

Planning and Development Council Meeting
May 21, 2024

Comments Received Regarding Item 6.5
Official Plan Amendments
Delegation of Authority of Minor Zoning By-law Amendments

Town-initiated, Town-wide
File Numbers 42.15.64

From: Lynda Funk
Sent: Thursday, May 9, 2024 3:24 PM
To: Town Clerks
Cc: Robin Post; sue mueller; Lynda
Subject: Written submission for may 21 meeting, Please use this file and not the one previous sent, there was an error, thank you
Attachments: MAY21_written submissionfortown_townclerk@oakville.ca.pdf; NRSI_3096_6th Line EIS_Final_2024_05_06_NEW_REVISIED_FINAL.pdf

Attention to : Mayor and Members of Council and Planning and Development Council.

Regarding May 21 meeting written submission from the Post family

Once again we are writing with a request to have our property at Sixth Line included in your amendment.

We have worked tirelessly to provide all the information that the different levels of government have requested.

We have an Environmental Impact Study that has been sent to the Region of Halton with the first round of

minor revisions completed (please see attached).

This study confirms approximately 3/4 of the property is residential and not NHS. Although the Region of

Halton will have to sign off on this revised study we ask you not to ignore the fact that it is a primary building lot that can add valuable needed housing to the Town. This would be a missed opportunity for The Town of Oakville and particularly for the Post family, to not have it included in the amendments proposed for the May 21st meeting.

This property was previously zoned Low Density before 2014. The government without physically inspecting this property changed the designation to Natural Heritage System. Now we, the Post family, have had to prove to the Town of Oakville and the Region that the property was erroneously zoned NHS in 2014 and that it is a viable residential property.

With the completed study, the rear of the property is still labeled NHS, only because of 44 green ash, chest height seedlings that exist. Let it be stated during the

rezone in 2014 and for decades before, those seedlings were not present and the rear of the property had a few trees, a number of buckthorn and grasses. The Post family feel strongly that the entire property should be rezoned to what it was before 2014, Low Density. We ask that you seriously consider this a request that not only “rights a wrong” but provides opportunities for housing for Oakville. The likelihood of these ash seedling surviving into mature trees is slim, even the town of Oakville practices the removal of ash trees unless they are 20cm in diameter at chest height deeming they are too costly to treat and protect from the emerald ash borer, opting to replace them with other native species. Please see details on pages 2/3 (see pdf: MAY21_written submissionfortown_townclerk@oakville.ca) regarding the ash tree and Oakville practice of removing ash trees under 20cm at chest height on their website.

The property directly across from our land (with a strip mall) is under talks to be replaced with a low rise, which would affect 18 homes, that directly back onto the land of the strip mall. Our property, would affect only two properties that have a road allowance in between, it is also larger than that of said property. Please include Sixth Line in your amendment. Please see map on the bottom of page 4 (see pdf: MAY21_written submissionfortown_townclerk@oakville.ca).

My mother was 86 in 2014, frail from two hip surgeries and was

not reading the Oakville beaver to see the changes taking place in her area. She was not given a phone call or written intent by the town (this was not a requirement by the town, which has been upsetting for the family). We, her family could not help her protect her legacy having missed the 30 days to appeal. I would love to give anyone of you a tour of the property so you can see first hand that it should never have been rezoned to NHS in 2014. I can show you the creek that has been a protected water course since my parents purchased the land in 1949, but decades ago the water source for the creek was redirected into a drain due to development north of the property, but that same creek was said to be a NHS feature. We would like to see this valuable property be used to help with the housing crisis.

Sincerely
Lynda (Post) Funk

Robin Post

Please contact me if you would like to visit the property

Attention to : Mayor and Members of Council and Planning and Development Council.

Regarding May 21 meeting written submission from the Post family

Once again we are writing with a request to have our property at Sixth Line included in your amendment. We have worked tirelessly to provide all the information that the different levels of government have requested. We have an Environmental Impact Study that has been sent to the Region of Halton with the first round of minor revisions completed (please see attached).

This study confirms approximately 3/4 of the property is residential and not NHS. Although the Region of Halton will have to sign off on this revised study we ask you not to ignore the fact that it is a primary building lot that can add valuable needed housing to the Town. This would be a missed opportunity for The Town of Oakville and particularly for the Post family, to not have it included in the amendments proposed for the May 21st meeting.

This property was previously zoned Low Density before 2014. The government without physically inspecting this property changed the designation to Natural Heritage System. Now we, the Post family, have had to prove to the Town of Oakville and the Region that the property was erroneously zoned NHS in 2014 and that it is a viable residential property.

With the completed study, the rear of the property is still labeled NHS, only because of 44 green ash, chest height seedlings that exist. Let it be stated during the rezone in 2014 and for decades before, those seedlings were not present and the rear of the property had a few trees, a number of buckthorn and grasses. The Post family feel strongly that the entire property should be rezoned to what it was before 2014, Low Density. We ask that you seriously consider this a request that not only “rights a wrong” but provides opportunities for housing for Oakville. The likelihood of these ash seedling surviving into mature trees is slim, even the town of Oakville practices the removal of ash trees unless they are 20cm in diameter at chest height deeming they are too costly to treat and protect from the emerald ash borer, opting to replace them with other native species. Please see details on pages 2/3 (see pdf: MAY21_written submissionfortown_townclerk@oakville.ca) regarding the ash tree and Oakville practice of removing ash trees under 20cm at chest height on their website.

The property directly across from our land (with a strip mall) is under talks to be replaced with a low rise, which would affect 18 homes, that directly back onto the land of the strip mall. Our property, would affect only two properties that have a road allowance in between, it is also larger than that of said property. Please include Sixth Line in your amendment. Please see map on the bottom of page 4 (see pdf: MAY21_written submissionfortown_townclerk@oakville.ca).

My mother was 86 in 2014, frail from two hip surgeries and was not reading the Oakville beaver to see the changes taking place in her area. She was not given a phone call or written intent by the town (this was not a requirement by the town, which has been upsetting for the family). We, her family could not help her protect her legacy having missed the 30 days to appeal. I would love to give anyone of you a tour of the property so you can see first hand that it should never have been rezoned to NHS in 2014. I can show you the creek that has been a protected water course since my parents purchased the land in 1949, but decades ago the water source for the creek was redirected into a drain due to development north of the property, but that same creek was said to be a NHS feature. We would like to see this valuable property be used to help with the housing crisis.

Sincerely
Lynda (Post) Funk
Robin Post

Please contact me if you would like to visit the property lyndafunk35@gmail.com

Emerald Ash Borer

The Town of Oakville continues to be a municipal leader in Emerald Ash Borer (EAB) management with a program in place to mitigate the impact of the infestation.



EAB infestation

The Emerald Ash Borer (EAB) is an invasive insect considered to be one of the worst forest pests to ever be introduced to North America. Since 2002, ash trees across large portions of the United States, Ontario and Quebec have been devastated by the EAB infestation.

EAB lay their eggs in ash trees. The larvae eat the soft wood under the tree's bark, preventing the tree from moving water and nutrients between its roots and leaves, and killing it within one to three years.

EAB only attacks true ash trees. In Oakville, green and white ash are the most common ash species, with blue and black ash being rare. Mountain ash and prickly ash have "ash" in their name but are not from the same species and are not susceptible to EAB.

Signs of EAB infestation to look out for:

- Leaves in the top third of the ash begin to die back
- New, thin branches begin to grow from the low trunk or roots
- White lines or canals under the bark
- Bark on the tree begins to split
- D-shaped exit holes in the bark formed by adult beetles exiting the tree
- Increased woodpecker activity on the tree

Trees & Woodlands

Tree Diseases, Pests & Invasive Plants

Tree Diseases, Pests & Invasive Plants

Emerald Ash Borer

Giant Hogweed & Wild Parsnip

LDD Moth

Tree Protection & Removal

Tree Planting

Public Tree Inventory

Town Tree Maintenance

Loose Leaf Collection

Urban Forest Health Monitoring

Urban Forest Studies & Management

Contact

ServiceOakville
905-845-6601

service@oakville.ca

please see next page for details

What you can do

If you have an ash tree, you have two options:

- Treat. If you have started a treatment program, great! Please continue treating. Continued treatment will help keep your tree healthy until after the infestation has died out. Treatment must take place between June and August. Due to the current infestation levels, if you have not yet begun a treatment program, it is likely too late to begin treatment to save your tree.
- Remove. Dead and dying trees can become structurally unsound. Remove and replace untreated ash trees with a different species. Doing nothing may put you and your property at risk. For information on removing private trees, visit our [Private Tree Protection page](#).

What the town is doing

Oakville has one of the most aggressive management plans in Canada to combat EAB. Town Council approved a plan to treat a portion of the public ash canopy on streets and in parks with TreeAzin™, a biological insecticide.

Public ash trees receive treatment if they:

- Do not have cracks or holes in their trunk and if 60 per cent or more of their upper branches are healthy. TreeAzin™ is effective at protecting trees that meet these criteria. If a tree is unhealthy or has cracks or holes, treatment is unlikely to prevent it from dying from EAB infestation.
- Are at least 20 centimetres in diameter at the point on their trunk about 1.3 metres from the ground (diameter-at-breast-height or DBH). The town has determined that it is more cost-effective to remove and replace ash trees that are under 20 centimetres DBH than to treat them.

You may notice green dots and/or green ribbons on the trunks of public trees, indicating they are being treated.

Remove and replace untreated ash trees with a different species. Doing nothing may put you and your property at risk. For information on removing private trees, visit our Private Tree Protection page.

- Are at least 20 centimetres in diameter at the point on their trunk about 1.3 metres from the ground (diameter-at-breast-height or DBH). **The town has determined that it is more cost-effective to remove and replace ash trees that are under 20 centimetres DBH than to treat them.**

Woodlands Hazard Abatement Program

The Woodlands Hazard Abatement Program is part of the town's EAB management program to mitigate the impact of the invasive Emerald Ash Borer in woodlands.

Starting in 2015 after a brief pilot program, and through 2019, the town removed hazardous dead and dying ash trees from the town's trails and woodlands for public safety and to help the forest regrow.

Due to the severity of the infestation most, if not all of the 43,000 ash trees in the town's woodlands are now dead or dying. They are becoming brittle and structurally unsound due to the lack of nutrients caused by the EAB larva tunneling under the bark. Brittle trees can lose limbs or fall, causing serious injury to people using the trails, or serious damage to private property that borders the trails.

Removing dead trees allows new trees and shrubs to grow, renewing the forest more quickly.

While natural regeneration will account for most of the regrowth in the woodlands, the town will continue to establish concentrated planting sites to help the forest regrow more rapidly with desirable native species.

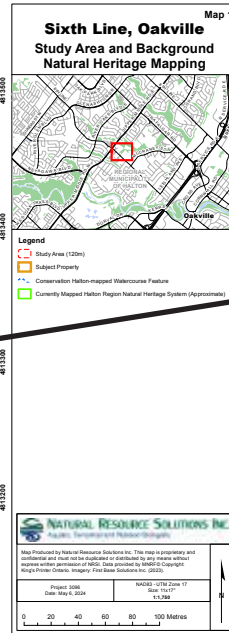
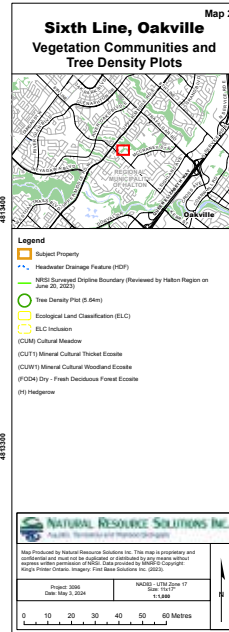
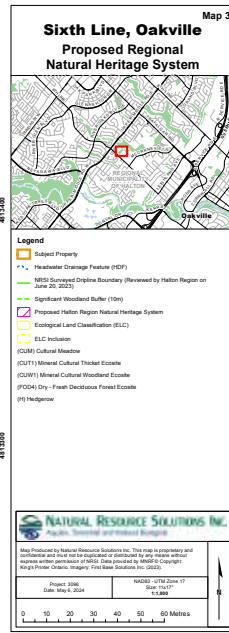
While natural regeneration will account for most of the regrowth in the woodlands, the town will continue to establish concentrated planting sites to help the forest regrow more rapidly with **desirable native species.**

Canopy replacement

The town is replacing municipal street and park ash trees with trees of different species. Trees removed in the spring or summer will be replaced the following fall or spring. While natural regeneration will account for most of the regrowth in our woodlands, portions of select sites have been identified for enhanced and/or intensive regeneration and replanting.

The town is replacing municipal street and park ash trees with trees of different species

Learn more about what the town is doing to replace ash trees on our [Tree Planting](#) page.



18 homes with a direct link to the strip mall property which is across the street from 6th line



Final

Sixth Line, Oakville

Environmental Impact Study

Prepared for:

Lynda Funk
Pembroke Drive
Oakville, Ontario L6H 1V6

Project No. 3096 | May 2024



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

Sixth Line, Oakville
Environmental Impact Study

Project Team

Sydney Gilmour	Project Manager, Terrestrial and Wetland Biologist
Ryan Archer	Project Advisor, Senior Terrestrial and Wetland Biologist
Meghan Douglas	Terrestrial and Wetland Biologist
Ashley Cantwell	Terrestrial and Aquatic Biologist
Gerry Schaus	GIS Manager
Kaitlin Filippov	GIS Specialist

Report submitted on May 6, 2024



Sydney Gilmour, M.Sc.
Project Manager
Terrestrial and Wetland Biologist

Table of Contents

1.0	Introduction	3
2.0	Planning Context.....	5
3.0	Methods.....	9
3.1	Background Information Review	9
3.2	Significant Species and Habitat Screening	10
3.3	Field Methods	12
3.3.1	Vegetation Community Mapping and Vascular Flora Inventory.....	14
3.3.2	Woodland Dripline Delineation.....	14
3.3.3	Tree Density Assessment	14
3.3.4	Breeding Bird Surveys	15
3.3.5	Aquatic Habitat Assessment	15
3.3.6	Wildlife Habitat Assessment and Incidental Wildlife Observations	15
3.4	Analysis Methods.....	15
3.4.1	Significant Woodland Assessment.....	15
3.4.2	Linkage Assessment	16
4.0	Biophysical Inventory	17
4.1	Soil, Terrain and Drainage.....	17
4.2	Vegetation	17
4.2.1	Vegetation Communities	17
4.2.2	Vascular Flora	19
4.2.3	Natural Feature Delineation and Tree Density Assessment	19
4.2.4	Birds	20
4.2.5	Herpetofauna.....	21
4.2.6	Mammals.....	21
4.2.7	Insects	21
4.3	Surface Water Feature	22
5.0	Biophysical Analysis	24
5.1	Regional Natural Heritage System	24
5.1.1	Significant Woodland	25
5.1.2	Headwater Drainage Feature.....	26
5.1.3	Linkage Assessment	26
5.1.4	Species at Risk.....	27
5.1.5	Significant Wildlife Habitat.....	27
5.1.6	Buffers	28
5.1.7	Recommended Regional Natural Heritage System	29

6.0	Impact Assessment	31
6.1	Description of the Proposed Work	31
6.2	Approach to Impact Assessment	31
6.3	Induced Impacts	32
6.4	Cumulative Impacts	33
7.0	Enhancement Opportunities	34
8.0	Monitoring Plan	35
9.0	Conclusions.....	36
10.0	References	37

List of Tables

Table 1. Relevant Policies Legislation and Planning Studies	6
Table 2. Field Survey Summary.....	13
Table 3. Tree Tally (number of stems per 100m ²)	20
Table 4. Significant Woodland Analysis	25
Table 6. Summary of Candidate Significant Wildlife Habitat Categories Identified During Preliminary Screening Considered Absent	27

List of Appendices

- Appendix I Terms of Reference
- Appendix II Vascular Flora Species Observed within the Subject Property
- Appendix III Bird Species Report from the Study Area
- Appendix IV Herpetofauna Species Reported from the Study Area
- Appendix V Mammal Species Reported from the Study Area
- Appendix VI Lepidoptera Species Reported from the Study Area
- Appendix VII Odonata Species Reported from the Study Area
- Appendix VIII Correspondence with Conservation Halton Regarding the On-Site HDF

Maps

- Map 1. Study Area and Background Natural Heritage Mapping
- Map 2. Vegetation Communities and Tree Density Plots
- Map 3. Proposed Regional Natural Heritage System

1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained by Lynda Funk to complete an Environmental Impact Study (EIS) in support of refinements to the Halton Regional Natural Heritage System (RNHS) where it has been mapped on a property located at Sixth Line in the Town of Oakville (hereafter referred to as the subject property; Map 1).

The subject property is approximately 0.87ha in size and contains a single dwelling home that was built in 1950. The western section of the subject property is comprised of manicured lawn, landscaped trees, and a deciduous hedgerow/thicket along the northwestern edge. The eastern section of the subject property contains a dense cultural thicket that transitions into a fragmented cultural woodland. Conservation Halton (CH) maps the presence of a regulated watercourse feature in the eastern section of the property. The McCraney Valley Trail runs east and north of the subject property.

For the purposes of this EIS, the “study area” is considered the subject property plus adjacent lands within 120m as shown on Map 1. The size of the study area is based on the size of adjacent lands included in the Natural Heritage Reference Manual (OMNR 20100. A Ministry of Natural Resources and Forestry (MNRF)-mapped woodland feature is identified within the rear of the subject property which is contiguous with a larger off-site MNRF-mapped woodland feature within the study area (Map 1), although this connection is fragmented by public trails. Additional lands surrounding the subject property include Munn’s Public School, commercial business, residential neighborhoods, and recreational fields.

The subject property is located within the College Park urban settlement of Oakville. The property is currently zoned as N-Natural Area per the Town of Oakville’s Zoning By-law 2014-014 (2023). Prior to 2014, the subject property was zoned and designated as Low Density Residential. Under the By-law, adjacent areas are zoned CU – Community Use to the north, RM1 – Residential Medium to the west, and N- Natural Area to the east and south.

According to Map 1 of the Halton Region OP (2022), the subject property is mapped as RNHS. The proponent wishes to remove the RNHS designation from all or a portion of the subject property. The landowner is not proposing any re-development on the property, but instead wishes to sell the property without the RNHS if/where it has been confirmed through this EIS that the current mapped RNHS is inappropriate. Per Section 116.1 of the Region OP (2022), the boundaries of the RNHS may be refined through an Environmental Impact Assessment

(EIA, otherwise typically known as an EIS), accepted by the Region, or similar studies based on a Terms of Reference (TOR) accepted by the Region.

This report summarizes background information on natural heritage features, as well as results of field surveys completed within the study area. This information was used to identify and delineate the natural features. While no development or site alteration is being proposed, an impact assessment has been completed based on the comparison of the existing natural features to the Town and Region's OP designation for the subject property and the types and intensities of uses permitted both in the Livable Oakville Plan (2009) and the Town's Zoning By-law 2014-014 (2023). This EIS was prepared and written in accordance with Halton Region's Environmental Impact Assessment Guidelines (2020).

2.0 Planning Context

For the purposes of this EIS report, information on the natural heritage features within the study area was collected and assessed for significance. To help inform refinements to the RNHS, natural features were evaluated against relevant policies, legislation, and planning studies (Table 1).

Table 1. Relevant Policies Legislation and Planning Studies

Policy/Legislation	Description	Project Relevance
Provincial Policy Statement (PPS; OMMAH 2020).	<ul style="list-style-type: none"> • Issued under the authority of Section 3 of the Planning Act and came into effect on May 1, 2020, replacing the 2014 PPS (OMMAH 2014). • Section 2.1 of the PPS – Natural Heritage establishes clear direction on the adoption of an ecosystem approach and the protection of resources that have been identified as ‘significant’. • The Natural Heritage Reference Manual (OMNR 2010) and the Significant Wildlife Habitat Technical Guide (OMNR 2000, OMNR 2015) were prepared by the MNRF to provide guidance on identifying natural features and in interpreting the Natural Heritage sections of the PPS. 	<ul style="list-style-type: none"> • Natural features that occur or may occur within the study area, and which receive protection under the PPS, include: <ul style="list-style-type: none"> ○ Significant Woodland, ○ Potential Significant Wildlife Habitat, and ○ Potential habitat for Endangered and Threatened species. • Section 2.1.5 of the PPS states that development or site alteration shall not be permitted in Significant Woodlands or Significant Wildlife Habitat unless it has been demonstrated that there will be no negative impacts on the features or their ecological functions. • Section 2.1.8 of the PPS states that development and site alteration shall not be permitted on adjacent lands to the natural features described above unless it is demonstrated that there will be no negative impacts to the natural features or their ecological functions. • Section 2.1.7 of the PPS states that development or site alteration shall not be permitted in habitat of Endangered or Threatened species except in accordance with provincial or federal requirements. • Section 2.1.2 of the PPS states that the connectivity of natural features in an area should be maintained, restored, or where possible, improved.
<i>Endangered Species Act</i> (2007)	<ul style="list-style-type: none"> • The original ESA, written in 1971, underwent a year-long review which resulted in several changes which came into force in 2007. • The ESA prohibits killing, harming, harassing, or capturing Endangered and Threatened species and protects their habitats from damage and destruction. 	<ul style="list-style-type: none"> • Based on a preliminary assessment, multiple SAR were identified as having the potential to occur within the study area based on presence of suitable habitat.

Policy/Legislation	Description	Project Relevance
<i>Migratory Birds Convention Act</i> (MBCA; Government of Canada 1994)	<ul style="list-style-type: none"> Prohibits the disturbance, destruction, or taking of a nest or eggs of migratory birds. 	<ul style="list-style-type: none"> No development or site alteration are currently proposed for the subject property.
Fish and Wildlife Conservation Act (FWCA; Government of Ontario 1997)	<ul style="list-style-type: none"> The FWCA provides protection for certain bird species not protected under the MBCA (i.e., raptors), as well as furbearing mammals and their dens or habitual dwellings, aside from the Red Fox (<i>Vulpes vulpes</i>) and Striped Skunk (<i>Mephitis mephitis</i>). 	<ul style="list-style-type: none"> No development or site alteration are currently proposed for the subject property.
Conservation Halton Ontario Regulation 162/06	<ul style="list-style-type: none"> Regulation issued under Conservation Authorities Act, R.S.O. 1990. (Government of Ontario 1990) Through this regulation, the CH has the responsibility to regulate activities in natural and hazardous areas (i.e., areas in and near rivers, streams, floodplains, wetlands, and slopes). 	<ul style="list-style-type: none"> A small section of subject property falls within the regulation limit of the CH as currently mapped.
The Livable Oakville Plan: Official Plan (Town of Oakville 2009, last updated August 2021)	<ul style="list-style-type: none"> Land use within the Town of Oakville is guided through the OP that was adopted by the Council of the Corporation of the Town of Oakville on June 22, 2009, and was approved by the Regional Municipality of Halton on November 30, 2009. 	<ul style="list-style-type: none"> The subject property is designated Natural Area as per Schedule I Central Land Use. Per Section 16.1.15, the specific boundaries of the Natural Area including appropriate buffers shall be identified through an EIS. Further, an application to redesignate the Natural Area will be completed through the submission of this EIS to justify why all or portions of the subject property do not meet the criteria for identification.
Halton Region Official Plan (Region of Halton 2022)	<ul style="list-style-type: none"> The Halton Region OP identifies the natural features, ecological functions and potential linkages and corridors that comprise the Natural Heritage System (NHS). The NHS consists of both the Greenbelt Natural Heritage System and the Regional Natural Heritage System. Within the NHS, Key Features are to be protected and maintained for conservation purposes. Examples of Key Features identified within the Natural Heritage System include significant habitat of SAR, fish habitat, wetlands, ANSI, significant valleylands, significant woodlands, significant wildlife habitat, streams, wetlands, lakes and their littoral zones, 	<ul style="list-style-type: none"> According to Map 1 of the Region OP, the entire subject property is mapped as Regional Natural Heritage System. Per Section 116.1 of the Regional OP, the boundaries of the RNHS may be refined through an Environmental Impact Assessment (otherwise known as an EIS).

