

0 MONTROSE ROAD, NIAGARA FALLS

ENVIRONMENTAL IMPACT STUDY

Prepared For: Kevin Dilts

Prepared By:
LCA Environmental Consultants

JANUARY 2022

Table of Contents

1	INTRODUCTION	1
1.1	Study Objectives.....	1
1.2	Study Area.....	1
1.3	Pre-consultation and Study Scope	2
2	STUDY BACKGROUND AND SCOPING	3
2.1	Literature Review	3
2.2	Baseline Data Assessment.....	3
2.3	Analysis of Significant Features.....	4
3	POLICY AND LEGISLATIVE FRAMEWORK.....	5
4	DESCRIPTION OF EXISTING CONDITIONS.....	7
4.1	Existing Data	7
4.1.1	Site History	7
4.1.2	Physiography, Soils and Drainage	8
4.1.3	Existing Natural Heritage.....	9
4.2	Field Surveys.....	10
4.2.1	Ecological Land Classification	10
4.2.2	Botanical Inventory.....	11
4.2.3	Amphibian Monitoring	12
4.2.4	Reptile Monitoring.....	12
4.2.5	Avian Monitoring.....	12
4.2.6	Mammalian Monitoring	13
4.2.7	Significant Wildlife Habitat	14
5	ASSESSMENT OF NATURAL FEATURES AND FUNCTIONS.....	14
5.1	Environmental Protection Areas.....	15
5.2	Environmental Conservation Areas.....	15
5.3	Fish Habitat	16
5.4	Species at Risk.....	17
5.4.1	Endangered or Threatened Species	17
5.5	Significant Wildlife Habitat.....	17
5.5.1	Seasonal Concentration Areas	17
5.5.2	Rare or Specialized Habitat.....	17
5.5.3	Habitat of Species of Conservation Concern	18
5.6	Corridors and Linkages	18
5.7	Summary.....	18
6	CONSTRAINTS ANALYSIS	19
6.1	Development Constraints	19
6.2	Areas of No Constraint.....	20
6.3	Enhancement Opportunities	21
7	ECOLOGICAL IMPACT ASSESSMENT	22
7.1	Description of Proposed Development.....	22
7.2	Potential Impacts to Natural Heritage Features.....	22
7.2.1	Potential Direct Impacts.....	22
7.2.2	Potential Indirect Impacts	23
7.2.3	Potential Cumulative Impacts.....	24
7.2.4	Proposed Mitigation.....	24
7.3	Residual Impacts and Policy Compliance	25

8 RECOMMENDATIONS AND CONCLUSION..... 27
9 LITERATURE REVIEWED..... 29

APPENDICES

- Appendix A – Mapping
- Appendix B – Agency Correspondence and EIS Scoping
- Appendix C – Field Assessments and Survey Protocols
- Appendix D – Data Summaries
- Appendix E – Site Photos

1 INTRODUCTION

LCA Environmental Consultants were retained by Mr. Kevin Dilts to evaluate the natural heritage and ecological features on the property located at 0 Montrose Road, Niagara Falls to identify any constraints to development on the property. An Environmental Impact Study (EIS) including a Constraints Analysis and Impact Assessment, was completed in accordance with the Regional Municipality of Niagara EIS Guidelines and with regard to the Provincial Policy Statement (2020), and the 2014 Consolidated Regional Official Plan.

The purpose of the EIS was to address the effects of a proposed single family residential home on the natural heritage features identified on the site and adjacent lands. These features and their relative functions were assessed through a review of the existing data and current field investigations. There are currently no existing structures on the subject lands.

1.1 Study Objectives

This report includes a summary of the study approach and relevant background data, a description of the existing natural heritage features on the subject property as well as an assessment of their ecological functions. The constraints associated with the subject property and opportunities for enhancement of natural features are detailed in the report, as well as a description of the proposed development and assessment of the associated ecological impacts.

The primary objective of this study is to assess the impacts of the proposed single-family home to the natural heritage features on and adjacent to the subject property. Mitigation measures will be recommended as appropriate with the goal of maintaining or improving the ecological integrity of the features on or adjacent to the subject property.

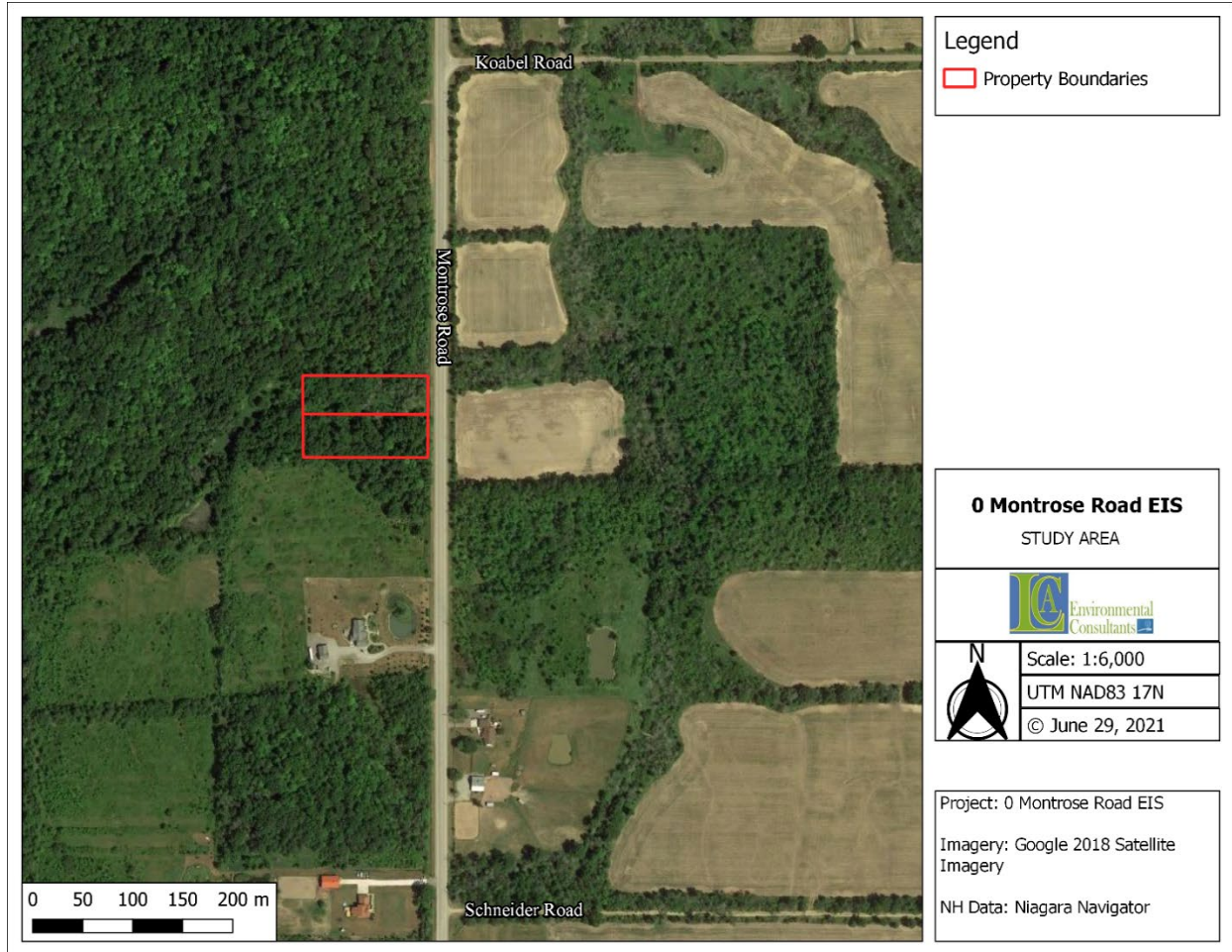
1.2 Study Area

The study area exists outside of the Urban Area Boundary, according to Schedule A of the Official Plan for the City of Niagara Falls and is currently zoned as Environmental Protection Area (EPA) and Environmental Conservation Area (ECA). The site is located on Montrose Road, Niagara Falls, and is approximately 1.01 hectares in size. It is legally described as ARN: 272514000108434 & 272514000108436, City of Niagara Falls, Regional Municipality of Niagara, and is part of Lot 1 of Concession 6, Crowland Township. The property is located on the west side Montrose Road, between Koabel Road and Ridge Road. The land surrounding the property is natural area and agriculture.

The property is located within the Natural Heritage System (NHS) which has been delineated by the province under the Growth Plan for the Greater Golden Horseshoe (GGH) (2018). The NHS identifies key natural heritage features outside of the Greenbelt Plan area and linkages between them. The NHS and its associated policies have been developed as a guiding document for local municipalities to implement at a Regional level. Until the NHS has been incorporated into the Regional Official Plan, the policies of the GGH Plan apply to those natural heritage features which were mapped prior to 2017. The NHS excludes areas of urban development and rural settlement areas.

The existing natural heritage features within the study area include Significant Woodlands and a portion of the Tea Creek Provincially Significant Wetland (PSW) Complex, which is identified as EPA in Schedule A-1 of the of the Municipal Official Plan. The Niagara Region has mapped only a small portion of EPA along the watercourse present on the property, however under Regional Policy the PSW should be classified as EPA. The portion of the Significant Woodland located outside of the EPA boundary is identified as ECA at both the Regional and Municipal Level.

The study area and surrounding landscape are shown in Figure 1.



1.3 Pre-consultation and Study Scope

Pre-consultation was not held prior to the commencement of the EIS, because site plans had not been developed until the boundary of the wetland could be verified. LCA Environmental completed a site visit with the landowner prior to commencement of studies to identify the existing site conditions in order to assess the studies required for proper evaluation of the significance of the features.

Taking into consideration the presence of mature upland forest and wetland habitat present, the EIS was scoped to include the following studies:

- Ecological Land Classification and mapping
- Two Season Botanical Inventory
- Woodland Feature Delineation
- Breeding Bird Surveys
- Reptile /Amphibian Visual Encounter Surveys
- Anuran Call Surveys
- Bat Monitoring
- Other Species at Risk surveys

The final report will be submitted to the Region of Niagara and NPCA for review. In the absence of a previously approved Terms of Reference, agency review will be subject to Regional and NPCA satisfaction that the study approach addresses all natural heritage concerns. Any gaps in information can be addressed through an addendum to this report.

2 STUDY BACKGROUND AND SCOPING

2.1 Literature Review

Background studies reviewed for this EIS include:

- Natural Heritage Information Centre database (MNRF)
- Atlas of the Breeding Birds of Ontario (ABBO)
- iNaturalist.org
- City of Niagara Falls Official Plan (1993)
- South Niagara Falls Watershed Plan (2008)
- Endangered Species Act (2007)
- Consolidated Regional Official Plan (2014)
- Provincial Policy Statement (2020)

Additional references are listed at the end of this report.

The subject property is located within the Tee Creek subwatershed in the South Niagara Falls Watershed which is approximately 36 square kilometers in area and is primarily rural and agricultural lands. The South Niagara Falls Watershed Plan summarizes characteristics of both subwatersheds and identifies restoration priorities and opportunities. A tributary of Tee Creek is a regulated watercourse that flows east through the center of the north property and has been identified as Type 2 Important Fish Habitat by the MNRF. There is a NPCA Regulated Floodplain that extends onto the southern property associated with the Tee Creek tributary.

The Natural Heritage Information Centre (NHIC) was also consulted to search for recent and historical records of provincially significant flora, fauna and natural heritage features on, and in proximity to the site.

2.2 Baseline Data Assessment

A Species at Risk (SAR) screening was completed for the subject property to verify whether any additional surveys were required to monitor for any species which have the potential to occur in

the study area. The SAR screening involved cross-referencing the list of species known to occur in the City of Niagara Falls with the habitat that is present on the subject property to determine potential for occurrence. Species tracked by the Natural Heritage Information Centre and identified within the area were also included as having potential to occur. A total of thirty-four SARs were identified as having potential to occur on the subject property (Appendix C).

Ten of the species identified as having potential to occur on the property were avian species and four were mammalian. Breeding Bird surveys were completed to monitor bird species using the study area and to identify any potential Significant Wildlife Habitat. All four mammalian SAR identified were bats and acoustic surveys were carried out to monitor for their presence within the study area.

Five of the SAR species identified were reptile and amphibian species which were surveyed through visual encounter surveys and active searches. ELC and vegetation surveys were completed to verify the presence or absence of the eleven plant species identified. Incidental observations were completed to monitor for SAR insects (Monarch, and Rusty Patched Bumblebee). The other two SAR were fish species (American Eel and Lake Sturgeon) were identified as having a potential to occur, but their habitat is outside the area of impact and therefore no surveys were completed to confirm their presence.

