.
NVCA Regulated Areas (Ontario Regulation 172/06)	North-west corner of parcel is within land regulated by NVCA.

Part II: Proposed EIS Methodology

We understand that an EIS is required to support the development of the proposed SWM pond and related infrastructure. Prior to finalizing, environmental constraints must be delineated.

Detailed field studies will be required to complete the EIS. As well, onsite limits of NHS features, such as woodlands, will be delineated for future feature staking with the agencies.

Features identified will appear on the constraints and opportunities mapping and be used to determine buffers and a suitable limit of development.

Field investigations, in combination with background information obtained from the natural heritage databases and consultation with Agencies (i.e., MNRF, MECP, LSRCA/NVCA), will be used to undertake a screening for potential SAR habitat as well as Significant Wildlife Habitat (SWH).

Fieldwork Methodology

Based on the background review, the proposed fieldwork methodology for the EIS is summarized in Table 2, below. The proposed natural heritage surveys are to be completed in 2022 and 2023.

Table 2: Fieldwork Methodology

Survey Type	Fieldwork Requirements	Features / Areas to be Assessed	Survey Timing Window
ELC and identification of rare species	Site confirm ELC. Following ELC for southern Ontario (Lee et al., 1998). Two-season botanical inventory (spring and summer) and analysis of flora rarity (provincial, regional, and NVCA/LSRCA ranking). Botanical inventory will include an updated search for Butternut during the leaf on period (defined by MECP as May 15 – August 31).	The subject lands and 50 m adjacent lands, where accessible.	Spring: Late April to late May. Summer: Late June to late August 2022
Amphibian Breeding Call Surveys	Three surveys, following Marsh Monitoring Program Participant's Handbook for Surveying Amphibians (Birds	Two stations will be required to monitor the western wetland features and one	Three surveys from April to June 2022, as detailed in the Marsh Monitoring protocol.

Survey Type	Fieldwork Requirements	Features / Areas to be Assessed	Survey Timing Window
	Studies Canada), for wetland/watercourse features potentially impacted by the proposed development.	station at the watercourse.	
Breeding Bird Surveys	Two surveys to be completed following the OBBA Instructions for General Atlassing (April 2021).	Subject lands.	Between May 24 and July 10, 2022. Surveys must be conducted between dawn and 10 a.m.
Owl Surveys	Three surveys to be completed following the Bird Studies Canada Nocturnal Owl Surveys in Central Ontario protocol (2011.)	Subject lands.	Between March 2022 and February 2023.
Breeding Raptor Surveys	Two surveys will be completed in early spring.	Subject lands.	Between last 2 weeks of April and first week of May, 2022.
Bat Maternity Roosting Habitat Assessment	One leaf-off and one leaf-on survey will be completed, following the MNRF Survey Protocol for SAR bats within Treed Habitats (April 2017). Due to the size of the woodland, a randomized plot snag density survey will be used. Additional consultation with MECP will be undertaken during the creation of the TOR to ensure this methodology is deemed appropriate.	Assessments will be conducted on all areas of the subject lands outside of the designated NHS, therefore only trees being impacted by the proposed work will be assessed.	Leaf Off assessment- Between March 2022 and May 2022 Leaf On assessment- Between June 2022 and September 2022

Survey Type	Fieldwork Requirements	Features / Areas to be Assessed	Survey Timing Window
Identification and characterization of wildlife habitats and incidental wildlife observations	Visual observations of animals, tracks or scat. Recording features present that may be considered wildlife habitat such as: • Dens • Reptile hibernacula • Structures • Uncapped chimneys • Foundations Observations will be recorded during all site visits.	Subject lands.	All field surveys in 2022/2023.

Criteria for Determining the Significance, Sensitivity and Rarity of Features Found Onsite.

In accordance with the Natural Heritage Reference Manual (NHRM) (MNR, 2010), habitats of endangered and threatened species are identified and evaluated based on provincial criteria. Burnside will consult with MECP to ensure that the appropriate criteria are utilized, including species-specific habitat regulations and guidance material.

By contrast, the identification and evaluation of Significant Woodlands and Significant Wildlife Habitats (SWH) are undertaken at the local and / or regional planning level, using landscape level data and criteria from the NHRM as well as supporting policy documents, such as Official Plans. Significant Wildlife Habitat will be evaluated based on the Ecoregional Criteria for Ecoregion 6-E (MNRF, 2015). Species rarity will be based on:

- Species' status under the Endangered Species Act, 2007 and Species at Risk Act, 2002;
- Species' S-rank as provided on the NHIC database; and
- Rarity for the Lake Simcoe watershed as listed in "The State of the Lake Simcoe Watershed" Appendix 5.3 (LSRCA, 2003) and for Simcoe County in "The Distribution and Status of the Vascular Plants of Central Region" (Riley et al., 1989).

The locations of all provincially rare species encountered will be recorded using GPS and included on the figures (excepting those classified as Restricted Species). Locally rare species will also be recorded in the ELC unit in which they are found.

Analysis and Recommendations

The EIS will provide an analysis of potential impacts, recommended mitigation measures to minimize impacts and demonstrate conformity with all applicable natural heritage policies.

Specifically, the EIS will include the following:

- A demonstration that the development meets the requirements of the City and County Official Plans, and the PPS, as well as any other relevant policies and regulations.
- Identification of the significance of natural features at a Provincial and Regional level, with reference to standard information sources from the Province, LSRCA and NVCA.
- Identification of the significance of natural features according to the Official Plans.
- Identification of the environmental features potentially impacted by development.
- A general description of the proposed development.
- A demonstration of how and where the proposed development can proceed without negative impact on the NHS and features and their ecological functions, and identification of mitigation and enhancement measures, where necessary.
- Quantification of impacts to any features within the NHS that may result from the proposed development.
- Incorporation of the results of the Hydrogeological Study to assess impacts on the quality and quantity of groundwater and the function of the recharge area.

Reporting

All findings will be summarized in a report, complete with figures. The locations of all provincially significant species, and / or habitat encountered, will be recorded using GPS and included on the figures (excepting those classified by MECP as Restricted Species). Locally rare species will also be recorded in the ELC unit in which they are found.

Part III: Information Requests

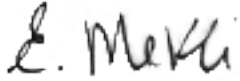
As part of the background review, Burnside will be submitting information requests to provincial agencies, including MECP and MNRF. We request the following information from LSRCA to assist in our study:

- Any information providing confirmation of the previous agreement made between LSRCA and the County of Simcoe related to compensation in this area. It is our understanding that the County is covering all compensation for impacts to this parcel as it relates to the Salem Secondary Plan.
- Any relevant natural heritage or regulation GIS data not available on LSRCA's open data website.
- Any additional records of natural features, flora or fauna in the area.
- A copy of any locally rare species lists, or comment on which locally rare species list is preferred, in order to assist with the assessment of species significance and rarity.

If you have any questions or comments regarding these Terms of Reference, please feel free to contact me at 519-362-2592 (erica.mekli@rjburnside.com).

Yours truly,

R.J. Burnside & Associates Limited



Erica Mekli
Project Coordinator/ Terrestrial Ecologist
EM:js

Enclosure(s)

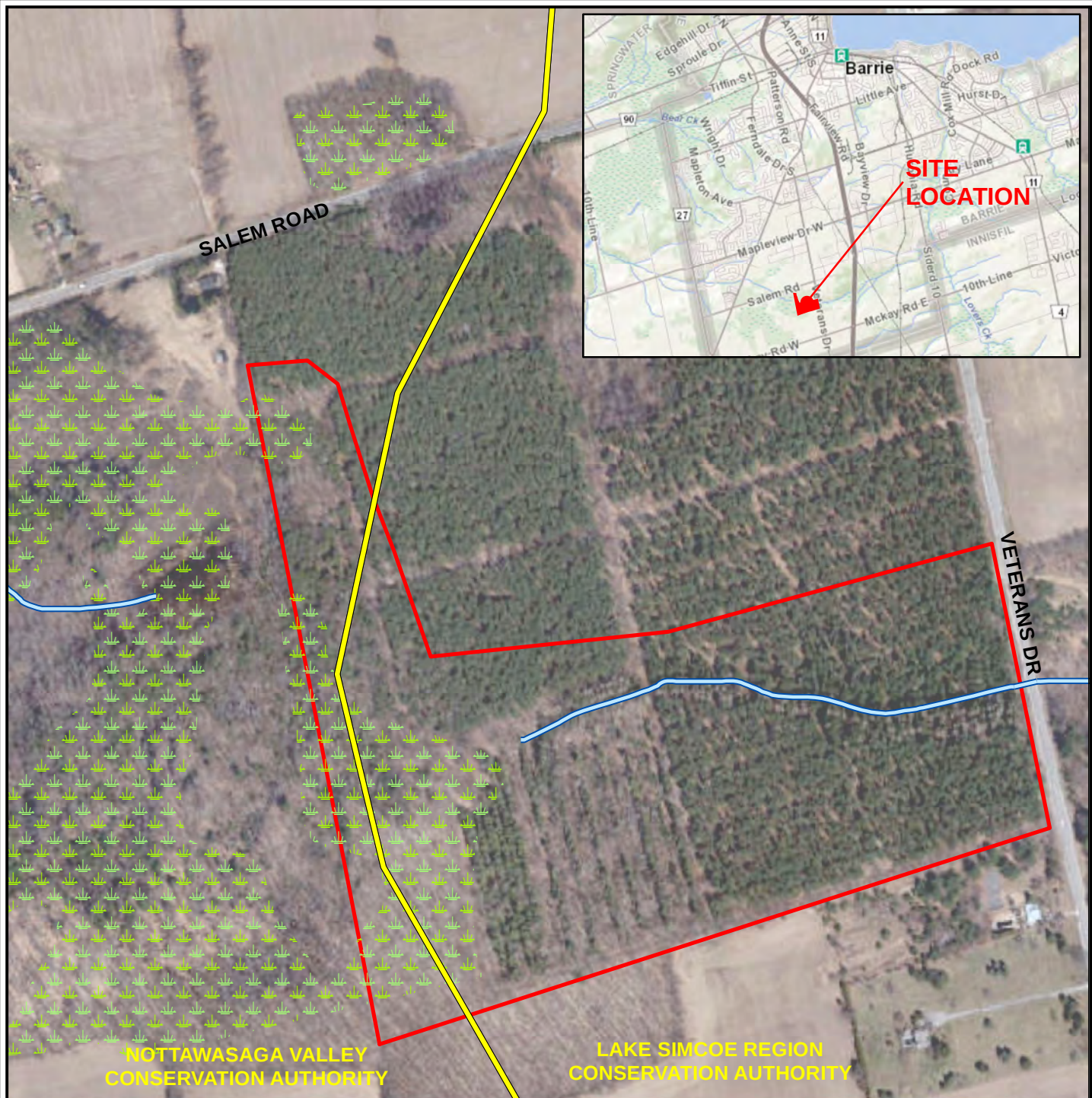
Study Area
Ecological Offsetting Strategy for the Simcoe County Forest "Blauxam Tract"
letter dated November 1, 2021.

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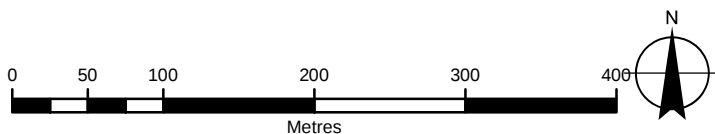
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12/04/2022 11:26 AM



LEGEND

- STUDY AREA
- CONSERVATION AUTHORITY BOUNDARY
- WATERCOURSE
- WETLAND (UNEVALUATED)



Client

MATTAMY HOMES

Figure Title:

STUDY AREA

Drawn	Checked	Date	Figure No.
SK	LA	June 2021	1
Scale 1:5,000		Project No. 300053751	



Sent via e-mail: Graeme.Davis@simcoe.ca

November 1, 2021

FILE: APID-402602

Graeme Davis, R.P.F.
Forester
County of Simcoe Forestry Department
The Town of Newmarket 1110 Highway 26,
Midurst, ON L9X 1N6

Dear Mr. Davis,

RE: Ecological Offsetting Strategy for the Simcoe County Forest "Blauxham Tract"

Thank you for providing the *Compensation Strategy for the Simcoe County Forest "Blauxham Tract"* (Simcoe County Document, November 1, 2021). LSRCA staff have reviewed the proposed strategy in the context of the Letter of Intent signed between Lake Simcoe Region Conservation Authority and the Corporation of the County of Simcoe on July 3, 2019 and confirm acceptance of this strategy. A summary is provided below.