Policy/Legislation	Description	Project Relevance
	seepage areas and springs, aquifers and recharge areas.	

3.0 Methods

3.1 Background Information Review

To determine a study approach for the EIS, existing natural heritage information was gathered and reviewed to identify key natural heritage features and species that are known or have the potential to occur within the study area. Background information was requested from CH and the MNRF.

Background information on the natural environment features within the study area vicinity (within up to 10km) was also gathered from the MNRF's Natural Heritage Information Centre (NHIC) online database of provincially-tracked species and Land Information Ontario mapping (MNRF 2023a), and relevant taxa-specific databases, as listed below.

Initial wildlife species lists were completed to provide information on species reported from the study area vicinity (i.e., within the 10x10km atlas square (#17PJ01) containing the subject property) using various atlases, including the Ontario Mammal Atlas (Dobbyn 1994), the Ontario Breeding Bird Atlas (OBBA) (BSC et al. 2008), the Ontario Reptile and Amphibian Atlas (Ontario Nature 2019), the Ontario Butterfly Atlas (Macnaughton et al. 2023), and the Ontario Odonate Atlas (OOAD 2023).

Other information sources that were reviewed to inform project scoping included the following:

- Halton Region Official Plan (2022);
- Liveable Oakville Official Plan (2009, last updated August 2021);
- Town of Oakville Zoning By-law 2014-014 (2023); and,
- CH online regulation mapping (2023).

Based on the findings of the background review, a draft TOR for the EIS was prepared by NRSI and submitted to the Town of Oakville, Halton Region, and CH on April 28, 2023. The Town deemed the TOR to be acceptable (July 6, 2023). Halton Region responded on June 16, 2023, requesting revisions. A revised TOR was submitted on January 17, 2024 and March 13, 2024 and approved by the Region on March 15, 2024.

As discussed below, based on the results of NRSI's field assessment and CH consultation, CH confirmed that regulated watercourse features are absent from the subject property.

Furthermore, although the TOR was submitted to CH for review and comment, as a result of

recent provincial legislative changes they can no longer comment on the TOR and deferred natural heritage review to the Town and Region.

3.2 Significant Species and Habitat Screening

Species at Risk (SAR) are those listed on the Species at Risk in Ontario List (MECP 2023). These include species identified by the Committee on the Status of Species at Risk in Ontario (COSSARO) as provincially Endangered, Threatened, or Special Concern. For the purposes of this report, SAR refers to Endangered or Threatened species which receive habitat protection under the ESA, which includes protection of their habitat (Government of Ontario 2007).

Species considered Special Concern are included in the definition of Species of Conservation Concern (SCC), which includes the following:

- Species designated provincially as Special Concern;
- Species that have been assigned a conservation status (S-Rank) of S1 to S3 or SH by the NHIC (MNRF 2023b); and,
- Species that are designated federally as Threatened or Endangered by the Committee for the Status of Endangered Wildlife in Canada (COSEWIC) but not provincially by the COSSARO. These species and their habitats may be protected by the federal *Species at Risk Act* (SARA) if they are listed as Threatened or Endangered on Schedule 1 of the SARA.

Habitat for SCC is considered Significant Wildlife Habitat (SWH) (OMNR 2010), which is afforded protection under the Provincial Policy Statement (OMMAH 2020) and municipal natural heritage protection policies. For the purposes of this report, the term “SAR” will refer to provincially Threatened and Endangered species regulated under the ESA while provincial species of Special Concern will be considered SCC.

Based on NRSI’s examination of background sources and federally or provincially significant species with occurrence records in the study area vicinity (within 10km), an assessment of SAR and SCC suitable habitat presence within the study area was completed. Assessments of habitat suitability in the study area were made by cross-referencing each species’ known habitat preferences or requirements (e.g., OMNR 2000) with habitat availability based on satellite imagery interpretation and available mapping.

Based on the results of the preliminary screening, the following SAR were identified as having potentially suitable habitat within the subject property:

- Chimney Swift (*Chaetura pelagica*) – provincially and federally Threatened
- Little Brown Myotis (*Myotis lucifugus*) – provincially and federally Endangered
- Northern Myotis (*Myotis septentrionalis*) – provincially and federally Endangered
- Tri-colored Bat (*Perimyotis subflavus*) - provincially and federally Endangered

See the TOR (Appendix I) for the full habitat screening table for SAR and SCC with occurrence records in the study area vicinity.

A preliminary screening for the presence of SWH was also completed for the study area, as summarized in the TOR (Appendix I). The Significant Wildlife Habitat Technical Guide (SWHTG) is a guideline document that outlines the types of habitats that the MNRF considers significant in Ontario as well as criteria to identify these habitats (MNR 2000, MNRF 2015). The SWHTG groups SWH into four broad categories: 1) seasonal concentration areas, 2) rare vegetation communities and specialized wildlife habitat, 3) habitats of SCC, and 4) animal movement corridors.

Based on the results of this preliminary screening exercise, the following SWH types were initially considered Candidate SWH for the study area to inform the need for further assessment:

- Bat Maternity Colonies
- Landbird Migratory Stopover Areas
- Potential habitat for the following SCC that is not addressed through other SWH categories:
 - Eastern Wood-Pewee (*Contopus virens*) – provincial species of Special Concern
 - Monarch (*Danaus plexippus*) – provincial species of Special Concern
 - West Virginia White (*Pieris virginiensis*) - provincial species of Special Concern

See Appendix I for the detailed SWH screening tables, including rationale as to whether the SWH types are considered “candidate” or not present within the study area.

3.3 Field Methods

Terrestrial and aquatic field surveys were completed across six site visits between the period of May-October 2023 to characterize and map the existing natural features present within the subject property. Table 2 provides a summary of field surveys undertaken within the subject property. Details of the survey methodologies are presented below.

Table 2. Field Survey Summary

Date	Field Survey	Protocol	Time	Approximate Person Hours	Weather Conditions				NRSI Staff
					Air Temp. (°C)	Precip.	Cloud Cover (%)	Wind (Beaufort Scale)	
2023-05-23	Vegetation community mapping (Ecological Land Classification) and soil sampling	Lee et al. 1998	07:15-10:15	3	10	None	10	1	P. Deacon
2023-07-04			09:30-11:00	1.5	22	None	0	0	M. Douglas
2023-10-11			09:00-10:30	1.5	13	None	50	2	M. Douglas
2023-05-23	Vascular flora surveys	Comprehensive area search by ELC polygon	07:15-10:15	3	10	None	10	1	P. Deacon
2023-07-04			09:30-11:00	1.5	22	None	0	0	M. Douglas
2023-06-20	Breeding bird surveys	OBBA 2021	09:00-10:00	1	19	None	0	2	M. Douglas
2023-07-04			08:00-9:30	1.5	22	None	0	0	M. Douglas
2023-06-09	Aquatic habitat characterization	Modified Ontario Stream Assessment Protocol (OSAP) Version 10 (Stanfield 2017)	09:15-11:00	1.75	12	Light rain	100	1-2	A.Cantwell
2023-07-24	Tree density assessment	N/A	08:00-11:30	3.5	27	None	0	1	M. Douglas
2023-06-20	Woodland dripline review with Region and City	N/A	10:30-11:30	1	19	None	0	2	M. Douglas
2023-05-23	Woodland dripline delineation	Surveyed dripline points with an SX Blue GPS unit that is accurate to 60cm	07:15-10:15	3	10	None	10	1	P. Deacon
2023-10-11		Surveyed dripline points with a Trimble Catalyst DA2 GPS unit that is accurate to 0.05cm	10:30-11:00	0.5	13	None	50	2	M. Douglas

3.3.1 Vegetation Community Mapping and Vascular Flora Inventory

Vegetation communities were described and mapped according to the ELC system for southern Ontario (Lee et al. 1998). This survey included the collection of soil profile data and the compilation of a stand description to note the dominant species and cover within each community.

NRSI biologists completed a three-season (spring, summer, fall) inventory of vascular flora. NRSI biologists walked throughout each ELC polygon inventorying all tree, shrub, and herbaceous species that were observed. The vascular plant list was compiled by ELC polygon with an abundance code assigned (dominant, abundant, occasional, rare) in one or more strata (canopy, sub-canopy, shrub layer, groundcover). This inventory also recorded any federally, provincially, or regionally significant vegetation species. Based on the results of the detailed vegetation inventory, surficial soils characterization, and descriptions of vegetation structure and topography, applicable vegetation community classifications were mapped and assigned according to the ELC criteria (Lee et al. 1998).

3.3.2 Woodland Dripline Delineation

NRSI biologists flagged the woodland dripline boundary where it occurs on the subject property. This dripline was reviewed and confirmed by agency staff. An NRSI biologist GPS surveyed the confirmed dripline using a Trimble Catalyst DA2 GPS unit that is accurate to 0.05cm.

3.3.3 Tree Density Assessment

A plot-based tree density assessment was completed within the delineated woodland where it exists on the property. The tree density assessment was completed by counting the number of trees within each diameter-at-breast-height (DBH) range (measured at 1.37m from the ground) observed within a 5.64m-radius circular plot. See Map 2 for the tree density plot locations.

Based on the tree density assessment, the number of inventoried trees within each DBH range was multiplied by 100 and divided by the number of plots completed to equate to the average number of trees per hectare. The average number of trees per hectare was then compared against the criteria provided in the Region's definition of 'woodland', listed in Section 4.2.3. Given that the on-property woodland feature is 0.232ha in size, the assessment of three 5.64m radius circular plots results in a 13% sampling effort. The number of plots is based on the size of the woodland feature; plots must be at least 20m apart from each and randomly located.

3.3.4 Breeding Bird Surveys

Two rounds of early morning breeding bird surveys were conducted between May 24-July 10 in accordance with the Ontario Breeding Bird Atlas (OBBA) protocol (Birds Canada et al. 2021a, b). Surveys were completed between a half-hour before sunrise and 10:00am and were timed to occur at least 10 days apart. Surveys were completed using comprehensive area searches within each ELC polygon. All species were documented by ELC polygon and their level of breeding evidence.

3.3.5 Aquatic Habitat Assessment

NRSI biologists completed a habitat assessment of the surface water feature where it exists on the subject property. Surveys focused on identifying watercourse permanence, fish habitat potential, groundwater influence, and thermal regime (through evidence of groundwater inputs, water temperatures, and fish community).

NRSI biologists also completed a site visit with CH to review and discuss the surface water feature.

3.3.6 Wildlife Habitat Assessment and Incidental Wildlife Observations

All incidental observations of wildlife (e.g., mammals, butterflies, odonates (dragonflies and damselflies)) and vegetation species were documented during all field visits. This included both direct and indirect (e.g., tracks, scat, dens, nests, etc.) observations of wildlife presence. Features and species that may be indicative of SWH, as informed by the results of the SWH screening (Section 3.2) were documented during the course of all site investigations.

NRSI biologist visually assessed the on-site structure for wildlife use with agency staff (Leanne Wallis, Halton Region's environmental consultant and Tony Molnar, Town of Oakville's Urban Forester).

3.4 Analysis Methods

3.4.1 Significant Woodland Assessment

A Significant Woodland assessment was completed for the Cultural Woodland (CUW1) community (Map 2). This assessment was completed in accordance with regard for the definition of 'woodland' as defined in Section 277 of the Region OP (2022).

3.4.2 Linkage Assessment

A linkage assessment was completed for the Cultural Thicket (CUT1) community. This assessment was based on NRSI biologist expertise with respect to evaluations of the ecological function, condition, viability, and integrity of the feature. Factors were discussed using guidance from the Sustainable Halton Report 3.02 (North-South Environmental Inc. 2009), the Natural Heritage Reference Manual (OMNR 2010), and the City of Hamilton Linkage Assessment Guidelines (2015).

4.0 Biophysical Inventory

4.1 Soil, Terrain and Drainage

The physiographic landform within the vicinity of subject property is characterized as shale plains, while the physiographic region is characterized as the Iroquois Plain (OGS 2007). The Iroquois Plains physiographic region represents shallow lacustrine sand deposits associated with Glacial Lake Iroquois which occupies the lowland, bordering Lake Ontario (Chapman and Putnam 1984). The bedrock geology was formed in the Upper Ordovician period and consists of the Queenston Formation. This formation is characterized primarily by red shale, with minor amounts of green shale, siltstone, sandstone, and limestone. The shales are known to be of low yield and act as a regional aquitard (Chapman and Putnam 1984).

Surficial geology consists of clay to silt-textured till which was derived from glaciolacustrine deposits or shale. The soil complex for the study area was identified as urban (LIO 2015). NRSI took auger samples throughout the subject property natural features and characterized the soil as Silty Clay Loam overlaying Clay Loam with a moisture regime of 1 (Moderate Fresh).

The subject property falls within the Sixteen Mile Creek subwatershed which is approximately 360 km² and includes both rural and urban land uses. The Sixteen Mile Creek drains parts of Halton Hills, Milton, Mississauga, and Oakville where it flows into Lake Ontario (Conservation Halton 2023).

The topography within the study area is relatively flat. Surface water runoff for the front of the property is directed towards Sixth Line, while the majority of the property drains to the southeast entering a Headwater Drainage Feature (HDF) before draining into the CH regulated tributary off-site. The HDF within the subject property also receives drainage from the Munn's Public School property (MNRF 2023c). See Section 5.3 for additional information about the HDF.

4.2 Vegetation

4.2.1 Vegetation Communities

Overall, the vegetation communities within the subject property are highly anthropogenically disturbed due to historic use of the land as a residential dwelling and the fragmented nature of the site. The natural features within the subject property have been isolated since at least 1985 (Google Earth 2023) due the presence of Munn's Public School to the northeast and open fields to the north and west.

Three vegetation communities were mapped within the subject property, two of which can be classified using the ELC system (Lee et al. 1998). The locations of these communities are shown on Map 2 and the results are described below.

CUW1- Mineral Cultural Woodland Ecosite

The cultural woodland community is located at the northeastern (rear) extent of the subject property. This feature was categorized as young; there were no indications that the community has undergone a series of natural thinning and replacements (i.e., large diameter trees and down woody debris). The canopy is comprised of Norway Maple (*Acer platanoides*), declining and dead White Ash (*Fraxinus americana*), Manitoba Maple (*Acer negundo*) and White Elm (*Ulmus americana*). The sub-canopy and understorey are not distinguishable due to the age of the feature and comprised an abundance of Common Buckthorn (*Rhamnus cathartica*), followed by Dotted Hawthorn (*Crataegus punctata*) and regenerating White Ash. The ground cover consists mainly of common non-native species such as Garlic Mustard (*Alliaria petiolata*), Nipplewort (*Lapsana communis*), Wood Avens (*Geum urbanum*), and Creeping Jennie (*Lysimachia nummularia*).

CUT1- Mineral Cultural Thicket Ecosite

The cultural thicket community encompasses the majority of the subject property and provides minimal habitat function, as the dominant species is Common Buckthorn and the ground cover contains greater than 60% Garlic Mustard cover in the spring and summer.

H- Hedgerow

The hedgerow comprises deciduous species and borders the northwestern edge of the residential area and connects to the cultural thicket. The canopy consists of Norway Maple and Siberian Elm (*Ulmus pumila*), while the understorey is dominated by Common Buckthorn. Ground cover consist of occasional Garlic Mustard, Cleavers (*Galium aparine*) and Common Dandelion (*Taraxacum officinale*). The hedgerow is less than 10 m in width and less than 0.5 ha in size and is not considered an ELC community or a woodland feature. The hedgerow does not provide any linkage function as it fronts onto Sixth Line and the Munn's Public School parking lot.

4.2.2 Vascular Flora

In total, 50 plant species were inventoried within and immediately adjacent to the subject property. A complete list of these species is appended to this report (Appendix II).

No plant SAR or SCC were inventoried within the subject property. No regionally rare species were inventoried within the subject property.

The coefficient of conservatism (CC) is a value ranging from 0 (low) to 10 (high), which is based on a species' tolerance of disturbance and fidelity to a specific habitat integrity (Oldham et al. 1995). Higher values are assigned to species that have specific environmental growing requirements and are less tolerant of disturbance. Average CC value of inventoried plant species on the subject property was 2.84, which is relatively low and indicative of species that are generalist in their habitat preferences and are typically adapted to ecologically disturbed conditions. Of the 50 plant species inventoried, 15 (30%) had CC values of 0-3. Twenty-five (50%) are non-native in Ontario. Three species found within the subject property are considered invasive in Ontario: Norway Maple, Common Buckthorn, and Garlic Mustard.

4.2.3 Natural Feature Delineation and Tree Density Assessment

A site visit was completed with the Town and the Region's consultant (Leanne Wallis, North-South Environmental) on June 20, 2023 to review and confirm the staked woodland dripline on the subject property. During this site visit, two driplines were identified and delineated: one that includes the large Cultural Thicket (CUT1) and the Cultural Woodland (CUW1), and another that just includes the CUW1. Through further consultation with the Region, it was determined that the finalized woodland dripline would be the latter, since it was agreed that it is inappropriate to include the buckthorn-dominated thicket as part of a mapped woodland feature. This confirmed dripline was then surveyed using a GPS pole (accurate to 0.05cm), as approved by Halton Region (M. Andrews, pers. comm., September 19, 2023). See Map 2 for the agency-confirmed CUW1 dripline.

Under the Region OP (2022), 'Woodland' is defined as land with at least: 1000 trees of any size per ha, or 750 trees over 5 cm in diameter per ha, or 500 trees over 12 cm in diameter per ha, or 250 trees over 20 cm in diameter per ha but does not include an active cultivated fruit or nut orchard, a Christmas tree plantation, a plantation certified by the Region, a tree nursery, or a narrow linear strip of trees that defines a laneway or a boundary between fields. For the

purpose of this definition, all measurements of the trees are to be taken at 1.37 m from the ground and trees in regenerating fields must have achieved that height to be counted.

On July 24, 2023, NRSI completed a tree density assessment within the CUW1 based on this definition and found that the assessment plots (Map 2) met the Region’s definition of ‘woodland’ when considering the total number of trees per hectare (extrapolated) of any size. The major factor in meeting the density criteria was the presence of regenerating White Ash within the understorey. Due to Emerald Ash Borer (*Agilus planipennis*) infestation, the mature White Ash within the CUW1 feature are dead standing trees. A large amount of White Ash regeneration has occurred in the eastern half of the feature due to gaps in the canopy created by the dead standing trees. It is common for increased levels of sunlight to trigger growth of viable White Ash seeds within existing soil seed banks. See Table 3 for a summary of tree tally count results, extrapolated to areas of 1ha.

Table 3. Tree Tally (number of stems per 100m²)

Number of Plots: 3	r = 5.64m			Area= 100m ²	
	Diameter-at-breast-height (DBH) (cm)				
	≤5	5.1-12	12.1-20	>20	Sum All Diameter
Green Ash	44	-	-	-	44
Norway Maple	-	1	2	1	4
American Elm	-	1	1	-	2
Manitoba Maple	4	5	3	1	13
Black Cherry	2	-	1	-	3
Dotted Hawthorn	-	-	2	-	2
Total Trees/ha	-	233	300	66	2,266
Threshold Trees/ha	-	750	500	250	1000

4.2.4 Birds

In total, 91 bird species are reported from within 10km of the study area based on the OBBA (BSC et al. 2006). Twenty-one (21) bird species were documented within the subject property during site investigations. Of these, two exhibited confirmed (“CO”) signs of breeding (e.g., adults carrying food, the presence of fledged young), seven exhibited probable (“PR”) signs of

breeding (e.g., adults displaying agitated, territorial behaviour), and five exhibited possible (“PO”) signs of breeding (e.g., singing, observed in suitable breeding habitat). The remaining seven species were recorded with no level of breeding evidence. Refer to Appendix III for a list of bird species recorded within the subject property and vicinity.

No SAR or SCC birds were observed during site investigations. The existing dwelling contains a chimney that is capped and not accessible to breeding Chimney Swifts, while the CUW1 is likely too young to attract breeding Eastern Wood-Pewee.

The majority of the bird species observed within the study area are relatively common and ubiquitous on the landscape, and are generally adapted to human-occupied areas. All observed species have secure or apparently secure populations in Ontario (ranked S4-S5; MNRF 2023b).

4.2.5 Herpetofauna

According to the Ontario Reptile and Amphibian Atlas (Ontario Nature 2019), 22 herpetofauna are reported from within 10km of the study area. NRSI biologists did not observe any herpetofauna during site investigations. A complete list of herpetofauna species reported from the study area and vicinity is provided in Appendix IV.

4.2.6 Mammals

According to the Mammal Atlas of Ontario (Dobbyn 1994), 43 mammal species are reported from within 10km of the study area. Of these, evidence was observed for two mammal species within the subject property: Eastern Cottontail (*Sylvilagus floridanus*) (direct observation) and Eastern Gray Squirrel (*Sciurus carolinensis*) (direct observation). None of the observed species are considered federally or provincially significant; all are relatively common with secure provincial populations (MNRF 2023b).

Based on the assessment of the on-site structure, no wildlife habitat potential (including SAR habitat) in or on the structure (i.e., the chimney was capped, no Barn Swallow (*Hirundo rustica*) nests were observed, etc.)

A complete list of mammals reported from the study area and vicinity is included in Appendix V.

4.2.7 Insects

According to the Ontario Butterfly Atlas (Macnaughton et al. 2023), 69 butterfly species are reported from within 10km of the study area. One butterfly species, Cabbage White (*Pieris*

rapae), was incidentally recorded within the subject property during site investigations. This species is relatively common with a secure provincial population (MNRF 2023b). A complete list of butterfly species reported from the study area vicinity is provided in Appendix VI.

According to the Ontario Odonata Atlas (OOAD 2023), 26 odonate species are reported from within 10km of the study area. One species, Ebony Jewelwing (*Calopteryx maculata*), was incidentally recorded within the subject property during site investigations. This species is relatively common with a secure provincial population (MNRF 2023b). A complete list of odonate species reported from the surrounding 10km squares vicinity is provided in Appendix VII.

4.3 Surface Water Feature

Based on historical aerial imagery as well as communication with the landowner, it is NRSI's understanding that the on-site surface water feature was previously identified as a watercourse that conveyed water under Upper Middle Road East through a culvert and continued east. However, the culvert under Upper Middle Road East was removed as part of the construction of nearby residential subdivisions. The current catchment area of this feature was significantly reduced due to the development that occurred upstream of the subject property. The estimated size of the current catchment (drainage) area is 3.4 ha (MNRF 2023c). This size is too small to sustain a creek system, unless groundwater fed. However, no groundwater indicators were present during the site visit.

On June 9, 2023, an NRSI biologist met with CH staff (Sean Stewart and Alex Lenarduzzi) on the subject property to review and discuss the surface water feature. During the site visit, water was not observed within the feature, and minimal vegetation, mainly Spotted Jewelweed (*Impatiens capensis*), was observed in small patches within the feature. Upstream (north) of the subject property, the feature conveys flows south through a mowed grass swale within the adjacent Munn's Public School property. The feature enters the property through the Cultural Woodland (CUW1) community in the northeast area of the subject property and continues to where it flows under a foot-bridge immediately downstream of the subject property. Downstream of the subject property it conveys flows east through a forested feature for approximately 200m where it confluences with a tributary of Sixteen Mile Creek. This downstream section of the feature had more definition and substrate sorting, and was considered more reflective of a watercourse.