Field assessments were completed throughout the summer and fall of 2021 by LCA Environmental to assess natural heritage features and their ecological functions, and to identify any constraints to development or enhancement opportunities present on the property. All field surveys were completed according to current standardized protocols as outlined in the Terms of Reference approved by the Region of Niagara. A summary of the field survey dates, and protocols used have been included in Appendix C.

2.3 Analysis of Significant Features

Biological field data were evaluated to assess the significance of the natural heritage features on the subject property. Provincial and national status of plants and wildlife was verified according to the Natural Heritage Information Centre (NHIC, 2020) and the COSEWIC database (September 2018). The status of each species within the Region of Niagara was also verified (Oldham, 2017). Status rankings for plants and wildlife are primarily based on the number of occurrences Provincially and Globally.

Potential sensitivity of natural features and functions within the study area was also measured through an assessment of:

- Vegetation communities (habitat quality, degree of disturbance);
- Sensitive species (rare plants or wildlife);
- Significant Wildlife Habitat; and
- Linkage functions and connectivity.

The relative significance of the natural features on the subject property was evaluated in accordance with local (Official Plan for the City of Niagara Falls), Regional (Consolidated Regional Official Plan) and Provincial (Provincial Policy Statement) planning documents, Federal and Provincial Species at Risk legislation, and Significant Wildlife Habitat Criteria for Eco-region 7E (MNRF, 2017).

3 POLICY AND LEGISLATIVE FRAMEWORK

Before impact assessment can be completed, a constraints analysis must identify the existing conditions, applicable policies and regulations, and conduct field studies to assess the natural heritage and hydrologic features and their functions. A review of the policies and guidelines at the Provincial, Regional, and Municipal level must also be completed. In accordance with the Region of Niagara EIS Guidelines (2018), a summary of applicable policies and regulations has been provided in Table 1 below.

Table 1: Summary of applicable policies and legislations.

Policy Document	Policy Section	Policy Summary	Application
Provincial Policy Statement, 2020	2.1 Natural Heritage	2.1.5 No development in significant wetlands, woodlands, valleylands, wildlife habitat, or ANSIs unless no negative impacts have been demonstrated	The study area contains Significant Woodlands and Provincially Significant Wetland (PSW). The study area also contains potential habitat for threatened or endangered species.
		2.1.6 Development not permitted in fish habitat except in accordance with provincial and federal requirements.	
		2.1.7 Development not permitted in habitat of endangered/threatened species	
		2.1.8 No development on lands adjacent to natural heritage features unless no negative impacts have been demonstrated.	
A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2019	4.2.2 Natural Heritage System	4.2.2.3 Development within Natural Heritage System will demonstrate no negative impacts on key natural heritage or hydrologic features and connectivity along the system is maintained	The study area contains Key natural heritage features within the NHS.
		4.2.2.4 Provincial mapping of the NHS for the Growth Plan does not apply until implemented in municipal official plans; until that time, policies apply to natural heritage systems outside settlement areas already identified in official plans.	
	4.2.3 Key Features	4.2.3.1 Outside of settlement areas, development not permitted in key natural heritage or hydrologic feature, with exception to uses listed.	
	4.2.4 Land adjacent to Key Features	4.2.4.1 Outside settlement areas, minimum 30m vegetation protection zone to be identified for proposed development within 120m of key natural heritage or hydrologic feature to protect feature and functions.	
		4.2.4.3 No development or site alteration permitted within vegetation protection zone (exception: 4.2.3.1)	

LCA Environmental Consultants

Endangered Species Act, 2007	Protection and Recovery of Species	10.1 Prohibits damage or destruction to the habitat of any species listed as endangered, threatened, or extirpated under SARO.	SAR screening identified thirty-four SAR which have potential habitat within the study area. Twenty-three of those are listed as threatened or endangered. See Section 5.2 for details.
Migratory Bird Convention Act, 1994	Purpose	4 protect and conserve migratory birds and their nests.	Potential interference of migratory nesting habitat
Niagara Region Official Plan, 2014	7.A A Healthy Landscape	7.A.2.1 Development only permitted where no negative impact on: a. Quantity/quality of groundwater b. Recharge, discharge, or headwater areas c. Hydrology of watercourses d. Surface / groundwater resources e. Natural drainage f. Flooding or erosion	The study area contains a Regional Core Natural Heritage feature identified as EPA, ECA and fish habitat.
	7.B The Core Natural Heritage System	7.B.1.1 Core Natural Heritage (CNH) includes: a. Core Natural Area, classified as either EPA or ECA; b. Potential Natural Heritage Corridors; c. Greenbelt Natural Heritage and Water Resources System; and d. Fish Habitat	
		7.B.1.10 Development not permitted within EPAs, except: a. Forest, fish, wildlife management b. Flood or erosion control c. Passive recreational uses	
		7.B.1.11 Development not permitted within ECA unless no negative impact on CNH feature or adjacent land has been demonstrated. 7.B.1.13 development should be designed to maintain or enhance ecological functions of Potential Natural Heritage Corridors.	
NPCA Land Use Policy Document, 2018	8.2.2 Development within a wetland	8.2.2.1 no development or site alteration within a wetland	NPCA mapping shows a regulated watercourse and wetland on the north subject property.
	8.2.3 Development in Areas of interference	8.2.3.1 no development within 30 metres of a wetland 8.2.3.5 No new septic systems permitted within 30m of any wetland.	
	9.2.5 Watercourse Buffer Composition	9.2.5.1 development and site alteration adjacent to a watercourse requires a natural buffer of 10-15m based on type of stream and habitat present.	
Fish Wildlife Conservation Act, 1997	7 Nests and Eggs	7.1 no person shall destroy, take or possess the nest or eggs of a wild bird	Potential nesting habitat during breeding bird season.

City of Niagara Falls, 1993	8.3.5 Valleylands, Stream Corridors and Fish Habitat Areas	8.3.5.6 Minimum 15m buffer required for Important or Marginal Fish Habitat. Reduced buffer may be considered if no harmful alteration demonstrated	The subject property contains natural heritage features, including ECA woodlands and EPA PSW. The study area also contains Type 2 Important Fish Habitat.
	11.1 Natural Heritage System	11.1.5 development within or adjacent to a natural heritage feature should be designed so there is no significant negative impacts on the feature or its function	
	11.2 Environmental Protection Area (EPA) and Environmental Conservation Area (ECA)	11.2.14 development not permitted in EPA.	
		1.2.16 Vegetated buffer required around PSW and NPCA wetlands greater than 2ha. No development or site alteration permitted within buffer.	
	11.2.25 Single family residential development on an existing lot of record may be permitted in whole or in part of the ECA designation or adjacent lands where an approved environmental impact study or scoped study, whichever is deemed appropriate by the NPCA, has demonstrated that the development is located, designed and constructed to minimize negative impacts on any natural heritage feature and their ecological function		

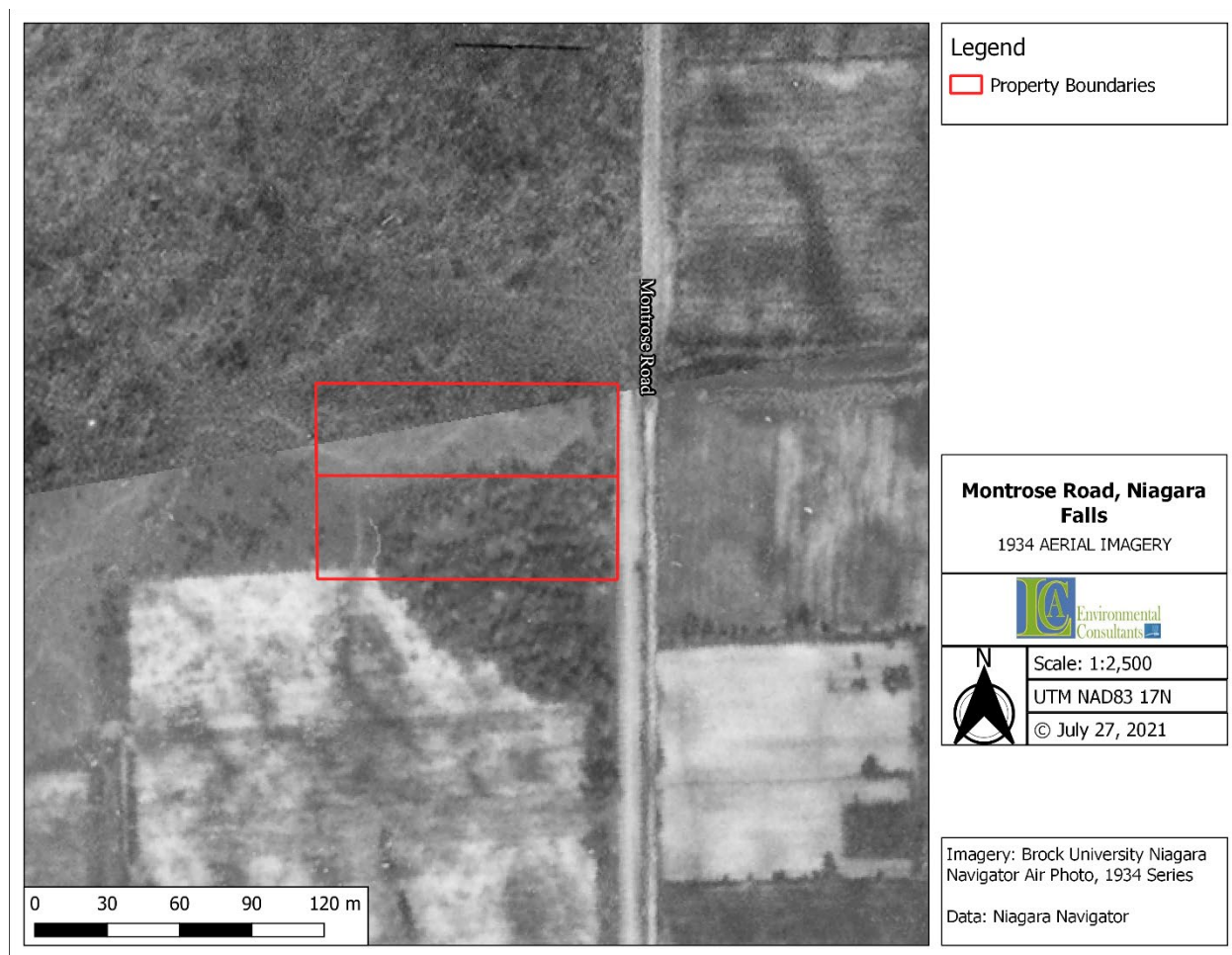
4 DESCRIPTION OF EXISTING CONDITIONS

4.1 Existing Data

4.1.1 Site History

The southern portion of the study area is occupied by upland forest, which has been present since 1934 according to aerial imagery. However, the land surrounding this woodlot, including the northern portion of the study area was cleared prior to this for agricultural purposes, but portions can be seen regenerating along the watercourse. These features can be seen in the 1934 aerial photograph below (Figure 2). There have never been any structures on the properties, and it has been largely undisturbed since 1934. Much of the surrounding landscape has been maintained as agriculture, but a large natural area exists north and west of the study area, containing forested wetland habitat identified by the MNRF as Tee Creek PSW.

According to Section 13.37 of the Official Plan of the City of Niagara Falls, the study area falls within Specialty Policy Area 37, which encompasses a portion of rural-residential parcels that were severed through a process of testamentary devise. This fragmentation of former farmland was completed in a way that circumvented the planning act and did not consider Municipal planning policies. Consequently, any proposed development must comply with applicable policies under 13.37.1.2 of the Official Plan.



4.1.2 Physiography, Soils and Drainage

A preliminary assessment of the soil characteristics and site physiology was conducted through a review of the Soil Survey Report for the Regional Municipality of Niagara, and relevant maps (Ontario Institute of Pedology, 1989). The subject property is situated North of the Onondaga Escarpment and is located within the Haldimand Clay Plain.

The topography of the site is described as smooth basin to very gently sloping, with a 0-5% slope. According to the Soils of Niagara Falls Mapping, Alluvial (ALU) soils and Niagara (NGR) soils codominant the study area.

ALU soils are composed of variable alluvial sediments on floodplains associated with active river or stream floodplains. ALU soils are imperfectly or poorly drained due to the proximity of the water table to the ground surface for long periods each year. Permeability, water holding capacity and surface runoff vary, depending on soil textures and horizon thickness.

NGR soils are composed of mainly reddish-hued lacustrine heavy clay. NGR soils are associated with the Haldimand Clay Plain and the Iroquois Plain. NGR soils are imperfectly drained and

moderately to slowly permeable due to the groundwater levels being close to the surface until late spring. NGR soils have a high water-holding capacity and slow to rapid surface runoff depending on the severity of the slope.