Background

The City of Barrie Official Plan / Salem Secondary Area Plan designated parts of the Blauxham Tract for development. This will result in the potential loss of up to 20 ha of woodland within the Blauxham Tract. The County and the LSRCA agreed through the Letter of Understanding to work cooperatively to provide for offsetting of the future woodland loss which would provide an ecological net gain to the natural heritage system within the LSRCA watershed and in accordance with the Lake Simcoe Ecological Offsetting Plan.

Offsetting Measures

As outlined in the Letter of Intent as well as the provided offsetting / compensation strategy, the County agreed to offsetting, through land acquisition, reforestation and/or ecological enhancement of a total of 40 ha of land within both Simcoe County and the Lake Simcoe Watershed.

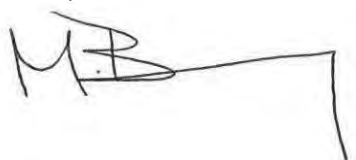
It is understood that Simcoe County has acquired an 85.17 ha farm property within the Township of Ramara which is adjacent to the Simcoe County Forest Rathburn Tract. It is noted that 60.06 ha of the 85.17 ha of property is within the Lake Simcoe Watershed and is identified as Natural Heritage System Core Area. 11.42 ha of fallow agricultural area on the property will be afforested and a further 18.99 ha of land will be protected from potential loss. The County will also take steps to remove and manage identified invasive exotic species (scots pine). Additionally, there will be a substantial increase in the creation of interior forest habitat.

Summary / Conclusion

The required measures to address the loss of 20 ha of woodland within the Blauxham Tract, as committed to by Simcoe County through the Letter of Intent (July 3, 2019), have been appropriately outlined in the proposed offsetting strategy and we confirm acceptance of this strategy. Please note, per the commitment in the Letter of Intent, if the offsetting measures have not been completed by 2029, LSRCA and Simcoe County will revisit the Letter of Intent.

If you have any questions concerning the above, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'M.B.', followed by a long horizontal line and a vertical line at the end, forming a stylized signature.

Melinda Bessey, MSc, MCIP, RPP
Director, Planning

c. Rob Baldwin, LSRCA
Glenn MacMillan, LSRCA



BURNSIDE

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Appendix C

Agency Correspondence

1. General Information:

Date: _____

Address: _____

Name of consulting firm: _____

Contact information: _____

2. Identify all potential natural heritage and hydrologic features in the study area (check all that apply):

**The LSRCA recognizes that this is a preliminary assessment to determine what studies may be suitable for the property. A site visit may be required to verify the presence/absence of features.*

- | | |
|---|---|
| ☐ Wetland | ☐ Drainage feature/watercourse |
| ☐ Woodland | ☐ Kettle lake |
| ☐ Valleyland | ☐ Seepage area or spring |
| ☐ Grassland or meadow | ☐ Lake or pond (and their littoral zone) |
| ☐ Wildlife habitat | ☐ Lake Simcoe shoreline |
| ☐ Area of natural and scientific interest (ANSI) | ☐ Natural areas abutting Lake Simcoe |
| ☐ Sand barren, savannah or tallgrass prairie | ☐ Habitat of endangered and threatened species |
| ☐ Alvar | ☐ Fish habitat |

3. Activities to be undertaken and studies required for a complete NHE/EIS submission**:

*** Some activities/studies are pre-selected (☑) as they are a minimum requirement for NHE/EIS submissions.*

- ☒ Consult with the appropriate Municipal and Conservation Authority staff, as required, to establish the required scope of study.
- ☒ Identify an appropriate study area - generally the area of anticipated disturbance plus 120 m.
- ☒ Collect and include applicable background information and current environmental mapping for natural heritage and hydrologic features, and the natural heritage system within and surrounding the study area.
- ☒ Identify and provide detailed descriptions of natural heritage and hydrologic features in the study area, their function, and the broader natural heritage system that they are within. Determine the significance of these natural heritage and hydrologic features under applicable policy.
- ☒ Evaluate existing vegetation communities using Ecological Land Classification (ELC) for Southern Ontario (Lee et al. 1998. Ecological Land Classification for Southern Ontario: first approximation and its applications. SCSS Field Guide FG-02). Provide a description of ELC communities in the study area and include completed ELC field sheets as an appendix.
- ☒ Conduct a _____-season vegetation inventory in the late spring/summer/fall. Include the inventory categorized by ELC community as an appendix and denote any Species at Risk and/or provincially/locally rare species.
- ☐ Conduct three (3) breeding amphibian surveys as per the Marsh Monitoring Program protocol (Bird Studies Canada). Observational salamander surveys may be required if potential habitat exists in the study area. Include completed field sheets as an appendix.

- ☐ Conduct two (2) dawn breeding bird surveys between May 24 and July 15, under appropriate conditions, with a minimum of 10 days between surveys, and record all occurrences and breeding behaviors. Point counts, wandering transects or a combination of the two must be used according to features present and site conditions. Include completed field sheets as an appendix. A third survey will be required if suitable grassland bird habitat is present.
- ☒ Record observations of all wildlife occurrences and behaviours and assess wildlife habitat function.
- ☒ Screen for Species at Risk (SAR), listed under the *Endangered Species Act, 2007*, based on existing or potential habitat. Additional species-specific surveys may be required if SAR habitat is present (e.g. butternut health assessments, snag surveys, bat acoustic monitoring surveys, evening whip-poor-will surveys, etc.), please contact the Ministry of Environment, Conservation and Parks (MECP) for further direction. Include any relevant correspondence with the MECP as an appendix
- ☒ Assess for Significant Wildlife Habitat (e.g. turtle nesting or wintering area, reptile hibernaculum, woodland raptor nesting habitat, seeps, springs, etc.) as per the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNR, January 2015).
- ☒ Identify any ecological linkages or movement corridors within the study area. Demonstrate how connectivity within and between natural heritage and hydrologic features will be maintained and, where possible, improved or restored to allow for the effective dispersal and movement of plants and animals.
- ☒ Provide a general description of the methodology, dates, timing, and locations of completed field surveys.
- ☐ Confirm the boundaries of any wetland and/or woodland features on the property through a staking exercise with the LSRCA. Boundary points must be surveyed with a high-accuracy GPS device (accurate to within 10 cm). A professional Ontario Land Surveyor (OLS) may be required to attend. Wetland staking exercises must be completed between June 15 and September 30 (exceptions may apply). Note that a site visit fee may apply. **anticipate staking woodland and top of bank**
- ☐ Complete an aquatic habitat assessment for all drainage features/watercourses in the study area, including characterization of hydrologic features (i.e. permanent, intermittent, ephemeral, headwater drainage feature) and suitability as fish habitat. Include a description of instream and riparian cover, bank stability, substrate composition, stream morphology, dimensions and gradient, thermal regime indicators, potential barriers, woody debris distribution, aquatic vegetation, groundwater seepage areas, etc.
- ☐ Complete a catchment-based water balance for the study area to assess how existing drainage conditions and moisture regimes that support sensitive hydrologic features (e.g. wetland, woodlands, watercourse) may be impacted by the proposed development. Demonstrate how current hydrologic inputs will be maintained post-development. Please note, the water balance assessment may also be a requirement under other provincial policies, therefore the NHE/EIS should coordinate with/summarize the water balance work undertaken by others.
- ☐ Recommend the dimensions of an appropriate vegetation protection zone (VPZ)/buffer to natural heritage and hydrologic features required to mitigate impacts from the proposed development. Recommendations for restoration/plantings should be provided for all buffers.
- ☒ Provide a detailed description of the proposed development.

- ☒ Map the following information separately on current high quality ortho-air photos:
 - 1) ELC vegetation communities, natural heritage and hydrologic features and their associated VPZs, and the proposed development and anticipated limit of disturbance (e.g. grading limits); and,
 - 2) ELC vegetation communities, survey locations, other environmental features (e.g. linkages, wildlife corridors, seeps, springs, stick nests, wildlife habitat, rare species, invasive species, etc.), and existing structures and/or trails.
- ☒ Assess the potential direct, indirect, and cumulative impacts of the proposed development on natural heritage and hydrologic features, the natural heritage system, and related ecological and hydrologic functions.
- ☒ Develop and provide an appropriate avoidance/mitigation/restoration strategy to address the potential impacts of the proposed development.
- ☒ Demonstrate how the proposed development is in conformity with all federal, provincial, regional, and municipal natural heritage policies applicable in the Lake Simcoe watershed.
- ☒ Complete one final report for circulation and approval, prepared by qualified professionals, in an electronic format as well as one (1) hard copy.

4. Additional studies or plans that may be required include:

- ☐ Landscape/Restoration/Planting Plan
- ☐ Edge Management Plan
- ☐ Tree Inventory/Arborist Report/Tree Preservation Plan
- ☐ Trails Impact Study
- ☐ Ecological Offsetting Strategy (please refer to [LSRCA's Ecological Offsetting Policy](#))
- ☐ Environmental Monitoring Plan/Report
- ☐ Fluvial Geomorphological Assessment
- ☐ Natural Channel Design

5. Additional notes and/or requirements:

Please note that changes to the study area, the proposed development, and/or policy changes may require additional information/studies.

Please provide current field survey data in the NHE/EIS submission. Field survey data will be considered valid for five (5) years from the date the survey was conducted, except for Species at Risk screenings, which are valid for one (1) year. If outdated field data is provided, additional surveys may be required.

From: [Snell, Shamus \(MECP\)](#)
Sent on: Wednesday, April 13, 2022 9:55:03 AM
To: [Ariana Burgener](#)
CC: [Erica Mekli](#)
Subject: MECP SARB Review: Information Request Intersection of Veterans Drive and Salem Drive
Attachments: Bat Survey Standards Note 2021.pdf (113.02 KB), Treed Habitats - Maternity Roost Surveys.docx (24.89 KB), SAR Bat Building Exit and Roost Survey Protocols.docx (40.2 KB)

Hi Ariana,

The Ministry of Environment, Conservation and Parks (MECP) Species at Risk Branch (SARB) has conducted a review of the subject property located to the south west of the intersection of Veterans Drive and Salem Drive and the areas adjacent to the subject property and has not detected any additional Species at Risk (SAR) occurrences which were not already identified in the attached information request.

While this review represents MECP's best currently available information, it is important to note that a lack of information for a site does not mean that SAR or their habitat are not present. There are many areas where the Government of Ontario does not currently have information, especially in areas not previously surveyed. On-site assessments and surveys are required to better verify site conditions, identify and confirm the presence of SAR and/or their habitats.

It is the responsibility of the proponent to ensure that SAR are not killed, harmed, or harassed, and that their habitat is not damaged or destroyed through the proposed activities to be carried out on the sites. If the proposed activities can not avoid impacting protected species and their habitats then the proponent will need to apply for a authorization under the Endangered Species Act.

The 2021 Bat Survey Standards Note and related protocols have been attached to this email to your reference and consideration.

SARB requests that for any future requests you submit that you include the coordinates of the subject property in UTM or Latitude and longitude to help ensure the correct location is being reviewed. Searches of civic address and street names have a bad habit of showing you the wrong place and generally increases the amount of time required to conduct the review.

Please be advised that it is also the proponent's responsibility to be aware of and comply with all other relevant provincial or federal legislation, municipal by-laws, or required approvals from other agencies.

Regards,

Shamus Snell
A/ Management Biologist
Species at Risk Branch
Ministry of the Environment, Conservation and Parks
Email: shamus.snell@ontario.ca

From: Ariana Burgener <Ariana.Burgener@rjburnside.com>
Sent: March 30, 2022 5:06 PM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Erica Mekli <Erica.Mekli@rjburnside.com>
Subject: SAR Information Request - Barrie

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hello,

RJ Burnside has been retained to conduct an EIS within the City of Barrie. We have completed a background review to determine the potential for species at risk within the study area. Please find attached two images of the study area. The study area is in Barrie, south-west of the Salem Road and Veteran's Drive intersection. It is currently a pine plantation that is beginning to naturalize with an unevaluated wetland community on the western boundary.

The background review resulted in the following SAR information:

- Bank Swallow
- Barn Swallow
- Bobolink
- Common Nighthawk
- Eastern Meadowlark
- Evening Grosbeak
- Grasshopper Sparrow
- Olive-sided Flycatcher
- Wood Thrush
- Butternut
- Blanding's Turtle
- Snapping Turtle
- Midland Painted Turtle
- Eastern Milksnake
- Monarch

Although we did not find records in any specific search the habitat is forested so we are making the assumption that there is also potential habitat for:

- Little Brown Myotis
- Northern Myotis
- Tri-colored Bat

The *Survey Protocol for Species at Risk Bats within Treed Habitats* (April 2017) recommends consulting with MECP for cultural treed areas, such as plantations to determine if these habitats may be suitable. The area of plantation proposed to be removed by the development is roughly 2.6 ha and has been characterized as FOCM6-2 Dry-Fresh Red Pine Naturalized Coniferous Plantation Type by Azimuth in their 2020 EIS.