HDFs are defined as non-permanently flowing drainage features that may not have defined bed or banks. They are first-order or zero-order intermittent and ephemeral channels, swales, and connected headwater wetlands, but do not include rills or furrows (TRCA and CVC 2014). HDFs may or may not support direct seasonal fish habitat, but often function to support downstream aquatic habitats through the contribution of allochthonous inputs (e.g., sediment, nutrients, organic debris, invertebrates). The contributing drainage area of an HDF is generally less than 50ha.

Based on the site visit, CH staff confirmed that the feature within the subject property is not a watercourse but rather an HDF (Sean Stewart, pers. Comm., June 2023; Appendix VIII). It was therefore confirmed that CH-regulated lands are absent within the subject property, since HDF features are not regulated under O. Reg. 162/06 Halton Region Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.

5.0 Biophysical Analysis

An analysis of the significance of existing natural features within the subject property was completed. This analysis is based on the rarity or significance of features and/or associated functions/processes and/or current policies, or planning related studies. This information was used to justify the refinement of the RNHS designation. Identified significant natural features are described in detail below and are shown on Map 2.

5.1 Regional Natural Heritage System

The RNHS is intended to protect and enhance natural features and functions and includes the following components, according to Section 115.3 of the Region OP (2022):

“(1) Key Features, which include:

- a) Significant habitat of endangered and threatened species,*
- b) Significant wetlands,*
- c) Significant coastal wetlands,*
- d) Significant woodlands,*
- e) Significant valleylands,*
- f) Significant wildlife habitat,*
- g) Significant areas of natural and scientific interest,*
- h) Fish habitat*

Key Features that have been identified are shown on Map 1G

(2) enhancements to the Key Features including Centres for Biodiversity,

(3) linkages,

(4) buffers,

(5) watercourses that are within a Conservation Authority Regulation Limit or that provide a linkage to a wetland or a significant woodland, and

(6) wetlands other than those considered significant under Section 115.3 (1)b).”

As detailed above, the study area contains terrestrial and aquatic functions that are afforded significance under the Region OP, and areas that were previously regulated by the CH. The following is a summary of the significance and sensitivity of the study area natural features and

how the natural heritage policies and legislation described in Section 2.0, particularly within the Region OP, inform refinements to the RNHS where it exists on the subject property.

5.1.1 Significant Woodland

As mentioned in Section 4.2.3, NRSI biologists identified a small Cultural Woodland (CUW1) and a Cultural Thicket (CUT1) on the subject property and it was confirmed by Town and Region that the CUT1 should be excluded from the woodland dripline boundary (Map 2). With this exclusion, the woodland on the subject property is approximately 0.232ha in size. Based on the tree density assessment results, the CUW1 is considered a Woodland in Halton Region (see Section 4.2.3).

Section 277 of the Region OP (2022) defines Significant Woodland as a Woodland ≥ 0.5 ha determined through a site-specific Environmental Impact Assessment, and meeting one or more of the four criteria in Table 4. An analysis of significance for this feature was completed based on this definition. See Table 4 for the analysis results.

Table 4. Significant Woodland Analysis

Significant Woodland Criteria	Existing Conditions
(1) the Woodland contains forest patches over 99 years old	No. The CUW1 was categorized as young, as there were no indications that the community has undergone a series of natural thinning and replacements (i.e., large diameter trees and down woody debris).
(2) the patch size of the Woodland is 2ha or larger if it is located in the Urban Area, or 4ha or larger if it is located outside the Urban Area but below the Escarpment Brow, or 10ha or larger if it is located outside the Urban Area but above the Escarpment Brow	Yes. While the CUW1 is less than 2ha on the subject property, it extends off property. The total size of the contiguous woodland feature is approximately 5ha and it is located in the Urban Area,
(3) the Woodland has an interior core area of 4ha or larger, measured 100m from the edge	No. The greatest width of the CUW1 is approximately 56m; the feature does not provide interior habitat.
(4) the Woodland is wholly or partially within 50m of a major creek or certain headwater creek or within 150m of the Escarpment Brow.	Yes. There is a Conservation Halton watercourse located off-property.

According to the Region OP (2022), this woodland would represent a Significant Woodland in Halton Region, and would be subject to Regional policies governing this form of Key Feature. Under the Town OP (2009, last updated August 2021), woodlands are designated as Natural Area lands. In accordance with Town and Region OPs, development or site alteration within or adjacent to (i.e., within 120m of) Regionally Significant Woodlands (as well as their associated

buffers) is prohibited unless it has been demonstrated that there will be no negative impacts on the nature feature or this ecological function (Halton Region 2022, Town of Oakville 2009).

5.1.2 Headwater Drainage Feature

The HDF feature was assessed during one site visit in June to evaluate and classify its functional importance at a high-level. Since the typical three surveys that are outlined in the OSAP Headwater Sampling Protocol (Gorenc and Stanfield 2017) were not completed, an evaluation of this feature would not be accurate at this time. Earlier visits are usually completed in late March/early April and mid-May and are necessary to determine the hydrology and significance of the feature.

5.1.3 Linkage Assessment

Under the Regional OP (2022), a 'linkage' is defined as an area that is intended to provide ecological connectivity supporting a range of community and ecosystem processes enabling plants and animals to move between Key Features over multiple generations. Linkages are preferably associated with the presence of existing natural areas and functions and they are to be established where they will provide an important contribution to the long-term sustainability of the RNHS. The extent and location of the linkages can be assessed in the context of both the scale of the proposed development or site alteration, and the ecological functions they contribute to the RNHS (Halton Region OP 2022).

As detailed in Section 6.1.1, the Cultural Woodland is identified as Key Feature under the Region OP (2022); therefore, the remaining natural areas within the subject property were evaluated for RNHS linkage attributes. The Sustainable Halton Report 3.02 (North-South Environmental Inc. 2009) provides information regarding linkage assessments in Halton Region, including recommended minimum widths for local and regional linkages. Map 1G of the Regional OP (2022) does not identify any Enhancement Areas, Linkages and Buffers on the subject property. However, a linkage assessment was completed for the study area.

The Sustainable Halton Report states that the identification of ecological linkages and buffers provides long-term protection of the NHS from surrounding land use changes that may otherwise adversely impact ecological functions related to the movement of plants and animals within the environment or impact ecological features that make up the NHS.

Given that there is no Key Feature west of Sixth Line to which the Cultural Thicket (CUT1) would connect, the CUT1 should not be considered a linkage and, as such, should not be included within the RNHS.

5.1.4 Species at Risk

No SAR habitat was confirmed within the study area based on the results of the background information review and site investigations. No trees that would represent suitable roosting or maternity colony habitat for SAR bats were identified on the subject property.

5.1.5 Significant Wildlife Habitat

No SWH was confirmed within the study area. Forms of SWH that were initially identified during SWH screening during the TOR stage (Appendix I), and as summarized in Section 2.2, were subsequently ruled out based on the results of targeted surveys. Table 6 summarizes the assessment of these Candidate SWH types.

Table 5. Summary of Candidate Significant Wildlife Habitat Categories Identified During Preliminary Screening Considered Absent

Significant Wildlife Habitat Type	Assessment Result
Landbird Migratory Stopover Areas	The wooded community within the subject property was identified as CUW1 and therefore does not meet the ELC ecosite criteria to support landbird migratory stopover areas. Field investigations conducted in the fall (October 11, 2023) did not detect an abundance and diversity of migratory birds (i.e., use of the woodland habitat by >200 birds/day and with >35 species with at least 10 bird species recorded on at least five different survey dates, in accordance with the SWH technical guide (MNR 2000, MNRF 2015)).
Bat Maternity Colonies	Field assessments completed during spring and summer ELC did not detect any candidate bat cavity trees or trees species that are commonly associated with suitable roost sites.
SCC Monarch	The study area provides relatively little suitable habitat for Monarch, and its host plant, Common Milkweed (<i>Asclepias syriaca</i>), was not inventoried within the study area. Monarch was not observed.
SCC Eastern Wood-Pewee	This species was not recorded during breeding bird surveys or other site investigations.
SCC West Virginia White	This species was not recorded during site investigations.

As mentioned in Section 4.3, Spotted Jewelweed was observed in small patches within the HDF. While Spotted Jewelweed is a groundwater indicator species, Seeps and Springs SWH is not present on the subject property. NRSI biologists did not observe any other indicators of seeps, such as oily sheen areas or iron staining.

5.1.6 Buffers

Buffers are required for natural heritage features such as woodlands and HDFs to protect them from impacts during potential future site alteration. At their most basic level, buffers spatially offset development areas from natural features such that direct impacts to the features are avoided. Buffers also represent an important component of a larger suite of recommended measures to mitigate impacts to the adjacent natural features, such as by reducing edge effects. Based on the significance and sensitivity of the Cultural Woodland (CUW1) located within the eastern section of the property, an ecological buffer must be considered for this feature in defining the limits of potential future development on the subject property. A buffer for the HDF may also be required but would need to be determined as part of a future HDF assessment, in conjunction with an EIS that is completed as part of a future development application for the property. Consequently, HDF buffers are not considered further here.

Significant Woodland Buffer

Woodland buffers are prescribed based on protecting the trees and their root zones as well as providing associated open habitats required by forest wildlife species or for movement. Buffers from woodland driplines are important in maintaining the condition and function of trees within the woodland while protecting them from impacts of adjacent site alteration. A 10m-wide preliminary buffer is recommended from the Significant Woodland dripline limit on the subject property (Map 4). The 10m buffer ensures that existing root zones from woodland edge trees will be sufficiently protected while allowing room for future growth, and provides an area of natural woodland edge regeneration and active restoration to enhance the buffering capacity of the feature. As part of a potential future development application, the recommended woodland buffer should be ecologically restored and enhanced (See Section 8.0).

The 10m woodland buffer recommendation is preliminary and would be subject to further refinement as part of an EIS completed in conjunction with a future development application on the subject property. The determination of a final buffer width will need to be considered when future development is confirmed through an approved process under the *Planning Act* with the Town. The 10m woodland buffer recommendation is in conformance with Section 16.1.8 of the Livable Oakville OP (2009, last updated August 2021), but a greater buffer size may be required.

5.1.7 Recommended Regional Natural Heritage System

Based on the analysis of the significance of existing natural features within the subject property, it is recommended that the RNHS include the Cultural Woodland (CUW1) community, as it has been identified as Significant Woodland. The RNHS would also include the recommended 10m Significant Woodland buffer. See Map 4 for the recommended revised RNHS where it exists on the subject property.

The boundaries of the Natural Area, including buffers, has been identified through this EIS and therefore satisfies Section 16.1.15 of the Livable Oakville OP (2009, last updated August 2021).

5.2 Town Natural Area Land Use Designation

The subject property is designated Natural Area as per Schedule I Central Land Use. The purpose of the Natural Area designation is to preserve natural features and their functions. According to Section 6.1.2 of the Town OP (2009):

Lands designated Natural Area may contain one or more of the following natural features together with required buffers:

- a) Significant habitat of endangered and threatened species,*
- b) wetlands,*
- c) woodlands*
- d) valleylands,*
- e) Significant wildlife habitat,*
- f) Environmentally Sensitive Areas,*
- g) areas of natural and scientific interest,*
- h) Fish habitat, or*
- i) Natural corridors*

As detailed above, no fish habitat, significant wildlife habitat, or significant habitat of endangered and threatened species were observed on the subject property. However, a Significant Woodland is present within the subject property. Under Section 16.1.8 of the Town OP (2009), development and site alteration shall not be permitted within regionally Significant Woodlands or within the required buffer width. Unless otherwise directed by the Conservation Authority,

developed proposed on lands within 120m of a Significant Woodland shall require an EIS to demonstrate that there will be no negative impacts on the Significant Woodland or its ecological function.

6.0 Impact Assessment

6.1 Description of the Proposed Work

As stated in Section 1.0, there are currently no plans for re-development of the subject property. This EIS has been completed as a means of confirming the appropriate extent of the RNHS on the subject property in accordance with previous agency consultation and the submitted TOR. This is being undertaken in order to facilitate a possible future re-development of the property by a future property purchaser.

The existing residential land use of the property will continue until/unless such time that a future development application for the property is made. The landowner has confirmed that they have no plans to remove the buckthorn-dominated Mineral Cultural Thicket (CUT1), nor do they intend to remove any other natural vegetation on the subject property (L. Funk, pers. comm., February 2024).

6.2 Approach to Impact Assessment

No site alteration or development is being proposed on the subject property, and the existing residential land use (via a single detached dwelling) of the property will continue. Therefore, this impact assessment has been prepared with recognition of this continued land use, but with regard to impacts that may arise as a result of this existing land use. Various recommendations have been provided to mitigate potential impacts, where appropriate. The following is a description of the types and impacts which will be discussed, in accordance with the Region's EIA Guidelines (2020).

- Induced impacts associated with continued residential use of the subject property (based on the existing single detached residence), such as disturbance or degradation of the RNHS caused by occupation and use of the property; and,
- Cumulative impacts associated with the spatial and temporal implications of this continued land use in conjunction with other undertakings in the area.

Note that, because the property is not proposed to be re-developed, that direct impacts (i.e., direct removal of natural features and habitats) and indirect impacts (i.e., changes in site conditions such as runoff drainage, or construction-related disturbances) will not occur and are inapplicable to this EIS.

6.3 Induced Impacts

It is understood that the existing residential land use of the property will continue, and that no increase in human habitation on the property is proposed (i.e., the property will continue to contain the existing single detached house). Therefore, no increase in induced impacts, beyond what may already occur on the property, are anticipated.

However, under these conditions, inadvertent ecological disturbances to the recommended RNHS features on the subject property may occur due to general use of the property by the homeowners. This EIS therefore presents an opportunity to identify recommendations to avoid or mitigate the induced impacts that may occur to the recommended RNHS features based on the existing land use.

Under the existing condition, the recommended RNHS (i.e., the CUW1 and associated preliminary buffer) are effectively further buffered by the large CUT1 feature from the most intensively used portion of the property, which is located at the property's frontage and corresponds to the area of manicured lawn. The buckthorn-dominated CUT1 thicket represents a thick, difficult-to-access wooded portion of the property. By nature of this, access to, and disturbance of, the recommended RNHS features on the subject property from the property's homeowners are expected to be minimal and likely insignificant.

In recognition that the proposed refinement to the RNHS on the property may result in a future clearance of the CUT1 thicket (e.g., by a future property purchaser) and expansion of the active amenity space on the property (e.g., area of manicured lawn), there may be a future increased potential for human disturbance to the on-site Significant Woodland if not appropriately mitigated. In particular, future residential land use may lead to increased human access to the Significant Woodland, with associated potential for habitat degradation (e.g., vegetation trampling or damage, garbage or yard waste dumping, wearing of informal paths). Habitat degradation may facilitate the further establishment Common Buckthorn, as well as other non-native, invasive species such as Garlic Mustard.

It is recommended that the ecological buffer limit be physically demarcated to ensure that buffer lands can be maintained in a natural/restored state and kept outside of actively used portions of the property. This can be achieved by installing permanent fencing along the buffer limit. A gate should be incorporated into the fence to allow for homeowner access to the rear portion of the property. Clearly visible, permanent marker stones may also be used if a less obtrusive

demarcation is desired. Installation of a permanent buffer limit demarcation is anticipated to represent an effective deterrence to human encroachment, and the dumping of refuse or garden waste from the rear of the residential land use, into the natural features and buffer restoration areas.

The greater potential for induced impacts comes from off-site trespassing or garbage dumping/littering by members of the public, due to the presence of an existing pedestrian trail to the immediate rear of the property. Since the Cultural Woodland (CUW1) is part of the greater RNHS, it is not recommended to fence off the rear limits of the property since this may inhibit certain wildlife movements that may occur through the CUW1 community along the wooded corridor that the on-property CUW1 is connected to. It should be noted that there was evidence of human disturbance within the rear portion of the property based on NRSI's site investigations. Therefore, it is recommended that No Trespassing signage be installed adjacent to the trail to ensure trail users understand that the subject property is private property.

6.4 Cumulative Impacts

In order to evaluate the potential for cumulative impacts resulting from this proposal, it is necessary to look beyond the boundaries of the subject property to the adjacent lands. This approach looks at the character and potential changes that are occurring or may occur in the future on surrounding lands. Cumulative impacts may arise as a result of impacts from a number of sources to add up (or combine) if they overlap in space, overlap in time, occur at some receiver spatially removed from the undertaking, or at some future point in time.

Since no re-development of the property is proposed, and since the current residential use will continue, no cumulative impacts are anticipated.

7.0 Enhancement Opportunities

No changes to the subject property are currently being proposed, and the landowner has indicated that they do not currently have plans to remove the CUT1 on the property that falls outside of the recommended RNHS. However, in light of the recommended revision to RNHS mapping on the property, recommendations are provided below that may be considered by the current or future landowner in regards to restoration and enhancement opportunities.

It is recommended that the buckthorn-dominated CUT1 be removed since it acts as a significant source of this highly aggressive non-native species that can continue to colonize adjacent RNHS features. The Significant Woodland buffer, which is currently comprised of a dense Cultural Thicket (CUT1) of Common Buckthorn, should be actively restored through the management of this invasive species and the planting of native tree and shrub species. Buckthorn is also present in smaller numbers within the woodland and these stems should also be managed. Invasive species management should be undertaken in accordance with standard Best Management Practices for this species, which includes the selective application of herbicide by a licensed applicator. The management of buckthorn will allow for the introduction of native species to enhance the ecological quality and function within the Significant Woodland buffer.

It is recommended that a licensed applicator be hired to complete a basal bark herbicide application within the buffer. Alternative approaches including cutting or girdling of stems, the application of Buckthorn Baggies or use of tree wrenches to extract roots are all generally ineffective or impractical for a site with this density of well-established shrubs. Once the one-time herbicide treatment is completed, the buckthorn stems should be left in-situ and plantings should be installed within this area.

Vegetation clearing has the potential to directly impact bird breeding activity through damage and destruction of nests, eggs and young, or avoidance of the area by breeding adults. Vegetation clearing should therefore occur outside the bird nesting season of April 1-August 31 so as to limit disturbances to nesting activities of birds and to avoid destruction of active nests. The destruction of migratory birds and their nests is prohibited under the federal *Migratory Birds Convention Act*.

The buffer should be planted with a mixture of White Pine (*Pinus strobus*), Eastern White Cedar (*Thuja occidentalis*), Red Oak (*Quercus rubra*), Bur Oak (*Quercus macrocarpa*), Black Cherry

(*Prunus serotina*), Sugar Maple (*Acer saccharum*) and native shrubs. In order to suppress buckthorn seedbank regeneration, the conifer component of the planting should account for 50-75% of the planted trees, with the remainder consisting of deciduous species. A native meadow seed mixture, containing species appropriate to the Sixteen Mile Creek subwatershed, should be broadcast throughout the buffer to establish herbaceous cover. The planted species within the buffer should transition from predominantly trees along the eastern edge, closest to the woodland, transitioning to shrubs and meadow edge along the western extent of the buffer.

The restoration plantings would improve the diversity and resiliency of the buffer to mitigate future impacts to the interior woodland area as a result of residential land use (e.g., through attenuation of light casting and noise effects from nearby human occupancy).

Should the restoration and enhancement of the Significant Woodland buffer be pursued in the future, then a naturalization plan should be completed to agency satisfaction.

8.0 Monitoring Plan

Since there are no plans to re-develop the subject property, no monitoring tasks are considered necessary.

If ecological restoration of the property is undertaken in the future, following the recommendations described above, it is recommended that the restoration tree and shrub plantings within the Significant Woodland buffer be inspected annually for two years following installation to confirm that the plantings are establishing in good numbers to effectively buffer the woodland. The two-year monitoring window generally coincides with warranty periods for plant materials.

9.0 Conclusions

NRSI was retained by Lynda Funk to complete an EIS in support of refinements to the RHS where it has been mapped on a property located at Sixth Line in the Town of Oakville. The landowner is not proposing any re-development on the subject property.

The subject property contains a Cultural Woodland (CUW1) within the eastern section that represents Significant Woodland under the Region OP (2022). The on-site portion of Significant Woodland is contiguous with Significant Woodland that extends off and to the rear of the subject property. An HDF was also identified within the eastern section of the property; this HDF feature was previously mapped as a CH-regulated watercourse feature. As an HDF, it does not represent a CH-regulated feature.

A preliminary 10m buffer has been recommended from the agency-confirmed woodland dripline. However, this buffer would be subject to further refinement as part of an EIS completed in conjunction with a future development application on the subject property. A buffer for the HDF may also be required but would need to be determined as part of a future HDF assessment, in conjunction with an EIS that is completed as part of a future development application.

Currently, the majority of the subject property is mapped as RNHS under the Region OP (2022). This designation includes a dense buckthorn Cultural Thicket (CUT1) community. This EIS has been completed as a means of confirming the appropriate extent of the RNHS on the subject property in accordance with previous agency consultation and the submitted TOR. It is our recommendation that the CUT1 be excluded from the RNHS, and that it instead comprise the CUW1 and its 10m preliminary buffer within the subject property.

While no changes to the subject property are currently being proposed, recommendations have been provided for consideration by the current or future landowner in regards to restoration and enhancement opportunities. Restoration and enhancement opportunities are to be further refined and confirmed in conjunction with a potential future development application on the subject property.