4.1.3 Existing Natural Heritage

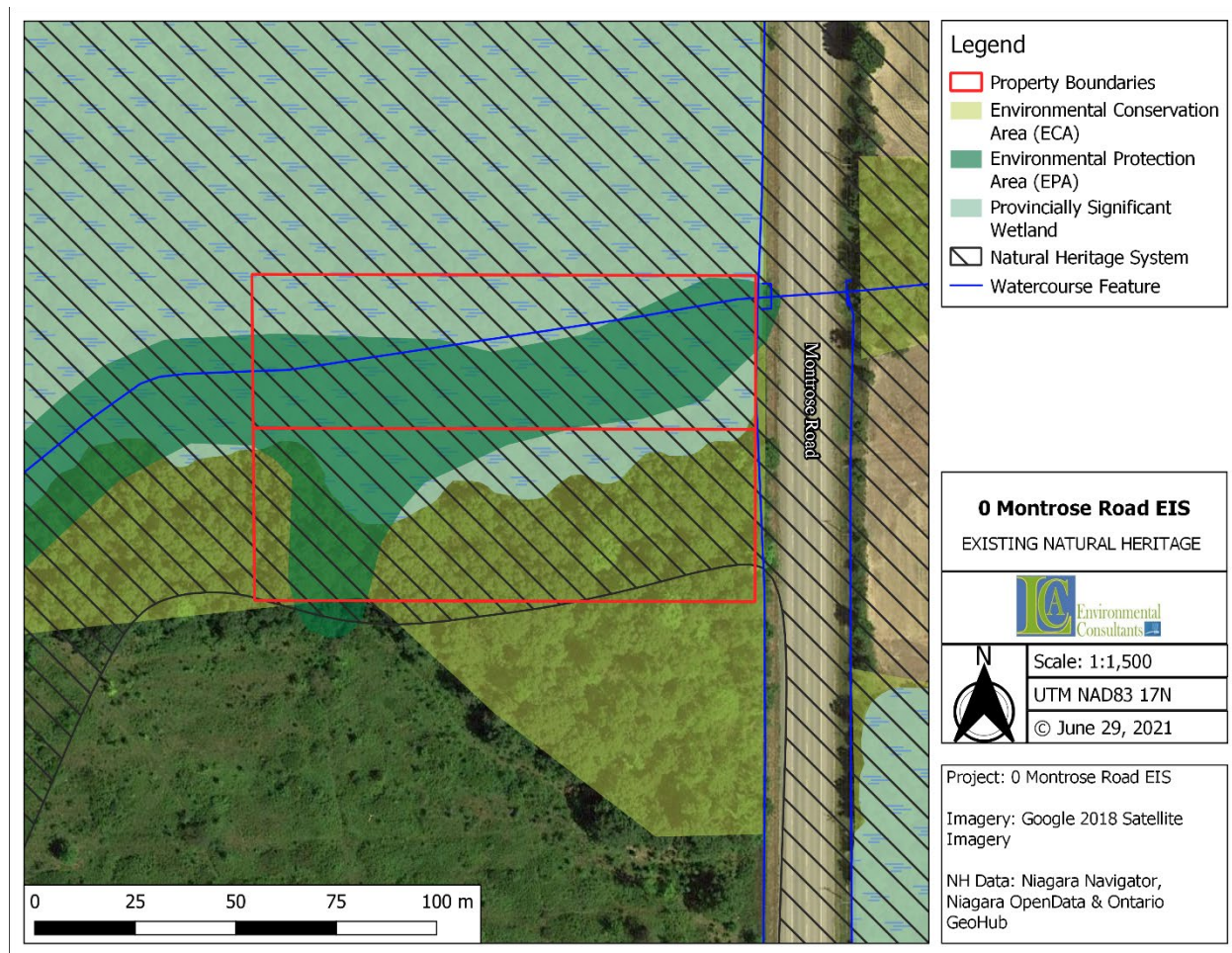
Provincial, Regional and Municipal designations of the natural heritage features on the subject property have been reviewed and described below.

The Growth Plan for the Greater Golden Horseshoe (GGH, 2017) provides for the identification of a Natural Heritage System (NHS) by the province, which exists outside of the Greenbelt Area and offers protection to the NHS for the GGH. The NHS was created and issued by the province in November 2018. The study area is located within the NHS, with the PSW identified as a Key Natural Heritage Feature, and Tea Creek is a Key hydrologic feature. The upland forest on the southern portion of the study area extends beyond the NHS and is therefore not identified as a key feature. However, it is mapped as a Significant Woodland.

At the Regional level, the Significant Woodland and PSW have been identified as Environmental Conservation Area (ECA) on the Core Natural Heritage Map, with a portion of the PSW being identified as EPA. However, in accordance with Regional OP Policy 7.B.1.3, the full extent of the wetland meets the criteria for designation as EPA. There are no other Regionally significant natural heritage features within the study area.

At the Municipal Level, the Significant Woodland and PSW are mapped as ECA and EPA, respectively on Schedule A-1 of the City of Niagara Falls Official Plan.

The existing natural heritage features on or adjacent to the subject property are shown in Figure 3.



4.2 Field Surveys

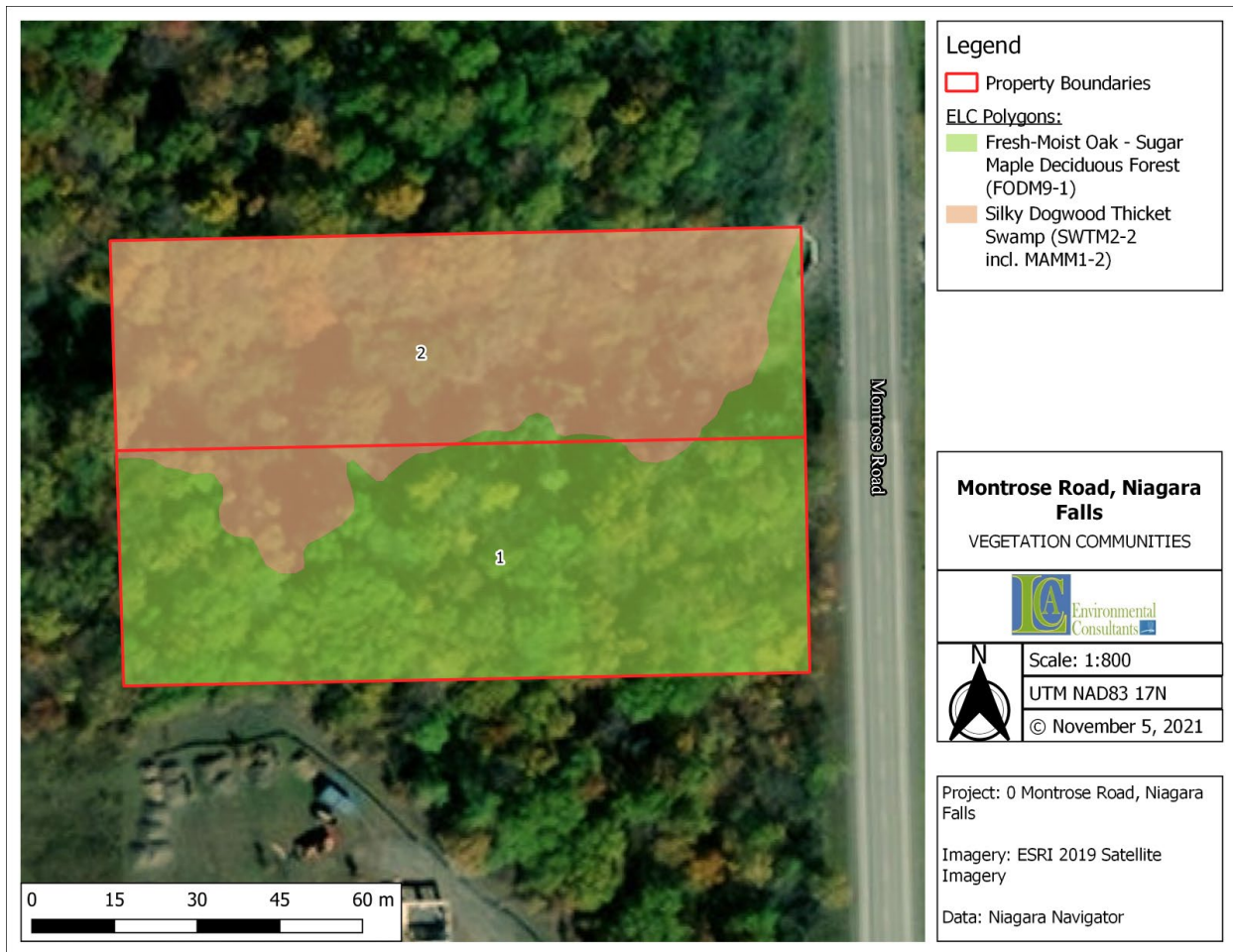
4.2.1 Ecological Land Classification

The vegetation communities in the study area were evaluated, inventoried, and classified according to the Ecological Land Classification System protocols (Lee et al., 1998) on July 9, 2021. Two polygons were identified in the study area through analysis of aerial imagery and field reconnaissance. The polygons and their associated Ecological Land Classifications are presented in Figure 4.

Polygon 1 was classified as a Fresh-Moist Oak – Sugar Maple Deciduous Forest (FODM9-1). This polygon exists primarily in the southern portion of the study area and is usually associated with lower topographic positions or tablelands with complex microtopography. The woodland polygon community had a canopy dominated by Shagbark Hickory and Sugar Maple, with occasional Ironwood, White Oak, and Red Oak. Young Ash were common throughout the understory with ground layer consisting of a combination of wet and dry species such as Spotted Jewelweed, Wild Geranium, and White Aven. The soils within the polygon were very moist silty clay loam and are

imperfectly drained. According to the NHIC list of Ontario Vegetation Communities, the FODM9-1 ecosite has an S-Rank of S4 and is secure in the Province of Ontario.

Polygon 2 was classified as a Silky Dogwood Mineral Deciduous Thicket Swamp with a Cattail Graminoid Mineral Meadow Marsh inclusion (SWTM2-2 incl. MAMM1-2). The polygon is located predominantly in the northern property and is a riparian community located in within the PSW complex. The community is dominated by Silky Dogwood in the understory with invasive Buckthorn throughout. The canopy is sparse and composed of Shagbark Hickory, Pin Oak, Elm and Ash species. The inclusion (MAMM1-12) is dominated by Cattails and is located beside the culvert on the east side of the property along Montrose Road. The canopy is open and there is standing water in this area lending to the development of Cattail community. The soils within Polygon 2 were very moist clay with imperfect drainage. The SWTM2-2 habitat has an S-Rank of S3S4 and is vulnerable to secure in the Province of Ontario.



4.2.2 Botanical Inventory

A three-season vegetation inventory was completed for each polygon within the study area. Spring vegetation inventories were completed on May 12, 2021, summer vegetation surveys were completed concurrent with ELC surveys on July 9, 2021, and fall surveys were completed on

September 23, 2021. The surveys were carried out as a transect surveys, by walking transects through the polygons and identifying all species observed.

A complete list of plant species within the study area was compiled and is included in Appendix D. The Provincial status of each species was classified according to NHIC and Regional status was assessed for the Region of Niagara (Oldham, 2017).

A total of 63 species were recorded in the study area. Five of the species identified are non-native, or introduced to the Region, while the rest are considered native. All the species identified had an S-rank of S4 (apparently secure), S5 (secure), or SNA (non-native). All native species identified are considered common in the Niagara Region except for Arrow-leaved Aster (*Symphyotrichum urophyllum*) which is uncommon (Oldham, 2017).

4.2.3 Amphibian Monitoring

Anuran call surveys were conducted within the study area to provide a general assessment of the composition and densities of the amphibian species within the area, and to identify any possible Species at Risk (SAR) that may be present.

One amphibian monitoring station was surveyed by LCA Environmental Consultants using the Marsh Monitoring Program (MMP) protocol for monitoring amphibians (Appendix C). However, only two surveys were conducted on April 30, 2021, and June 9, 2021, due to late access as well as weather conditions. Observations for each survey lasted for a total of five minutes, and the time, weather conditions, species, and calling codes were recorded.

Based on the results of the amphibian surveys, including amphibian calls recorded during daytime surveys, two species of amphibians were observed within the study area: Gray Treefrog (*Hyla versicolor*) and Green Frog (*Rana clamitans*). The individual survey station results have been included in Appendix D. All species have an S-Rank of S5 or S4 in the province of Ontario and are considered ‘secure’ or ‘apparently secure’, respectively. (NHIC, 2018).