Does MECP have any direction concerning the suitability of this habitat for SAR bats, and subsequently the survey methods and/or search effort recommended for this site?

Thank you for your feedback,

Ariana



BURNSIDE

Ariana Burgener

Terrestrial Ecologist & ISA Certified Arborist

R.J. Burnside & Associates Limited

6990 Creditview Road, Unit 2, Mississauga, Ontario L5N 8R9

Office: +1 800-265-9662 Direct Line: +1 905-821-5942

www.rjburnside.com



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Thank you.

From: [ESAREg \(MECP\)](#)
Sent on: Thursday, June 23, 2022 8:47:30 AM
To: [Erica Mekli](#)
CC: [Species at Risk \(MECP\)](#)
Subject: RE: Butternut Health Assessment valid date range Question

Hi Erika,

Thank you for your email.

You have asked whether Butternut Health Assessments previously conducted are still valid or whether the previously assessed trees need to be reassessed.

The species-specific conditional exemption for Butternut is found in Part III of O. Reg. 830/21 as of December 2021. The conditions of the regulation require that the Butternut Health Expert report be prepared for the person proposing to engage in the activity. While previous reports may be used for base information to inform the development of this new Butternut Health Expert report, the new report needs to reflect the current status of the health and number of the trees. It is the responsibility of the Butternut Health Expert preparing the report to ensure that the information included in that report is current. The previous report, as you described it, does not appear to meet the conditions of the regulation.

The Ministry's guidance on Butternut health assessments is laid out in the [Butternut Assessment Guidelines: Assessment of Butternut Tree Health for the Purposes of the Endangered Species Act, 2007](#). In the guidelines, it also says the following:

"In all circumstances, it is recommended that Butternut health assessments be conducted as close as possible to the date of the activity that will affect the Butternut trees. This is because the extent to which the trees are affected by Butternut Canker may change between the date of the assessment and the activity date, and because new Butternut seedlings may have grown since the date of the assessment."

Thanks,
ESA Reg Team

Ministry of the Environment, Conservation and Parks
ESAREg@ontario.ca

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From: Erica Mekli <Erica.Mekli@rjburnside.com>
Sent: May 30, 2022 4:16 PM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Subject: Butternut Health Assessment valid date range Question

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Hello,

I am working on a development project in Barrie, Ontario located approximately 650 m south of the intersection of Salem Road and Veteran's Drive (subject lands are west of Veteran's Drive) . There have previously been confirmed Butternut in the area and Butternut Health Assessments (BHA) were conducted and submitted to MECP in 2019 and 2020. The BHA report # is 407-20-001 and was completed by Brett Dixon on behalf of Simcoe County.

I will be conducting an additional BHA on another tree found within the same forest community this summer that appears to have not been included previously.

My question is whether or not BHA's need to be repeated on the trees that have previously undergone BHA's and have been submitted to the Ministry or whether the previous BHA's are still valid. There will be a new owner of the land so I was not sure what the procedure is. Because the BHA's were conducted within the last 3 years I am hopeful they are still valid. The client will need to register the removal of these trees under O.Reg 242/08 (at present it is confirmed that two Category 2 Butternut trees will be removed and there will be the potential for 2 more removals depending on the results of the upcoming BHA and the development design).

Can you please confirm if I will need to re-conduct and re-submit BHA's for Butternut trees that underwent BHA's in 2019 and 2020, or whether their previous submission is still valid?

Thank you in advance for your help with this question.

Cheers,

Erica Mekli

 **BURNSIDE**

Erica Mekli, B.A., ISA certified Arborist
Project Coordinator / Terrestrial Ecologist

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Unit 20, Guelph, Ontario N1H 1C4
Office: +1 800-265-9662 Direct Line: +1 226-486-1540
www.rjburnside.com



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Thank you.

From: [Erin Fitzpatrick](#)
Sent on: Friday, April 29, 2022 2:45:27 PM
To: [Erica Mekli](#); [Melinda Bessey](#)
CC: [Hannah Maciver](#)
Subject: RE: Salem Meeting Summary
Attachments: 053571_TOR_Salem EIS_LSRCA.pdf (1.26 MB), LSRCA EIS TOR checklist_Salem EIS.pdf (835.31 KB)

Hi Erica,

Thank you for providing the additional information and the earlier meeting summary. I have reviewed the meeting summary (below) and believe it covers the key points discussed. I can confirm that the proposed TOR is acceptable with the additional consideration of a catchment-based water balance. The intention is that the EIS would include a summary of water balance and/or stormwater water management work completed by others to confirm that existing hydrologic inputs to wetlands/woodlands/watercourses within the vicinity of the development will be maintained. For ease of reference on our end, I have completed our EIS/NHE TOR Checklist with your proposed work program and the catchment-based water balance (attached). Additional studies or plans that may also be required have also been noted in the attached checklist and will be further refined as we move through the process.

I will need some time to get back to you on the approach to NHS delineation / encroachment. I'll try for next week, but it may not be until the following week.

I would be happy to offer some dates for a staking of the top of bank and woodland dripline once Melinda is back and we have determined the planner who will be handling this file through plan review. Our planners often like to attend the feature staking to gain a better understanding of the site.

Please let me know if you have any questions about the feedback provided thus far.

Have a great weekend!

Erin

Erin Fitzpatrick, M.Sc.
Natural Heritage Ecologist

Lake Simcoe Region Conservation Authority
120 Bayview Parkway,
Newmarket, Ontario L3Y 3W3
905-895-1281 ext. 286 | 1-800-465-0437 | Mobile: 289-716-5840
e.fitzpatrick@LSRCA.on.ca | www.LSRCA.on.ca

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From: Erica Mekli <Erica.Mekli@rjburnside.com>
Sent: April 29, 2022 12:07 PM
To: Melinda Bessey <M.Bessey@lsrca.on.ca>; Erin Fitzpatrick <E.Fitzpatrick@lsrca.on.ca>
Cc: Hannah Maciver <Hannah.Maciver@rjburnside.com>
Subject: RE: Salem Meeting Summary

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Hi Melinda and Erin,

I just wanted to update you that there have been further talks with Mattamy and they will be speaking with the City of Barrie regarding not having the Reid Drive extension go through the NHS and connecting into their subdivision. One thing I was hoping to understand from you was whether any encroachment into the NHS was allowable for SWM pond grading (the actual pond and maintenance road would not encroach). They are still working through a preliminary design and based on volumes they need the block provided in the SIS is not sufficient. The approximate/proposed area of encroachment they have provided me is 0.152 ha. This NHS area being encroached upon would still be outside of the 15m watercourse buffer (I believe these were created based on contours). I was looking at the Barrie OP and there was some verbiage regarding modifying the boundary of a Natural Heritage linkage if it does not negatively impact the overall Natural Heritage System.

Melinda, I know you mentioned you were on vacation next week (enjoy!), so Erin I was hoping you would be able to help me out with this question. Additionally, Mattamy is interested in having the top of bank staking done so they have a finalized line and setback to work with. Is this something we would be able to book with you?

Thanks in advance for your help on this!

Erica

Erica Mekli, B.A., ISA certified Arborist
Project Coordinator / Terrestrial Ecologist

R.J. Burnside & Associates Limited | www.rjburnside.com
Office: +1 800-265-9662 **Direct:** +1 226-486-1540

From: Erica Mekli
Sent: Monday, April 25, 2022 5:17 PM
To: Melinda Bessey <m.bessey@lsrca.on.ca>; e.fitzpatrick@lsrca.on.ca; eperry@nvca.on.ca; Hannah Maciver <Hannah.Maciver@rjburnside.com>
Subject: Salem Meeting Summary

Hello Melinda, Erin, and Emma,

Thank you for having the meeting this afternoon with Hannah and me. I have created a summary of my meeting notes and provided it below for everyone. If my notes have any discrepancies, please let me know.

- Meeting Notes:
- LSRCA will take the lead on review
 - Compensation agreement with County was up to 20 ha, anything above and beyond that would be the responsibility of the developer. Melinda suggested the County should start a tracking sheet to keep track of removals as it will be divided up.
 - The compensation agreement only applies to trees, if features like wetlands become impacted this is not included in the compensation agreement.
 - Butternut removal and compensation planting plan is not a part of the County compensation agreement as this is a separate process through the Province.
 - Everyone agreed that previous site investigations recorded no water in the watercourse- approval for no aquatic studies was given, unless we see something during a site visit that would indicate aquatic studies are needed.
 - Suggested that Mattamy contact Tiffany Thompson (City of Barrie) re: Reid Drive extension. This should be done as early in the process as possible.
 - TOR is comprehensive and we will carry forward with the field plan as is (unless otherwise noted in official CA comments)

- Action Items:
- BURNSIDE: provide copy of the conceptual SWM pond design
 - LSRCA/NVCA: provide official comment on the submitted TOR
 - LSRCA: will look into the SIS whether a buffer should be applied to the watercourse feature (top of bank) or if the NHS boundary should be used as the setback. Will also provide feedback on whether feature staking is required.

Thanks again! And look forward to hearing from you.

Erica Mekli



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Appendix D

Species at Risk Screening Results

Background Review of Potential Species at Risk and Species of Conservation Concern on the Subject Lands

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK ¹	Provincial SARO Status ²	COSEWIC ³	Federal SARA Status ³	Federal SARA Schedule ⁴	Habitat Description ⁵	Habitat Present on the Subject Lands?
Birds								
Bank Swallow (Source: OBBA & Azimuth 2020)	<i>Riparia riparia</i>	S4B	THR	THR	THR	1	Prefers open habitats including, farmland, lake/river shorelines, grasslands, and wetlands. Nests in exposed earthen banks along shorelines and in artificial sites such as gravel pits. ⁶	No. Suitable habitat not found on subject lands.
Barn Swallow (Source: OBBA)	<i>Hirundo rustica</i>	S4B	SC	THR	THR	1	Prefers farmland, lake/river shorelines, wooded clearings, urban populated areas, rocky cliffs, and wetlands. Nests inside or on exterior of buildings; under bridges and in road culverts; on rock faces, and in caves, etc. ⁷	No. Suitable habitat not found on subject lands.
Bobolink (Source: NHIC & OBBA)	<i>Dolichonyx oryzivorus</i>	S4B	THR	THR	THR	1	Generally prefers open grasslands and hay fields for nesting, typically featuring relatively tall vegetation. Sometimes uses large fields of winter wheat and rye in southwestern Ontario. Sensitive to vegetation structure and composition. Positively associated with high grass-to-forb ratios; moderate litter depth; tolerate wetter portions of fields compared to Eastern Meadowlark (EAME) and more likely to nest closer to field centres rather than field margins. Lower tolerance to presence of patches of bare ground. Appear to prefer larger fields than EAME. ⁸	No. Suitable habitat not found on subject lands.
Common Nighthawk (Source: OBBA)	<i>Chordeiles minor</i>	S4B	SC	SC	THR	1	Nests in open habitats, in forests and in urban areas. It prefers rock outcrops, alvars, sand barrens, bogs, fens, and in forests, openings created by clearcuts and burns. In southern Ontario, grasslands, agricultural fields, gravel pits, prairies, and alvars and at airports. In cities, it nests mostly on flat, graveled roofs but occasionally on railways and footpaths. ⁶	No. Suitable habitat not found on subject lands.
Eastern Meadowlark (Source: NHIC & OBBA)	<i>Sturnella magna</i>	S4B	THR	THR	THR	1	Generally prefers grassy pastures, meadows and hay fields. Prefers moderately tall grass with abundant litter cover, a high proportion of grass cover, moderate forb density, low proportions of shrub and woody vegetation cover, and low percent of bare ground. Prefers to nest in drier sites and frequently nests around field margins. ⁸	No. Suitable habitat not found on subject lands.
Eastern Wood-pewee (Source: OBBA)	<i>Contopus virens</i>	S4B	SC	SC	SC	1	Lives in the mid-canopy of forest clearing and edge of deciduous/mixed forests. Most abundant in intermediate-aged mature forest stands with minimal understory. ⁹	Confirmed. Eastern Wood-pewee recorded during 2022 breeding bird surveys.