10.0 References

- Anderson, Hayley. 2012. Invasive Common (European) Buckthorn (*Rhamnus cathartica*): Best Management Practices in Ontario. Ontario Invasive Plant Council, Peterborough, On.
- Birds Canada. 2021a. Instructions for General Atlassing. Ontario Breeding Bird Atlas (OBBA). Available: <https://www.birdsontario.org/atlassing/>
- Birds Canada. 2021b. Instructions for Point Counts. Ontario Breeding Bird Atlas (OBBA). June 2021.
- Bird Studies Canada (BSC), Environment Canada's Canadian Wildlife Service, Ontario Nature, Ontario Field Ornithologists and Ontario Ministry of Natural Resources. 2006. Ontario Breeding Bird Atlas Website. Available: <https://www.birdsontario.org/jsp/datasummaries.jsp>
- Chapman, L.J. and Putnam, D.F. 1984. The Physiography of Southern Ontario Geological Survey. Special Volume 2. 270p.
- City of Hamilton. 2015. Linkage Assessment (LA) Guidelines. March 2015.
- Conservation Halton. 2023. Conservation Halton Online Regulation Mapping.
- Dobbyn, J.S. 1994. Atlas of the Mammals of Ontario. Don Mills, Federation of Ontario Naturalists.
- Gorenc, S. and L. Stanfield. 2017. Ontario Stream Assessment Protocol (OSAP). Version 10. Section 4. Module 11. Unconstrained Headwater Sampling.
- Government of Canada. 2023. Species at Risk Public Registry: Species Search. COSEWIC Last Assessment Date: 2023-05-05. Available: <https://species-registry.canada.ca/index.en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10>
- Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.
- Macnaughton A., Layberry R., Cvasin R., Edwards B., and C. Jones. 2023. Ontario Butterfly Atlas. Updated January 2023. Available: <https://www.ontarioinsects.org/atlas/index.html>
- Ministry of Natural Resources and Forestry (MNR). 2023a. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17. All Species List Updated: 2023-05-17. Available: <https://www.ontario.ca/page/get-natural-heritage-information>
- Ministry of Natural Resources and Forestry (MNR). 2023b. Natural Heritage Information Centre (NHIC): Make a Natural Heritage Area Map Application. Published: 2014-07-17. Updated 2023-03-03. Available: <https://www.ontario.ca/page/make-natural-heritage-area-map>
- Ministry of Natural Resources and Forestry (MNR). 2023c. Natural Heritage Information Centre (NHIC): Ontario Watershed Information Tool. Published: 2021-02-10. Updated 2023-07-20. Available:

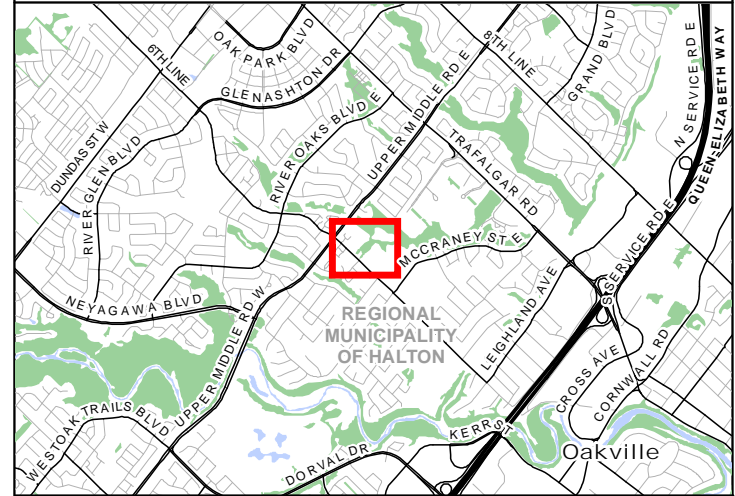
[https://www.lioapplications.lrc.gov.on.ca/OWIT/index.html?viewer=OWIT.OWI
&locale=en-CA](https://www.lioapplications.lrc.gov.on.ca/OWIT/index.html?viewer=OWIT.OWI&locale=en-CA)

- Ministry of the Environment, Conservation, and Parks (MECP). 2023. Species at Risk in Ontario. Published: 2018-07-12. Updated: 2023-05-23. Available: <https://www.ontario.ca/page/species-risk-ontario>
- North-South Environmental Inc. 2009. Natural Heritage System Definition & Implementation: Sustainable Halton Report 3.02
- Ontario Breeding Bird Atlas (OBBA). 2021. Instructions for Point Counts. June 2021.
- Ontario Invasive Plant Council. 2024. Invasive Plant Species.
- Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide. October 2000.
- Ontario Ministry of Municipal Affairs and Housing (OMMAH). 2020. Provincial Policy Statement. Approved by the Lieutenant Governor in Council, Order in Council No. 229/2020.
- Ontario Ministry of Natural Resources (OMNR). 2010. Natural Heritage Reference Manual for Policies of the Provincial Policy Statement, Second Edition. March 18, 2010.
- Ontario Ministry of Natural Resources and Forestry (MNRF). 2015. Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E. January 2015.
- Ontario Nature. 2019. Ontario Reptile and Amphibian Atlas Program: Interactive Range Maps. Accessed October 2019.
- Ontario Odonata Atlas Database (OOAD). 2023. Natural Heritage Information Centre, Ontario Ministry of Natural Resources and Forestry. Species data by 10x10 km square accessed on June 23, 2023
- Halton Region. 2020. Environmental Impact Assessment Guideline: Regional Official Plan Guidelines.
- Halton Region. 2022. Halton Region Official Plan. Consolidated November 4, 2022.
- Town of Oakville. 2023. Town of Oakville Zoning By-law 2014-014. Consolidated 2023.
- Town of Oakville. 2009. Livable Oakville: Town of Oakville Official Plan. Consolidated August 31, 2021.

Maps



Map 1
Sixth Line, Oakville
Study Area and Background
Natural Heritage Mapping



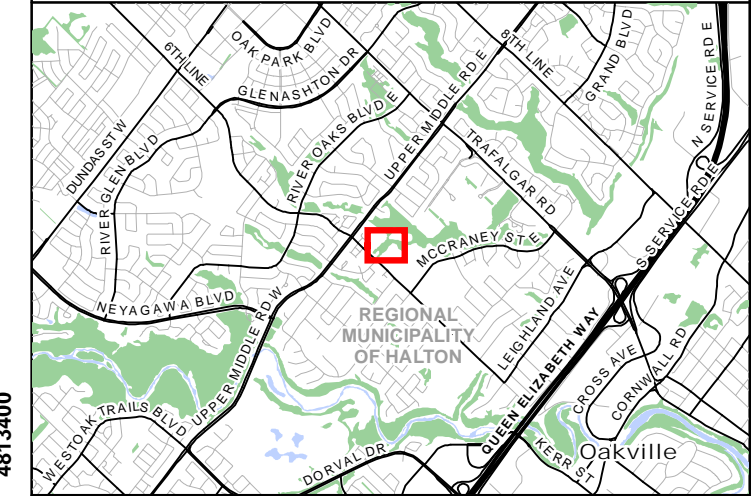
- Legend**
- - - Study Area (120m)
 - ▭ Subject Property
 - - - Conservation Halton-mapped Watercourse Feature
 - ▭ Currently Mapped Halton Region Natural Heritage System (Approximate)



Map Produced by Natural Resource Solutions Inc. This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF © Copyright: King's Printer Ontario. Imagery: First Base Solutions Inc. (2023).

Project: 3096 Date: May 6, 2024	NAD83 - UTM Zone 17 Size: 11x17" 1:1,750	

Sixth Line, Oakville Vegetation Communities and Tree Density Plots

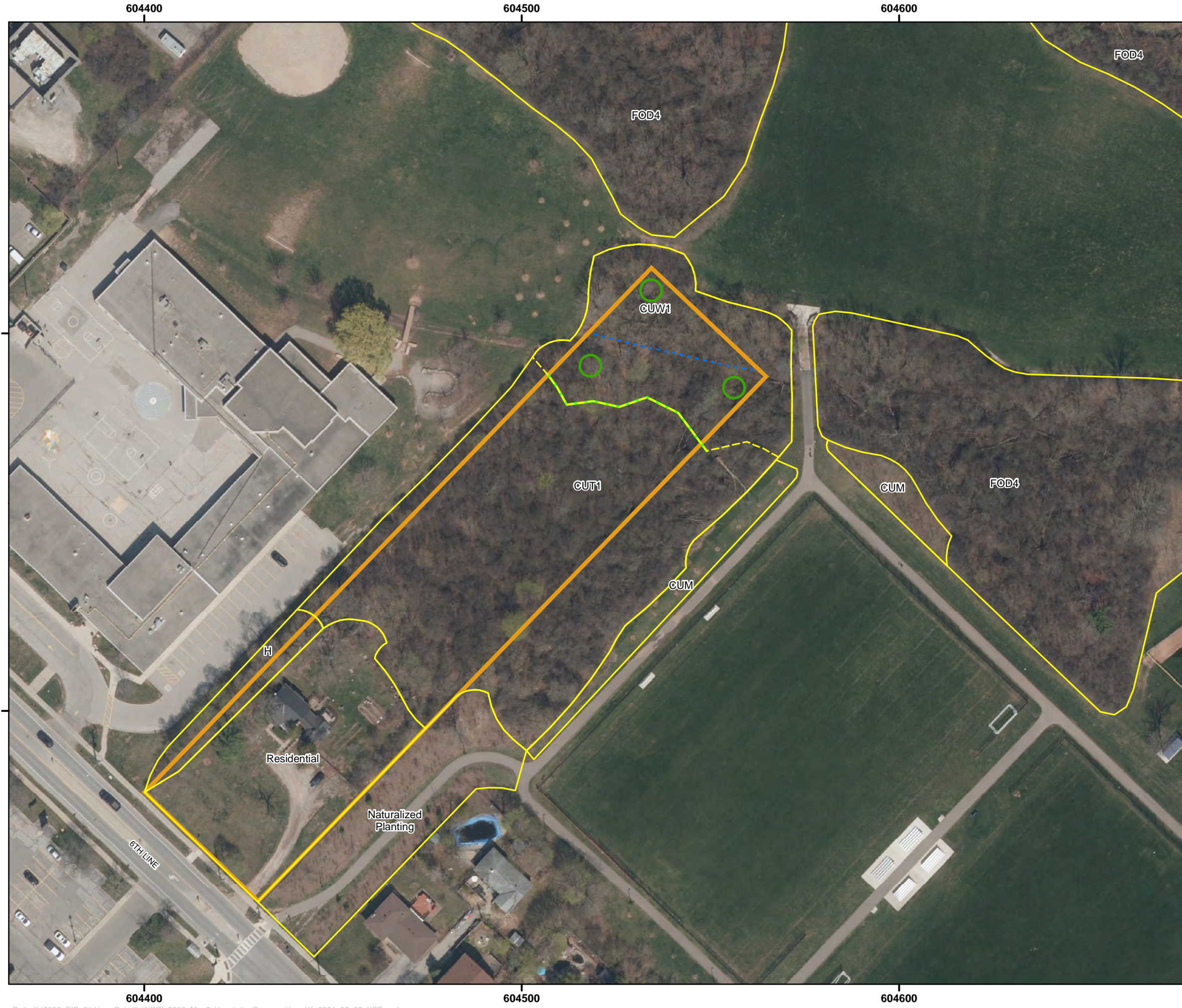
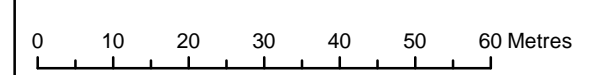


- Legend**
- Subject Property
 - Headwater Drainage Feature (HDF)
 - NRSI Surveyed Dripline Boundary (Reviewed by Halton Region on June 20, 2023)
 - Tree Density Plot (5.64m)
 - Ecological Land Classification (ELC)
 - ELC Inclusion
- (CUM) Cultural Meadow
 (CUT1) Mineral Cultural Thicket Ecosite
 (CUW1) Mineral Cultural Woodland Ecosite
 (FOD4) Dry - Fresh Deciduous Forest Ecosite
 (H) Hedgerow

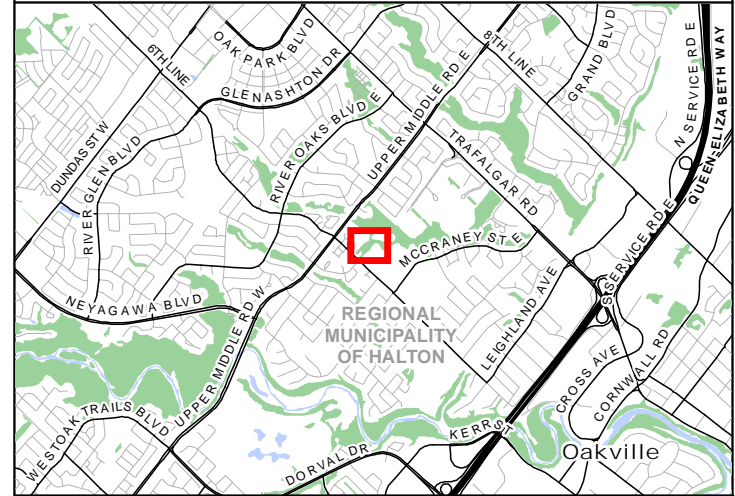


Map Produced by Natural Resource Solutions Inc. This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: King's Printer Ontario. Imagery: First Base Solutions Inc. (2023).

Project: 3096 Date: May 3, 2024	NAD83 - UTM Zone 17 Size: 11x17" 1:1,000
------------------------------------	--



Sixth Line, Oakville Proposed Regional Natural Heritage System

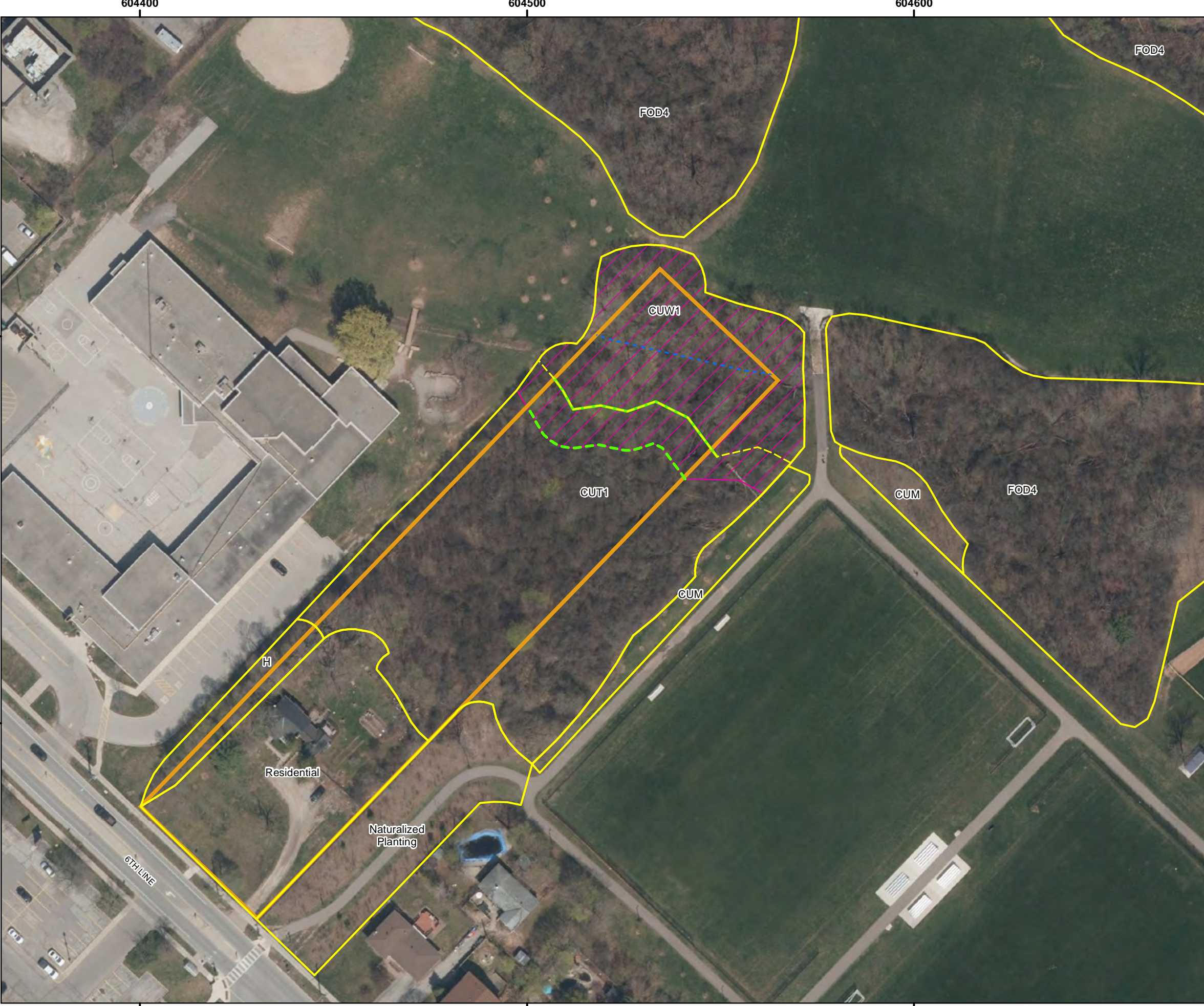
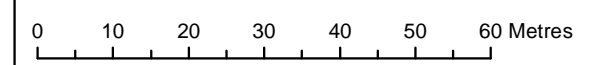


- Legend**
- Subject Property
 - Headwater Drainage Feature (HDF)
 - NRSI Surveyed Dripline Boundary (Reviewed by Halton Region on June 20, 2023)
 - Significant Woodland Buffer (10m)
 - Proposed Halton Region Natural Heritage System
 - Ecological Land Classification (ELC)
 - ELC Inclusion
 - (CUM) Cultural Meadow
 - (CUT1) Mineral Cultural Thicket Ecosite
 - (CUW1) Mineral Cultural Woodland Ecosite
 - (FOD4) Dry - Fresh Deciduous Forest Ecosite
 - (H) Hedgerow



Map Produced by Natural Resource Solutions Inc. This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRF© Copyright: King's Printer Ontario. Imagery: First Base Solutions Inc. (2023).

Project: 3096 Date: May 6, 2024	NAD83 - UTM Zone 17 Size: 11x17" 1:1,000
------------------------------------	--



Appendix I
Terms of Reference



March 13, 2024

Project #3096

To:

Leila Mirriahi, Heather Ireland, Michael Di Febo, Region of Halton
Leigh Musson, Tony Mulnar, Filip Syzmanski, Town of Oakville

Re:

**6th Line, Oakville
Environmental Impact Study Terms of Reference**

On behalf of Natural Resource Solutions Inc. (NRSI), I am pleased to provide the final Terms of Reference (TOR) for an Environmental Impact Study (EIS) associated with the proposed refinement to the Halton Regional Natural Heritage System (RNHS) where it has been mapped on the property located at 6th Line in the Town of Oakville.

According to the Halton Region Official Plan (OP), the entire subject property is designated RNHS. The Town of Oakville's Zoning By-law has zoned it as N - Natural Area. The rear portion of the subject property also falls within the regulated lands of Conservation Halton (CH) due to the presence of a watercourse. An EIS will be completed to ensure that the Region of Halton, Town of Oakville, and the CH's natural heritage policies/regulation have been addressed. The EIS will be completed as per the Region of Halton's Environmental Impact Assessment Guideline (2020) and re-submitted for review in accordance with Section 2.1.3 of the Guideline.

The attached TOR outlines the steps required to complete the EIS in accordance with Region, Town, and CH requirements.

Sincerely,
Natural Resource Solutions Inc.

Sydney Gilmour, M.Sc.
Terrestrial and Wetland Biologist

**6th Line, Oakville
Environmental Impact Study
Terms of Reference
March 13, 2024**

Introduction

The subject property is located at 6th Line, Town of Oakville, Ontario. The subject property is south of Upper Middle Road East and north of McCraney Street East. See Map 1 for the subject property location. A “study area” has also been identified in order to characterize and assess lands adjacent to (within 120m of) the subject property as site access allows.

The current residential dwelling is located within the previously cleared western section of the subject property and is surrounded by manicured lawns. The central and eastern sections are dominated by a woodland feature. Contiguous areas of woodland extend off-site through narrow wooded connections at the northeast and southeast corners of the property. A deciduous hedgerow is located along the northern boundary of the subject property adjacent to the residential dwelling and lawns. The far east end of the property contains a mapped watercourse tributary, which is regulated by CH under Ontario Regulation 162/06.

According to Map 1 of the Halton Regional OP (2022), the entire subject property is mapped as Regional Natural Heritage System. Based on this designation, the Town of Oakville’s Zoning By-law has also zoned the subject property as “N - Natural Area”. The subject property was previously designated and zoned as Low Density Residential, prior to 2014.

It is our understanding that the landowner wishes to remove the Regional Natural Heritage System designation from all or a portion of the subject property. Per Section 116.1 of the Regional OP, the boundaries of the RNHS may be refined through an Environmental Impact Assessment (otherwise known as an EIS, referred to as such herein) accepted by the Region, or similar studies based on a Terms of Reference accepted by the Region. Once approved through an approval process under the Planning Act, these refinements are in effect on the date of such approval. No development or site alteration are currently proposed for the subject property. As such, its existing residential land use will continue.

An EIS is required to ensure conformance with Regional and Town Official Plan policies, the Provincial Policy Statement (OMMAH 2020) and the *Endangered Species Act*, as well as CH’s Ontario Regulation 162/06. In doing so, the EIS will be scoped to characterize the woodland natural feature and confirmation of the feature boundary limits. It will also screen for and assess the presence of potential Significant Wildlife Habitat (SWH) and Species at Risk (SAR) habitats associated with the study area.

Characterization of Natural Features

Collection and Review of Background Information

Background information pertaining to the biological resources on and in the vicinity of the study area will be collected. This information will include file material requested from CH and the Ontario Ministry of Natural Resources and Forestry (MNRF). Significant species records will be obtained through review of the following resources:

- Natural Heritage Information Centre (NHIC) database of provincially-tracked species (MNRF 2023);

- Ontario Breeding Bird Atlas (BSC et al. 2006);
- Ontario Reptile and Amphibian Atlas (Ontario Nature 2019);
- Atlas of the Mammals of Ontario (Dobbyn 1994);
- Ontario Butterfly Atlas (Macnaughton et al. 2023);
- Ontario Odonata Atlas (OOAD 2023); and,
- eBird and iNaturalist online species observations.

Species At Risk / Species of Conservation Concern Screening

A screening has been completed to determine the potential for SAR and Species of Conservation Concern (SCC) and their habitat to be present within the study area. The habitats within the study area, as derived from air photo interpretation, have been compared to the habitat requirements of SAR/SCC known from the vicinity of the study area (up to 10km). See Appendix I for the complete SAR/SCC screening table. Based on the results of the screening, the following SAR that are regulated under the *Endangered Species Act* were identified as having potentially suitable habitat within the study area:

- Chimney Swift (*Chaetura pelagica*) – provincially and federally Threatened
- Little Brown Myotis (*Myotis lucifugus*) – provincially and federally Endangered
- Northern Myotis (*Myotis septentrionalis*) – provincially and federally Endangered
- Tri-colored Bat (*Perimyotis subflavus*) - provincially and federally Endangered

See below for SCC whose habitats were screened as potentially occurring in the study area. Habitats for SCC are considered a form of SWH (MNR 2015).

Significant Wildlife Habitat Screening

Potential Significant Wildlife Habitat (SWH) types were also screened based on air photo interpretation of natural features within the study area and using discrete significance criteria established by the MNR (MNR 2015). The results of the SWH screening have informed surveys required to confirm such habitat within the study area.

Based on the preliminary screening, the following were identified as Candidate SWH types within the study area, pending further assessment during site investigations:

- Bat Maternity Colonies
- Landbird Migratory Stopover Areas
- Potential habitat for the following SCC that is not addressed through other SWH categories:
 - Eastern Wood-Pewee (*Contopus virens*) – provincial species of Special Concern
 - Monarch Butterfly (*Danaus plexippus*) – provincial species of Special Concern
 - West Virginia White (*Pieris virginiensis*) - provincial species of Special Concern

See Appendix II for the complete SWH screening tables.

Field Surveys

Field studies have been scoped to characterize and delineate the natural features within the subject property. The following summarizes the field surveys that will be completed to inform the EIS.

Vegetation Community Mapping

NRSI biologists will describe and map the vegetation communities on and adjacent to the subject property using the Ecological Land Classification (ELC) system for southern Ontario (Lee et al. 1998). The ELC mapping will be informed through a single-season vegetation inventory (see below). Details on the vegetation communities will be recorded, including species composition, dominance, uncommon species or features, and evidence of human disturbance. NRSI will also make note of any wetlands and/or vernal pools that are present on the subject property.

Vegetation Inventory

In conjunction with the ELC mapping described above, NRSI biologists will complete a multi-season (late spring and summer) vegetation inventory on and adjacent to the subject property. The vegetation inventory will document all vascular plants encountered. However, an emphasis will be on the identification, description and mapping of any federally, provincially, or regionally significant species.

Woodland Boundary Delineation

NRSI biologists will flag and survey the dripline boundary that forms the western limit of the woodland on the subject property. The intent of this task will be to distinguish the limits of the natural woodland feature from the previously cleared and altered western portion of the property. NRSI will review and confirm the flagged dripline in the field with agency staff (e.g., Regional, Town, and/or CH staff). The confirmed dripline boundary will be surveyed with a GPS pole (accurate to 0.05cm). The surveyed boundaries will be incorporated into the EIS mapping.

NRSI biologists will complete a linkage assessment of the woodland feature with adjacent natural features on the local landscape. This linkage assessment will be done in part as a desktop exercise, but will also incorporate site-level observations of wildlife habitat use, evidence of movement paths, potential barriers to land-based movement, etc.