4.2.4 Reptile Monitoring

Visual searches for reptiles and reptile habitat were completed during site visits and hand searches were completed concurrent with vegetation transect surveys according to Ontario Species at Risk Snakes Survey Protocols. Woody debris and other cover items were inspected during surveys for reptile activity.

One Garter Snake was observed in the woodlot on May 21, 2021, and one on July 9, 2021. No other reptile species were observed on the subject property during field surveys.

4.2.5 Avian Monitoring

Breeding Bird Surveys were carried out across the study area and were completed June 3, and 17, 2021 using point count methods. A summary of protocols used can be found in Appendix C.

A total of twenty-eight (28) species were observed on the subject property. All species observed are listed as secure (S5) or apparently secure (S4) in the province of Ontario, with the exception

of one introduced (SNA) species (House Finch). For the full list of species identified on the property, see Appendix D.

The global and provincial status ranking of each species according to NHIC was determined, and status listing under SARO was also noted. Two species identified on the subject property are listed as a Species at Risk and designated as Special Concern (SC) in Ontario. Wood Thrush and Eastern Wood-Pewee were observed passing through the subject property.

Wood Thrush is Threatened under Federal and Provincial legislation. However, protections under SARA legislation apply only to lands which are federally owned, so assessment of significance will reflect Provincial designations. The Provincial Endangered Species Act offers immediate protection from harm and harassment for species designated as threatened or endangered. However, the Natural Environment policies of the Regional Official Plan classifies habitat of species of special concern as ECA.

4.2.6 Mammalian Monitoring

Incidental observations were made during all field visits to identify mammalian species present in the study area. Incidental observations included visual encounters and other signs such as animal tracks, scat, and presence of bones or carcasses. There were no tracks or mammal sightings during any of the field visits, however, the study area is likely to support small mammals such as squirrels and other rodents, rabbits, and raccoons. Deer and coyotes are also probably present in the landscape using the natural area north of the property and east of Montrose Road.

Snag surveys were completed to identify potential habitat for SAR bats and determine the need to carry out acoustic monitoring within the study area. The leaf-off snag survey was completed on April 30, 2021, within the subject properties to identify potential bat roost habitat. A snag is defined by the MNRF as any standing, live or dead tree with a DBH >10cm, and which has cracks, crevices, hollows, cavities, and/or loose or naturally exfoliating bark. Surveys were also completed in the woodlot along the north boundary of the study area; however, potential roosts in this area were limited as the habitat is dominated by tall shrubs.

An acoustic monitor was installed in the middle of the woodlot in the southern portion of the study area on June 2, 2021, in response to the presence of standing snags and the presence of suitable roosting habitat for SAR bats. Bat activity was monitored every night for two weeks between the hours of 8:00pm and 1:00am.

Acoustic data was analyzed using two software programs. Using the auto-ID feature, manual vetting of files, and statistical analyses in both Sonobat and Kaleidoscope Pro, three species of bats were confirmed within the study area: Big Brown Bat (*Eptesicus fuscus*), Hoary Bat (*Lasiurus cinereus*) and Silver-haired bat (*Lasionycteris noctivagans*). Full results are summarized in Appendix D.

Hoary Bat and Silver-haired Bat are migratory species, which spend the summer in Ontario, roosting in trees in open areas near lakes and ponds, then migrating south for the winter. The Big Brown Bat is the only resident species identified in the study area. It has a high tolerance for

different environmental conditions and will often dwell in buildings in urban settings (batwatch.ca). All three species of bats identified on the site are listed as apparently secure (S4) provincially according to NHIC status rankings.

A summary of mammalian species identified in the study area during field investigations is provided in Table 3, below.

Table 3: Summary of the mammalian species observed in the study area and their current provincial rank.

Common Name	Scientific Name	S-Rank
Big Brown Bat	<i>Eptesicus fuscus</i>	S4
Hoary Bat	<i>Lasiurus cinereus</i>	S4
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	S4

4.2.7 Significant Wildlife Habitat

The Significant Wildlife Habitat Technical Guide (MNR, 2010) provides general information on the identification and assessment of Significant Wildlife Habitat (SWH). The Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (MNR, 2015) provides guidance on identifying candidate SWH within a study area and the criteria which must be met in order to confirm the presence of SWH. Information regarding suitable field studies and timing windows are also provided.

SWH can be classified into four different categories: Seasonal Concentration Areas, Rare Vegetation Communities or Specialized Habitat for Wildlife, Habitat of Species of Conservation Concern, and Animal Movement Corridors.

Presence or absence of the candidate SWH was determined through completion of the required field studies as identified in the EIS scoping. The studies were carried out only in areas where suitable habitat existed. The Candidate SWH identified in the EIS scoping is provided in Appendix B.

Results of the ELC evaluations, anuran call surveys, breeding bird surveys, bat monitoring, SAR snake surveys and area searches completed during the 2021 field season were reviewed to confirm the presence or absence of candidate SWH in the study area. Survey results were assessed against the current SWH Criteria Schedules for EcoRegion 7E (2015) and SWH for Special Concern and Rare wildlife species was identified in the study area due to the presence of Wood Thrush and Eastern Wood-pewee, which are both designated as Special Concern in Ontario.

5 ASSESSMENT OF NATURAL FEATURES AND FUNCTIONS

The following analysis pertains to the Policy 2.1 of the Provincial Policy Statement (PPS), which aims to protect natural heritage features and areas for the long term. Only those natural heritage features relevant to this study have been summarized.

The Natural Heritage Information Centre (NHIC, 2020) and the COSEWIC database (December 2019) were consulted to provide verification of any Provincially significant plant, bird, mammalian, or herpetofauna species. Regional significance of vascular plants was verified through review of the Checklist of the Vascular Plants of Niagara Regional Municipality, Ontario (Oldham, 2017).

5.1 Environmental Protection Areas

A portion of the Tee Creek Wetland, associated with the watercourse occupies the northern portion of the study area and has been designated as Provincially Significant (PSW) by the Ministry of Natural Resources and Forestry (MNR). Additionally, the floodplain which is regulated by the NPCA as well the wetland, extends south, limiting development on the west side of the property.

Section 11.2.13 of the City of Niagara Falls Official Plan states that EPAs include PSWs, Provincially significant ANSIs, and habitat of endangered or threatened species. In accordance with 11.2.18, floodplains and other hazard lands are also designated as EPAs in Niagara Falls due to their inherent risks to safety. However, development may be permitted within a floodplain where it has been approved by the NPCA. Notwithstanding Policy 11.2.18, development and site alteration are not permitted within EPA lands. There are no other designated EPAs at the Municipal or Regional level within the study area.

The PSW in the northern portion of the property satisfies Regional policy 7.B.1.3 for designation as an EPA. However, the Regional Core Natural Heritage Mapping currently identifies the entire study area, including the PSW and Floodplain, as Environmental Conservation Areas.

The wetland contains a tributary of Tee Creek, which flows through the northern property and crosses over Montrose Road. The creek provides habitat for fish, birds and other wildlife and has a riparian habitat of moderate quality.

The southern boundary of the PSW was verified in the field in accordance with the Ontario Wetland Evaluation System (OWES) for Southern Ontario. The southern boundary of the PSW is defined by a change in topography between the adjacent upland forest, which slopes towards the wetland, and the floodplain of Tee Creek. It was suspected that a recent replacement of the culvert at Montrose Road improved the flow of water through the system, reducing the flooding upstream of the culvert, causing the wetland boundary to retreat in response. Assessment of the boundary confirmed minor changes to the southern PSW boundary, and the revised boundary was submitted to the MNDMNRF for review. The ministry accepted the revisions to the boundary and have updated the provincial mapping to reflect these changes.

The revised PSW boundary and correspondence with the MNDMNRF can be found in Appendix B.

5.2 Environmental Conservation Areas

The Region assigns Environmental Conservation Area (ECA) designation to significant woodlands, Significant Wildlife Habitat (SWH), habitat of species of concern, Regionally

significant ANSIs, Locally Significant Wetlands (LSWs), significant valleylands, tall grass prairies, savannahs, alvars, and publicly owned conservation lands.

The Regional Core Natural Heritage map has identified the entire study area as ECA Significant Woodland. However, because the wetland has been evaluated as Provincially Significant and not Locally Significant, the current mapping does not match the Regional Policy. The wetland feature has been assessed in this report as an EPA.

The woodland overlaps with the Natural Heritage System for the GGH, but it has not been identified as a Key natural heritage feature. The PSW has been mapped as a key hydrologic feature, and the 30m buffer has been included in the NHS. Although the woodland is mature, and part of a larger natural area which includes Tee Creek and the PSW, it does not meet the minimum size criteria for woodlands outside of the urban area boundary to be designated as Significant. South of the Niagara escarpment, woodlands 10 hectares or larger are considered Significant according to Regional Policy 7.B.1.5. If the woodland contains older growth forest or a watercourse, the minimum size for significance is 2 hectares.

The upland forest is bound by Tee Creek and the associated thicket swamp riparian habitat to the north and west, and Montrose Road to the east. South of the woodland, old agricultural fields have been recently developed along Montrose Road. The total area of the woodland is approximately 1.2 hectares.

In accordance with Policy 7.B.1.5, the presence of a Threatened or Endangered species or a species of Concern also designates a woodland as significant, regardless of its size. The presence of two species of special concern birds, Eastern Wood-pewee and Wood Thrush, therefore, confirms the upland polygon is an ECA Significant Woodland subject to Regional policy 7.B.1.11.

5.3 Fish Habitat

Tee Creek, which traverses the northern subject property is designated as a Municipal Drain and is a tributary of the Lyons Creek. It has been evaluated by the MNRF for fish habitat and assessed by the NPCA as part of the South Niagara Falls Watershed Plan.

The main tributary of Tee Creek is Type 1 Critical Fish habitat, while the upper tributaries of Tee Creek, including the portion that traverses the subject property, have been assessed as Type 2 Important Fish Habitat. Type 2 Important Fish Habitat may have sensitive species and/or include sensitive habitat such as critical spawning and rearing areas, migration routes, winter stop over areas or productive feeding areas. A minimum 10m naturally vegetated buffer must be maintained from the top of bank along Type 2 Important Fish Habitat, in accordance with the NPCA Policy 9.2.5.1. Policy 7.B.1.15 of the Regional Official Plan prescribes a minimum 15m buffer for Type 2 Important fish habitat, but a reduced buffer may be supported through findings of an EIS.

Mapping of the Fish Habitat identified in the study area has been included in Appendix A.

5.4 Species at Risk

5.4.1 Endangered or Threatened Species

The SAR habitat screening identified twenty-three Threatened or Endangered species with potential to occur on the property and Breeding Bird Surveys, vegetation transect surveys and the MNRF survey protocol for SAR bats in Treed Environments were used to monitor presence of SAR. No Threatened or Endangered species were documented within the vicinity of the study area during 2021 field investigations.

5.5 Significant Wildlife Habitat

The Significant Wildlife Habitat Technical Guide (SWHTG), developed by the Ministry of Natural Resources, provides detailed information on the identification, description, and prioritization of Significant Wildlife Habitat (SWH) in accordance with Section 2.3 of the Provincial Policy Statement. It is intended to assist those involved in planning and review process to identify and protect SWH. There are four broad categories of SWH: seasonal concentration areas, rare or specialized habitat, habitat of species of conservation concern, and animal movement corridors.

5.5.1 Seasonal Concentration Areas

In the SWH screening for the property Bat Maternity Colonies, Reptile hibernaculum, and colonially nesting breeding bird tree/shrub habitat were identified as candidate Seasonal Concentration areas on the property.

Results of the MNRF Survey Protocol for SAR Bats in Treed Habitats did not confirm the presence of bat maternity colony SWH, as the snag density was not sufficient to meet significance criteria. However, acoustic monitoring was completed to document potential presence of SAR bats.

Similarly, active hand searches and area searches completed through the spring and summer did not confirm the presence Reptile hibernaculum SWH or Colonially-nesting Breeding Bird habitat. Surveys for candidate SWH were completed where suitable habitat existed according to standard protocols and identified in the SWH Screening (Appendix X). No other Seasonal Concentration Areas were identified on the subject property.

5.5.2 Rare or Specialized Habitat

The NHIC Plant Community List was reviewed to determine the status of all vegetation communities identified through the ELC classification system for the study area. The two ELC polygons identified on the subject property, SWTM2-2 and FODM9-1 both have Provincial status rankings of S3S4 (Vulnerable to Apparently secure) and S4 (Apparently secure), respectively.

The SWH Criteria Schedules designate any vegetation communities ranked S1-S3 as significant. The SWTM2-2 polygon had a shrub layer co-dominated by Silky Dogwood and invasive European Buckthorn. Given the level of disturbance present through the polygon, the thicket swamp has not been identified as SWH.