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK ¹	Provincial SARO Status ²	COSEWIC ³	Federal SARA Status ³	Federal SARA Schedule ⁴	Habitat Description ⁵	Habitat Present on the Subject Lands?
Evening Grosbeak (Source: OBBA)	<i>Coccothraustes vespertinus</i>	S4B	SC	SC	SC	1	Prefers open, mature mixed wood forests, where fir species and/ or White Spruce are dominant, and Spruce Budworm is abundant. ⁷	No. Suitable habitat not found on subject lands.
Grasshopper Sparrow (Source: OBBA)	<i>Ammodramus savannarum</i>	S4B	SC	SC	SC	1	Prefers drier, sparsely vegetated grasslands, particularly rough or unimproved pastures with scattered forb and shrub growth, at least 30 ha in size. It will occasionally also use cultivated hayfields and cereal crops. ⁶	No. Suitable habitat not found on subject lands.
Olive-sided Flycatcher (Source: OBBA)	<i>Contopus cooperi</i>	S4B	SC	SC	THR	1	Most often found along natural forest edges and openings. It will use forests that have been logged or burned, if there are ample tall snags and trees to use for foraging perches. Breeding habitat usually consists of coniferous or mixed forest adjacent to rivers or wetlands. Commonly nest in conifers such as White and Black Spruce, Jack Pine, and Balsam Fir. ⁹	No. Suitable habitat not found on subject lands.
Wood Thrush (Source: NHIC & OBBA)	<i>Hylocichla mustelina</i>	S4B	SC	THR	THR	1	Inhabits and breeds in woodlands ranging from small (3 ha) and isolated to large and contiguous. The presence of tall trees and a thick understorey are usually prerequisites for site occupancy. ⁶	Confirmed. Wood Thrush recorded during 2022 breeding bird surveys.
Red-headed Woodpecker (Source: OBBA)	<i>Melanerpes erythrocephalus</i>	S3	END	END	END	1	Breeds in open woodland and woodland edges, especially oak savannah and riparian forest. Can also occur in parks, golf courses, cemeteries. An important habitat component is the existence of large, dead, weathered trees or live trees with large dead branches. ⁶	No. Suitable habitat not found on subject lands
Insects								
Monarch (Source: OBA)	<i>Danaus plexippus</i>	S2N, S4B	END	END	SC	1	Throughout their life cycle, Monarchs use three different types of habitat. Only the caterpillars (larvae) feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers. Monarchs spend the winter in Oyamel Fir forests found in central Mexico. The largest threat to Ontario Monarchs is habitat loss and fragmentation at overwintering sites in central Mexico where forests are being logged and converted into agricultural fields and pastures. Widespread pesticide and herbicide use throughout the Monarch's range may also limit recovery. ⁹	No. Suitable habitat not found on subject lands.

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK ¹	Provincial SARO Status ²	COSEWIC ³	Federal SARA Status ³	Federal SARA Schedule ⁴	Habitat Description ⁵	Habitat Present on the Subject Lands?
Mammals								
Eastern Small-footed Myotis	<i>Myotis leibii</i>	S2S3	END	-	-	-	Overwinter habitat: Caves and mines. Seem to choose colder and drier sites than similar bats. Maternal Roosts: Variety of habitats including rock outcrops, buildings, under bridges, caves, mines, or hollow trees. ^{12, 16}	Absent. Suitable habitat not present.
Little Brown Myotis (Source: Azimuth 2020)	<i>Myotis lucifugus</i>	S4	END	END	END	1	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Often associated with buildings (attics, barns etc.). Occasionally found in trees (25-44 cm dbh). ¹¹	Confirmed. Little Brown Myotis recorded during acoustic bat surveys in 2022.
Northern Myotis (Source: Azimuth 2020)	<i>Myotis septentrionalis</i>	S3	END	END	END	1	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Often associated with cavities of large diameter trees (25-44 cm dbh). Occasionally found in structures (attics, barns etc.) ¹¹	Confirmed. Northern Myotis recorded during acoustic bat surveys in 2022.
Tri-colored Bat (Source: Azimuth 2020)	<i>Perimyotis subflavus</i>	S3?	END	END	END	1	Overwintering habitat: Deepest parts of caves and mines where temperature is the least variable. Maternal Roosts: Less is known about roosts of Tri-colored Bats. Most roost sites found within forested habitats. May roost in clumps of dead foliage and lichens. In more anthropogenically modified landscapes, maternity roosts may be barns or similar human-made structures. ¹¹	Absent. Although habitat features are present, Tri-colored Bat were not detected after 10 days of acoustic surveys. This confirms that they are absent from the subject lands.
Plants								
Butternut (Source: Azimuth 2020)	<i>Juglans cinerea</i>	S2?	END	END	END	1	Butternut grows best in rich, moist and well-drained soils or limestone gravel sites. They are less commonly found in dry, rocky and sterile soils. They generally grow alone or in small groups in deciduous forests that are commonly comprised of Basswood, Black Cherry, Beed, Black Walnut, Elm, Hemlock, Hickory, Oak, Red Maple, Sugar Maple, Poplar, White Ash and Yellow Birch. In Ontario, they can be found throughout southern Ontario, south of the Canadian Shield. ⁹	Confirmed. Butternut trees confirmed present within the subject lands.

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK ¹	Provincial SARO Status ²	COSEWIC ³	Federal SARA Status ³	Federal SARA Schedule ⁴	Habitat Description ⁵	Habitat Present on the Subject Lands?
Reptiles and Amphibians								
Blanding’s Turtle	<i>Emydoidea blandingii</i>	S3	THR	END	END	1	Turtle of all ages occur primarily in shallow water habitats. Blanding’s Turtles have strong fidelity but may use several connect waterbodies. Females nest in a variety of substrates including sand, organic soil, gravel, cobblestone, and soil filled crevices of rock outcrops. Blanding’s Turtles overwinter in a variety of waterbodies that maintain pool averages of about 1 m in depth. ⁷	No. Suitable habitat not found on subject lands.
Midland Painted Turtle (Source: ORAA)	<i>Chrysemys picta marginata</i>	S4	NAR	SC	NAR	No schedule	Generally prefers waterbodies such as ponds, marshes, lakes and slow-moving creeks that have a soft bottom and provide abundant basking sites and aquatic vegetation. ¹⁰	No. Suitable habitat not found on subject lands.
Snapping Turtle (Source: ORAA)	<i>Chelydra serpentina</i>	S3	SC	SC	SC	1	Generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on 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. ⁹	No. Suitable habitat not found on subject lands.
Eastern Milksnake (Source: ORAA; iNaturalist)	<i>Lampropeltis triangulum</i>	S4	No status	SC	SC	1	Habitat generalist. Found in wide variety of habitats, from open woodlands, bogs, swamps, woodland edges, marshes, lakeshores, old fields, pastures, farmyards, parks, gardens. Often in or near farm outbuildings, barns, and sheds, and are attracted to piles of rocks, logs, firewood, or building materials, or any place that offers shelter to snakes and their prey (rodents). ¹⁰	Confirmed (iNaturalist; 2019). Suitable habitats present on subject lands (i.e., woodland, rock piles).
Western Chorus Frog Great Lakes - St. Lawrence - Canadian Shield population (Source: ORAA)	<i>Pseudacris maculata</i>	S4	No status	THR	THR	1	Breeds in almost any fishless pond with at least 10 cms of water, including quiet, shallow, usually temporary waterbodies with vegetation that is submerged or protrudes from the water, and especially in rain-flooded meadows and ditches, and in temporary ponds on floodplains. ¹⁰	No. Suitable habitat not found on subject lands.

** Sources: Natural Heritage Information Centre (NHIC) database of records searched on March 25, 2022 (2- 1x1 km2 Squares: 17PK0307 and 17PK0407); Ontario Breeding Bird Atlas (2001-2005) searched on March 25, 2022 (Squares 17Pk00); Ontario Reptile and Amphibian Atlas (ORAA) searched on March 25, 2022 (Squares 17PK00); Ontario Butterfly Atlas (OBA) searched on March 25, 2022 (Squares 17PK00); R.J. Burnside & Associates (Burnside) observations during ecological field surveys in 2022.

¹**S-Ranks (provincial)**
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S3 — Vulnerable - Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 — Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 — Secure - Common, widespread, and abundant in the province.

SNR — Unranked - Province conservation status not yet assessed.

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SNA — Not Applicable - A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

S#S# — Range Rank - A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

S#? – Inexact or Uncertain - Denotes inexact or uncertain numeric rank.

Breeding Status Qualifiers

B – Breeding Conservation status refers to the breeding population of the species in the nation or state/province.
N – Nonbreeding Conservation status refers to the non-breeding population of the species in the province.
M – Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.

²**SARO Endangered Species Act, 2007**
(provincial status from <http://www.ontario.ca/environment-and-energy/how-species-risk-are-listed#section-3>)
The provincial review process is implemented by the MNRF's Committee on the Status of Species at Risk in Ontario (COSSARO).

Extinct - A species that no longer exists anywhere.
Extirpated (EXT) - Lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.
Endangered (END) - Lives in the wild in Ontario but is facing imminent extinction or extirpation.
Threatened (THR) - Lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.
Special concern (SC) - Lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.
Not at Risk (NAR) - A species that has been evaluated and found to be not at risk.
Data Deficient (DD) - A species for which there is insufficient information for a provincial status recommendation.

³**SARA (Federal Species at Risk Act) Status and Schedule (includes COSEWIC Status)**
The Act establishes Schedule 1, as the official list of wildlife species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or Special Concern. Once listed, the measures to protect and recover a listed wildlife species are implemented.

Extinct - A wildlife species that no longer exists.
Extirpated (EXT) - A wildlife species that no longer exists in the wild in Canada but exists elsewhere.
Endangered (END) - A wildlife species facing imminent extirpation or extinction.
Threatened (THR) - A wildlife species that is likely to become an endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
Special Concern (SC) - A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.
Data Deficient (DD) - A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.
Not At Risk (NAR) - A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.

⁴**SARA Schedule**
Schedule 1: is the official list of species that are classified as extirpated, endangered, threatened, and of special concern.
Schedule 2: species listed in Schedule 2 are species that had been designated as endangered or threatened and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Schedule 3: species listed in Schedule 3 are species that had been designated as special concern and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

The Act establishes Schedule 1 as the official list of wildlife species at risk. However, please note that while Schedule 1 lists species that are extirpated, endangered, threatened and of special concern, the prohibitions do not apply to species of special concern.

Species that were designated at risk by COSEWIC prior to October 1999 (Schedule 2 & 3) must be reassessed using revised criteria before they can be considered for addition to Schedule 1 of SARA. After they have been assessed, the Governor in Council may on the recommendation of the Minister, decide on whether or not they should be added to the List of Wildlife Species at Risk.

⁵**Sources:**
⁶Cadman, M.D., et al. (eds). 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706 pp
⁷Species at Risk Public Registry <http://www.sararegistry.gc.ca>
⁸McCracken, J.D. et al. 2013. Recovery Strategy for the Bobolink (*Dolichonyx oryzivorus*) and Eastern Meadowlark (*Sturnella magna*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario, viii + 88 pp.
⁹MNRF SARO List Species Descriptions (http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/MNR_SAR_CSSR_SARO_LST_EN.html)
¹⁰Ontario Nature Reptile and Amphibian Atlas (<https://ontarionature.org/programs/citizen-science/reptile-amphibian-atlas/species/>)
¹¹Environment Canada. 2015. Recovery Strategy for Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. ix + 110 pp.
¹²Humphrey, C. 2017. Recovery Strategy for the Eastern Small-footed Myotis (*Myotis leibii*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 76 pp.
¹⁶ Government of Ontario. Species at risk registry. <https://www.ontario.ca/page/species-risk>