Tree Density Assessment

To determine if the on-property woodland feature meets the Halton Region OP (2022) definition of 'woodland', NRSI will complete a plot-based tree density assessment within the delineated woodland where it exists on the subject property. Tree density assessments will be completed by counting the number of trees within each diameter-at-breast height (DBH) range (measured at 1.37 m from the ground) observed within a 5.64 m radius circular plot. The number of inventoried trees within each DBH range will be multiplied by 100 and divided by the number of plots completed to equal the average number of trees per hectare. The average number of trees per hectare will be compared against the criteria provided in the Region's definition of 'woodland', listed above. Given that the on-property woodland feature is 0.232ha in size, the assessment of three 5.64 m radius circular plots would result in a 13% sampling effort. The number of plots sampled is based on the size of the woodland feature; plots must be at least 20m apart from each and randomly located.

If the on-property woodland meets the Halton Region OP (2022) definition of 'woodland', then a significant woodland assessment will be conducted in accordance with Section 277 of the Halton Region OP (2022).

Breeding Bird Surveys

Two early morning breeding bird surveys will be completed between late May and early July 2023 in accordance with the Ontario Breeding Bird Atlas (OBBA) protocol (Birds Canada et al. 2021). Surveys will be completed through an area search of the subject property. All observations of significant species will be recorded in detail, including their specific observation location(s), observed behaviour, and highest level of breeding evidence.

Aquatic Habitat Assessment

NRSI will conduct an aquatic habitat assessment of the watercourse tributary including the presence, type and quality of fish habitat within the feature.

Wildlife Habitat Assessment

The site visit will include an assessment of the presence of wildlife habitat within the study area. This will include an assessment of potential SAR habitat and SWH presence based on the results of the screening exercise described above. Any potentially significant habitat will be documented, photographed, and GPS-georeferenced.

Incidental Wildlife Observations

Observations of all wildlife will be recorded during all site visits, including birds, herpetofauna, mammals, butterflies and odonates (dragonflies and damselflies). In addition to direct observations, any evidence such as dens, tracks, and scat will be documented.

An existing structure is located on the subject property. The structure was reviewed for wildlife use with agency staff (Leanne Wallis, Halton Region's environmental consultant and Tony Molnar, Town of Oakville's Urban Forester) on June 20, 2023. It was determined that there was no wildlife habitat potential (including SAR habitat) in or on the structure (i.e., the chimney was capped, no Barn Swallow (*Hirundo rustica*) nests were observed, etc.).

Refinement of Regional Natural Heritage System Mapping

The results of the field survey will be combined with the background information to provide a general characterization of the existing natural features that occur on and adjacent to the subject property. This will include vegetation community descriptions and mapping, confirmed woodland dripline boundary, and summaries of wildlife species based on background information review and the site visits. Potential for significant wildlife species habitat presence will be determined based on updates to the SAR/SCC and SWH screening tables arising from site-level characterization of features and habitat suitability. The characterization will also include information on soils known from the vicinity of the property as well as a description of the mapped watercourse within the rear portion of the property.

The Region OP definitions for the Key Features and Components in the RNHS will be used in the characterization of features and defining the limits of the RNHS. The RNHS designation on the property is expected to coincide with what is identified as "woodland" based on the results of ELC and the definition of "woodland" used by the Region and/or Town OPs. The woodland boundary on the subject property will be accurately defined and mapped by delineating and GPS-surveying the woodland dripline boundary. Refinements that are made to the NHS as a result of this workplan will be described in the EIS.

NRSI will provide a map of the confirmed and refined limits of the RNHS on or adjacent to the subject property. This will be included in the EIS and used as the basis for determining which portions of the property should have the RNHS designation removed and subsequently redesignated and re-zoned to Residential.

Impact Assessment

No development is currently being proposed on the subject property. However, a high-level impact assessment will be completed based on the Town's Official Plan designation for the subject property and the types and intensities of uses permitted both in the Livable Oakville Plan and the Town's Zoning By-law. This impact assessment may also include recommendations on how future owners of the property can mitigate impacts to the adjacent RNHS through their use of the property. The EIS will include a summary of how the existing and planned land use conforms with applicable federal, provincial, municipal, and conservation authority legislation policy and regulations. The EIS will also include an analysis of how applicable policies are adhered to.

Should future development be proposed on the subject property, then a new EIS or EIS Addendum will be provided to agency, as well as a new TOR.

An EIS report will be prepared that includes maps, references, and appendices including taxonomic species lists (species documented by ELC community) and a photolog if applicable. It is anticipated that the following maps will be included in the EIS: a map of the study area and natural features (including any designated features), ELC community mapping, locations of any SAR or regionally rare species, locations of tree density plots, and locations of any SWH identified. The EIS will also include a table describing the conditions of each site visit (i.e., date, start and end time, and weather conditions).

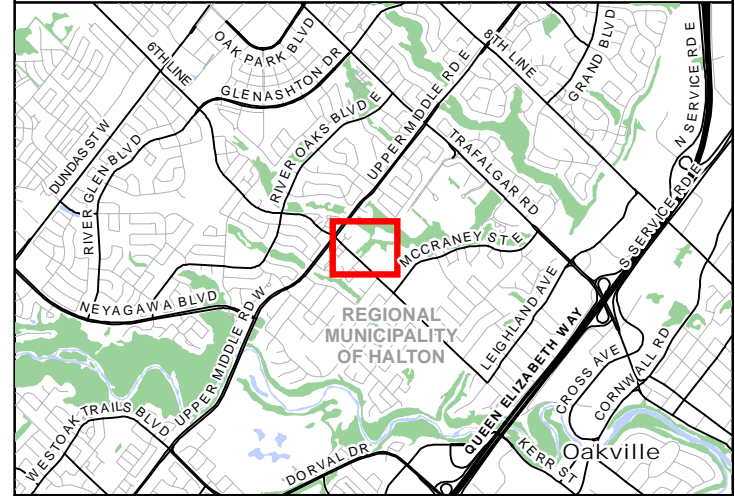
References

- Birds Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources and Forestry, Environment and Climate Change Canada, and Ontario Nature. 2021. Ontario Breeding Bird Atlas. Instructions for Point Counts. June 2021.
- Bird Studies Canada (BSC), Environment Canada's Canadian Wildlife Service, Ontario Nature, Ontario Field Ornithologists and Ontario Ministry of Natural Resources. 2006. Ontario Breeding Bird Atlas Website. Available: <https://www.birdsontario.org/jsp/datasummaries.jsp>
- Dobbyn, J.S. 1994. Atlas of the Mammals of Ontario. Don Mills, Federation of Ontario Naturalists.
- Halton Region. 2022. Halton Region Official Plan. Consolidated November 2022.
- Halton Region. 2020. Halton Region Environmental Impact Assessment Guideline.
- Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.
- Macnaughton A., Layberry R., Cvasin R., Edwards B., and C. Jones. 2023. Ontario Butterfly Atlas. Updated January 2023. Available: <https://www.ontarioinsects.org/atlas/index.html>
- Ministry of Natural Resources and Forestry (MNRF). 2023. Natural Heritage Information Centre (NHIC): Make a Natural Heritage Area Map Application. Published: 2014-07-17. Updated 2023-03-03. Available: <https://www.ontario.ca/page/make-natural-heritage-area-map>
- Ontario Ministry of Municipal Affairs and Housing (OMMAH). 2020. Provincial Policy Statement.
- Ontario Ministry of Natural Resources and Forestry (MNRF). 2015. Significant Wildlife Habitat Ecoregion 7E Criterion Schedule: Addendum to Significant Wildlife Habitat Technical Guide. MNRF, January 2015.
- Ontario Nature. 2019. Reptiles and Amphibians of Ontario Range Maps. <https://www.ontarioinsects.org/herp/index.html>
- Ontario Odonata Atlas Database (OOAD). 2023. Natural Heritage Information Centre, Ontario Ministry of Natural Resources and Forestry. Species data by 10x10 km square accessed on June 8, 2023.

Map



Map 1
Sixth Line, Oakville
Study Area and Background
Natural Heritage Mapping



- Legend**
- Study Area (120m)
 - Subject Property
 - Conservation Halton-mapped Watercourse Feature
 - Currently Mapped Halton Region Natural Heritage System (Approximate)



Map Produced by Natural Resource Solutions Inc. This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNRFO Copyright: King's Printer Ontario. Imagery: First Base Solutions Inc. (2021).

Project: 3096 Date: March 12, 2024	NAD83 - UTM Zone 17 Size: 11x17" 1:1,750

Appendix I

Species at Risk and Species of Conservation Concern Screening Table

Species at Risk (SAR) and Species of Special Concern (SSC) Screening Table

Common Name	SRANK	SAR#	COSEWIC	SARA	SARA Schedule	Habitat Source	Habitat Preference	Suitable Habitat within Study Area	Carried Forward to ECP	Rationale
Birds										
Northern Bobwhite	57	END	E	1	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Grassland, prairie or hay fields with woody cover in form of shrubs, lengths of vines, shrubs, fence rows or woodland edges; treed/grassland, open areas, pastures or small grasses and clover areas; well-drained sandy or heavy silt soil; open fields	No	No	Grassland, prairie, and hay fields are not present within or adjacent to the subject property.
Eastern Whip-poor-will	648	THB	F	1	Schedule 1	Recovery Strategy for the Eastern Whip-poor-will (MECP 2019)	Open ground, clearings in dense forests (including barrens and bogged areas), rock barrens, and large, abandoned fields, gravel benches or barren areas with rocky soils, open woodlands, flat forest coasts.	No	No	Suitable habitat is not present within or adjacent to the subject property.
Common Nighthawk	648	SC	SC	1	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Commonly found in urban areas near buildings; nests in chimneys, hollow trees, and crevices of rock cliffs. Feeds over open water.	No	No	The property is located within an urban area, which may provide suitable nesting chimney.
Chimney Swift	138	THB	F	1	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Mid-canopy layer of forest clearings and edges of deciduous and mixed forest. Abundant in mature-aged mature forest stands with little understorey vegetation.	Yes	Yes	The woodland feature may provide suitable habitat.
Eastern Wood Pewee	648	SC	SC	1	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Farmsteads, rural areas, and other open or semi-open areas near body of water. Nests almost exclusively on human-made structures such as open barns, buildings, bridges and culverts.	No	No	Suitable habitat is not present within or adjacent to the subject property.
Purple Martin	138	THB	F	1	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Open, treeless areas such as farmland, parks, sports, marshes; usually near large bodies of water. Colonial nests in tree cavities, chimneys, most commonly in nest boxes, require open space for foraging; prefer trees <15 cm dbh.	No	No	Large bodies of water are not present. Suitable habitat is not present within or adjacent to the subject property.
Barn Swallow	648	SC	SC	1	Schedule 1	Recovery Strategy for the Barn Swallow in Ontario (Palmer et al. 2013)	Nests in burrows in natural and human-made settings with vertical faces in soil and sand deposits. Usually in banks of river and lakes, but also found in sand and gravel pits.	No	No	Suitable habitat is not present within or adjacent to the subject property.
Barn Swallow	648	THB	F	1	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Undisturbed mixed mature deciduous or mixed forest with moderate lighting growth. Near open space. Must have some trees higher than 22 m.	No	No	Forests and swamps are not present. Suitable habitat is not present within or adjacent to the subject property.
Wood Thrush	648	SC	F	1	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Well-drained grassland or prairie with low cover of grasses, taller weeds or shrubs; oak/hayfields or woods; follows fence, adjacent with ground vegetation of various densities. Requires perches for feeding on insects and other invertebrates.	No	No	Grassland and prairie habitats are not present within or adjacent to the subject property.
Sharp-shinned Sparrow	648	SC	SC	1	Schedule 1	Recovery Strategy for the Bobolink and Eastern Meadowlark in Ontario (McCrae et al. 2013)	Large (20 ha) open exposure grasslands, pastures, hayfields, meadows or follow fields with dense ground cover. Occasionally found in large (50 ha) fields of winter wheat and corn in southwestern Ontario.	No	No	Suitable habitat is not present within or adjacent to the subject property.
Bobolink	648	THB	SC	1	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Open pastures, hayfields, grasslands or grass meadows with elevated single perches (small trees, shrubs or fence posts). Also needs borders of shrubs, tall grasses, orchards, arctic, shrubby overgrown fields or other open areas. Generally prefers larger tracts of habitat >50 ha, but will sometimes use smaller tracts.	No	No	Open pastures, hayfields, grasslands, or grass meadows are not present. Suitable habitat is not present within or adjacent to the subject property.
Eastern Meadowlark	648	THB	F	1	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)		No	No	
Reptiles and Amphibians										
Snowy Plover	54	SC	SC	1	Schedule 1	Species at Risk in Ontario (MECP 2022)	Slow-flowing rivers and streams, lakes, and permanent or semi-permanent wetlands with soft substrates and vegetation. Key habitat requirements: open areas with structures for nesting, open sand or gravel areas for nesting, shallow areas with soft substrates to bury in, soft banks or substrates for fiberostrum.	No	No	The northern section of the subject property contains a stream, but it does not provide suitable habitat for nesting. Suitable habitat for nesting, shallow areas with soft substrates to bury in, soft banks or substrates for fiberostrum.
Midland Painted Turtle	54	SC	SC	1	Schedule 1			No	No	The northern section of the subject property contains a stream, but it does not provide suitable habitat for Midland Painted Turtle.
Northern Map Turtle	53	SC	SC	1	Schedule 1	Species at Risk in Ontario (MECP 2022)	Large bodies of water such as rivers and lakes with soft bottom, aquatic vegetation, abundant mollusc prey, and banking structures such as logs or rocks. Nesting occurs in open areas with soft substrates such as sand or gravel. Hibernates in the bottom of deep areas of lakes or deep, slow-moving sections of rivers.	No	No	Large bodies of water are not present within or adjacent to the subject property.
Minkwee	54	NAB	SC	1	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Farmsteads, meadows, harvested or open stands, pine forest, path nearby or woods open; near bottom or log weirs, holes, under logs, stones, or boards or in outbuildings; often uses communal nest sites.	No	No	Suitable habitat is not present within or adjacent to the subject property.
Jefferson Salamander	53	END	E	1	Schedule 1	Recovery Strategy for the Jefferson Salamander (Jumon, J. J. McCarter & F. Farthing)	Large deciduous or mixed forest containing, or in close proximity to, suitable breeding ponds which include fallen woody debris, present until Aug/Sep; habitats must contain shelter features including leaf litter, sandy debris, rock, logs, or stumps. Hibernation sites are underground in mammal burrows, root systems or crevices of boulders or rocks.	No	No	Wetland pools or wetlands are not known to exist within or adjacent to the subject property.
Bats										
Little Brown Myotis	53	END	E	1	Schedule 1	Recovery Strategy for the Little Brown Myotis and Tricolored Bat in Ontario (Humphreys, C. H. Farthing, 2022)	Dark caves, quarries, tunnels, hollow trees or buildings for roosting. Winter in humid caves. Mortality sites in dark warm areas such as attics and barns. Feeds primarily in wetlands and forest edges.	Possible	Yes	The woodland feature may contain suitable roosting trees.
Tricolored Bat	57	END	E	1	Schedule 1	Recovery Strategy for the Little Brown Myotis, Northern Myotis and Tricolored Bat in Ontario (Humphreys, C. H. Farthing, 2022)	Nests and maternity colonies in older forests and occasionally in barns or other structures. Forage over water and along streams in the forest. Hibernates in caves.	Possible	Yes	The woodland feature may contain suitable roosting trees.
Northern Myotis	53	END	E	1	Schedule 1	Recovery Strategy for the Little Brown Myotis, Northern Myotis and Tricolored Bat in Ontario (Humphreys, C. H. Farthing, 2022)	Nests in houses and man-made structures but prefers hollow trees or under loose bark. Hibernates in mines or caves. Hunts within forests, below the canopy.	Possible	Yes	The woodland feature may contain suitable roosting trees.
Birds										
West Virginia White	53	SC				Species at Risk in Ontario (MECP 2022)	Rich, moist, deciduous woods with populations of two-leaved yew (Taxodium distichum) and/or red maple (Acer rubrum).	Possible	Yes	Nature, habitat suitability is dependent on presence of the two-leaved yew.
Manx	576, 648	SC	E	1	Schedule 1	Species at Risk in Ontario (MECP 2022)	Adults found in a diversity of habitats with a variety of soil/substrates. Colonies are confined to meadows and open areas where milkweeds grow (larval food plant).	Possible	Yes	Milkweed may grow along forest edges within and/or adjacent to the subject property.
Birds										
Redpoll	51	END	F	1	Schedule 1	Species at Risk in Ontario (MECP 2022)	Pools and slow-moving areas of small streams and headwaters with a gravel bottom. Generally found in areas with overhanging banks and shrubs. Can be found in shallow parts of streams.	No	No	A stream is present within the western section of the subject property, but suitable habitat for Redpoll does not exist.

References List

Falconer, M. K., Richardson, A., Hogg, D., Tucci, B., Stewart, J., McCracken, and R. Reel. 2016. Recovery Strategy for the Bank Swallow (Hirundo lunifrons) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. iv + 70 pp.

Government of Canada. 2022. Species at Risk Public Registry. Species Search. COSEWIC Last Assessment Date: 2022-05-11. Available: <https://www.sararegistry.gc.ca/status/status-eng.aspx?lang=eng>

Humphreys, C. and H. Farthing. 2019. Recovery Strategy for the Little Brown Myotis (Myotis lucifugus) and Tricolored Bat (Pteronotus subulatus) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. iv + 35 pp. + Appendix. Adoption of the Recovery Strategy for the Little Brown Myotis (Myotis lucifugus), the Northern Myotis (Myotis septentrionalis), and the Tricolored Bat (Pteronotus subulatus) in Canada (Environment and Climate Change Canada 2018).

Lovett, J., McCarter, and H. Farthing. 2018. Recovery Strategy for the Jefferson Salamander (Amphytomonas jeffersoniana) and Unusual Amphytomonas (Amphytomonas jeffersoniana) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. iv + 58 pp. <https://www.ontario.ca/pub/jeffersonsalamander-and-unusual-amphytomonas-recovery-strategy-plan-1>

McCrae, J.D., R. A. Reel, R.B. Reel, B. Fox, J.V. Sabara, A. Cross, and B. Crocker. 2013. Recovery Strategy for the Bobolink (Dolichonyx oryzivorus) and Eastern Meadowlark (Dolichonyx oryzivorus) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of Natural Resources, Peterborough, Ontario. iv + 40 pp.

Ministry of Natural Resources, Mines, Natural Resources and Forestry (MNR/NRF). 2022. Natural Heritage Information Centre (NHIC). Species List for Ontario. Published: 2011-03-17. All Species List Updated: 2022-04-11. Available: <https://www.ontario.ca/gov/natural-heritage-information-centre>

Ministry of the Environment, Conservation and Parks. 2019. Recovery Strategy for the Eastern Whip-poor-will (Caprimulgus vociferans) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. iv + 6 pp. + Appendix. Adoption of the Recovery Strategy for Eastern Whip-poor-will (Caprimulgus vociferans), in Canada (Environment and Climate Change Canada 2019).

Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide: Appendix G: Wildlife Habitat Metrics and Habitat Descriptors for Rare Vascular Plants. October 2000.

Appendix II
Significant Wildlife Habitat Screening Table

Significant Wildlife Habitat Assessment Tables

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Waterfowl Stopover and Staging Areas (Terrestrial)					Not Present	Not Present
Habitat important to migrating waterfowl	American Black Duck Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler Tundra Swan	CUM1 CUT1 - Plus evidence of annual spring flooding from melt water or run-off within these Ecosites. - Fields with seasonal flooding and waste grain in the Long Point, Rondeau, Lake. St. Clair, Grand Bend and Pt. Pelee areas may be important to Tundra Swans.	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 ^{cxlviii} <u>Information Sources</u> • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities (CAs) • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Field Naturalist Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	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" ^{ccxi} • Any mixed species aggregations of 100 ^l or more individuals required. • The area of the flooded field ecosite habitat plus a 100-300m radius buffer dependant on local site conditions and adjacent land use is the significant wildlife habitat ^{cxlviii} . • 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 ^{cxlix} Index #7 provides development effects and mitigation measures.	Adjacent fields are too small to support aggregations of 100 or more individuals. Suitable habitat is not present within or adjacent to the subject property.	
Wildlife Habitat: Waterfowl Stopover and Staging Areas (Aquatic)					Not Present	Not Present
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	Canada Goose Cackling Goose Snow Goose Green-winged Teal American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Blue-winged Teal Hooded Merganser Common Merganser Red-breasted Merganser Lesser Scaup Greater Scaup Common Goldeneye Bufflehead Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Canvasback Redhead Ruddy Duck Brant White-winged Scoter Black Scoter	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). <u>Information Sources</u> • Environment Canada • Naturalist clubs often are aware of staging/stopover areas • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of: • Aggregations of 100 ^l or more of listed species for 7 days ^l , results in >700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH ^{cxlix} • The combined area of the ELC ecosites and a 100m radius area is the SWH ^{cxlviii} • Wetland area and shorelines associated with sites identified within the SWHTG ^{cxlviii} Appendix K ^{cxlix} are significant wildlife habitat. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" ^{ccxi} • 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 ^{cxlix} Index #7 provides development effects and mitigation measures.	Ponds, marshes, lakes, bays, coastal inlets, and watercourses are not present within the subject property. Suitable habitat is not present within or adjacent to the subject property.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details		
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property	
Wildlife Habitat: Shorebird Migratory Stopover Area							
High quality shorebird stopover habitat is extremely rare and typically has a long history of use	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	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. <u>Information Sources</u> • Western hemisphere shorebird reserve network • Canadian Wildlife Service (CWS) Ontario Shorebird Survey • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	Studies confirming: • Presence of 3 or more of listed species and > 1000 ¹ 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 (<24hrs) during spring migration, any site with >100 ¹ Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area ^{cxlviii} • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" ^{ccxi} • SWHMIST ^{cxlix} Index #8 provides development effects and mitigation measures.	Not Present	Not Present	Lakes, rivers, and wetlands are not present and therefore shoreline habitat is not present. Suitable habitat is not present within or adjacent to the subject property.
Wildlife Habitat: Raptor Wintering Area							
Sites used by multiple species, a high number of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl <u>Special Concern:</u> Short-eared Owl Bald Eagle	<u>Hawks/Owls:</u> Combination of ELC Community Series; need to have present one Community Series from each land class. Forest: FOD, FOM, FOC Upland: 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).	The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. Raptor wintering (hawk/owl) sites need to be > 20ha ^{cxlviii, cxlix} with a combination of forest and upland ^{xvi, xvii, xviii, xix, xx, xxi} . Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands ^{cxlix} Field area of the habitat is to be wind swept with limited snow depth or accumulation. Eagle sites have open water and large trees and snags available for roosting ^{cxlix} <u>Information Sources</u> • OMNRF Districts • Natural clubs • Natural Heritage Information Centre (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Reports and other information available from CAs • Results of Christmas Bird Counts	Studies confirm the use of these habitats by: • One or more Short-eared Owls, or, One of more Bald Eagles or; at least 10 individuals and two listed hawk/owl species • To be significant a site must be used regularly (3 in 5 years) ^{cxlix} for a minimum of 20 days by the above number of birds. ⁱ • 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" ^{ccxi} • SWHMIST ^{cxlix} Index #10 and #11 provides development effects and mitigation measures.	Not Present	Not Present	Woodlands and adjacent fields are present, but fields are highly disturbed (i.e., recreational fields with human presence) and therefore suitable habitat is not present within or adjacent to the subject property.