Other candidate specialized habitat identified within or adjacent to the study area included Waterfowl Nesting Areas, Woodland Raptor Nesting, Amphibian Breeding Habitat, and Woodland Area-sensitive Bird Breeding Habitat.

Area searches throughout the study period did not confirm the presence of any raptor or waterfowl nests within the study area. Results of amphibian surveys and Breeding Bird surveys did not identify any other SWH. One area-sensitive indicator species, Ovenbird, was observed during breeding bird surveys, but SWH Criteria Schedules require the presence of three species to confirm SWH. Additionally, the variety of species, including presence of grassland birds on the property indicates disturbance to the woodland which is characteristic of woodland edge habitat.

No Rare or Specialized SWH was confirmed within the study area.

5.5.3 Habitat of Species of Conservation Concern

The EIS Scoping Checklist identified candidate Marsh Breeding Bird habitat due to the presence of wetland habitat, as well as candidate SWH for special concern or rare wildlife species. Further investigation of the study area indicated that the wetland did not provide habitat typically used by marsh birds. Additionally, Breeding Bird Surveys did not identify any of the indicator species listed in the SWH Criteria Schedules for EcoRegion 7E.

The Provincial ranking of all species on the subject property was reviewed using the NHIC database to determine their status in Ontario and confirm the presence or absence of habitat for Special Concern and Rare Wildlife Species. Two Special Concern Species were identified in the vicinity of the study area. Eastern Wood-pewee and Wood Thrush, both listed as Special Concern provincially, were observed passing through the study area.

No other Species of Conservation Concern SWH were observed during field studies.

5.6 Corridors and Linkages

Corridors are naturally vegetated parts of the landscape which are often elongated and allow for dispersal from one habitat to another. Corridors can exist along shorelines, riparian zones, woodlands, or manmade structures such as abandoned roads or rail allowances. Policy 2.1.2 of the Provincial Policy Statement recognizes the significance of corridors, stating that connectivity should be maintained, restored, or enhanced where possible.

The Region of Niagara Core Natural Heritage Map identifies potential corridors throughout the landscape. Core Natural Heritage Mapping has identified the PSW north of the subject property as a potential corridor, providing linkage to the wetlands east of Montrose Road and Willoughby Marsh Conservation area. The Provincial NHS also identifies Key Natural Heritage Features (KNHF) and Key Hydrologic Features (KHF) and linkages throughout the landscape for the Greater Golden Horseshoe. The NHS also identifies the Tee Creek PSW as a KHF and a corridor providing connectivity between the Tee Creek PSW pockets, east towards the Willoughby Marsh PSW. Beyond the 30m Vegetation Protection Zone (VPZ) for the PSW, the NHS does not incorporate the upland forest in the southern portion of the study area.

5.7 Summary

The following provides a summary of the natural heritage features identified on the subject property.

- **Provincially Significant Wetlands:** The Tee Creek PSW is EPA at the Municipal level. Current designation on the Regional mapping is ECA, but the wetland meets Regional criteria for EPA designation. The boundary of the PSW was refined through the study and approved by MNDMNRF.
- **Species at Risk:** No Endangered or Threatened species were observed within the study area. However, two Special Concern Species were observed during Breeding Bird Surveys: Eastern Wood-pewee and Wood Thrush.
- **Significant Wildlife Habitat:** The woodland and adjacent lands provide SWH for Special concern species Eastern Wood-pewee and Wood Thrush. No other SWH was confirmed in the study area.
- **Fish Habitat:** Tee Creek, which traverses the northern portion of the study area contains Type 2 Important Fish habitat as classified by the MNRF. Type 2 Important Fish Habitat is part of the Regional Core Natural Heritage System and typically requires a minimum setback of 15m setback from the top of bank.
- **Corridor:** Tee Creek and the associated PSW habitat has been identified as corridor within the Regional Core Natural Heritage Map and the Provincial NHS for the GGH. This corridor provides linkages between wetlands throughout the landscape.

6 CONSTRAINTS ANALYSIS

6.1 Development Constraints

The Tee Creek PSW and its associated buffer zone place significant constraints to development within the study area. Regional Policy 7.B.1.10 and City of Niagara Falls Official Plan policy 11.2.14 prohibit development within Environmental Protection Areas (EPAs) and both policy documents define PSWs as EPAs. Pursuant to Regional Policy 7.B.1.11, development adjacent to the PSW will be subject to the findings of an Environmental Impact Study (EIS).

All wetlands in Niagara are regulated by the Niagara Peninsula Conservation Authority (NPCA) under Ontario Regulation 155/06. Development and site alteration within a wetland are not permitted unless otherwise stated under NPCA Policy 8.2.2 *Development and Interference within a Wetland*. A minimum 30m setback from the wetland boundary is required in accordance with NPCA Policy 8.2.3.1 *Development within 30 metres of a Wetland*. However, a reduced buffer may be considered based on criteria listed under Policy 8.2.3.5(c). A reduction in buffer size, to a minimum of 15m, will be considered based on the proposed development and the existing condition of the buffer zone.

Pursuant to NPCA Policy 8.2.3.5, no new septic systems are permitted within 30m of any wetlands. However, personal communication with consultants from Terra-Dynamics Inc, has suggested that NPCA staff are satisfied with the interpretation that this policy applies to the septic tank and pipes but does not apply to the septic bed. This is consistent with the interpretation of the building code as applied by the Niagara Region.

The Regional Core Natural Heritage Mapping identifies the upland forest as Environmental Conservation Area (ECA). Pursuant to Regional Official Plan 7.B.1.11, development may be permitted within ECAs if it has been demonstrated that there will be no significant impact over the long term to that feature.

Though the upland forest is not identified as a KNHF, the PSW is identified as a KHF and pursuant to Growth Plan for the GGH (2020) Policy 4.2.4.1, a vegetation protection zone (VPZ) of no less than 30m must be established. No development or site alteration is permitted within VPZ, in accordance with Policy 4.2.4.3 of the Growth Plan for the GGH (2020).

Policy 5.2.8.1 of the Growth Plan states that “*where the policies of this Plan require the completion of specific types of master plans, assessments, studies, or other plans, including the equivalent, before a decision can be made, including in respect of matters in process, the policy direction of this Plan may be implemented based on, collectively, existing, enhanced, or new assessments, studies and plans, provided that these achieve or exceed the same objectives.*” It is our assessment that based on the scale of the proposed development and existing lots, the policy direction of the Growth Plan may be implemented based on this EIS to achieve the objectives of the Growth Plan by demonstrating no change to the long term ecological or hydrologic function of the PSW.

6.2 Areas of No Constraint

The entire study area contains Significant Woodland designated as ECA and there are no areas of no constraint. However, the portion of the study area which lies outside of the 30m PSW buffer, and therefore outside of the NHS, presents the lowest level of constraints to development. The significant woodland is subject to Regional Policy 7.B.1.11 and Municipal OP Policy 11.2.2.

Policy 11.2.25 of the Official Plan for the City of Niagara Falls states that “*Single family residential development on an existing lot of record may be permitted in whole or in part of the ECA designation or adjacent lands where an approved environmental impact study or scoped study, whichever is deemed appropriate by the NPCA, has demonstrated that the development is located, designed and constructed to minimize negative impacts on any natural heritage feature and their ecological function*”.

See Figure 6 below for map of the constraints identified for the subject property based on field assessments and review of applicable policies.



Figure 5: Constraints associated with the subject property.

6.3 Enhancement Opportunities

The portion of Tee Creek which traverses the property provides good quality fish habitat with a well-established riparian zone. The woodland is also mature with a well-established canopy and understory, but due to its small size and adjacent land uses, it has been subject to edge effects.

The roadside ditch along Montrose Road provides a linear vector for invasive species like *Phragmites australis* to move through the landscape. Management of invasive species in the roadside ditch through regular mowing can prevent invasion into the cattail marsh and adjacent Important Fish Habitat.

7 ECOLOGICAL IMPACT ASSESSMENT

7.1 Description of Proposed Development

The proposed development for the subject property includes construction of a single-family dwelling in the southeast corner of the study area. The proposed building envelope and septic bed are shown in Figure 7, below. The building envelope occupies an area of 300 square metres and the septic bed has been sized to accommodate the single-family home while avoiding impact the PSW buffer.

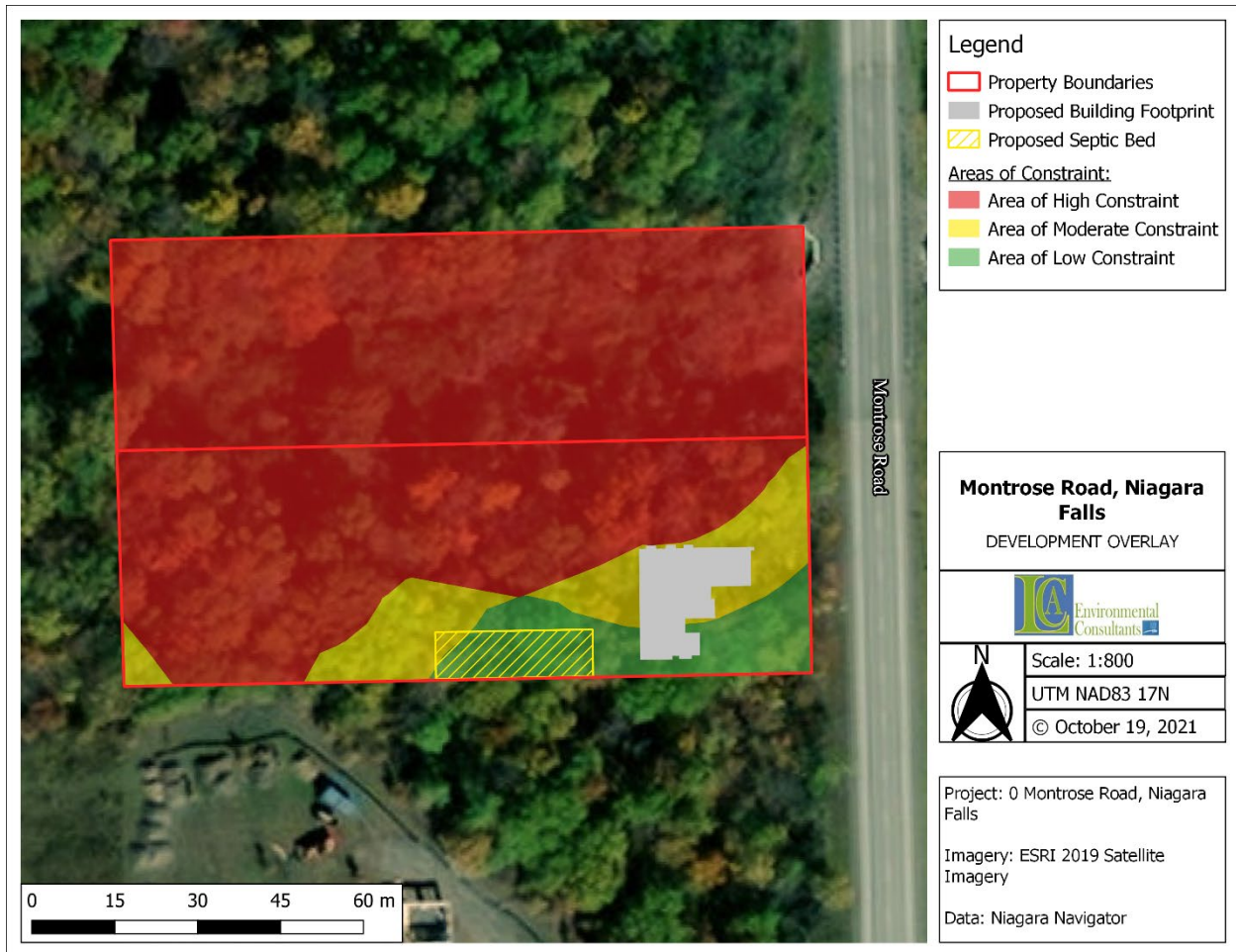


Figure 6: The proposed development for 0 Montrose Road, showing proposed septic and building envelopes (map included in Appendix A).

7.2 Potential Impacts to Natural Heritage Features

7.2.1 Potential Direct Impacts

The proposed development is located within the ECA Significant Woodland and will result in both direct and indirect impacts to the natural features in the study area.

Direct impacts expected include removal of a portion of the ECA Significant Woodland and loss of associated habitat. The area of the proposed building footprint and septic footprint is approximately 300m² and 250m², respectively. However, to accommodate site grading and machinery access, it is estimated that approximately 1500m² (0.15 hectares) of the woodland

habitat will be removed to accommodate construction. This is a small portion of the overall natural area, which encompasses both PSW and woodland habitat.