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Appendix E

Plant List

SCIENTIFIC_NAME	ENGLISH_COMMON_NAME	S_RANK	SARO_STATUS	COSEWIC_STAT	SARA_STATUS	Native?	OWES Wetland Plant List	Simcoe (Riley et al. 1989) ⁷	Lake Simcoe Watershed (State of the Watershed 2003)	INSERT UNIT COLUMNS HERE
Equisetum arvense	Field Horsetail	S5				N	S	X		x
Equisetum hyemale	Common Scouring-rush	S5				N	S	X		x
Athyrium filix-femina var. angustum	Northeastern Lady Fern	S5				N		X		x
Dryopteris carthusiana	Spinulose Wood Fern	S5				N	S	X		x
Dryopteris intermedia	Evergreen Wood Fern	S5				N		X		x
Gymnocarpium dryopteris	Common Oak Fern	S5				N	S	X		x
Onoclea sensibilis	Sensitive Fern	S5				N	I	X		x
Parathelypteris noveboracensis	New York Fern	S4S5				N		X	W	x
Abies balsamea	Balsam Fir	S5				N	S	X		x
Picea abies	Norway Spruce	SNA				I			+	x
Picea glauca	White Spruce	S5				N	S	X		x
Pinus resinosa	Red Pine	S5				N		X	W	x
Pinus strobus	Eastern White Pine	S5				N	S	X		x
Thuja occidentalis	Eastern White Cedar	S5				N	S	X		x
Rubus idaeus	Red Raspberry	S5				N				x
Carex pensylvanica	Pennsylvania Sedge	S5				N		X		x
Arisaema triphyllum	Jack-in-the-pulpit	S5				N	S	X		x
Clintonia borealis	Yellow Clintonia	S5				N	S	X		x
Erythronium americanum	Yellow Trout-lily	S5				N		X		x
Maianthemum racemosum	Large False Solomon's Seal	S5				N		X		x
Trillium erectum	Red Trillium	S5				N		X		x
Juglans cinerea	Butternut	S2?	END	END	END	N		X		x
Betula papyrifera	Paper Birch	S5				N	S	X		x
Carpinus caroliniana	Blue-beech	S5				N	S	X		x
Fagus grandifolia	American Beech	S4				N		X		x
Quercus rubra	Northern Red Oak	S5				N		X		x
Silene vulgaris	Bladder Campion	SNA				I		X	+	x
Actaea pachypoda	White Baneberry	S5				N		X		x
Anemone virginiana	Tall Anemone	S5				N		X		x
Clematis virginiana	Virginia Clematis	S5				N	S	X		x
Podophyllum peltatum	May-apple	S5				N		X		x
Caulophyllum thalictroides	Blue Cohosh	S5				N				x
Alliaria petiolata	Garlic Mustard	SNA				I		X	+	x
Hylodesmum glutinosum	Large Tick-trefoil	S4				N		X		x
Oxalis stricta	Upright Yellow Wood-sorrel	SNA				I		X	+	x
Geranium robertianum	Herb-Robert	S5				N		X	+	x
Toxicodendron radicans	Poison Ivy	S5				N		X		x
Rhus typhina	Staghorn Sumac	S5				N		X		x
Acer saccharum	Sugar Maple	S5				N		X		x
Impatiens capensis	Spotted Jewelweed	S5				N	I	X		x
Rhamnus cathartica	European Buckthorn	SNA				I	S	X	+	x

<i>Tilia americana</i>	Basswood	S5	N		X		x
<i>Circaea canadensis</i>	Broad-leaved Enchanter's Nightshade	S5	N		X		x
<i>Aralia nudicaulis</i>	Wild Sarsaparilla	S5	N		X		x
<i>Cornus sericea</i>	Red-osier Dogwood	S5	N		X		x
<i>Pyrola elliptica</i>	Shinleaf	S5	N		X		x
<i>Fraxinus pennsylvanica</i>	Red Ash	S4	N	S	X		x
<i>Prunella vulgaris</i>	Common Self-heal	S5	N				x
<i>Mitchella repens</i>	Partridgeberry	S5	N		X		x
<i>Viburnum acerifolium</i>	Maple-leaved Viburnum	S5	N		X		x
<i>Arctium minus</i>	Common Burdock	SNA	I		X	+	x
<i>Leucanthemum vulgare</i>	Oxeye Daisy	SNA	I		X	+	x
<i>Mycelis muralis</i>	Wall Lettuce	SNA	I		X		x
<i>Solidago canadensis</i>	Canada Goldenrod	S5	N				x
<i>Taraxacum officinale</i>	Common Dandelion	SNA	I		X	+	x
<i>Tussilago farfara</i>	Coltsfoot	SNA	I	S	X	+	x
<i>Parthenocissus vitacea</i>	Thicket Creeper	S5	N		X		x
<i>Maianthemum canadense</i> ssp. <i>canadense</i>	Wild Lily-of-the-valley	S5	N		X		x
<i>Actaea rubra</i> ssp. <i>rubra</i>	Red Baneberry	S5	N		X		x
<i>Clinopodium vulgare</i> ssp. <i>vulgare</i>	Wild Basil	S5	N				x



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Appendix F

Breeding Bird Summary

Breeding Bird Survey Summary Table 2022

Common Name	Scientific Name	Provincial SRANK ¹	Provincial SARO (Endangered Species Act, 2007) ²	Federal COSEWIC ³	Federal SARA (Species At Risk Act) ³	Federal SARA Schedule ⁴	Provincial MNRF Area Sensitive Species ⁵	Highest Number Recorded (All Habitat Units Combined)	Subject Lands	Adjacent Lands	Highest Recorded Breeding Evidence (All Habitat Units Combined) ⁶
American Crow	<i>Corvus brachyrhynchos</i>	S5						1		X	OBS, X
American Goldfinch	<i>Spinus tristis</i>	S5						1		X	PROB, T
American Robin	<i>Turdus migratorius</i>	S5						1		X	POSS, S
Baltimore Oriole	<i>Icterus galbula</i>	S4B						1		X	POSS, S
Black-capped Chickadee	<i>Poecile atricapillus</i>	S5						1		X	POSS, S
Black-throated Green Warbler	<i>Setophaga virens</i>	S5B					Yes	3	X (Area of Impact)	X	POSS, S
Blue Jay	<i>Cyanocitta cristata</i>	S5						5	X (Outside Area of Impact)	X	POSS, S
Brown Creeper	<i>Certhia americana</i>	S5					Yes	2	X (Area of Impact)	X	POSS, S
Brown-headed Cowbird	<i>Molothrus ater</i>	S5						1		X	POSS, S
Chipping Sparrow	<i>Spizella passerina</i>	S5B, S3N						1		X	POSS, S
Common Yellowthroat	<i>Geothlypis trichas</i>	S5B, S3N						1	X (Outside Area of Impact)		POSS, S
Eastern Phoebe	<i>Sayornis phoebe</i>	S5B						1		X	POSS, H
Eastern Wood-pewee	<i>Contopus virens</i>	S4B	SC	SC	SC	1		5	X (Outside Area of Impact)	X	PROB, T
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	S5B						2		X	POSS, S
Hairy Woodpecker	<i>Picoides villosus</i>	S5						1		X	POSS, H
Hermit Thrush	<i>Catharus guttatus</i>	S5B, S4N						1		X	POSS, H
House Wren	<i>Troglodytes aedon</i>	S5B						1		X	PROB, T
Indigo Bunting	<i>Passerina cyanea</i>	S5B						3		X	PROB, T
Least Flycatcher	<i>Empidonax minimus</i>	S5B					Yes	1		X	POSS, S

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Northern Cardinal	<i>Cardinalis cardinalis</i>	S5						1		X	POSS, H
Northern Flicker	<i>Colaptes auratus</i>	S5						1	X (Outside Area of Impact)		POSS, S
Northern Waterthrush	<i>Parkesia noveboracensis</i>	S5B						1		X	POSS, S
Ovenbird	<i>Seiurus aurocapilla</i>	S5B					Yes	6	X (Outside Area of Impact)	X	PROB, T
Pileated Woodpecker	<i>Dryocopus pileatus</i>	S5					Yes	1		X	POSS, S
Pine Siskin	<i>Spinus pinus</i>	S5						1		X	POSS, H
Pine Warbler	<i>Setophaga pinus</i>	S5B, S3N					Yes	4	X (Area of Impact)	X	PROB, T
Purple Finch	<i>Haemorhous purpureus</i>	S5						1		X	POSS, S
Red-breasted Nuthatch	<i>Sitta canadensis</i>	S5					Yes	3	X (Area of Impact)	X	PROB, T
Red-eyed Vireo	<i>Vireo olivaceus</i>	S5B						5		X	PROB, T
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	S5						1		X	POSS, H
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	S5B						1		X	POSS, S
Song Sparrow	<i>Melospiza melodia</i>	S5						1		X	POSS, S
Vesper Sparrow	<i>Pooecetes gramineus</i>	S4B						1		X	POSS, S
White-breasted Nuthatch	<i>Sitta carolinensis</i>	S5						1		X	POSS, H
White-throated Sparrow	<i>Zonotrichia albicollis</i>	S5						1		X	POSS, H
Wild Turkey	<i>Melegris gallopavo</i>	S5						10		X	POSS, H
Winter Wren	<i>Troglodytes hiemalis</i>	S5B, S4N					Yes	1		X	POSS, S

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Wood Thrush	<i>Hylocichla mustelina</i>	S4B	SC	THR	THR	1		2		X	POSS, S
TOTAL SPECIES	38										

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S3 — Vulnerable - Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 — Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 — Secure - Common, widespread, and abundant in the province.

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SNA — Not Applicable - A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

S#S# — Range Rank - A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

S#? – Inexact or Uncertain - Denotes inexact or uncertain numeric rank.

Breeding Status Qualifiers

B – Breeding Conservation status refers to the breeding population of the species in the nation or state/province.

N – Nonbreeding Conservation status refers to the non-breeding population of the species in the province.

M – Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.

²**SARO Endangered Species Act, 2007**

(provincial status from <http://www.ontario.ca/environment-and-energy/how-species-risk-are-listed#section-3>)

The provincial review process is implemented by the MNRF's Committee on the Status of Species at Risk in Ontario (COSSARO).

Extinct - A species that no longer exists anywhere.

Extirpated (EXT) - Lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.

Endangered (END) - Lives in the wild in Ontario but is facing imminent extinction or extirpation.

Threatened (THR) - Lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.

Special concern (SC) - Lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.

Not at Risk (NAR) - A species that has been evaluated and found to be not at risk.

Data Deficient (DD) - A species for which there is insufficient information for a provincial status recommendation.

³**SARA (Federal Species at Risk Act) Status and Schedule (includes COSEWIC Status)**

The Act establishes Schedule 1, as the official list of wildlife species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or Special Concern. Once listed, the measures to protect and recover a listed wildlife species are implemented.

Extinct - A wildlife species that no longer exists.

Extirpated (EXT) - A wildlife species that no longer exists in the wild in Canada but exists elsewhere.

Endangered (END) - A wildlife species facing imminent extirpation or extinction.

Threatened (THR) - A wildlife species that is likely to become an endangered if nothing is done to reverse the factors leading to its extirpation or extinction.

Special Concern (SC) - A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

Data Deficient (DD) - A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.

Not At Risk (NAR) - A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.

⁴**SARA Schedule**

Schedule 1: is the official list of species that are classified as extirpated, endangered, threatened, and of special concern.

Schedule 2: species listed in Schedule 2 are species that had been designated as endangered or threatened and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

Schedule 3: species listed in Schedule 3 are species that had been designated as special concern and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

The Act establishes Schedule 1 as the official list of wildlife species at risk. However, please note that while Schedule 1 lists species that are extirpated, endangered, threatened and of special concern, the prohibitions do not apply to species of special concern.

Species that were designated at risk by COSEWIC prior to October 1999 (Schedule 2 & 3) must be reassessed using revised criteria before they can be considered for addition to Schedule 1 of SARA. After they have been assessed, the Governor in Council may on the recommendation of the Minister, decide on whether or not they should be added to the List of Wildlife Species at Risk.

⁵Source: Ontario Ministry of Natural Resources. 2000. *Significant Wildlife Habitat Technical Guide & Appendices*.

6Ontario Breeding Bird Atlas - Breeding Evidence Codes

Observed	
X	Species observed during its breeding season, but NOT in suitable nesting habitat (no breeding evidence found). Note that this code is rarely used as birds tend to occupy nesting habitat during the breeding season. Do not use for species known to be migrants.

Possible	
H	Species observed in suitable nesting Habitat during its breeding season.
S	Singing male or adult producing other sounds associated with breeding (e.g., calls or drumming) in suitable nesting habitat during the species' breeding season.

Probable	
M	Multiple singing/calling/drumming individuals (7 or more) heard during one visit to a single square and in suitable nesting habitat during the species' breeding season. Use with caution to avoid counting migrants.
P	Pair observed in suitable nesting habitat during the species' breeding season.
T	Presumed Territory based on the presence of an adult bird (usually singing, but not necessarily so), in the same suitable nesting habitat patch on at least two visits, one week or more apart, during the species' breeding season. Use discretion when using this code. "T" is not to be used for colonial birds, or species that might forage or loaf a long distance from their nesting site (e.g., Turkey Vulture, and male waterfowl).
D	Courtship or displays involving a male and female (e.g., courtship feeding, copulation) or antagonistic behavior between two or more individuals (e.g., territorial disputes or chases), in suitable nesting habitat during the species' breeding season.
V	Bird Visiting a probable nest site in suitable nesting habitat during the species' breeding season.
A	Agitated behavior or alarm calls of an adult in suitable nesting habitat during the species' breeding season.
B	Brood patch or cloacal protuberance on an adult in suitable nesting habitat during the species' breeding season.
N	Nest-building by wrens or nest hole excavation by woodpeckers (both may build dummy or roosting nests, so nest-building alone is not enough to confirm breeding).