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Bat Hibernacula						
Bat hibernacula, are rare habitats in all Ontario landscapes.	Big Brown Bat Eastern Pipistrelle/Tri-colored Bat	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 The locations of bat hibernacula are relatively poorly known. <u>Information Sources</u> • OMNRF for possible locations and contact for local experts • Natural Heritage Information Centre (NHIC) Bat Hibernaculum • Ministry of Northern Development and Mines for location of mine shafts • Clubs that explore caves (eg. Sierra Club) • University Biology Departments with bat experts	<ul style="list-style-type: none"> • All sites with confirmed hibernating bats are SWH¹. • The area includes 200m radius around the entrance of the hibernaculum^{cxlviii, ccvii, i} for the development types and 1000m for wind farms^{ccv}. • Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the^{ccv} "Bats and Bat Habitats: Guidelines for Wind Power Projects"^{ccv} • SWHMIST^{cxlix} Index #1 provides development effects and mitigation measures. 	Not Present	Not Present
Wildlife Habitat: Bat Maternity Colonies						
Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	Maternity colonies can be found in tree cavities, vegetation and often in building ^{sxxii, xxv, xxvi, xxvii, xxxi} (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario ^{xxii} . • Maternity colonies located in Mature deciduous or mixed forest stands ^{ccix, ccx} with >10/ha large diameter (>25cm dbh) wildlife trees ^{ccvii} . • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 ^{ccxiv} or class 1 or 2 ^{ccxii} . • 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 ^{ccx} . <u>Information Sources</u> • OMNRF for possible locations and contact for local experts • University Biology Departments with bat experts	Maternity Colonies with confirmed use by: <ul style="list-style-type: none"> • >10 Big Brown Batsⁱ • >5 Adult Female Silver-haired Batsⁱ • The area of the habitat includes the entire woodland or the forest stand ELC Ecosite containing the maternity coloniesⁱ. • Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects"^{ccv}. • SWHMIST^{cxlix} Index #12 provides development effects and mitigation measures. 	Possible	Possible
					Suitable tree cavities may be present within the Cultural Woodland (CUW1) feature.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Turtle Wintering Area						
Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Midland Painted Turtle <u>Special Concern:</u> Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles: ELC Community Classes: SW, MA, OA and SA ELC Community Series: FEO and BOO Northern Map Turtle: Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	<ul style="list-style-type: none"> For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen^{cx, cx, cx, cxviii}. Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH <u>Information Sources</u> <ul style="list-style-type: none"> EIS studies carried out by Conservation Authorities Field naturalists clubs OMNRF Ecologist or Biologist Natural Heritage Information Centre (NHIC) 	<ul style="list-style-type: none"> Presence of 5 over-wintering Midland Painted Turtles is significantⁱ. One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significantⁱ. 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 (Sept. – Oct.) or spring (Mar. – Apr)^{cvii}. Congregation of turtles is more common where wintering areas are limited and therefore significant^{cx, cx, cx, cxii}. SWHMIST^{cxlix} Index #28 provides development effects and mitigation measures for turtle wintering habitat. 	Not Present	Not Present
Wildlife Habitat: Reptile Hibernaculum						
Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant	<u>Snakes:</u> Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake <u>Special Concern:</u> Milksnake Eastern Ribbonsnake	For all snakes, habitat may be found in any ecosite in southern Ontario other than very wet ones. Talus, Rock Barren, Crevice and Cave, and Alvar sites may be directly related to these habitats. Observations of congregations of snakes on sunny warm days in the spring or fall is a good indicator. The existence of rock piles or slopes, stone fences, and crumbling foundations assist in identifying candidate SWH.	For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural locations. Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line ^{xliv} . Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. <u>Information Sources</u> <ul style="list-style-type: none"> In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g. old dug wells). Reports and other information available from CAs Local naturalists and experts, as well as university herpetologists may also know where to find some of these sites. Natural Heritage Information Centre (NHIC) 	Studies confirming: <ul style="list-style-type: none"> Presence of snake hibernacula used by a minimum of five individuals of a snake sp., or, individuals of two or more snake spp. Congregations of a minimum of five individuals of a snake sp., or, individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct)ⁱ. 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 in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30m buffer is the SWHⁱ. SWHMIST^{cxlix} Index #13 provides development effects and mitigation measures for snake hibernacula. 	Not Present	Not Present

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)					Not Present	Not Present
Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	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 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	<ul style="list-style-type: none"> 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. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> Reports and other information available from CAs Ontario Breeding Bird Atlas^{ccv}. Bird Studies Canada: Nature Counts http://www.birdscanada.org/birdmon/ Field Naturalist clubs 	<p>Studies confirming:</p> <ul style="list-style-type: none"> Presence of 1 or more nesting sites with 8^{cxlvix} or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. A colony identified as SWH will include a 50m radius habitat area from the peripheral nests^{ccvii}. 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"^{ccxi}. SWHMIST^{cxlix} Index #4 provides development effects and mitigation measures. 	Exposed soil banks and associated landscape types are not present within or adjacent to the subject property.	
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)					Not Present	Not Present
Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	<ul style="list-style-type: none"> 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. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> Ontario Breeding Bird Atlas^{ccv}, colonial nest records. Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF). Natural Heritage Information Centre (NHIC) Mixed Wader Nesting Colony Aerial photographs can help identify large heronries. Reports and other information available from CAs MNR District Offices Field naturalist clubs 	<p>Studies confirming:</p> <ul style="list-style-type: none"> Presence of 2 or more active nests of Great Blue Heron or other list species. The habitat extends from the the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH^{cc, ccvii}. Confirmation of active colonies must 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^{cxlix} Index #5 provides development effects and mitigation measures. 	Wetlands, lakes, islands, and peninsulas are not present within or adjacent to the subject property.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Ground)					Not Present	Not Present
Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1:50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6 MAS1 – 3 CUM CUT CUS	<ul style="list-style-type: none"> Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. Brewer's Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> Ontario Breeding Bird Atlas^{ccv}, rare/colonial species records. Canadian Wildlife Service Reports and other information available from CAs Natural Heritage Information Centre (NHIC) Colonial Waterbird Nesting Area MNR District Offices Field naturalist clubs 	<p>Studies confirming:</p> <ul style="list-style-type: none"> Presence of >25 active nests for Herring Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern^f. Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant^f. Presence of 5 or more pairs for Brewer's Blackbird^f. The edge of the colony and a minimum 150m radius area of the habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH^{cc, ccvii}. Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"^{ccxi}. SWHMIST^{cxlix} Index #6 provides development effects and mitigation measures. 	Rocky islands or peninsulas within a lake or large river are not located within or adjacent to the subject property.	
Wildlife Habitat: Migratory Butterfly Stopover Areas					Not Present	Not Present
<u>Rationale:</u> Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter	Painted Lady Red Admiral <u>Special Concern:</u> Monarch	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUM CUT CUS Forest: FOC FOD FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	<p>A butterfly stopover area will be a minimum of 10ha in size with a combination of field and forest habitat present, and will be located within 5km of Lake Ontario and Erie^{cxlix}.</p> <ul style="list-style-type: none"> 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^{xxxii, xxxiii, xxxiv, xxxv, xxxvi}. 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^{cxlviii, cxlix}. 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^{xxxvii, xxxviii, xxxix, xl, xli}. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> MNR District Offices Natural Heritage Information Centre (NHIC) Agriculture Canada in Ottawa may have list of butterfly experts. Field Naturalist Clubs Toronto Entomologists Association Conservation Authorities 	<p>Studies confirm:</p> <ul style="list-style-type: none"> The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)^{xliii}. 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^{xxxvii}, significant variation can occur between years and multiple years of sampling should occur^{xl, xliii}. 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 White Admiral's is to be considered significant^f. SWHMIST^{cxlix} Index #16 provides development effects and mitigation measures. 	The subject property is located within 5km of Lake Ontario and forest and field habitat are present. However, the study area is highly disturbed; adjacent lands include recreational fields, schools, and residential areas.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 7E (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Landbird Migratory Stopover Areas						
Sites with a high diversity of species as well as high numbers are most significant	All migratory songbirds Canadian Wildlife Service Ontario website: http://www.on.ec.gc.ca/wildlife_e.html All migrant raptors species Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	Woodlots need to be >5 ha ¹ in size and within 5km ^{iv, v, vi, vii, viii, ix, x, xi, xii, xiii, xiv, xv} of Lake Ontario and Erie. If woodlands are rare in an area of shoreline, woodland fragments 2-5ha can be considered for this habitat • If multiple woodlands are located along the shoreline those Woodlands <2km from Lake Erie or Ontario are more significant ^{cxlix} . • Sites have a variety of habitats: forest, grassland and wetland complexes ^{cxlix} . • The largest sites are more significant ^{cxlix} • Woodlots and forest fragments are important habitats to migrating birds ^{ccxviii} , these features located along the shore and located within 5km of Lake Ontario and Lake Erie are Candidate SWH ^{cxlviii} . <u>Information Sources</u> • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Ontario Important Bird Areas (IBA) Program	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 ¹ . This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (March/May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" ^{ccxi} . • SWHMIST ^{cxlix} Index #9 provides development effects and mitigation measures.	Candidate	Candidate
Wildlife Habitat: Deer Winter Congregation Areas						
Deer movement during winter in the southern areas of Ecoregion 7E 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 ^{cxlviii}	White-tailed Deer	All Forested Ecosites with these ELC Community Series: FOC FOM FOD SWC SWM SWD Conifer plantations (CUP) smaller than 50 ha may also be used.	• Woodlots >100 ha in size or if large woodlots are rare in a planning area woodlots>50ha ¹ . • Deer movement during winter in Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands ^{cxlviii} . • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha ^{ccxxiv} . • Woodlots with high densities of deer due to artificial feeding are not significant ¹ . <u>Information Sources</u> • MNR District Offices • LIO/NRVIS	Studies confirm: • Deer management is an MNR responsibility, deer winter congregation areas considered significant will be mapped by MNR ^{cxlviii} . • Use of the woodlot by white-tailed deer will be determined by MNR, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNR ¹ . • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques ^{ccxxiv} , ground or road surveys, or a pellet count deer density survey ^{ccxxv} . • SWHMIST ^{cxlix} Index #2 provides development effects and mitigation measures.	Not Present	Not Present

Significant Wildlife Habitat Assessment Tables

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 7E (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	ELC Ecosite Codes	Habitat Description	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Cliff and Talus Slopes						
Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO TAS TAT CLO CLS CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris.	Most cliff and talus slopes occur along the Niagara Escarpment. <u>Information Sources</u> • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF Districts • Natural Heritage Information Centre (NHIC) has location information available on their website • Field naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes ^{lxxviii} • SWHMIST ^{cxlix} Index #21 provides development effects and mitigation measures.	Not Present	Not Present
Sand Barrens					Not Present	Not Present
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. They have little or no soil and the underlying rock protrudes through the surface. 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 >0.5ha in size <u>Information Sources</u> • OMNRF Districts • Natural Heritage Information Centre (NHIC) has location information available on their website • Field naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens ^{lxxviii} • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotics sp) ⁱ . • SWHMIST ^{cxlix} Index #20 provides development effects and mitigation measures.	Sand Barrens are not present within or adjacent to the subject property.	

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 7E (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	ELC Ecosite Codes	Habitat Description	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Alvar						
Alvars are extremely rare habitats in Ecoregion 7E	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 Five Alvar Indicator Species: 1) <i>Carex crawei</i> 2) <i>Panicum philadelphicum</i> 3) <i>Eleocharis compressa</i> 4) <i>Scutellaria parvula</i> 5) <i>Trichostema brachiatum</i> These indicator species are very specific to Alvars within Ecoregion 7E ^{cxlix}	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 plant. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animals species. Vegetation cover varies from patchy to barren with a less than 60% tree cover ^{lxxviii} .	An Alvar site > 0.5ha in size ^{lxxv} . Alvar is particularly rare in Ecoregion 7E where the only known sites are found in the western islands of Lake Erie ^{cxclix} . <u>Information Sources</u> • Alvars of Ontario (2000), Federation of Ontario Naturalists ^{lxxvi} . • Ontario Nature – Conserving Great Lakes Alvars ^{cxviii} . • Natural Heritage Information Centre (NHIC) has location information available on their website • OMNRF Staff • Field Naturalist clubs • Conservation Authorities	Field studies identify four of the five Alvar indicator species ^{lxxv} at a candidate Alvar site is Significant • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses ^{lxxv} . • SWHMIST ^{cxlix} Index #17 provides development effects and mitigation measures.	Not Present	Not Present
Old Growth Forest						
Due to historic logging practices and land clearance for agriculture, old growth forest is rare in Ecoregion 7E.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old growth forests are characterized by heavy mortality or turnover of overstorey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Woodland area is >0.5ha <u>Information Sources</u> • OMNRF Forest Resource Inventory mapping • OMNRF Districts • Field naturalist clubs • Conservation Authorities • Sustainable Forestry Licence (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	Field Studies will determine: • If dominant trees species of the ecosite are >140 years old, then stand is Significant Wildlife Habitat ^{cxlviii} . • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities ^{cxlviii} (cut stumps will not be present) • Determine ELC Vegetation Type for forest area containing the old growth characteristics ^{lxxviii} . • SWHMIST ^{cxlix} Index #23 provides development effects and mitigation measures.	Not Present	Not Present

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 7E (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	ELC Ecosite Codes	Habitat Description	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Savannah						
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%. In Ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario) ^{cc} .	No minimum size to site ¹ . Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. <u>Information Sources</u> • OMNRF Districts • Natural Heritage Information Centre (NHIC) has location data available on their website • Field naturalists clubs • Conservation Authorities	Field studies confirm one or more of the Savannah indicator species listed in ^{lxv} Appendix N should be present ¹ . Note: Savannah plant spp. list from Ecoregion 7E should be used. • Area of the ELC Vegetation type is the SWH ^{lxxviii} . • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • SWHMIST ^{cxlix} Index #18 provides development effects and mitigation measures.	Not Present	Not Present
Tallgrass Prairie						
Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover. In Ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario) ^{cc} .	No minimum size to site ¹ . Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. <u>Information Sources</u> • Natural Heritage Information Centre (NHIC) has location information available on their website • OMNRF Districts • Field naturalists clubs • Conservation Authorities	Field studies confirm one or more of the Prairie indicator species listed in ^{lxv} Appendix N should be present ¹ . Note: Prairie plant spp. list from Ecoregion 7E should be used. • Area of the ELC Vegetation Type is the SWH ^{lxxviii} . • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • SWHMIST ^{cxlix} Index #19 provides development effects and mitigation measures.	Not Present	Not Present
Other Rare Vegetation Communities						
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 ^{cxlviii} . Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	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 ^{cxlviii} . The OMNRF/NHIC will have up to date listing for rare vegetation communities. <u>Information Sources</u> • Natural Heritage Information Centre (NHIC) has location information available on their website • OMNRF Districts • Field naturalists clubs • Conservation Authorities	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG ^{cxlviii} . • Area of the ELC Vegetation Type polygon is the SWH. • SWHMIST ^{cxlix} Index #37 provides development effects and mitigation measures.	Not Present	Not Present

Significant Wildlife Habitat Assessment Tables

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 7E (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Waterfowl Nesting Area					Not Present	Not Present
Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 Note: includes adjacency to Provincially Significant Wetlands	A waterfowl nesting area extends: 120m ^{cxlix} from a wetland (>0.5ha) or a wetland (>0.5ha) with small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120m of each individual wetland where waterfowl nesting is known to occur ^{cxlix} . • Upland areas should be at least 120m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. <u>Information Sources</u> • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from CAs	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards ⁱ , or, • Presence of 10 or more nesting pairs for listed species including Mallards ⁱ . • 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" ^{ccxi} • 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 120m ^{cxlviii} from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMIST ^{cxlix} Index #25 provides development effects and mitigation measures.	No wetlands within 120m are present within or adjacent to the subject property.	
Wildlife Habitat: Bald Eagle and Osprey Nesting, Foraging and Perching Habitat					Not Present	Not Present
Nest sites are fairly uncommon in Ecoregion 7E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey <u>Special Concern:</u> Bald Eagle	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 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). <u>Information Sources</u> • Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario • MNR values information (LIO/NRVIS) will list known nesting locations, Note: data from NRVIS is provided as a point format and does not include all the habitat. • Nature Counts, Ontario Nest Records Scheme data • OMNRF Districts • Check the Ontario Breeding Bird Atlas ^{ccv} or Rare Breeding Birds in Ontario for species documented • Reports and other information available from CAs • Field naturalists clubs	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area ^{cxlviii} . • 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 300m radius around the nest or the contiguous woodland stand is the SWH ^{ccvii} , maintaining undisturbed shorelines with large trees within this area is important ^{cxlviii} . • For a Bald Eagle the active nest and a 400-800m radius around the nest is the SWH ^{cvii, ccvii} . Area of the habitat from 400-800m is dependant on site lines from the nest to the development and inclusion of perching and foraging habitat ^{cvii} . • 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 ^{ccvii} . • 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" ^{ccxi} • SWHMIST ^{cxlix} Index #26 provides development effects and mitigation measures.	Lakes, ponds, rivers, and wetlands are not present. Suitable habitat is not present within or adjacent to the subject property.	

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 7E (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Woodland Raptor Nesting Habitat					Not Present	Not Present
Nests sites for these species are rarely identified; these area sensitive habitats are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	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 combined >30ha or with >4ha of interior habitat ^{lxviii, lxxxix, xc, xci, xciii, xciv, xcv, xcvi, cxviii, cxviii, cxviii} . Interior habitat determined with a 200m buffer ^{cxlviii} . <ul style="list-style-type: none"> 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. <u>Information Sources</u> <ul style="list-style-type: none"> OMNRF Districts Check the Ontario Breeding Bird Atlas^{ccv} or Rare Breeding Birds in Ontario for species documented. Check data from Bird Studies Canada Reports and other information available from CAs 	Studies confirm: <ul style="list-style-type: none"> Presence of 1 or more active nests from species list is considered significant^{cxlviii}. Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha of habitat is the SWH^{ccvii}. (the 28ha habitat area would be applied where optimal habitat is irregularly shaped around the nest) Barred Owl – A 200m radius around the nest is the SWH^{ccvii}. Broad-winged Hawk and Coopers Hawk – A 100m radius around the nest is the SWH^{ccvii}. Sharp-Shinned Hawk – A 50m radius around the nest is the SWH^{ccvii}. Conduct field investigations from early March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. SWHMIST^{cxlix} Index #27 provides development effects and mitigation measures. 	The woodland does not meet the >30ha size criterion for this SWH. Suitable habitat is not present within or adjacent to the subject property.	
Wildlife Habitat: Turtle Nesting Area					Not Present	Not Present
These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle <u>Special Concern:</u> Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) ^{cxlviii} or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	<ul style="list-style-type: none"> Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. <u>Information Sources</u> <ul style="list-style-type: none"> Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. Natural Heritage Information Center (NHIC) Field naturalist clubs 	Studies confirm: <ul style="list-style-type: none"> Presence of 5 or more nesting Midland Painted Turtlesⁱ One or more Northern Map Turtle or Snapping Turtle nesting is a SWHⁱ The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH^{cxlviii}. Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat^{cxlix}. Field investigations should be conducted in prime nesting season typically late spring to early summer. Observation studies observing the turtles nesting is a recommended method. SWHMIST^{cxlix} Index #28 provides development effects and mitigation measures for turtle nesting habitat. 	Adjacent areas are highly disturbed (i.e., recreational fields with human presence, surrounding roads), do not contain sandy areas and are not near water. Suitable habitat is not present within or adjacent to the subject property.	

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 7E (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Seeps and Springs					Not Present	Not Present
Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	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 ^{cxvii, cxlix} . • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species ^{cxix, cxx, cxxi, cxxii, cxiii, cxiv} . <u>Information Sources</u> • Topographical Map • Thermography • Hydrological surveys conducted by CAs and MOE • Field naturalists and landowners • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped	Field Studies confirm: • Presence of a site with 2 or more ⁱ seeps/springs should be considered SWH. • The area of a ELC forest 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 of the habitat ^{cxlviii} . • SWHMIST ^{cxlix} Index #30 provides development effects and mitigation measures.	Seeps and springs are not present within or adjacent the subject property. The on-site Headwater Drainage Feature is largely formed by drainage from Munn's School.	
Wildlife Habitat: Amphibian Breeding Habitat (Woodland)					Not Present	Not Present
These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	• Presence of a wetland, pond or woodland pool (including vernal pools) >500m ² (about 25m diameter) ^{ccvii} within or adjacent (within 120m) to a woodland (no minimum size) ^{clxxxii, lxiii, lxv, lxvi, lxvii, lxviii, lxix, lxx} . 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 ^{cxlviii} . <u>Information Sources</u> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF Districts and wetland evaluations • Field naturalist clubs • Canadian Wildlife Service Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	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. • A combination of observational study and call count surveys ^{cviii} 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 230m radius of woodland area ^{lxiii, lxv, lxvi, lxvii, lxviii, lxix, lxx, lxxi} . 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 ^{cxlix} Index #14 provides development effects and mitigation measures.	Wetlands, ponds, and woodland pools (including vernal pools) are not located adjacent (within 120m) to a woodland. Suitable habitat is not present within or adjacent to the subject property	

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 7E (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources		Defining Criteria	Study Area
Wildlife Habitat: Amphibian Breeding Habitat (Wetland)					Not Present	Not Present
Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario Landscapes	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	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	<ul style="list-style-type: none"> Wetlands >500m² (about 25m diameter)^{ccvii} supporting high species diversity are significant: some small or ephemeral habitats may not be identified on MNR mapping and could be important amphibian breeding habitats^{clxxxiv}. 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. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> Ontario Herpetofaunal Summary Atlas (or other similar atlases) Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. OMNRF Districts and wetland evaluations Reports and other information available from CAs 	<p>Studies confirm:</p> <ul style="list-style-type: none"> Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog or toad species and with at least 20 breeding individuals (adults and eggs masses)^{lxxi, lxxiii} or 2 or more of the listed frog/toad species with Call Level of 3. or; Wetland with confirmed breeding Bullfrogs are significantⁱ. The ELC ecosite wetland area and the shoreline are the SWH. A combination of observational study and call count surveys cviii to determine breeding/larval stages will be required during the spring (May March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/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^{cxlix} Index #15 provides development effects and mitigation measures. 	Wetlands are not present within or adjacent to the subject property.	
Wildlife Habitat: Woodland Area-Sensitive Bird Breeding Habitat					Not Present	Not Present
Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	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 Winter Wren Pileated Woodpecker <u>Special Concern:</u> Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	<ul style="list-style-type: none"> Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs. old) forest stands or woodlots >30ha^{cv, cxxxi, cxxxii, cxxxiii, cxxxiv, cxxxv, cxxxvi, cxxxvii, cxxxviii, cxxxix, cxi, cxli, cxlii, cxliii, cxliv, cxlv, cxlvi, cli, clii, cliii, cliv, clv, clvi, clvii, clviii, clix}. Interior forest habitat is at least 200m from forest edge habitat^{clxiv}. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> Local birder clubs Canadian Wildlife Service (CWS) for the location of forest bird monitoring Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species. Reports and other information available from CAs 	<p>Studies confirm:</p> <ul style="list-style-type: none"> Presence of nesting or breeding pairs of 3 or more of the listed wildlife speciesⁱ. Note: any site with breeding Cerulean Warblers or Canada Warbler is to be considered SWHⁱ. Conduct field investigations in early summer when birds are singing and defending their territories. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"^{ccxi} SWHMIST^{cxlix} Index #34 provides development effects and mitigation measures. 	The on-site woodland does not meet the >30ha size criterion for this SWH. Further, large mature (>60yrs old) forest stands or woodlots are not present. Suitable habitat is not present within or adjacent to the subject property.	