The total area of the woodland feature, as mapped by the province to include the adjacent PSW, is 59.8 hectares. However, the portion of Significant Woodland which is identified as upland forest, south of the adjacent PSW, and not identified as part of the NHS, is 1.24 hectares. Consequently, the area of direct impact will be 0.25% of the overall natural area, and 12% of the upland FOD habitat.

In accordance with the Regional Official Plan definitions, which states that in regard to spatial change, significant means “...an increase or decrease of over 20% in the area within an Environmental Conservation Area or in the length or area of a surface water feature shown as Fish Habitat,” the proposed development will not result in significant direct impacts to the woodland or associated wildlife habitat.

It is noted that the woodland provides habitat for Special Concern birds, including Eastern Wood-pewee and the area-sensitive Wood Thrush. The loss of habitat is also not expected to have significant impacts on the Eastern Wood-pewee or Wood Thrush because the proposed construction is located at the edge of the woodland and natural area and will not cause further fragmentation. The adjacent PSW provides a large swath of undisturbed natural areas and interior habitat, into which Eastern Wood-pewee and Wood Thrush can retreat. This adjacent PSW also provides connectivity to other wetlands in the landscape, including the Provincially Significant Willoughby Marsh, to the east. No other SAR were documented in the study area and there will be no direct impacts to significant flora or fauna.

7.2.2 Potential Indirect Impacts

There is no direct impact from the proposed development on the adjacent PSW or Type 2 Important Fish habitat associated with Tee Creek. However, indirect impacts of development can occur and should be mitigated, where feasible.

Pursuant to NPCA Policy 8.2.3.3, a reduction in the 30m buffer has been proposed to accommodate the building envelope because there are no alternative locations outside of the 30m buffer zone. The location of the building has been selected to minimize disturbance to the PSW buffer, while complying with Niagara Falls planning policies.

No development has been proposed within 15m of the wetland, and the proposed dwelling is located in the southeast corner of the study area, where the woodlot has experienced the most disturbance from edge effects of the adjacent roadway. Indirect impacts to the PSW, including changes in hydrology resulting from altered surface drainage, and impacts of erosion from exposed soils during construction may increase with a reduced buffer size. Mitigation measures will be necessary to avoid these impacts to the greatest extent possible. However, given the size of the proposed development relative to the PSW and its proximity to Montrose Road, changes in hydrology and impacts of erosion are not expected to be significant.

Other indirect impacts from construction include disturbance to breeding birds through removal of potential nesting habitat, or from noise disturbance. The impacts from noise are not expected to cause significant impacts to birds and other wildlife, because the adjacent PSW provides an expansive natural area with both deciduous swamp and upland habitat. Additionally, immediately adjacent to the study area, construction of a new single-family home was ongoing throughout the summer of 2021, while field studies were being completed for the study area. During this time, twenty-eight species of birds were observed, including eight species considered area sensitive woodland species. There will be no impact to or loss of interior habitat northwest of the study area.

No other indirect impacts have been identified, as there will be no impact to corridor function or connectivity throughout the landscape.

7.2.3 Potential Cumulative Impacts

Cumulative impacts refer to the combined or incremental effects of the proposed development and must take into consideration the effects of the proposed development, as well as the potential for future development in the surrounding landscape.

Cumulative impacts associated with a single dwelling located within a woodland includes cumulative impacts of light and noise on the activity of wildlife such as birds and bats, as well as the potential for increased pressure from encroachment and garden escapees.

There are six other lots along Montrose Road to the north of the study area within Special Policy Area 37, which were also severed through the testamentary devise process. However, Policy 13.37.1.2(8), which applies to Special Policy Area 37 states that the Environmental Protection Area policies of the Official Plan must be adhered to. All six of the lots contain PSW and do not support any further development along the west side of Montrose Road. East of Montrose Road, all natural areas have also been classified as PSW, and are subject to the EPA policies of the Municipal and Regional OP.

7.2.4 Proposed Mitigation

In order to minimize the impacts associated with the proposed development, mitigation is required to ensure retained function of the PSW and its buffer as well as the function of the Significant Woodland.

Prior to site alteration to accommodate construction, the limit of disturbance must be clearly delineated in the field. Heavy duty silt fencing and construction fencing should be installed along the limit of disturbance to ensure there is no encroachment into the 15m buffer. This fencing should be maintained and inspected regularly throughout the construction phase to prevent sediment loading into the wetland buffer, adjacent PSW and Fish habitat.

A Tree Preservation Plan should be prepared pursuant to Niagara Falls OP Policy 14.2.10, which identifies the trees impacted by the proposed development and recommends specific measures to protect all trees which can reasonable be preserved. It may be necessary to store equipment offsite during construction, to minimize impacts to root systems of adjacent trees from compaction.

Following completion of the Tree Preservation Plan, any trees which must be removed to accommodate construction should be removed outside of the breeding bird window (March 15 - September 15). This will avoid disturbance to any active nests within the study area.

The existing topography of the site slopes towards the PSW, providing surface overflow to the feature. It is recommended that site level controls be incorporated into the site grading plan to ensure that surface runoff continues to be conveyed to the adjacent wetland. This can be incorporated through a vegetated swale.

Other considerations to prevent impacts to wildlife within the woodland include the incorporation of Bird Safe design standards into the windows and lighting of the home. Options include limiting glazed surfaces or adding markings to windows, limiting exterior lighting, and where possible, installing shielded, down-facing lighting fixtures.

7.3 Residual Impacts and Policy Compliance

The potential impacts of development and recommended mitigation measures to offset those impacts were identified with the goal of minimizing residual impacts to the natural features on and adjacent to the subject property. The following summarizes the anticipated residual impacts on the natural features:

- **Regionally Significant Woodlands** – Removal of 0.15 hectares of upland forest.
- **Provincially Significant Wetlands** – No negative residual impacts expected.
- **Wildlife Habitat** – Loss of 0.15ha of woodland habitat; no expected impact to fish habitat
- **Wildlife Corridor** – No negative residual impacts expected.
- **Flora and Fauna** – No loss of significant species; minimal disturbance during construction.

The information gathered through background review and field investigations was assessed against current policies to ensure compliance with Regional, Municipal, and Provincial legislation. Table 5 below provides a summary of the applicable policies identified in Section 3.0 and an assessment of compliance based on current conditions, proposed work, and recommended mitigation.

LCA Environmental Consultants

Table 5: Summary of applicable policies and analysis of compliance of the proposed construction, with consideration to proposed mitigation measures.

Policy Document	Policy Summary	Compliance
Provincial Policy Statement, 2020	2.1.5 No development in significant wetlands, woodlands, valleylands, wildlife habitat, or ANSIs unless no negative impacts have been demonstrated	Yes – no significant negative impact identified. No Threatened or Endangered species observed.
	2.1.6 Development not permitted in fish habitat except in accordance with provincial and federal requirements.	
	2.1.7 Development not permitted in habitat of endangered/threatened species	
	2.1.8 No development on lands adjacent to natural heritage features unless no negative impacts have been demonstrated.	
A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2019	4.2.2.3 Development within Natural Heritage System will demonstrate no negative impacts on key natural heritage or hydrologic features and connectivity along the system is maintained	Development proposed within 30m VPZ. However, pursuant to 5.2.8.1, objectives of the Growth Plan are maintained. No significant impact to adjacent KHF.
	4.2.2.4 Provincial mapping of the NHS for the Growth Plan does not apply until implemented in municipal official plans; until that time, policies apply to natural heritage systems outside settlement areas already identified in official plans.	
	4.2.3.1 Outside of settlement areas, development not permitted in key natural heritage or hydrologic feature, with exception to uses listed.	
	4.2.4.1 Outside settlement areas, minimum 30m vegetation protection zone to be identified for proposed development within 120m of key natural heritage or hydrologic feature to protect feature and functions.	
	4.2.4.3 No development or site alteration permitted within vegetation protection zone (exception: 4.2.3.1)	
Endangered Species Act, 2007	10.1 Prohibits damage or destruction to the habitat of any species listed as endangered, threatened, or extirpated under SARO.	Yes – No threatened or endangered species observed.
Migratory Bird Convention Act, 1994	4 protect and conserve migratory birds and their nests.	Yes – recommend removal of trees outside of breeding bird windows.
Niagara Region Official Plan, 2014	7.A.2.1 Development only permitted where no negative impact on: <ul style="list-style-type: none"> g. Quantity/quality of groundwater h. Recharge, discharge, or headwater areas i. Hydrology of watercourses j. Surface / groundwater resources k. Natural drainage l. Flooding or erosion 	Yes – no significant negative impact to Significant Woodland, PSW, or Fish Habitat.
	7.B.1.1 Core Natural Heritage (CNH) includes: <ul style="list-style-type: none"> e. Core Natural Area, classified as either EPA or ECA; f. Potential Natural Heritage Corridors; g. Greenbelt Natural Heritage and Water Resources System; and 	

LCA Environmental Consultants

	h. Fish Habitat	
	7.B.1.10 Development not permitted within EPAs, except: d. Forest, fish, wildlife management e. Flood or erosion control f. Passive recreational uses	
	7.B.1.11 Development not permitted within ECA unless no negative impact on CNH feature or adjacent land has been demonstrated.	
	7.B.1.13 development should be designed to maintain or enhance ecological functions of Potential Natural Heritage Corridors.	
NPCA Land Use Policy Document, 2018	8.2.2.1 no development or site alteration within a wetland	Reduced PSW buffer proposed (15m), pursuant to 8.2.3.3. No alternative location available, and high-quality buffer to preserve PSW. Septic proposed outside of 30m buffer.
	8.2.3.1 no development within 30 metres of a wetland	
	8.2.3.5 No new septic systems permitted within 30m of any wetland.	
	9.2.5.1 development and site alteration adjacent to a watercourse requires a natural buffer of 10-15m based on type of stream and habitat present.	
Fish Wildlife Conservation Act, 1997	7.1 no person shall destroy, take or possess the nest or eggs of a wild bird	Yes – mitigation to avoid disturbance during nesting season.
City of Niagara Falls, 1993	8.3.5.6 Minimum 15m buffer required for Important or Marginal Fish Habitat. Reduced buffer may be considered if no harmful alteration demonstrated	Yes – 15m buffer sustained.
	11.1.5 development within or adjacent to a natural heritage feature should be designed so there are no significant negative impacts on the feature or its function	Yes – No significant impact demonstrated
	11.2.14 development not permitted in EPA.	Yes – no impact to EPA
	11.2.16 Vegetated buffer required around PSW and NPCA wetlands greater than 2ha. No development or site alteration permitted within buffer.	Minimum 15m buffer maintained
	11.2.25 Single family residential development on an existing lot of record may be permitted in whole or in part of the ECA designation or adjacent lands where an approved environmental impact study or scoped study, whichever is deemed appropriate by the NPCA, has demonstrated that the development is located, designed and constructed to minimize negative impacts on any natural heritage feature and their ecological function	Proposed development located in existing lot of record and designed to have minimal impact to existing natural features.

8 RECOMMENDATIONS AND CONCLUSION

Field studies were completed to assess the significance of the natural features associated with the study area. Natural features included the Tee Creek Provincially Significant Wetland (PSW), Type 2 Important Fish Habitat, NPCA regulated floodplain, Regionally Significant Woodland and the Natural Heritage System of the Greater Golden Horseshoe. The features were evaluated against current natural heritage policies to determine the constraints to development on the subject

property and the proposed development was assessed to identify all negative impacts to the natural heritage features and significant species.

Some expected impacts, including loss of 0.15ha of Significant woodland, impacts to site drainage and reduction of a portion of the 30m wetland buffer to 15m have been described. However, mitigation measures have been recommended which will minimize negative impacts and result in no negative impacts to the adjacent PSW. The best management practices for construction and development should be employed to mitigate negative impacts. It is also concluded that pursuant to Policy 5.2.8.1 of the Growth Plan for the Greater Golden Horseshoe, the proposed development supports the Plan's objectives and does not have any negative impact to the KHF's or the corridor.

The findings of the EIS and evaluation of compliance with current policies supports the proposed development of a single-family dwelling on the property located at 0 Montrose Road, Special Policy Area 37, the former Township of Crowland, and now in the City of Niagara Falls. Development can be completed without significant negative impact to wildlife, the surrounding natural areas or their ecological functions.

We trust that the information contained in this report meets your requirements. Should you have any questions, please contact our office.