Confirmed	
NB	Nest building, including the carrying of nesting material, by all species except wrens and woodpeckers.
DD	Distraction Display, injury-feigning, or other displays attempting to draw attention away from a nest or young.
NU	Empty Nest Used or identifiable eggshells from earlier in the same nesting season.
FY	Recently Fledged Young (nidicolous species – whose young are raised in a nest) or downy young (nidifugous species – whose young leave the nest soon after hatching) incapable of sustained flight.
AE	Adult Entering, occupying, or leaving a nest site (visible or not) or whose behavior suggests the presence of an occupied nest.
FS	Adult carrying a Faecal Sac.
CF	Adult carrying food for young.
NE	Nest containing eggs.
NY	Nest with young (seen or heard).



BURNSIDE

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Appendix G

Significant Wildlife Habitat Screening

Significant Wildlife Habitat Screening – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
Table 1.1: Seasonal Concentration Areas of Animals					
Waterfowl Stopover & Staging Areas (Terrestrial) Rationale: Habitat important to migrating waterfowl.	CUM1 CUT1 - Plus evidence of annual spring flooding from melt water or run-off within these ecosites.	Fields with sheet water during Spring (mid-March to May). - Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. - Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects.” - Any mixed species aggregations of 100 or more individuals required. - The flooded field ecosite habitat plus a 100-300 m radius area, dependent on local site conditions and adjacent land use is the SWH. - Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). SWHMiST Index #7 provides development effects and mitigation measures.	No potential on the the subject lands or adjacent lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present.
Waterfowl Stopover & Staging Areas (Aquatic) Rationale: Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	- Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and SWM ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. - These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water).	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck	Studies carried out & verified presence of: - Aggregations of 100 or more of listed species for 7 days, results in >700 waterfowl use days. - Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH. - The combined area of the Ecological Land Classification (ELC) ecosites and a 100 m radius area is the SWH. - Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are SWH. - Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. - Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). SWHMiST Index #7 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
			Red-breasted Merganser Brant Canvasback Ruddy Duck		
Shorebird Migratory Stopover Area Rationale: High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	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, are extremely important for migratory shorebirds in May to mid-June and early July to October. - Sewage treatment ponds and storm water ponds do not qualify as a SWH.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	Studies confirming: - Presence of 3 or more of listed species and >1000 shorebird use days during spring or fall migration period (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period). - Whimbrel stop briefly (<24 hrs.) 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 100 m radius area. - Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. SWHMiST Index #8 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present.
Raptor Wintering Area Rationale: Sites used by multiple species, a high number of individuals and used annually are most significant.	<u>Hawks/Owls:</u> Combination of ELC Community Series; need to have present one Community Series from each land class; <u>Forest:</u> FOD, FOM, FOC.	- The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. - Raptor wintering sites (hawk/owl) need to be > 20 ha, with a combination of forest and upland. - 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, large trees and snags available for roosting.	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl Special Concern: Short-eared Owl Bald Eagle	Studies confirm the use of these habitats by: - One or more Short-eared Owls or; One or more Bald Eagle or; 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. - The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. - Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects.”	Moderate potential on the subject lands and adjacent lands. The combination of field and woodland habitats are present that may attract wintering raptors, however the adjacent fields are intensively farmed. Red-tailed hawk is the only raptor species that was recorded during field investigations (adjacent lands); a search of eBird and iNaturalist records did not reveal any other raptor species in this area.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
	<u>Upland:</u> CUM; CUT; CUS; CUW. <u>Bald Eagle:</u> Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).			• SWHMiST Index #10 and #11 provides development effects and mitigation measures.	
Bat Hibernacula Rationale: Bat hibernacula are rare habitats in all Ontario landscapes.	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	• Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. • Active mine sites should not be considered as SWH. • The locations of bat hibernacula are relatively poorly known.	Big Brown Bat Tri-coloured Bat	• All sites with confirmed hibernating bats are SWH. • The habitat area includes a 200 m radius around the entrance of the hibernaculum for most development types and 1000 m for wind farms. • Studies are to be conducted during the peak swarming period (August to September). Surveys should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #1 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present.
Bat Maternity Colonies Rationale: Known locations of forested bat	Maternity colonies considered SWH are found in forested ecosites.	• Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario.	Big Brown Bat Silver-haired Bat	• Maternity Colonies with confirmed use by: – >10 Big Brown Bats – >5 Adult Female Silver- haired Bats	No potential within Area of Impact. The area of impact is predominantly FOCM6-2 (Red Pine Naturalized Coniferous Plantation) with some FOCM6 (Naturalized Coniferous Plantation), FOCM4 (White Cedar Coniferous Forest) and Hedgerow. None of

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
maternity colonies are extremely rare in all Ontario landscapes.	All ELC ecosites in ELC Community Series: FOD FOM SWD SWM	- Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25 cm dbh) wildlife trees. - Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2. - Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred.		- The area of the habitat includes the entire woodland, or a forest stand ELC ecosite or an ecoelement containing the maternity colonies. - Evaluation methods for maternity colonies should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”. - SWHMiST Index #12 provides development effects and mitigation measures.	the ecosites within the area of impact are deciduous or mixed forest, and do not meet the habitat criteria. High potential on subject lands and adjacent lands. FODM5-8 (Sugar Maple – White Ash Deciduoud Forest) is present on the subject lands and on adjacent lands. Although targeted leaf-off surveys were not conducted outside the area of impact, this mature deciduous forest likely contains >10 snags per ha. The acoustic surveys detected Big Brown Bat, confirming presence of this species on the subject lands and adjacent lands.
Turtle Wintering Areas Rationale: Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Snapping and Midland Painted Turtles. ELC Community Classes: SW, MA, OA and SA ELC Community Series: FEO and BOO For Northern Map Turtle: Open water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	- For most turtles, wintering areas are in the same general area as their core habitat. Water must be deep enough not to freeze and have soft mud substrates. - Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. - Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH.	Midland Painted Turtle Special Concern: Northern Map Turtle Snapping Turtle	- Presence of 5 over-wintering Midland Painted Turtles is significant. - One or more Northern Map Turtle or Snapping Turtle over-wintering 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 deep-water pool where the turtles are over wintering is the SWH. - Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (September–October) or spring (March–May). - Congregation of turtles is more common where wintering areas are limited and therefore significant. SWHMiST Index #28 provides development effects and mitigation measures for turtle wintering habitat.	No potential on the subject lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present. Moderate potential on adjacent lands. Based on aerial photography and background reports, there is an open-water wetland (marsh) feature over 600 m north-west of the subject lands; it is well beyond any potential area of indirect impact.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
Reptile Hibernaculum Rationale: Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and ecosites: FOC1 and FOC3.	- For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. - Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. - Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock groundcover. - Five-lined Skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures.	Snakes: Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake Special_Concern: Milksnake Eastern Ribbonsnake Lizard: Special Concern: (Southern Shield population): Five-lined Skink	Studies confirming: - 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 (e.g., foundation or rocky slope) on sunny warm days in Spring (April/May) and Fall (September/October). Note: If there are Special Concern Species present, then site is SWH. Note: Sites for hibernation possess specific habitat parameters (e.g., temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population (i.e., strong hibernation site fidelity). Other critical life processes (e.g., mating) often take place near hibernacula. The feature in which the hibernacula is located plus a 30 m radius area is the SWH. SWHMiST Index #13 provides development effects and mitigation measures for snake hibernacula. - Presence of any active hibernaculum for Skink is significant. - SWHMiST Index #37 provides development effects and mitigation measures for five-lined Skink wintering habitat.	High Potential on the subject lands and adjacent lands. The habitat criteria for Significant Wildlife Habitat is present. Rock piles on the subject lands and an old stone fence on the adjacent lands were inventoried during surveys for rock features conducted on September 6 and November 8 2022. One Eastern Gartersnake was observed incidentally on May 4, 2022 during field investigations. Three additional observations of Eastern Gartersnake were recorded on the same day on June 17, 2022 outside the window for hibernation. One Eastern Milksnake was recorded on July 25, 2019 outside the window for hibernation along the eastern boundary of the subject lands near Veterans Drive (retrieved from iNaturalist records).
Colonially - Nesting Bird Breeding Habitat (Bank & Cliff) Rationale: Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles. Cliff faces, bridge abutments, silos, barns. Habitat found in the following ecosites: CUM1 CUT1 CUS1	- 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 (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. - Does not include a licensed/permitted Mineral Aggregate Operation.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Studies confirming: - 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 50 m radius habitat area from the peripheral nests. - Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. SWHMiST Index #4 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
swallow population are declining in Ontario.	BLO1 BLS1 BLT1 CLO1 CLS1 CLT1				
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs) Rationale: Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	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.	Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	Studies confirming: - Presence of 2 or more active nests of Great Blue Heron or other listed species. - The habitat extends from the edge of the colony and a minimum 300 m radius or extent of the Forest ecosite containing the colony or any island <15.0 ha 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. SWHMiST Index #5 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present on the subject lands. Black-crowned Night-Heron and Great Egret are only known from specific sites in southern Ontario and are not known to nest in this geographic location; additionally, no breeding records have been identified either through Burnside’s field investigations or background natural heritage reports and/or databases (i.e., eBird / iNaturalist). No breeding records for Great Blue Heron and Green Heron species have been identified either through Burnside’s field investigations or background natural heritage reports and/or databases (i.e., eBird / iNaturalist).
Colonially - Nesting Bird Breeding Habitat (Ground) Rationale; Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	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 of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. - Brewers Blackbird colonies are found loosely on the ground in low bushes in close proximity to streams and irrigation ditches within farmlands.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer’s Blackbird	Studies confirming: - 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. - 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 150 m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0 ha with a colony is the SWH. - Studies would be done during May/June when actively nesting. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.	No potential on the subject lands or adjacent lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present. These species are not known to nest in this geographic location; additionally, no breeding records for these species have been identified either through Burnside’s field investigations or background natural heritage reports and/or databases (i.e., eBird / iNaturalist).