Significant Wildlife Habitat Assessment Tables

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 7E (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Marsh Bird Breeding Habitat					Not Present	Not Present
Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Gallinule American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Green Heron Trumpeter Swan <u>Special Concern:</u> Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites	<ul style="list-style-type: none"> Nesting occurs in wetlands All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present^{cxix}. 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. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> OMNRF Districts and wetland evaluations Field naturalist clubs Natural Heritage Information Centre (NHIC) Reports and other information available from CAs Ontario Breeding Bird Atlas^{ccv} 	Studies confirm: <ul style="list-style-type: none"> Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed speciesⁱ. Note: any wetland with breeding of 1 or more Trumpeter Swans, Black Terns, Green Heron or Yellow Rail is SWHⁱ. 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"^{ccxi} SWHMIST^{cxlix} Index #35 provides development effects and mitigation measures 	Wetlands are not present within or adjacent to the subject property.	
Wildlife Habitat: Open Country Bird Breeding Habitat					Not Present	Not Present
This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow <u>Special Concern:</u> Short-eared Owl	CUM1 CUM2	<p>Large grassland areas (includes natural and cultural fields and meadows) >30ha^{clx, clxi, clxii, clxiii, clxiv, clxv, clxvi, clxvii, clxviii, clxix}.</p> <p>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)ⁱ.</p> <p>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.</p> <p>The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.</p> <p><u>Information Sources</u></p> <ul style="list-style-type: none"> Agricultural land classification maps Ministry of Agriculture Local birder clubs Ontario Breeding Bird Atlas^{ccv} EIS Reports and other information available from CAs 	Field Studies confirm: <ul style="list-style-type: none"> Presence of nesting or breeding of 2 or more of the listed speciesⁱ. 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"^{ccxi} SWHMIST^{cxlix} Index #32 provides development effects and mitigation measures 	Large grassland areas (>30ha in size) are not present within or adjacent to the subject property.	

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 7E (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Shrub/Early Successional Bird Breeding Habitat					Not Present	Not Present
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.	Indicator Spp: Brown Thrasher Clay-coloured Sparrow Common Spp. Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher <u>Special Concern:</u> Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecocites can be complexed into a larger habitat such as woodland area for some bird species.	Large natural field areas succeeding to shrub and thicket habitats >10ha ^{clxiv} 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) ^l . Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species ^{clxxiii} . Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. <u>Information Sources</u> • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs • Ontario Breeding Bird Atlas ^{ccv} • Reports and other information available from CAs	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species ^l . • A field with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat ^l . • 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" ^{ccxi} • SWHMIST ^{clxix} Index #33 provides development effects and mitigation measures.	Large natural field areas succeeding to shrub and thicket habitats >10ha in size are not present. Suitable habitat is not present within or adjacent to the subject property.	
Wildlife Habitat: Terrestrial Crayfish					Not Present	Not Present
Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare. ^{Ccii}	Chimney or Digger Crayfish (<i>Fallicambarus fodiens</i>) Devil Crawfish or Meadow Crayfish (<i>Cambarus Diogenes</i>)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh ecocites can be used by terrestrial crayfish.	Wet meadow and edges of shallow marshes (no minimum size) identified 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. <u>Information Sources</u> • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998.	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable marsh meadow or terrestrial sites ^{cci} . • Area of ELC Ecosite or an ecoelement area of meadow marsh or swamp within the large 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 ^{cci} • SWHMIST ^{clxix} Index #36 provides development effects and mitigation measures.	Wet meadows and edges of shallow marshes are not present. Suitable habitat is not present within or adjacent to the subject property.	
Wildlife Habitat: Special Concern and Rare Wildlife Species					Candidate	Candidate
These species are quite rare or have experienced significant population declines in Ontario	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre (NHIC).	All plant and animal element occurrences (EO) within a 1 or 10km 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 ^{lxviii} . <u>Information Sources</u> • Natural Heritage Information Centre (NHIC) will have the Special Concern and Provincially Rare (S1-S3, SH) species lists and element occurrences for these species. • NHIC Website: "Get Information" http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas ^{ccv} • Expert advice should be sought as many of the rare spp. have little information available about their requirements.	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 to be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat for foraging habitat. • SWHMIST ^{clxix} Index #37 provides development effects and mitigation measures.	Multiple species of Conservation Concern have been documented within the vicinity of the study area based on the background review, and suitable habitat may be present within the subject property (Eastern Wood-Pewee, Monarch, West Virginia White).	

Significant Wildlife Habitat Assessment Tables

Table 5. Characteristics of Animal Movement Corridors for Ecoregion 7E (MNRF 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Amphibian Movement Corridors						
Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt American Toad Blue-spotted Salamander Spotted Salamander Four-toed Salamander Gray Treefrog Northern Leopard Frog Pickerel Frog Western Chorus Frog	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 ^{clxxiv, clxxv, clxxvi, clxxvii, clxxviii, clxxix, clxxx, clxxxi} Movement corridors must be considered when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (Amphibian Breeding Habitat – Wetland) of this Schedule. <u>Information Sources</u> • MNRF District Office • Natural Heritage Information Centre NHIC • Reports and other information available from CAs • Field naturalist Clubs	<ul style="list-style-type: none"> • 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^{cxlix}. • Corridors should have at least 15m of vegetation on both sides of waterway^{cxlix} or be up to 200m wide^{cxlix} of woodland habitat and with gaps <20m^{cxlix} • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat^{cxlix}. • SWHMIST^{cxlix} Index #40 provides development effects and mitigation measures. 	Not Present	Not Present
					Amphibian breeding habitat is not present within and adjacent to the subject property (i.e., wetlands are not present). Therefore, suitable amphibian movement corridors are not present within or adjacent to the subject property.	

Significant Wildlife Habitat Assessment Tables

Table 6. Exceptions for Ecodistricts within Ecoregion 7E-2 (MNR 2015)

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	Ecosites	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Bat Migratory Stopover Area						
Stopover areas for long distance migrant bats are important during fall migration.	Hoary Bat Eastern Red Bat Silver-haired Bat	No specific ELC types	<ul style="list-style-type: none"> Long distance migratory bats typically migrate during late summer and early fall migrating summer breeding habitats throughout Ontario to southern wintering areas. Their annual fall migration may concentrate these species of bats at stopover areas. This is the only known bat migratory stopover habitats based on current information. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> OMNRF for possible locations and contact for local experts University of Waterloo, Biology Department 	<ul style="list-style-type: none"> Long Point (42°35'N, 80°30'E, to 42°33'N, 80°03'E) has been identified as a significant stop-over habitat for fall migrating Silver-haired bats, due to significant increases in abundance, activity and feeding that was documented during fall migration^{ccxv}. The confirmation criteria and habitat areas for this SWH are still being determined. SWHMIST^{cxlix} Index #38 provides development effects and mitigation measures 	Not Present	Not Present
					The study area is not near Long Point. Stopover areas are not known to be present within the study area. Suitable habitat is not present within or adjacent to the subject property.	

Appendix II
Vascular Flora Species Observed within the Subject Property

Plant Species Reported from the Study Area - 6th Line, Oakville (Project #3096)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Halton Region	NHIC Data*	NRSI Observed	Hedgerow	CUT1/CUW1
		MNRF 2023a	MECP 2023	Government of Canada 2023	Government of Canada 2023	Government of Canada 2023	Varga 2000	MNRF 2023b	NRSI Results From 2023		
Dicotyledons	Dicots										
Aceraceae	Maple Family										
<i>Acer negundo</i>	Manitoba Maple	S5					X		X		X
<i>Acer platanoides</i>	Norway Maple	SE5					X		X	X	X
Asteraceae	Composite or Aster Family										
<i>Ambrosia artemisiifolia</i>	Common Ragweed	S5					X		X		X
<i>Arctium lappa</i>	Great Burdock	SE5					X		X		X
<i>Cirsium vulgare</i>	Bull Thistle	SE5					X		X		X
<i>Erigeron philadelphicus</i>	Philadelphia Fleabane	S5					X		X		X
<i>Lapsana communis</i>	Common Nipplewort	SE5					X		X		X
<i>Solidago altissima</i>	Tall Goldenrod	S5							X		X
<i>Symphotrichum lanceolatum</i>	Panicled Aster	S5					X		X		X
<i>Taraxacum officinale</i>	Common Dandelion	SE5					X		X	X	X
Balsaminaceae	Touch-me-not Family										
<i>Impatiens capensis</i>	Spotted Jewelweed	S5					X		X		X
Boraginaceae	Borage Family										
<i>Hackelia virginiana</i>	Virginia Stickseed	S5					U		X		X
Brassicaceae	Mustard Family										
<i>Alliaria petiolata</i>	Garlic Mustard	SE5					X		X	X	X
<i>Barbarea vulgaris</i>	Bitter Wintercress	SE5					X		X		X
Caprifoliaceae	Honeysuckle Family										
<i>Lonicera tatarica</i>	Tatarian Honeysuckle	SE5					X		X		X
Clusiaceae	St. John's-wort Family										
<i>Hypericum perforatum</i>	Common St. John's-wort	SE5					X		X		X
Fabaceae	Pea Family										
<i>Robinia pseudoacacia</i>	Black Locust	SE5					X		X		X
Juglandaceae	Walnut Family										
<i>Carya ovata</i>	Shagbark Hickory	S5							X		X
<i>Juglans nigra</i>	Black Walnut	S4?					X		X		X
Lamiaceae	Mint Family										
<i>Glechoma hederacea</i>	Ground Ivy	SE5					X		X		X
<i>Leonurus cardiaca</i>	Common Motherwort	SE5							X		X
Oleaceae	Olive Family										
<i>Fraxinus americana</i>	White Ash	S4					X		X	X	X
<i>Ligustrum vulgare</i>	European Privet	SE5					X		X		X
Onagraceae	Evening-primrose Family										
<i>Circaea canadensis</i>	Broad-leaved Enchanter's Nightshade	S5					X		X		X
Oxalidaceae	Wood Sorrel Family										
<i>Oxalis stricta</i>	Upright Yellow Wood-sorrel	SE5					X		X		X
Primulaceae	Primrose Family										
<i>Lysimachia nummularia</i>	Creeping Jennie	SE5					X		X		X
Ranunculaceae	Buttercup Family										
<i>Ranunculus pensylvanicus</i>	Pennsylvania Buttercup	S5					U		X		X
Rhamnaceae	Buckthorn Family										
<i>Rhamnus cathartica</i>	Common Buckthorn	SE5					X		X	X	X
Rosaceae	Rose Family										
<i>Crataegus sp.</i>	Hawthorn sp.								X		X
<i>Crataegus punctata</i>	Dotted Hawthorn	S5					X		X		X
<i>Geum sp.</i>	Avens sp.								X		X
<i>Geum canadense</i>	White Avens	S5					X		X		X
<i>Geum urbanum</i>	Wood Avens	SE3					X		X	X	X
<i>Prunus avium</i>	Sweet Cherry	SE4					X		X		X
<i>Prunus virginiana</i>	Choke Cherry	S5					X		X		X
<i>Rosa multiflora</i>	Multiflora Rose	SE5					X		X		X
<i>Rubus occidentalis</i>	Black Raspberry	S5					X		X		X
Rubiaceae	Madder Family										
<i>Galium aparine</i>	Cleavers	S5					U		X	X	X
Scrophulariaceae	Figwort Family										
<i>Veronica serpyllifolia</i>	Thyme-leaved Speedwell	SU					X		X		X

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Halton Region	NHIC Data*	NRSI Observed	Hedgerow	CUT1/CUW1
		MNRF 2023a	MECP 2023	Government of Canada 2023	Government of Canada 2023	Government of Canada 2023	Varga 2000	MNRF 2023b	NRSI Results From 2023		
Solanaceae	Nightshade Family										
<i>Solanum dulcamara</i>	Bittersweet Nightshade	SE5					X		X		X
Ulmaceae	Elm Family										
<i>Ulmus americana</i>	American Elm	S5					X		X		X
<i>Ulmus pumila</i>	Siberian Elm	SE3					X		X	X	
Verbenaceae	Vervain Family										
<i>Verbena urticifolia</i>	White Vervain	S5					X		X		X
Violaceae	Violet Family										
<i>Viola odorata</i>	English Violet	SE2					X		X		X
Vitaceae	Grape Family										
<i>Parthenocissus vitacea</i>	Thicket Creeper	S5					X		X		X
<i>Vitis riparia</i>	Riverbank Grape	S5					X		X		X
Monocotyledons	Monocots										
Cyperaceae	Sedge Family										
<i>Carex vulpinoidea</i>	Fox Sedge	S5					X		X		X
<i>Scirpus atrocinctus</i>	Black-girdled Bulrush	S5							X		X
Poaceae	Grass Family										
<i>Glyceria striata</i>	Fowl Mannagrass	S5					X		X		X
<i>Poa pratensis</i>	Kentucky Bluegrass	S5							X		X
Total								0	50	8	49

*NHIC Atlas Square: Square #17PJ0413

References

Ministry of Natural Resources and Forestry (MNRF). 2023a. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17. All Species List Updated: 2023-05-17. Available: <https://www.ontario.ca/page/get-natural-heritage-information>
Ministry of the Environment, Conservation, and Parks (MECP). 2023. Species at Risk in Ontario. Published: 2018-07-12. Updated: 2023-05-23. Available: <https://www.ontario.ca/page/species-risk-ontario>
Government of Canada. 2023. Species at Risk Public Registry: Species Search. COSEWIC Last Assessment Date: 2023-05-05. Available: <https://species-registry.canada.ca/index-en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10>
Varga, S., editor. August 2000. Distribution and status of the vascular plants of the Greater Toronto Area. Ontario Ministry of Natural Resources, Aurora District. 103 pp.
Ministry of Natural Resources and Forestry (MNRF). 2023b. Natural Heritage Information Centre (NHIC): Make a Natural Heritage Area Map Application. Published: 2014-07-17. Updated 2023-03-03. Available: <https://www.ontario.ca/page/make-natural-heritage-area-map>

Appendix III
Bird Species Report from the Study Area

Bird Species Reported from the Study Area - 6th Line, Oakville (Project #3096)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	OBBA*	NHIC Data**	NRSI Observed: Highest Level of Breeding Evidence	Residential/Hedgerow	CUT1	CUW1	Other Observations
		MNRF 2023a	MECP 2023	Government of Canada 2023	Government of Canada 2023	Government of Canada 2023	BSC et al. 2006	MNRF 2023b	NRSI Results from 2023				
Anatidae	Ducks, Geese & Swans												
<i>Aix sponsa</i>	Wood Duck	S5B,S3N					CO						
<i>Anas platyrhynchos</i>	Mallard	S5					CO						
<i>Anas rubripes</i>	American Black Duck	S4					PR						
<i>Branta canadensis</i>	Canada Goose	S5					CO						
<i>Cygnus olor</i>	Mute Swan	SNA					CO						
Odontophoridae	New World Quails												
<i>Colinus virginianus</i>	Northern Bobwhite	S1?	END	E	E	Schedule 1		X					
Columbidae	Pigeons & Doves												
<i>Columba livia</i>	Rock Pigeon	SNA					CO						
<i>Zenaidura macroura</i>	Mourning Dove	S5					CO		PO	PO		PO	
Cuculiformes	Cuckoos & Anis												
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	S4B					PO						
<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo	S4S5B					CO						
Caprimulgidae	Goatsuckers												
<i>Antrostomus vociferus</i>	Eastern Whip-poor-will	S4B	THR	SC	T	Schedule 1	PR						
<i>Chordeiles minor</i>	Common Nighthawk	S4B	SC	SC	SC	Schedule 1	PO						
Apodidae	Swifts												
<i>Chaetura pelagica</i>	Chimney Swift	S3B	THR	T	T	Schedule 1	CO	X					
Trochilidae	Hummingbirds												
<i>Archilochus colubris</i>	Ruby-throated Hummingbird	S5B					PO						
Charadriidae	Plovers & Lapwings												
<i>Charadrius vociferus</i>	Killdeer	S4B					CO						
Scolopacidae	Sandpipers & Allies												
<i>Actitis macularia</i>	Spotted Sandpiper	S5B					CO						
<i>Scolopax minor</i>	American Woodcock	S4B					PR						
Ardeidae	Hérons & Bitterns												
<i>Ardea herodias</i>	Great Blue Heron	S4					CO						
<i>Butorides virescens</i>	Green Heron	S4B					PO						
Cathartidae	Vultures												
<i>Cathartes aura</i>	Turkey Vulture	S5B,S3N					PR						
Accipitridae	Hawks, Kites, Eagles & Allies												
<i>Accipiter cooperii</i>	Cooper's Hawk	S4	NAR	NAR	NS	No schedule	CO						
<i>Accipiter striatus</i>	Sharp-shinned Hawk	S5	NAR	NAR	NS	No schedule	CO						
<i>Buteo jamaicensis</i>	Red-tailed Hawk	S5	NAR	NAR	NS	No schedule	CO						
Strigidae	Typical Owls												
<i>Bubo virginianus</i>	Great Horned Owl	S4					CO						
<i>Megascops asio</i>	Eastern Screech-Owl	S4	NAR	NAR	NS	No schedule	PR						
Alcedinidae	Kingfishers												
<i>Megasceryle alcyon</i>	Belted Kingfisher	S5B,S4N					CO						
Picidae	Woodpeckers												
<i>Colaptes auratus</i>	Northern Flicker	S5					CO		PR			PR	
<i>Dryobates pubescens</i>	Downy Woodpecker	S5					CO		PO	PO			
<i>Dryobates villosus</i>	Hairy Woodpecker	S5					CO		PR			PR	
<i>Dryocopus pileatus</i>	Pileated Woodpecker	S5					CO						
Falconidae	Caracaras & Falcons												
<i>Falco sparverius</i>	American Kestrel	S4					CO						
Tyrannidae	Tyrant Flycatchers												
<i>Contopus virens</i>	Eastern Wood-Pewee	S4B	SC	SC	SC	Schedule 1	PR	X					
<i>Empidonax alnorum</i>	Alder Flycatcher	S5B					PO		OB				OB
<i>Empidonax minimus</i>	Least Flycatcher	S5B					PO						
<i>Empidonax traillii</i>	Willow Flycatcher	S4B					PR						
<i>Myiarchus crinitus</i>	Great Crested Flycatcher	S5B					CO						
<i>Sayornis phoebe</i>	Eastern Phoebe	S5B					PO						
<i>Tyrannus tyrannus</i>	Eastern Kingbird	S4B					CO						
Vireonidae	Vireos												
<i>Vireo gilvus</i>	Warbling Vireo	S5B					PR						

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	OBBA*	NHIC Data**	NRSI Observed: Highest Level of Breeding Evidence	Residential/Hedgerow	CUT1	CUW1	Other Observations
<i>Vireo olivaceus</i>	Red-eyed Vireo	S5B					CO						
Corvidae	Crows & Jays												
<i>Corvus brachyrhynchos</i>	American Crow	S5					CO		OB			OB	OB
<i>Cyanocitta cristata</i>	Blue Jay	S5					CO		PR		PR	PO	
Alaudidae	Larks												
<i>Eremophila alpestris</i>	Homed Lark	S4					PR						
Hirundinidae	Swallows												
<i>Hirundo rustica</i>	Barn Swallow	S4B	SC	SC	T	Schedule 1	CO						
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	S4S5B					CO						
<i>Progne subis</i>	Purple Martin	S3B					PR						
<i>Riparia riparia</i>	Bank Swallow	S4B	THR	T	T	Schedule 1	PR						
<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow	S4B					CO						
<i>Tachycineta bicolor</i>	Tree Swallow	S4S5B					PR						
Paridae	Chickadees & Titmice												
<i>Baeolophus bicolor</i>	Tufted Titmouse	S3					PR	X					
<i>Poecile atricapillus</i>	Black-capped Chickadee	S5					CO		PR	PO	PR	PR	OB
Sittidae	Nuthatches												
<i>Sitta canadensis</i>	Red-breasted Nuthatch	S5					CO						
<i>Sitta carolinensis</i>	White-breasted Nuthatch	S5					CO						
Certhiidae	Creepers												
<i>Certhia americana</i>	Brown Creeper	S5					PO						
Troglodytidae	Wrens												
<i>Thryothorus ludovicianus</i>	Carolina Wren	S4					CO		PO			PO	
<i>Troglodytes aedon</i>	House Wren	S5B					CO		PO			PO	PO
Poliopitidae	Gnatcatchers												
<i>Poliopitla caerulea</i>	Blue-gray Gnatcatcher	S4B					PR						
Regulidae	Kinglets												
<i>Corthyo calendula</i>	Ruby-crowned Kinglet	S5B,S3N							OB				OB
Turdidae	Thrushes												
<i>Catharus fuscescens</i>	Veery	S5B					PO						
<i>Hylocichla mustelina</i>	Wood Thrush	S4B	SC	T	T	Schedule 1	PR						
<i>Turdus migratorius</i>	American Robin	S5					CO		CO	CO	PR	PO	OB
Mimidae	Mockingbirds, Thrashers & Allies												
<i>Dumetella carolinensis</i>	Gray Catbird	S5B,S3N					CO						
<i>Mimus polyglottos</i>	Northern Mockingbird	S4					CO						
<i>Toxostoma rufum</i>	Brown Thrasher	S4B					CO						
Sturnidae	Starlings												
<i>Sturnus vulgaris</i>	European Starling	SNA					CO						
Bombycillidae	Waxwings												
<i>Bombycilla cedrorum</i>	Cedar Waxwing	S5					CO		OB				OB
Passeridae	Old World Sparrows												
<i>Passer domesticus</i>	House Sparrow	SNA					CO		PR	PR	PO		
Fringillidae	Finches & Allies												
<i>Haemorhous mexicanus</i>	House Finch	SNA					CO						
<i>Spinus tristis</i>	American Goldfinch	S5					CO		PR	PR			OB
Emberizidae	New World Sparrows & Allies												
<i>Ammodramus savannarum</i>	Grasshopper Sparrow	S4B	SC	SC	SC	Schedule 1	PO						
<i>Junco hyemalis</i>	Dark-eyed Junco	S5							OB				OB
<i>Melospiza melodia</i>	Song Sparrow	S5					CO		PO			PO	PO
<i>Passerculus sandwichensis</i>	Savannah Sparrow	S5B,S3N					CO						
<i>Pipilo erythrophthalmus</i>	Eastern Towhee	S4B,S3N					PR						
<i>Poocetes gramineus</i>	Vesper Sparrow	S4B					PO						
<i>Spizella passerina</i>	Chipping Sparrow	S5B,S3N					CO						
<i>Spizella pusilla</i>	Field Sparrow	S4B,S3N					PO		OB				OB
Icteridae	Troupials & Allies												
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	S5					CO						
<i>Dolichonyx oryzivorus</i>	Bobolink	S4B	THR	SC	T	Schedule 1	PO						
<i>Icterus galbula</i>	Baltimore Oriole	S4B					CO						
<i>Molothrus ater</i>	Brown-headed Cowbird	S5					CO						

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	OBBA*	NHIC Data**	NRSI Observed: Highest Level of Breeding Evidence	Residential/Hedgerow	CUT1	CUW1	Other Observations
		MNRF 2023a	MECP 2023	Government of Canada 2023	Government of Canada 2023	Government of Canada 2023	BSC et al. 2006	MNRF 2023b	NRSI Results from 2023				
<i>Quiscalus quiscula</i>	Common Grackle	S5					CO		PR		PR		
<i>Sturnella magna</i>	Eastern Meadowlark	S4B,S3N	THR	T	T	Schedule 1	PR						
Parulidae	Wood Warblers												
<i>Geothlypis philadelphia</i>	Mourning Warbler	S5B					PO						
<i>Geothlypis trichas</i>	Common Yellowthroat	S5B,S3N					PR						
<i>Seiurus auropilla</i>	Ovenbird	S5B					PO						
<i>Setophaga coronata</i>	Yellow-rumped Warbler	S5B,S4N							OB				OB
<i>Setophaga pensylvanica</i>	Chestnut-sided Warbler	S5B					PO						
<i>Setophaga petechia</i>	Yellow Warbler	S5B					CO						
<i>Setophaga pinus</i>	Pine Warbler	S5B,S3N					PR						
<i>Setophaga ruticilla</i>	American Redstart	S5B					PR						
Cardinalidae	Cardinals, Grosbeaks & Allies												
<i>Cardinalis cardinalis</i>	Northern Cardinal	S5					CO		CO	CO	PR	PO	OB
<i>Passerina cyanea</i>	Indigo Bunting	S5B					CO						
<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak	S5B					CO						
<i>Piranga olivacea</i>	Scarlet Tanager	S5B					PO						
Total							91	4	21	7	6	11	13