Report prepared by:



Anne McDonald, B.Sc, EPT
Project Coordinator



Savannah Cowherd, B.Eng, ERPG
Junior Ecologist

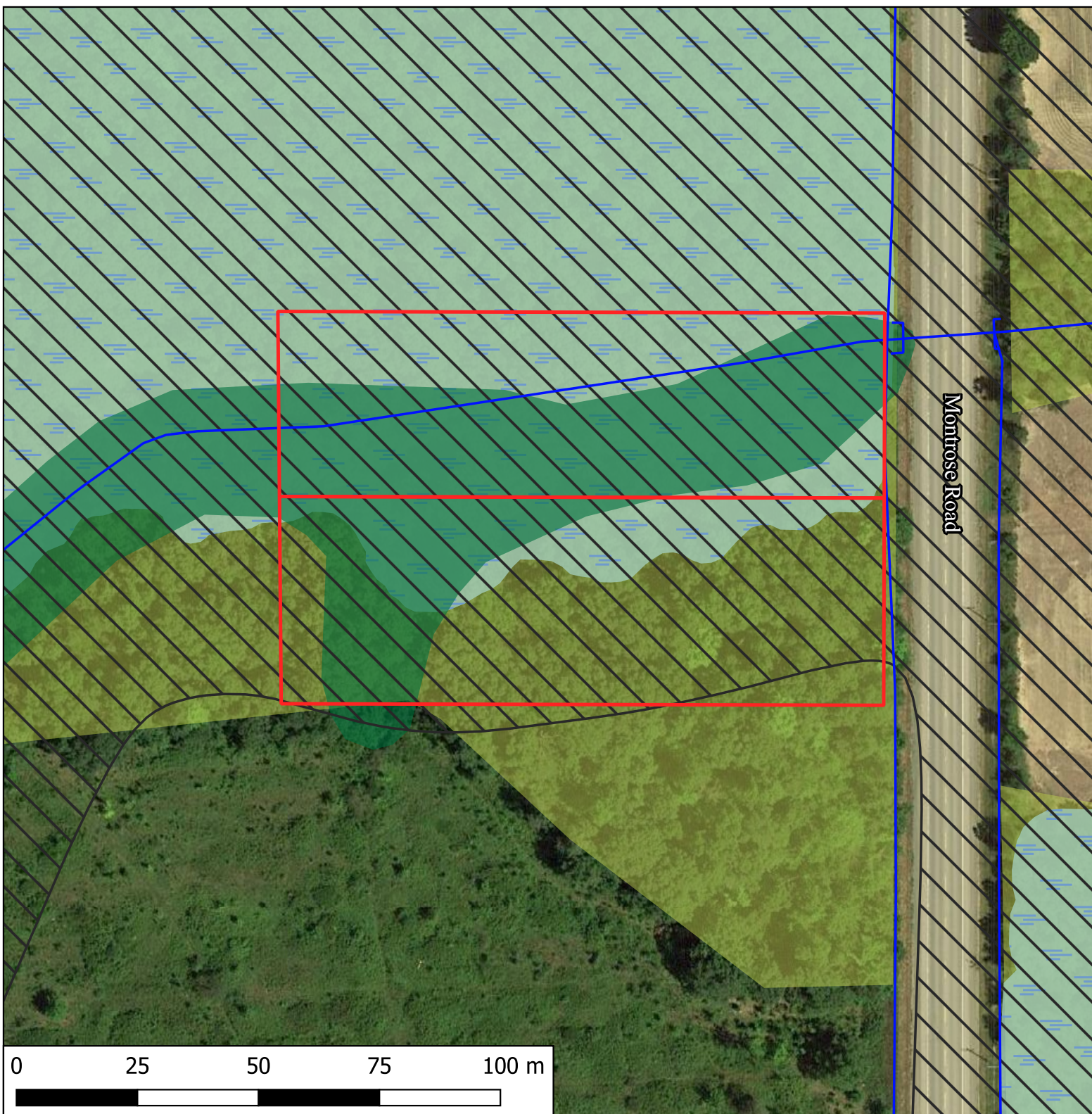
9 LITERATURE REVIEWED

- A Place to Grow: Growth Plan for the Greater Golden Horseshow. May 2019. Province of Ontario. approved under the Places to Grow Act, 2005 to take effect on May 16, 2019.
- Bradly, D.J. 2013. Southern Ontario Vascular Plant Species List – 3rd Edition. Ontario Ministry of Natural Resources Peterborough. Queen’s Printer for Ontario. 97 pp.
- Bird-safe Design and Standards. <https://birdsafecan.ca/>
- Bird Studies Canada. Ontario Breeding Bird Atlas 2 (2001-2005)
- Chapman, L.J. and D.F. Putman. 1984. The Physiography of Southern Ontario – Third edition. Ministry of Natural Resources.
- City of Niagara Falls. Official Plan of the City of Niagara Falls. Planning & Development Office Consolidation Amended to April 2019.
- COSEWIC. 2012. COSEWIC assessment and status report on the Eastern Wood-pewee *Contopus virens* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 39 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
- Endangered Species Act (ESA), 2007, S.O. 2007, c. 6
- Fish and Wildlife Conservation Act, 1997, S.O. 1997, c. 41.
- iNaturalist: Observations for the City of Niagara Falls online mapping.
- 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 Department and Transfer Branch. SCSS Field Guide FG-02.
- Migratory Birds Convention Act (MBCA), 1994 (S.C. 1994, c. 22).
- Niagara Peninsula Conservation Authority (NPCA). 2011. South Niagara Falls Watershed Plan.
- Niagara Peninsula Conservation Authority (NPCA). 2010. Natural Areas Inventory Volumes 1 & 2.
- Niagara Peninsula Conservation Authority (NPCA). 2018. NPCA Policy Document: Policies for the Administration of Ontario Regulation 155/06 and the Planning Act.
- Oldham, M.J. 2010. Checklist of the Vascular Plants of Niagara Regional Municipality Ontario. Natural Heritage Information Centre Ministry of Natural Resources. Peterborough, Ontario.
- Ontario Breeding Birds Atlas. 2009. Atlas of the Breeding Birds of Ontario. <http://www.birdsontario.org/atlas/datasummaries.jsp?lang=en>.
- Ontario Institute of Pedology. 1985. Field manual for describing soils, Third edition. Ontario Institute of Pedology, Guelph, Ontario.
- Ontario Institute of Pedology. 1989. Soils of the Regional Municipality of Niagara - Volume 1 – Report No.60. Guelph, Ontario.







- Ontario Ministry of Environment, Conservation, and Parks (MECP). 2019. Eastern Wood-pewee. Species Profile Page.
- Ontario Ministry of Natural Resources. March 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition. Toronto: Queen's Printer for Ontario. 248 pp.
- Ontario Ministry of Natural Resources and Forestry. Make a Map: Natural Heritage Areas. Online Tool.
- Ontario Ministry of Natural Resources and Forestry (MNRF). 2014. Significant Wildlife Habitat Mitigation Support Tool. OMNRF, Peterborough, Ontario.
- Ontario Ministry of Natural Resources (MNRF). 2000. Significant Wildlife Habitat Technical Guide. OMNRF, Peterborough, Ontario. Queen's Printer for Ontario. 151 pp.
- Ontario Ministry of Natural Resources and Forestry (OMNRF). 2016. Survey Protocol for Ontario's Species at Risk Snakes. Ontario Ministry of Natural Resources and Forestry, Species Conservation Policy Branch. Peterborough, Ontario. ii + 17 pp.
- Ontario Ministry of Natural Resources and Forestry (MNRF). 2011. A land manager's guide to conserving habitat for forest birds in southern Ontario. Toronto: Queen's Printer for Ontario. 140 pp
- Ontario Ministry of Natural Resources and Forestry (MNRF). 2013. Ontario Wetland Evaluation System – Southern Manual. 3rd Edition, Version 3.2. Toronto: Queen's Printer for Ontario. 294 pp.
- Ontario Ministry of Natural Resources and Forestry (MNRF). 2017. Survey Protocol for Species at Risk Bats within Treed Habitats: Little Brown Myotis, Northern Myotis & Tri-Colored Bat. MNRF, Guelph District. April 2017.
- Ontario Partners in Flight. 2017. <https://www.birdscanada.org/PIF/PIFOntario.html>
- Provincial Policy Statement. 2014. Province of Ontario. Issued under Section 3 of the Planning Act. Came into effect April 30, 2014.
- Regional Municipality of Niagara Environmental Impact Study Guidelines v2. Approved January 2018.
- Regional Municipality of Niagara. 2014. Consolidated Regional Official Plan.
- Species at Risk Act (SARA) (S.C. 2002, c. 29)

Appendix A

Mapping




Legend

-  Property Boundaries
-  Environmental Conservation Area (ECA)
-  Environmental Protection Area (EPA)
-  Provincially Significant Wetland
-  Natural Heritage System
-  Watercourse Feature

0 Montrose Road EIS
EXISTING NATURAL HERITAGE

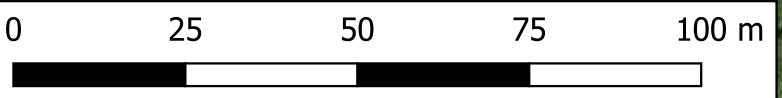


	Scale: 1:1,500
	UTM NAD83 17N
	© June 29, 2021

Project: 0 Montrose Road EIS


Imagery: Google 2018 Satellite Imagery

NH Data: Niagara Navigator, Niagara OpenData & Ontario GeoHub







Legend


-  Property Boundaries

ELC Polygons:

-  Fresh-Moist Oak - Sugar Maple Deciduous Forest (FODM9-1)
-  Silky Dogwood Thicket Swamp (SWTM2-2 incl. MAMM1-2)

Montrose Road, Niagara Falls
VEGETATION COMMUNITIES



	Scale: 1:800
	UTM NAD83 17N
	© November 5, 2021





Project: 0 Montrose Road, Niagara Falls

Imagery: ESRI 2019 Satellite Imagery

Data: Niagara Navigator




Legend

-  Property Boundaries
- Areas of Constraint:**
 -  Area of High Constraint
 -  Area of Moderate Constraint
 -  Area of Low Constraint

Montrose Road, Niagara Falls
Falls
CONSTRAINTS MAP

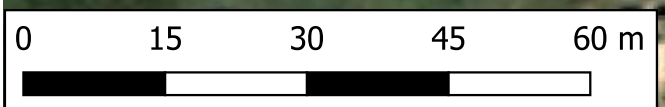


	Scale: 1:800
	UTM NAD83 17N
	© October 19, 2021

Project: 0 Montrose Road, Niagara Falls




Imagery: Google 2018 Satellite Imagery

Data: Niagara Navigator








Legend

-  Property Boundaries
-  Proposed Building Footprint
-  Proposed Septic Bed


Areas of Constraint:

-  Area of High Constraint
-  Area of Moderate Constraint
-  Area of Low Constraint

Montrose Road

Montrose Road, Niagara Falls
DEVELOPMENT OVERLAY

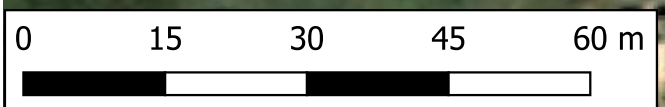


	Scale: 1:800
	UTM NAD83 17N
	© October 19, 2021

Project: 0 Montrose Road, Niagara Falls

Imagery: Google 2018 Satellite Imagery

Data: Niagara Navigator



Appendix B

Agency Correspondence and EIS Scoping

Appendix C

Field Assessments and Survey Protocols

Table 1: Field work completed as part of the Environmental Impact Study carried out by LCA Environmental for O Montrose Road