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
	MAM1 – 6 MAS1 – 3 CUM CUT CUS			SWHMiST Index #6 provides development effects and mitigation measures.	
Migratory Butterfly Stopover Areas Rationale: Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Combination of ELC Community Series; need to have present one Community Series from each land class. <u>Field:</u> CUM CUT CUS <u>Forest:</u> FOC FOD FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	- A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present and will be located within 5 km of Lake Erie or Ontario. - The habitat is typically a combination of field and forest and provides the butterflies with a location to rest prior to their long migration south. - The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. - Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes.	Painted Lady Red Admiral <u>Special Concern</u> Monarch	Studies confirm: - The presence of Monarch Use Days (MUD) during fall migration (August/October). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur. - 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 is to be considered significant. SWHMiST Index #16 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The subject lands are greater than 5 km from Lake Ontario.
Landbird Migratory Stopover Areas Rationale: Sites with a high diversity of species as well as high numbers	All ecosites associated with these ELC Community Series: FOC FOM FOD SWC	- Woodlots >10 ha in size and within 5 km of Lake Ontario. - If woodlands are rare in an area of shoreline, woodland fragments 2-5 ha can be considered for this habitat. - If multiple woodlands are located along the shoreline those Woodlands <2 km from Lake Ontario are more significant. - Sites have a variety of habitats; forest, grassland and wetland complexes.	All migratory songbirds. Canadian Wildlife Service Ontario website: http://www.ec.gc.ca/nature/default.asp?lang=En&n=421B7A9D-1 All migrant raptors species:	Studies confirm: - 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. This abundance and diversity of migrant bird species is considered above average and significant. - Studies should be completed during spring (April/May) and fall (August/October) migration using standardized assessment techniques. Evaluation	No potential on the subject lands or adjacent lands. The subject lands are greater than 5 km from Lake Ontario.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
are most significant.	SWM SWD	- The largest sites are more significant. - Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5 km of Lake Ontario are Candidate SWH.	<i>Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)</i>	methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. SWHMiST Index #9 provides development effects and mitigation measures.	
Deer Yarding Areas <u>Rationale:</u> Winter habitat for deer is considered to be the main limiting factor for northern deer populations. In winter, deer congregate in “yards” to survive severe winter conditions. Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an areas summer range.	Note: MNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include: FOM FOC SWM SWC Or these ELC ecosites: CUP2 CUP3 FOD3 CUT	- Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. - The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. - MNRF 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.	White-tailed Deer	No Studies Required: - Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40 cm 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 MNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by MNRF will be available at local MNRF offices or via Land Information Ontario (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 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. - SWHMiST Index #2 provides development effects and mitigation measures.	Assessed as not being present on the subject lands despite MNRF mapping; may be present on adjacent lands east of Veterans Drive. Deer yarding areas were identified by the MNRF (Land Information Ontario open data, 2004). It is classified as Stratum II (winter staging area). See discussion in Section Error! Reference source not found. of the report.
Deer Winter Congregation Areas <u>Rationale:</u> Deer movement during winter in the southern areas of Ecoregion 6E	All Forested ecosites with these ELC Community Series: FOC FOM FOD SWC	- Woodlots will typically be >100 ha in size. Woodlots <100 ha may be considered as significant based on MNRF studies or assessment. - Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands. - If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule.	White-tailed Deer	Studies confirm: - Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF. - Use of the woodlot by white- tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF.	No potential on the subject lands or adjacent lands. No deer winter congregation areas mapped by MNRF.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.	SWM SWD Conifer plantations much smaller than 50 ha may also be used.	- Large woodlots > 100 ha 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.		- Studies should be completed during winter (January/February) when >20 cm of snow is on the ground using aerial survey techniques, ground or road surveys. or a pellet count deer density survey. - 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. SWHMiST Index #2 provides development effects and mitigation measures.	
Table 1.2.1: Rare Vegetation Communities					
Cliffs and Talus Slopes Rationale: Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC ecosite within Community Series: TAO CLO TAS CLS TAT CLT	- A Cliff is vertical to near vertical bedrock >3 m in height. - A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris.		- Most cliff and talus slopes occur along the Niagara Escarpment. - Confirm any ELC Vegetation Type for Cliffs or Talus Slopes. SWHMiST Index #21 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present.
Sand Barren Rationale; Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry.	ELC ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.	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%.		- A sand barren area >0.5 ha in size. - Confirm any ELC Vegetation Type for Sand Barrens. - Site must not be dominated by exotic or introduced species (<50% vegetative cover is exotic sp.). SWHMiST Index #20 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
Alvar Rationale; Alvars are extremely rare habitats in Ecoregion 6E.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 Five Alvar Indicator Species: <i>Carex crawei</i> <i>Panicum philadelphicum</i> <i>Eleocharis compressa</i> <i>Scutellaria parvula</i> <i>Trichostema brachiatum</i> These indicator species are very specific to Alvars within Ecoregion 6E.	- An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover. - Alvar is particularly rare in Ecoregion 6E where the only known sites are found in the western islands of Lake Erie.		Field studies that identify: - An Alvar site > 0.5 ha in size. - 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 is exotic sp.). - The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses. SWHMiST Index #17 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present.
Old Growth Forest Rationale; Due to historic logging practices and land clearance for agriculture, old growth forest is rare in the Ecoregion 6E.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.		Field Studies will determine: - If dominant trees species are >140 years old, then the area containing these trees is SWH. - The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present). - The area of forest ecosites combined or an eco-element within an ecosite that contains the old growth characteristics is the SWH. - Determine ELC vegetation types for the forest area containing the old growth characteristics.	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
				• SWHMiST Index #23 provides development effects and mitigation measures.	
Savannah Rationale: Savannahs are extremely rare habitats in Ontario.	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25–60%.		Field studies confirm: • 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. • One or more of the Savannah indicator species listed in Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used. • Area of the ELC ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover is exotic sp.). • SWHMiST Index #18 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present.
Tallgrass Prairie Rationale: Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	• No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway Right of Ways (ROW) are not considered to be SWH. • A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover.		Field studies confirm: • One or more of the Prairie indicator species listed in Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 6E should be used. • Area of the ELC ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover is exotic sp.). • SWHMiST Index #19 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present.
Other Rare Vegetation Communities Rationale: Plant communities that often contain rare species which depend on the habitat for survival.	• Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG. • Any ELC ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.		• ELC ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in Appendix M. • The MNRF/Natural Heritage Information Centre (NHIC) will have up to date listing for rare vegetation communities. Field studies should confirm: • If an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. • Area of the ELC Vegetation Type polygon is the SWH.	No potential on the subject lands and adjacent lands. No rare vegetation communities were identified during ELC field surveys or other field investigations completed in 2022. Background reports do not state any rare vegetation communities within the subject lands or adjacent lands.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
	Candidate SWH.			SWHMiST Index #37 provides development effects and mitigation measures.	
Table 1.2.2: Specialized Habitats for Wildlife considered Significant Wildlife Habitat					
Waterfowl Nesting Area Rationale; Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	All upland habitats located adjacent to these wetland ELC ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 Note: includes adjacency to Provincially Significant Wetlands (PSW).	- 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 120 m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. - Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. - Wood Ducks and Hooded Mergansers utilize large diameter trees (>40 cm dbh) in woodlands for cavity nest sites.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	Studies confirmed: - Presence of 3 or more nesting pairs for listed species excluding Mallards, or; - Presence of 10 or more nesting pairs for 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). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. - 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. SWHMiST Index #25 provides development effects and mitigation measures.	No potential on the subject lands. The ecosite codes are not present and the habitat criteria for Significant Wildlife Habitat is not present. Moderate potential on adjacent lands for Mallard, Hooded Merganser, and Wood Duck. Based on aerial photography and background reports, there is an open-water wetland (marsh) feature surrounded by upland forest habitat over 600 m north-west of the subject lands; it is well beyond any potential area of indirect impact.
Bald Eagle & Osprey Nesting, Foraging & Perching Habitat Rationale; Nest sites are fairly uncommon in Eco-region 6E and are used annually by these species. Many suitable nesting locations may be lost due	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. - Osprey nests are usually at the top of a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. - Nests located on man-made objects are not to be included as SWH (e.g., telephone poles and constructed nesting platforms).	Osprey Special Concern Bald Eagle	Studies confirm the use of these nests by: - 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. - For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is important. - For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800 m is dependent on-site lines from the nest to the development and inclusion of perching and foraging habitat.	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present. Bald Eagle or Osprey were not recorded during any breeding bird or raptor surveys in 2022; no breeding records from background reports/databases.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
to increasing shoreline development pressures and scarcity of habitat.				- 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 mid-March to mid-August. - Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. SWHMiST Index #26 provides development effects and mitigation measures.	
Woodland Raptor Nesting Habitat Rationale: Nests sites for these species are rarely identified; these are area sensitive habitats and are often used annually by these species.	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 >30 ha with >10ha of interior habitat. Interior habitat determined with a 200 m 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.	Northern Goshawk Cooper’s Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	Studies confirm: - Presence of 1 or more active nests from species list is considered significant. - Red-shouldered Hawk and Northern Goshawk – A 400 m 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 200 m radius around the nest is the SWH. - Broad-winged Hawk and Coopers Hawk– A 100 m radius around the nest is the SWH. - Sharp-Shinned Hawk – A 50 m radius around the nest is the SWH. - Conduct field investigations from mid-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. SWHMiST Index #27 provides development effects and mitigation measures.	No potential on the subject lands. Two targeted early spring raptor nesting surveys were completed in 2022. No stick nests or breeding evidence of any raptor species was recorded. Moderate potential on adjacent lands. One Red-tailed Hawk was recorded flying overhead during the raptor survey on April 22, 2022. While it was observed flying overhead outside the limits of the subject lands, the record confirms its presence in the general vicinity.
Turtle Nesting Areas Rationale; These habitats are rare and when identified will often be the only breeding site for local	Exposed mineral soil (sand or gravel) areas adjacent (<100 m) or within the following ELC ecosites: MAS1	- Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. - For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH.	Midland Painted Turtle <u>Special Concern Species:</u> Northern Map Turtle Snapping Turtle	Studies confirm: - Presence of 5 or more nesting Midland Painted Turtles. - 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 30-100 m around the nesting area	No potential on the subject lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present. Moderate potential on adjacent lands. Based on aerial photography and background reports, there is an open-water wetland (marsh) feature over 600 m north-

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
populations of turtles.	MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used.		dependent 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 30-100 m 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. SWHMiST Index #28 provides development effects and mitigation measures for turtle nesting habitat.	west of the subject lands; it is well beyond any potential area of indirect impact.
Seeps and Springs Rationale: Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Seeps/Springs are areas where ground water comes to the surface. Often, they are found within headwater areas within forested habitats. Any forested ecosite within the headwater areas of a stream could have seeps/springs.	- Any forested area (with <25% meadow/field/ pasture) within the headwaters of a stream or river system. - Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Field Studies confirm: - Presence of a site with 2 or more seeps/springs should be considered SWH. - The area of a ELC forest ecosite or an ecoelement within 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. SWHMiST Index #30 provides development effects and mitigation measures.	No potential on the subject lands. Seeps or springs were not identified during field surveys completed in 2022. Low potential on adjacent lands. The City of Barrie Annexed Lands Natural Heritage System Report (NSRI, 2012) states that seeps and springs were unidentifiable within the core associated with the adjacent lands.
Amphibian Breeding Habitat (Woodland) Rationale: These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	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	- Presence of a wetland, pond or woodland pool (including vernal pools) >500 m² (about 25 m diameter) within or adjacent (within 120 m) 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.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	Studies confirm: - 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 combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. - The habitat is the wetland area plus a 230 m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. SWHMiST Index #14 provides development effects and mitigation measures.	No potential on the subject lands. Based on the amphibian breeding call surveys in 2022, no breeding amphibian habitat is present on the subject lands. Confirmed on adjacent lands. Based on aerial photography and background reports, there is an open-water wetland (marsh) feature over 600 m north-west of the subject lands located within forest habitat; it is well beyond any potential area of indirect impact. Incidental calls were heard (Spring Peeper and Gray Treefrog) during amphibian breeding call surveys in 2022 at Station 1. The City of Barrie Annexed lands Natural Heritage System Report (NRSI, 2012) states the adjacent wetland community is confirmed amphibian breeding habitat (woodland) based on the presence of wetland within 120

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
	habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.				m of a woodland and the presence of more than 20 amphibian species recorded.
Amphibian Breeding Habitat (Wetlands) Rationale; Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	ELC Community Classes: SW MA FE BO OA and SA. Typically, these wetland ecosites will be isolated (>120 m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g., Bull Frog) may be adjacent to woodlands.	- Wetlands >500 m² (about 25 m 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.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Studies confirm: - 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 combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. - If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. SWHMiST Index #15 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The habitat criteria for Significant Wildlife Habitat is not present. Any wetlands in the general vicinity are within woodland habitats.
Woodland Area-Sensitive Bird Breeding Habitat Rationale: Large, natural blocks of mature woodland habitat within the settled areas of	All ecosites associated with these ELC Community Series: FOC FOM FOD SWC	- 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.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager	Studies confirm: - Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. - Conduct field investigations in spring and early summer when birds are singing and defending their territories.	Confirmed on the subject lands. Area of Impact: Black-throated Green Warbler, Brown Creeper, Red-breasted Nuthatch, Pine Warbler. Outside Area of Impact: Ovenbird. Confirmed on adjacent lands. Black-throated Green Warbler, Brown Creeper, Least Flycatcher, Ovenbird,

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
Southern Ontario are important habitats for area sensitive interior forest song birds.	SWM SWD		Winter Wren Special Concern: Cerulean Warbler Canada Warbler	- Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. SWHMiST Index #34 provides development effects and mitigation measures.	Pileated Woodpecker, Pine Warbler, Red-breasted Nuthatch, and Winter Wren.
Table 1.3: Habitat for Species of Conservation Concern considered Significant Wildlife Habitat					
Marsh Breeding Bird Habitat Rationale; Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	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.	American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan Special Concern: Black Tern Yellow Rail	Studies confirm: - Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes breeding by any combination of 5 or more of the listed species. Note: 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 should be done in May/June when these species are actively nesting in wetland habitats. - Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. SWHMiST Index #35 provides development effects and mitigation measures.	No potential on the subject lands. The ecosites are not present. Based on the results of the breeding bird surveys in 2022, no marsh breeding bird habitat is present on the subject lands. Moderate potential on adjacent lands. Based on aerial photography and background reports, there is an open-water wetland (marsh) feature over 600 m north-west of the subject lands located within forest habitat; it is well beyond any potential area of indirect impact. Some of the marsh breeding bird species listed may be present.
Open Country Bird Breeding Habitat Rationale; This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the	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.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow Special Concern Short-eared Owl	Field Studies confirm: - 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. - Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. SWHMiST Index #32 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
past 40 years based on CWS (2004) trend records.					
Shrub/Early Successional Bird Breeding Habitat Rationale; This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	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 >10 ha in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e., no row-cropping, haying or live-stock 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.	Indicator Spp: Brown Thrasher Clay-coloured Sparrow Common Spp. Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher Special Concern: Yellow-breasted Chat Golden-winged Warbler	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. • A habitat with breeding Yellow-breasted 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. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • SWHMiST cxlix Index #33 provides development effects and mitigation measures.	No potential on the subject lands. The ecosites are not present and the habitat criteria for Significant Wildlife Habitat is not present.
Terrestrial Crayfish Rationale: Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh or swamp ecosites can be used by	• Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for Terrestrial Crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed.	Chimney or Digger Crayfish (<i>Fallicambarus fodiens</i>) Devil Crayfish or Meadow Crayfish (<i>Cambarus diogenes</i>)	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • 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. • SWHMiST Index #36 provides development effects and mitigation measures.	No potential on the subject lands. None were observed during field surveys completed in 2022. Low potential on adjacent lands. The general area is heavily forested. Based on aerial photography and background reports, there is an open-water wetland (marsh) feature over 600 m north-west of the subject lands located within forest habitat; it is well beyond any potential area of indirect impact.