*OBBA Atlas Square: 17PJ01

**NHIC Atlas Square: 17PJ0413

References

Ministry of Natural Resources and Forestry (MNRF). 2023a. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17. All Species List Updated: 2023-05-17. Available: <https://www.ontario.ca/page/get-natural-heritage-information>

Ministry of the Environment, Conservation, and Parks (MECP). 2023. Species at Risk in Ontario. Published: 2018-07-12. Updated: 2023-05-23. Available: <https://www.ontario.ca/page/species-risk-ontario>

Government of Canada. 2023. Species at Risk Public Registry: Species Search. COSEWIC Last Assessment Date: 2023-05-05. Available: <https://species-registry.canada.ca/index-en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10>

Bird Studies Canada (BSC), Environment Canada's Canadian Wildlife Service, Ontario Nature, Ontario Field Ornithologists and Ontario Ministry of Natural Resources. 2006. Ontario Breeding Bird Atlas Database, 31 January 2008. <https://www.birdsontario.org/jsp/datasummaries.jsp>

Ministry of Natural Resources and Forestry (MNRF). 2023b. Natural Heritage Information Centre (NHIC): Make a Natural Heritage Area Map Application. Published: 2014-07-17. Updated 2023-03-03. Available: <https://www.ontario.ca/page/make-natural-heritage-area-map>

Appendix IV
Herpetofauna Species Reported from the Study Area

Reptile and Amphibian Species Reported from the Study Area - 6th Line, Oakville (Project #3096)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	ORAA*	NHIC Data**	NRSI Observed
		MNRF 2023a	MECP 2023	Government of Canada 2023	Government of Canada 2023	Government of Canada 2023	Ontario Nature 2019	MNRF 2023b	NRSI Results from 2023
Turtles									
<i>Chelydra serpentina</i>	Snapping Turtle	S4	SC	SC	SC	Schedule 1	X		
<i>Chrysemys picta marginata</i>	Midland Painted Turtle	S4		SC	SC	Schedule 1	X		
<i>Graptemys geographica</i>	Northern Map Turtle	S3	SC	SC	SC	Schedule 1	X		
<i>Trachemys scripta</i>	Pond Slider	SNA					X		
Snakes									
<i>Diadophis punctatus</i>	Northern Ring-necked Snake	S4					X		
<i>Lampropeltis triangulum</i>	Milksnake	S4	NAR	SC	SC	Schedule 1	X		
<i>Opheodrys vernalis</i>	Smooth Greensnake	S4					X		
<i>Nerodia sipedon sipedon</i>	Northern Watersnake	S5	NAR	NAR	NS	No schedule	X		
<i>Storeria dekayi</i>	Dekay's Brownsnake	S5	NAR	NAR	NS	No schedule	X		
<i>Storeria occipitomaculata</i>	Red-bellied Snake	S5					X		
<i>Thamnophis sirtalis sirtalis</i>	Eastern Gartersnake	S5					X		
Salamanders									
<i>Ambystoma jeffersonianum</i>	Jefferson Salamander	S2	END	E	E	Schedule 1	X		
<i>Ambystoma maculatum</i>	Spotted Salamander	S4					X		
<i>Notophthalmus viridescens viridescens</i>	Red-spotted Newt	S5					X		
<i>Plethodon cinereus</i>	Eastern Red-backed Salamander	S5					X		
Frogs and Toads									
<i>Anaxyrus americanus</i>	American Toad	S5					X		
<i>Dryophytes versicolor</i>	Gray Treefrog	S5					X		
<i>Pseudacris triseriata pop. 1</i>	Western Chorus Frog (Carolinian population)	S4	NAR	NAR	NS	No schedule	X		
<i>Pseudacris crucifer</i>	Spring Peeper	S5					X		
<i>Lithobates clamitans</i>	Green Frog	S5					X		
<i>Lithobates pipiens</i>	Northern Leopard Frog	S5	NAR	NAR	NS	No schedule	X		
<i>Lithobates sylvaticus</i>	Wood Frog	S5					X		
Total							22	0	0

*ORAA Atlas Square: 17PJ01

**NHIC Atlas Square: 17PJ0413

References

Ministry of Natural Resources and Forestry (MNRF). 2023a. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17. All Species List Updated: 2023-05-17. Available: <https://www.ontario.ca/page/get-natural-heritage-information>

Ministry of the Environment, Conservation, and Parks (MECP). 2023. Species at Risk in Ontario. Published: 2018-07-12. Updated: 2023-05-23. Available: <https://www.ontario.ca/page/species-risk-ontario>

Government of Canada. 2023. Species at Risk Public Registry: Species Search. COSEWIC Last Assessment Date: 2023-05-05. Available: <https://species-registry.canada.ca/index-en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10>

Ontario Nature. 2019. Ontario Reptile and Amphibian Atlas Program: Interactive Range Maps. Accessed October 2019.

Ministry of Natural Resources and Forestry (MNRF). 2023b. Natural Heritage Information Centre (NHIC): Make a Natural Heritage Area Map Application. Published: 2014-07-17. Updated 2023-03-03. Available: <https://www.ontario.ca/page/make-natural-heritage-area-map>

Appendix V
Mammal Species Reported from the Study Area

Mammal Species Reported from the Study Area - 6th Line, Oakville (Project #3096)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Ontario Mammal Atlas	NHIC Data**	NRSI Observed
		MNRF 2023a	MECP 2023	Government of Canada 2023	Government of Canada 2023	Government of Canada 2023	Dobbyn 1994	MNRF 2023b	NRSI Results from 2023
Didelphimorphia	Opossums								
<i>Didelphis virginiana</i>	Virginia Opossum	S4					X		
Eulipotyphla	Shrews, Moles, Hedgehogs, and Allies								
<i>Blarina brevicauda</i>	Northern Short-tailed Shrew	S5					X		
<i>Condylura cristata</i>	Star-nosed Mole	S5					X		
<i>Parascalops breweri</i>	Hairy-tailed Mole	S4					X		
<i>Sorex cinereus</i>	Masked Shrew	S5					X		
<i>Sorex fumeus</i>	Smoky Shrew	S5					X		
<i>Sorex hoyi</i>	Pygmy Shrew	S4					X		
<i>Sorex palustris</i>	Water Shrew	S5					X		
Chiroptera	Bats								
<i>Eptesicus fuscus</i>	Big Brown Bat	S4					X		
<i>Lasiorycteris noctivagans</i>	Silver-haired Bat	S4		E	NS	No schedule	X		
<i>Lasiurus borealis</i>	Eastern Red Bat	S4		E	NS	No schedule	X		
<i>Lasiurus cinereus</i>	Hoary Bat	S4		E	NS	No schedule	X		
<i>Myotis lucifugus</i>	Little Brown Myotis	S3	END	E	E	Schedule 1	X		
<i>Myotis septentrionalis</i>	Northern Myotis	S3	END	E	E	Schedule 1	X		
<i>Perimyotis subflavus</i>	Tri-colored Bat	S3?	END	E	E	Schedule 1	X		
Lagomorpha	Rabbits and Hares								
<i>Lepus americanus</i>	Snowshoe Hare	S5					X		
<i>Lepus europaeus</i>	European Hare	SNA					X		
<i>Sylvilagus floridanus</i>	Eastern Cottontail	S5					X		X
Rodentia	Rodents								
<i>Castor canadensis</i>	Beaver	S5					X		
<i>Erethizon dorsatum</i>	Porcupine	S5					X		
<i>Glaucomys sabrinus</i>	Northern Flying Squirrel	S5					X		
<i>Marmota monax</i>	Woodchuck	S5					X		
<i>Microtus pennsylvanicus</i>	Meadow Vole	S5					X		
<i>Mus musculus</i>	House Mouse	SNA					X		
<i>Ondatra zibethicus</i>	Muskrat	S5					X		
<i>Peromyscus leucopus</i>	White-footed Mouse	S5					X		
<i>Peromyscus maniculatus</i>	Deer Mouse	S5					X		
<i>Rattus norvegicus</i>	Norway Rat	SNA					X		
<i>Sciurus carolinensis</i>	Eastern Gray Squirrel	S5					X		X
<i>Tamias striatus</i>	Eastern Chipmunk	S5					X		
<i>Tamiasciurus hudsonicus</i>	Red Squirrel	S5					X		
<i>Zapus hudsonius</i>	Meadow Jumping Mouse	S5					X		
Canidae	Canines								
<i>Canis latrans</i>	Coyote	S5					X		
<i>Vulpes vulpes</i>	Red Fox	S5					X		
Mephitidae	Skunks and Stink Badgers								
<i>Mephitis mephitis</i>	Striped Skunk	S5					X		
Mustelidae	Weasels and Allies								
<i>Lontra canadensis</i>	North American River Otter	S5					X		
<i>Mustela richardsonii</i>	American Ermine	S5					X		
<i>Neogale frenata</i>	Long-tailed Weasel	S4					X		
<i>Neogale vison</i>	American Mink	S4					X		
Procyonidae	Raccoons and Allies								
<i>Procyon lotor</i>	Northern Raccoon	S5					X		
Ursidae	Bears								
<i>Ursus americanus</i>	American Black Bear	S5	NAR	NAR	NS	No schedule	X		
Artiodactyla	Deer and Bison								
<i>Alces alces</i>	Moose	S5					X		
<i>Odocoileus virginianus</i>	White-tailed Deer	S5					X		
Total							43	0	2

*Mammal Atlas Square Number: 17PJ01

**NHIC Atlas Square: 17PJ0413

References

Ministry of Natural Resources and Forestry (MNRF). 2023a. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17. All Species List Updated: 2023-05-17. Available: <https://www.ontario.ca/page/get-natural-heritage-information>

Ministry of the Environment, Conservation, and Parks (MECP). 2023. Species at Risk in Ontario. Published: 2018-07-12. Updated: 2023-05-23. Available: <https://www.ontario.ca/page/species-risk-ontario>

Government of Canada. 2023. Species at Risk Public Registry: Species Search. COSEWIC Last Assessment Date: 2023-05-05. Available: <https://species-registry.canada.ca/index-en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10>

Dobbyn, J.S. 1994. Atlas of the Mammals of Ontario. Don Mills, Federation of Ontario Naturalists. 120p.

Ministry of Natural Resources and Forestry (MNRF). 2023b. Natural Heritage Information Centre (NHIC): Make a Natural Heritage Area Map Application. Published: 2014-07-17. Updated 2023-03-03. Available: <https://www.ontario.ca/page/make-natural-heritage-area-map>

Appendix VI
Lepidoptera Species Reported from the Study Area

Butterfly Species Reported from the Study Area - 6th Line, Oakville (Project #3096)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Ontario Butterfly Atlas*	NHIC Data**	NRSI Observed
		MNRF 2023a	MECP 2023	Government of Canada 2023	Government of Canada 2023	Government of Canada 2023	Macnaughton et al. 2023	MNRF 2023b	NRSI Results from 2023
Hesperiidae		Skippers							
<i>Anatrytone logan</i>	Delaware Skipper	S4					X		
<i>Ancyloxypha numitor</i>	Least Skipper	S5					X		
<i>Eparcyreus clarus</i>	Silver-spotted Skipper	S4					X		
<i>Erynnis baptisiae</i>	Wild Indigo Duskywing	S4					X		
<i>Erynnis icelus</i>	Dreamy Duskywing	S5					X		
<i>Erynnis juvenalis</i>	Juvenal's Duskywing	S5					X		
<i>Euphyes dion</i>	Dion Skipper	S4					X		
<i>Euphyes vestris</i>	Dun Skipper	S5					X		
<i>Hylephila phyleus</i>	Fiery Skipper	SNA					X		
<i>Pholisora catullus</i>	Common Sootywing	S4					X		
<i>Poanes hobomok</i>	Hobomok Skipper	S5					X		
<i>Polites mystic</i>	Long Dash Skipper	S5					X		
<i>Polites origenes</i>	Crossline Skipper	S4					X		
<i>Polites peckius</i>	Peck's Skipper	S5					X		
<i>Polites themistocles</i>	Tawny-edged Skipper	S5					X		
<i>Pompeius verna</i>	Little Glassywing	S4					X		
<i>Thorybes pylades</i>	Northern Cloudywing	S5					X		
<i>Thymelicus lineola</i>	European Skipper	SNA					X		
<i>Wallengrenia egeremet</i>	Northern Broken Dash	S5					X		
Papilionidae		Swallowtails							
<i>Battus philenor</i>	Pipevine Swallowtail	SNA					X		
<i>Heraclides cressphontes</i>	Giant Swallowtail	S4					X		
<i>Papilio glaucus</i>	Eastern Tiger Swallowtail	S5					X		
<i>Papilio polyxenes</i>	Black Swallowtail	S5					X		
<i>Papilio troilus</i>	Spicebush Swallowtail	S4					X		
Pieridae		Whites and Sulphurs							
<i>Colias eurytheme</i>	Orange Sulphur	S5					X		
<i>Colias philodice</i>	Clouded Sulphur	S5					X		
<i>Pieris oleracea</i>	Mustard White	S4					X		
<i>Pieris rapae</i>	Cabbage White	SNA					X		X
<i>Pieris virginianensis</i>	West Virginia White	S3	SC				X		
Lycaenidae		Harvesters, Coppers, Hairstreaks, Blues							
<i>Callophrys niphon</i>	Eastern Pine Ellin	S5					X		
<i>Celastrina lucia</i>	Northern Spring Azure	S5					X		
<i>Celastrina neglecta</i>	Summer Azure	S5					X		
<i>Celastrina sp.</i>	Azure species	SNA					X		
<i>Cupido comyntas</i>	Eastern Tailed Blue	S5					X		
<i>Glaucopsyche lygdamus</i>	Silvery Blue	S5					X		
<i>Lycaena hylus</i>	Bronze Copper	S5					X		
<i>Polyommatus icarus</i>	European Common Blue	SNA					X		
<i>Satyrium acadica</i>	Acadian Hairstreak	S4					X		
<i>Satyrium calanus</i>	Banded Hairstreak	S4					X		
<i>Satyrium caryaevorus</i>	Hickory Hairstreak	S4					X		
<i>Satyrium liparops</i>	Striped Hairstreak	S5					X		
Nymphalidae		Brush-footed Butterflies							
<i>Aglais milberti</i>	Milbert's Tortoiseshell	S5					X		
<i>Boloria bellona</i>	Meadow Fritillary	S5					X		
<i>Cercyonis pegala</i>	Common Wood-Nymph	S5					X		
<i>Coenonympha californica</i>	Common Ringlet	S5					X		
<i>Danaus plexippus</i>	Monarch	S2N,S4B	SC	E	SC	Schedule 1	X		
<i>Euphydryas phaeton</i>	Baltimore Checkerspot	S4					X		
<i>Euptoieta claudia</i>	Variagated Fritillary	SNA					X		
<i>Junonia coenia</i>	Common Buckeye	SNA					X		
<i>Lethe anthedon</i>	Northern Pearly-Eye	S5					X		
<i>Lethe appalachia</i>	Appalachian Brown	S4					X		
<i>Lethe eurydice</i>	Eved Brown	S5					X		
<i>Libytheana carinenta</i>	American Snout	SNA					X		
<i>Limenitis archippus</i>	Viceroy	S5					X		
<i>Limenitis arthemis arthemis</i>	White Admiral	S5					X		
<i>Limenitis arthemis astyanax</i>	Red-spotted Purple	S5					X		
<i>Megisto cymela</i>	Little Wood-Satyr	S5					X		
<i>Nymphalis antiopa</i>	Mourning Cloak	S5					X		
<i>Nymphalis l-album</i>	Compton Tortoiseshell	S5					X		
<i>Phyciodes cocyta</i>	Northern Crescent	S5					X		
<i>Phyciodes tharos</i>	Pearl Crescent	S4					X		

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Ontario Butterfly Atlas*	NHIC Data**	NRSI Observed
		MNRF 2023a	MECP 2023	Government of Canada 2023	Government of Canada 2023	Government of Canada 2023	Macnaughton et al. 2023	MNRF 2023b	NRSI Results from 2023
<i>Polygonia comma</i>	Eastern Comma	S5					X		
<i>Polygonia interrogationis</i>	Question Mark	S5					X		
<i>Polygonia progne</i>	Gray Comma	S5					X		
<i>Speyeria aphrodite</i>	Aphrodite Fritillary	S5					X		
<i>Speyeria cybele</i>	Great Spangled Fritillary	S5					X		
<i>Vanessa atalanta</i>	Red Admiral	S5B					X		
<i>Vanessa cardui</i>	Painted Lady	S5B					X		
<i>Vanessa virginiensis</i>	American Lady	S5					X		
Total							69	0	1

*TEA Atlas Square: 17PJ01

**NHIC Atlas Square: 17PJ0413

References

Ministry of Natural Resources and Forestry (MNRF). 2023a. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17. All Species List Updated: 2023-05-17. Available: <https://www.ontario.ca/page/get-natural-heritage-information>

Ministry of the Environment, Conservation, and Parks (MECP). 2023. Species at Risk in Ontario. Published: 2018-07-12. Updated: 2023-05-23. Available: <https://www.ontario.ca/page/species-risk-ontario>

Government of Canada. 2023. Species at Risk Public Registry: Species Search. COSEWIC Last Assessment Date: 2023-05-05. Available: <https://species-registry.canada.ca/index-en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10>

Macnaughton A., Layberry R., Cavanis R., Edwards B., and C. Jones. 2023. Ontario Butterfly Atlas. Updated January 2023. Available: <https://www.ontarioinsects.org/atlas/index.html>

Ministry of Natural Resources and Forestry (MNRF). 2023b. Natural Heritage Information Centre (NHIC): Make a Natural Heritage Area Map Application. Published: 2014-07-17. Updated 2023-03-03. Available: <https://www.ontario.ca/page/make-natural-heritage-area-map>

Appendix VII
Odonata Species Reported from the Study Area

Odonate Species Reported from the Study Area - 6th Line, Oakville (Project #3096)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Odonate Atlas*	NHIC Data**	NRSI Observed
		MNRF 2023a	MECP 2023	Government of Canada 2023	Government of Canada 2023	Government of Canada 2023	OOAD 2023	MNRF 2023b	
Calopterygidae	Broadwinged Damselflies								
<i>Calopteryx aequabilis</i>	River Jewelwing	S5					X		
<i>Calopteryx maculata</i>	Ebony Jewelwing	S5					X		X
<i>Heterosterna americana</i>	American Rubyspot	S4					X		
Lestidae	Spreadwings								
<i>Lestes dryas</i>	Emerald Spreadwing	S5					X		
Coenagrionidae	Narrow-winged Damselflies								
<i>Argia fumipennis violacea</i>	Violet Dancer	S5					X		
<i>Argia moesta</i>	Powdered Dancer	S5					X		
<i>Enallagma arietinum</i>	Rainbow Bluet	S4					X		
<i>Enallagma civile</i>	Familiar Bluet	S5					X		
<i>Enallagma exulans</i>	Stream Bluet	S5					X		
<i>Ischnura posita</i>	Fragile Forktail	S4					X		
<i>Ischnura verticalis</i>	Eastern Forktail	S5					X		
Aeshnidae	Darners								
<i>Aeshna canadensis</i>	Canada Darner	S5					X		
<i>Anax junius</i>	Common Green Darner	S5					X		
<i>Basiaeschna janata</i>	Springtime Darner	S5					X		
Gomphidae	Clubtails								
<i>Ophiogomphus rupinulensis</i>	Rusty Snaketail	S4					X		
<i>Phanogomphus lividus</i>	Ashy Clubtail	S4					X		
Libellulidae	Skimmers								
<i>Erythemis simplicicollis</i>	Eastern Pondhawk	S5					X		
<i>Libellula luctuosa</i>	Widow Skimmer	S5					X		
<i>Libellula pulchella</i>	Twelve-spotted Skimmer	S5					X		
<i>Libellula quadrimaculata</i>	Four-spotted Skimmer	S5					X		
<i>Libellula semifasciata</i>	Painted Skimmer	S3					X		
<i>Pachydiplax longipennis</i>	Blue Dasher	S5					X		
<i>Pantala hymenaea</i>	Spot-winged Glider	S4					X		
<i>Plathemis lydia</i>	Common Whitetail	S5					X		
<i>Tramea lacerata</i>	Black Saddlebags	S4					X		
<i>Tramea onusta</i>	Red Saddlebags	SNA					X		
Total							26	0	0

*Odonate Atlas Square Numbers: 17PJ01
 **NHIC Atlas Squares: 17PJ0413

References

Ministry of Natural Resources and Forestry (MNRF). 2023a. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17. All Species List Updated: 2023-05-17. Available: <https://www.ontario.ca/page/get-natural-heritage-information>
 Ministry of the Environment, Conservation, and Parks (MECP). 2023. Species at Risk in Ontario. Published: 2018-07-12. Updated: 2023-05-23. Available: <https://www.ontario.ca/page/species-risk-ontario>
 Government of Canada. 2023. Species at Risk Public Registry: Species Search. COSEWIC Last Assessment Date: 2023-05-05. Available: <https://species-registry.canada.ca/index-en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10>
 Ontario Odonata Atlas Database (OOAD). 2023. Natural Heritage Information Centre, Ontario Ministry of Natural Resources and Forestry. Species data by 10x10 km square accessed on June 8, 2023
 Ministry of Natural Resources and Forestry (MNRF). 2023b. Natural Heritage Information Centre (NHIC): Make a Natural Heritage Area Map Application. Published: 2014-07-17. Updated: 2023-03-03. Available: <https://www.ontario.ca/page/make-natural-heritage-area-map>

Appendix VIII

Correspondence with Conservation Halton Regarding the On-Site HDF

6th Line, Oakville (Oakville Regulatory Status of watercourse)



From Sean Stewart <sstewart@hrca.on.ca>
To Sydney Gilmour <sgilmour@nrso.on.ca>
Cc Lynda Funk <lfunk@simsadvertising.com>
Date 2023-06-23 14:42

 Sixth Line Final.jpg (~262 KB)

Good afternoon Sydney,

I wanted to provide an update following Conservation Halton's (CH) site visit on June 9, 2023.

Upon further review, CH staff have determined that the portion of the watercourse north of the pedestrian bridge in proximity (southeast) to your clients pr is a headwater drainage feature rather than a regulated watercourse. As such, your client's property is not considered to be regulated by CH. A request has I submitted to our GIS department to update our online mapping to pull the regulated area back to just south of the pedestrian bridge and off your clients pr This will be updated in due course.

In the meantime, CH has provided an update to the Town of Oakville and Halton Region for their records.

Given the above, we have no comment on the EIA TOR and defer review to the Town and Region, and other agencies as appropriate.

Sincerely,

Sean



Sean Stewart

Environmental Planner

2596 Britannia Road West, Burlington, ON L7P 0G3

905.336.1158 ext.2250 | ssewart@hrca.on.ca

conservationhalton.ca



RECOGNIZED AS ONE OF HAMILTON-NIAGARA'S TOP EMPLOYERS 2023

Find out more about our recent award [here!](#)

This message, including any attachments, is intended only for the person(s) named above and may contain confidential and/or privileged information. Any use, distribution, copying, or disclosure by anyone other than the intended recipient is strictly prohibited. If you are not the intended recipient, please notify us immediately by telephone or e-mail and permanently delete the original transmission from us, including any attachments, without making a copy.

Sixth Line Final.jpg

~262 KB