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
	terrestrial crayfish.				
Special Concern and Rare Wildlife Species Rationale: These species are quite rare or have experienced significant population declines in Ontario.	All plant and animal Element Occurrences (EO) within a 1 or 10 km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is 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.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the NHIC.	Studies Confirm: - 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 species e.g., specific nesting habitat or foraging habitat. SWHMiST Index #37 provides development effects and mitigation measures.	Confirmed on the subject lands. - Eastern Wood-pewee (SC) - Eastern Milksnake (SC, SARA only) (one recorded on July 25, 2019 along the eastern boundary of the subject lands near Veterans Drive (retrieved from iNaturalist records). Confirmed on adjacent lands. - Eastern Wood-pewee (SC) - Wood Thrush (SC)
Table 1.4.1: Animal Movement Corridors					
Amphibian Movement Corridors Rationale; Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Corridors may be found in all ecosites associated with water. Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1.	- Movement corridors between breeding habitat and summer habitat. - Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (Amphibian Breeding Habitat–Wetland) of this Schedule.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	- 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 15 m of vegetation on both sides of waterway or be up to 200 m wide of woodland habitat and with gaps <20 m. - Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat. SWHMiST Index #40 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. See comments under Table 1.2.2 (Amphibian Breeding Habitat–Wetland) of this Schedule.
Deer Movement Corridors Rationale: Corridors important for all species to be able to access	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH from Table 1.1 of this schedule. A deer wintering habitat identified by the MNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion.	White-tailed Deer	- Studies must be conducted at the time of year when deer are migrating or moving to 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 200 m wide with gaps <20 m and if following riparian area with at least 15 m of vegetation on both sides of waterway.	No potential on the subject lands or adjacent lands. Based on the City of Barrie Annexed Lands Natural Heritage System Report (NRSI, 2012), the Natural Area Linkage should not be considered a Deer Movement Corridor because Veteran’s Drive has high traffic volumes and the potential for deer-vehicle collisions is high. Focus should

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	has potential to contain corridors.	Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges).		Shorter corridors are more significant than longer corridors, SWHMiST Index #39 provides development effects and mitigation measures.	be placed on encouraging deer yarding west of the subject lands.
Table 1.5.1: Significant Wildlife Habitat Exceptions for Ecodistricts within EcoRegion 6E					
6E-14 Mast Producing Areas Rationale: The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracts with mast-producing tree species is important for bear.	All Forested habitat represented by ELC Community Series: FOM FOD	- Woodland ecosites >30 ha with mast-producing tree species, either soft (cherry) or hard (oak and beech). - Black bears require forested habitat that provides cover, winter hibernation sites, and mast- producing tree species. Forested habitats need to be large enough to provide cover and protection for black bears.	Black Bear	All woodlands >30 ha with a 50% composition of these ELC Vegetation Types are considered significant: FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5 SWHMiST Index #3 provides development effects and mitigation measures.	No potential on the subject lands and adjacent lands. It is not located on the Bruce Peninsula (Ecoregion 6E-14).
6E- 17 Lek Rationale: Sharp-tailed grouse only occur on Manitoulin Island in Ecoregion 6E,	CUM CUS CUT	- The Lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography. - Leks are typically a grassy field/meadow >15 ha with adjacent shrublands and >30 ha with adjacent deciduous woodland. Conifer trees within 500 m are not tolerated. - Grasslands (field/meadow) are to be >15 ha when adjacent to shrubland and >30 ha when adjacent to deciduous woodland.	Sharp-tailed Grouse	- Studies confirming Lek habitat are to be completed from late March to June. - Any site confirmed with sharp-tailed grouse courtship activities is considered significant. - The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the Lek habitat. - SWHMiST cxlix Index #32 provides development effects and mitigation measures.	No potential on the subject lands or adjacent lands. It is not located on Manitoulin Island (Ecoregion 6E-17).

Habitat	CANDIDATE - Significant Wildlife Habitat		CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Wildlife Species	Defining Criteria	Presence of Candidate or Confirmed Habitat on the Subject Lands and/or Adjacent Lands?
Leks are an important habitat to maintain their /*population.		- Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying). - Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting.			



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix H

Slope Stability Assessment



Project: 21-353-400

June 28, 2022

Mattamy Homes Canada
433 Steeles Avenue East
Milton, Ontario L9T 8Z4
Attention: Mr. Daniel Rokin, Project Manager
Via email: <Daniel.Rokin@mattamycorp.com>

**RE: Slope Stability Assessment
Proposed Phase 2 SWM pond – Salem Development
West of Veterans Drive, 0.6 km south of Salem Road
Barrie, Ontario**

Dear Sir:

In conformance with your request, DS Consultants Ltd. (DS) conducted a slope stability assessment for the above-mentioned site. A site plan is shown on **Drawing 1**.

The site is located to the west of Veterans Drive, about 0.6 km south of Salem Road in Barrie, Ontario.

There is a valley in the subject area, with a south slope at the south site and a north slope at the north side. It is understood that a SWM pond is proposed in the south slope area.

A site visit was made on June 8, 2022 by a senior geotechnical engineer from DS Consultants Ltd. to visually inspect the slope conditions. Selected photographs (**Photos 1 to 8**) taken during our site visit are presented in **Appendix A**.

For convenience of discussion, Veterans Drive to the east of the subject site is assumed in south-north alignment.

Based on our site observations, the site and slope conditions are described as follows:

- There is a valley area at the site, with a south slope and a north slope. There is a relatively flat area (about 3 to 20 m wide) at the bottom of the slopes.
- The height of the slopes is typically 6 to 10 m.
- The steepness of the slopes is generally flatter than 3H:1V, with some local slopes of about 2.7H:1V at the east part of the north slope.
- The slopes are covered with mature trees and other vegetation and are well protected from surface erosions.
- No seepage from the slope surfaces was found during the site visit. No evidence of slope failure was observed during our site visit.



- There is not creek/ditch in the toe area of the slope. The valley bottom/slope toe areas were found dry during our site visit.
- There were some trail paths in the slope site area.

DS Consultants Ltd. drilled 2 boreholes (MW22-1 and MW22-2, see **Drawing 1** for location plan) at the site. In the boreholes, the soils below some topsoil and weathered materials generally consisted of compact to very dense cohesionless soils (sand, silt, sandy silt to silty sand), with occasional layers of very stiff clayey silt (till) deposit. The findings in the borehole will be included in the geotechnical report for the SWM Pond, to be submitted under separate cover.

Based on our site observations and our review of the subsurface conditions explored in the boreholes, the slopes at the subject site are considered stable in terms of long-term stability.

From a geotechnical slope stability perspective, a setback of 6.0 m from the stable top of slope is acceptable for the proposed development and stormwater management pond.

We trust that the information contained in this letter is satisfactory. Should you have any questions, please do not hesitate to contact this office.

Yours Very Truly,

DS Consultants Ltd.

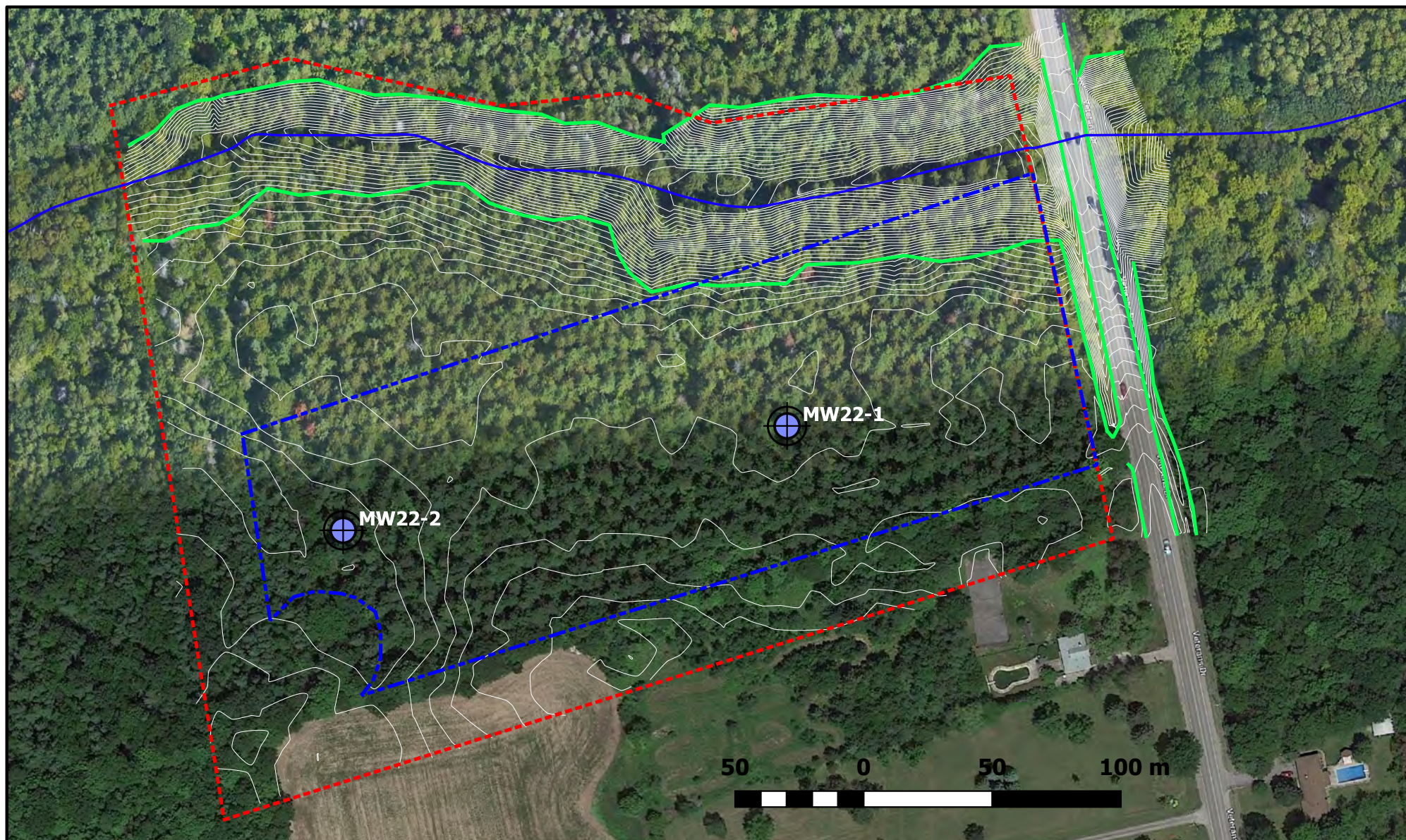
Alka Sangar, M.Eng., P.Eng.
Senior Geotechnical Engineer

Fanyu Zhu, Ph.D., P.Eng.
Principal Geotechnical Engineer

Attachments:

Drawing 1: Site and Borehole Plan

Appendix A: Slope Site Photographs



Legend

--- Approximate Site Boundary

--- Approximate Pond Area

--- Top of Bank

 BH Locations

 Contours



DS CONSULTANTS LTD.

6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Client:

Mattamy Homes Canada

Project:

Geotechnical Services
Phase 2 SWM pond (North SWM Pond)

Title:

Borehole Location Plan



Size:
8.5 x 11

Approved By: MG

Drawn By: S.W

Date: June 2022

Rev:
0

Scale: As Shown

Project No.: 21-353-400

Figure No.: **1**

Image/Map Source: Google Satellite Image



Appendix A
Slope Site Photographs
(Photos 1 to 8, taken June 8, 2022)



Photo 1: East end of slope area, to west of Veterans Drive (looking north)



Photo 2: Valley bottom area of slopes at the east part of site (looking west)





Photo 3: South slope at the east part of site (looking southwest from bottom of slope)



Photo 4: North slope at the east part of site (looking north from bottom of slope)





Photo 5: Valley bottom area of slopes at the middle part of site (looking east)



Photo 6: South slope at the middle part of site (looking south – upward from bottom of slope)





Photo 7: North slope at the middle part of site (looking north – upward from bottom of slope)



Photo 8: Valley and slope conditions at west part of site (looking east at bottom of slopes)