Date	Weather	Survey	Protocol	Surveyors	Findings
April 26, 2021	Temp: 10°C Cloud Cover: 80% Wind: 2	Site Recon	N/a	A. McDonald & S. Cowherd	N/a
		Prelim feature delineation	N/a		Section 5.1
April 30, 2021	Temp: 17°C Cloud Cover: 0% Wind: 2	Leaf off Snag Survey	MNRF Survey Protocol for SAR Bats	A. McDonald & S. Cowherd	Section 4.2.6 & Appendix C
		Amphibian and Reptile Survey	Hand Searches		Section 4.2.3, 4.2.4 & Appendix D
		Anuran Call Survey	Marsh Monitoring Program (MMP)	A. McDonald	Section 4.2.3 & Appendix D
May 12, 2021	Temp: 17°C Cloud Cover: 0% Wind: 2	Amphibian and Reptile Survey	Hand Searches	A. McDonald & S. Cowherd	Section 4.2.3, 4.2.4 & Appendix D
		Spring Vegetation Survey	Transect survey		Section 4.2.2 & Appendix D
		Anuran Call Survey	MMP		Section 4.2.3 & Appendix D
June 2, 2021	Temp: 24°C Cloud Cover: 0% Wind: 2	Bat Monitor Installation	MNRF Survey Protocol for SAR Bats	A. McDonald & S. Cowherd	Section 4.2.6 & Appendix C
June 3, 2021	Temp: 19°C Cloud Cover: 100% Wind: 1	Breeding Bird Survey	Ontario Breeding Bird Atlas (OBBA)	N. Litwin & A. Brunning	Section 4.2.5 & Appendix D
June 9, 2021	Temp: 21°C Cloud Cover: 0% Wind: 1	Anuran Call Survey	MMP	A. McDonald & S. Cowherd	Section 4.2.3 & Appendix D
June 17, 2021	Temp: 18°C Cloud Cover: 10% Wind: 1	Breeding Bird Survey	OBBA	N. Litwin & A. Brunning	Section 4.2.5 & Appendix D
June 30, 2021	Temp: 25°C Cloud Cover: 75% Wind: 1	Bat Monitor Uninstall	MNRF Survey Protocol for SAR Bats	A. McDonald & S. Cowherd	Section 4.2.6 & Appendix C
July 9, 2021	Temp: 20°C Cloud Cover: 100% Wind: 1	ELC	Lee et al. (1998)	A. McDonald & S. Cowherd	Section 4.2.1 & Appendix C
		Summer Vegetation Survey	Transect Survey		Section 4.2.2 & Appendix D
		Wetland Boundary Evaluation	Ontario Wetland Evaluation System (OWES)		Section 5.1
September 23, 2021	Temp: 19°C Cloud Cover: 100% Wind: 3	Fall Vegetation Survey	Transect survey	A. McDonald & S. Cowherd	Section 4.2.2 & Appendix D

Ecological Land Classification

The vegetation communities on the subject lands are identified and categorized based on the Ecological Land Classification (ELC) System according to the guidelines in the SCSS Field Guide FG-02 (Lee et al. 1998). Ecological Land Classification is a protocol established for Southern Ontario that considers distribution and abundance of plants in combination with related topography and soil conditions to classify plant communities. It was developed for the purpose of creating a comprehensive and consistent province-wide approach for ecosystem description, inventory and interpretation.

Aerial images are consulted to delineate homogeneous polygons within the site. During site visits to these polygons, vegetation communities are classified according to Community Units, which are identified based on the dominant vegetation species present, soil characteristics, and hydrology. Plant lists for each vegetation layer are compiled and vegetation is ranked according to its abundance. The plants are identified to the species level and vouchers are taken for species whose identity is unknown to be identified at a later date. Representative soil cores are taken using a soil auger to evaluate texture, moisture regime and drainage values. Prism sweeps are conducted to calculate the basal area cover of trees, which allows for determination of the stand composition within each polygon. Trees are also categorized into size classes and estimates are made for prevalence of standing snags and deadfall. The vegetation community of each ELC polygon is then identified based on the data collected.

ELC Community Description & Classification

Site: 0 Montrose Rd Polygon: 1
 Surveyors: A. Mcdonald & S. Cowherd Date: 09-Jul-21
 UTME: 653017 UTMN: 4760485

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHY	HISTORY	PLANT FORM	COMMUNITY
<input checked="" type="checkbox"/> TERRESTRIAL	<input type="checkbox"/> ORGANIC	<input type="checkbox"/> LACUSTRINE	<input type="checkbox"/> NATURAL	<input type="checkbox"/> PLANKTON	<input type="checkbox"/> LAKE
<input type="checkbox"/> WETLAND	<input checked="" type="checkbox"/> MINERAL SOIL	<input type="checkbox"/> RIVERINE	<input checked="" type="checkbox"/> CULTURAL	<input type="checkbox"/> SUBMERGED	<input type="checkbox"/> POND
<input type="checkbox"/> AQUATIC	<input type="checkbox"/> PARENT MIN	<input type="checkbox"/> BOTTOMLAND		<input type="checkbox"/> FLOATING-LVD	<input type="checkbox"/> STREAM
	<input type="checkbox"/> ACIDIC BEDRK	<input type="checkbox"/> TERRACE		<input type="checkbox"/> GRAMINOID	<input type="checkbox"/> RIVER
SITE	<input type="checkbox"/> BASIC BEDRK	<input type="checkbox"/> VALLEY SLOPE		<input type="checkbox"/> FORB	<input type="checkbox"/> MARSH
<input type="checkbox"/> OPEN WATER	<input type="checkbox"/> CARB. BEDRK	<input type="checkbox"/> TABLELAND		<input type="checkbox"/> LICHEN	<input type="checkbox"/> SWAMP
<input type="checkbox"/> SHALLOW WATER		<input checked="" type="checkbox"/> ROLL. UPLAND		<input type="checkbox"/> BRYOPHYTE	<input type="checkbox"/> FEN
<input checked="" type="checkbox"/> SURFICIAL DEP.		<input type="checkbox"/> CLIFF		<input checked="" type="checkbox"/> DECIDUOUS	<input type="checkbox"/> BOG
<input type="checkbox"/> BEDROCK		<input type="checkbox"/> TALUS		<input type="checkbox"/> CONIFEROUS	<input type="checkbox"/> BARREN
		<input type="checkbox"/> CREVICE/CAVE		<input type="checkbox"/> MIXED	<input type="checkbox"/> MEADOW
		<input type="checkbox"/> ALVAR			<input type="checkbox"/> PRAIRIE
		<input type="checkbox"/> ROCKLAND	COVER		<input type="checkbox"/> THICKET
		<input type="checkbox"/> BEACH/BAR	<input type="checkbox"/> OPEN		<input type="checkbox"/> SAVANNAH
		<input type="checkbox"/> SAND DUNE	<input type="checkbox"/> SHRUB		<input type="checkbox"/> WOODLAND
		<input type="checkbox"/> BLUFF	<input checked="" type="checkbox"/> TREED		<input checked="" type="checkbox"/> FOREST
					<input type="checkbox"/> PLANTATION

STAND DESCRIPTION

LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE
1 CANOPY	1,2	4	QUERUB>QUEALB>ACESACC>CAROVAT
2 SUB-CANOPY	3	3	FRAX_SP>CAROVAT>ULM_SP>CRAT_SP
3 UNDERSTORY	4,5	3	CORRACE>FRAX_SP>RHACATH>ROSA_SP
4 GRD. LAYER	6,7	4	TOXRADI>GEUM_SP>GERMACU>CARE_SP

HT CODES: 1 = >25m; 2 = 10 <HT<25m; 3 = 2<HT<10m; 4 = 1<HT<2m; 5 = 0.5<HT<1m; 6 = 0.2<HT<0.5m; 7 = <0.2m
 CVR CODES: 1 = 0%<CVR<10%; 2 = 10%<CVR<25%; 3 = 25%<CVR<60% 4 = CVR>60%

STAND COMPOSITION:	CAROVAT ₆₇ ACESACC ₂₂ TILAMER ₁₁	BA:	18
COMMUNITY AGE:	<input type="checkbox"/> PIONEER	<input type="checkbox"/> YOUNG	<input type="checkbox"/> MID-AGE
	<input checked="" type="checkbox"/> MATURE	<input type="checkbox"/> OLD GROWTH	

SOIL ANALYSIS

	SICL	DEPTH TO MOTTLES / GLEY	MOTTLES	GLEY
TEXTURE:			20 cm	> 60 cm
MOISTURE:	6	DEPTH OF ORGANICS	2	(cm)
		DEPTH TO BEDROCK	> 60	(cm)

COMMUNITY / CLASSIFICATION

COMMUNITY CLASS	Forest	CODE:	FO
COMMUNITY SERIES	Deciduous Forest	CODE:	FOD
ECOSITE	Fresh-Moist Oak-Maple-Hickory Forest	CODE:	FODM9
VEGETATION TYPE	Fresh-Moist Oak-Sugar Maple Forest	CODE:	FODM9-1
<input type="checkbox"/> INCLUSION		CODE:	
<input type="checkbox"/> COMPLEX		CODE:	

ELC Community Description & Classification

Site: 0 Montrose Road Polygon: 2
 Surveyors: A. Mcdonald & S. Cowherd Date: 09-Jul-21
 UTME: 653019 UTMN: 4760557

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHY	HISTORY	PLANT FORM	COMMUNITY
<input type="checkbox"/> TERRESTRIAL	<input type="checkbox"/> ORGANIC	<input type="checkbox"/> LACUSTRINE	<input type="checkbox"/> NATURAL	<input type="checkbox"/> PLANKTON	<input type="checkbox"/> LAKE
<input checked="" type="checkbox"/> WETLAND	<input type="checkbox"/> MINERAL SOIL	<input type="checkbox"/> RIVERINE	<input checked="" type="checkbox"/> CULTURAL	<input type="checkbox"/> SUBMERGED	<input type="checkbox"/> POND
<input type="checkbox"/> AQUATIC	<input checked="" type="checkbox"/> PARENT MIN	<input type="checkbox"/> BOTTOMLAN		<input type="checkbox"/> FLOATING-	<input type="checkbox"/> STREAM
	<input type="checkbox"/> ACIDIC BEDRK	<input type="checkbox"/> TERRACE		<input type="checkbox"/> GRAMINOID	<input type="checkbox"/> RIVER
SITE	<input type="checkbox"/> BASIC BEDRK	<input type="checkbox"/> VALLEY SLOPE		<input type="checkbox"/> FORB	<input type="checkbox"/> MARSH
	<input type="checkbox"/> CARB. BEDRK	<input type="checkbox"/> TABLELAND		<input type="checkbox"/> LICHEN	<input checked="" type="checkbox"/> SWAMP
<input type="checkbox"/> OPEN WATER		<input checked="" type="checkbox"/> ROLL. UPLAND		<input type="checkbox"/> BRYOPHYTE	<input type="checkbox"/> FEN
<input type="checkbox"/> SHALLOW		<input type="checkbox"/> CLIFF		<input checked="" type="checkbox"/> DECIDUOUS	<input type="checkbox"/> BOG
<input checked="" type="checkbox"/> SURFICIAL		<input type="checkbox"/> TALUS		<input type="checkbox"/> CONIFEROUS	<input type="checkbox"/> BARREN
<input type="checkbox"/> BEDROCK		<input type="checkbox"/> CREVICE/CAV		<input type="checkbox"/> MIXED	<input type="checkbox"/> MEADOW
		<input type="checkbox"/> ALVAR			<input type="checkbox"/> PRAIRIE
		<input type="checkbox"/> ROCKLAND	COVER		<input type="checkbox"/> THICKET
		<input type="checkbox"/> BEACH/BAR	<input type="checkbox"/> OPEN		<input type="checkbox"/> SAVANNAH
		<input type="checkbox"/> SAND DUNE	<input checked="" type="checkbox"/> SHRUB		<input type="checkbox"/> WOODLAND
		<input type="checkbox"/> BLUFF	<input type="checkbox"/> TREED		<input type="checkbox"/> FOREST
					<input type="checkbox"/> PLANTATION

STAND DESCRIPTION

LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE
1 CANOPY	2	3	FRAX_SP>ULMU_SP>CAROVAT>>QUEPALU
2 SUB-CANOPY	3	2	FRAX_SP>RHACATH
3 UNDERSTORY	4,5	4	CORAMOM>RHACATH>FRAX_SP
4 GRD. LAYER	6,7	4	IMCAPE>CARE_SP>SYMLANC>PRUVULG

HT CODES: 1 = >25m; 2 = 10 <HT<25m; 3 = 2<HT<10m; 4 = 1<HT<2m; 5 = 0.5<HT<1m; 6 = 0.2<HT<0.5m; 7 = <0.2m
 CVR CODES: 1 = 0%<CVR<10%; 2 = 10%<CVR<25%; 3 = 25%<CVR<60% 4 = CVR>60%

STAND COMPOSITION:	CAROVAT ₅₀ RHACATH ₅₀	BA:	4
COMMUNITY AGE:	<input type="checkbox"/> PIONEER	<input checked="" type="checkbox"/> YOUNG	<input type="checkbox"/> MID-AGE
	<input type="checkbox"/> MATURE	<input type="checkbox"/> OLD GROWTH	

SOIL ANALYSIS

	C	DEPTH TO MOTTLES / GLEY	MOTTLES	GLEY
TEXTURE:	C	DEPTH TO MOTTLES / GLEY	15 cm	> 50 cm
MOISTURE:	6	DEPTH OF ORGANICS	1	(cm)
WATER TABLE:	15 cm	DEPTH TO BEDROCK	> 50	(cm)

COMMUNITY / CLASSIFICATION

COMMUNITY CLASS	Swamp	CODE:	SW
COMMUNITY SERIES	Thicket Swamp	CODE:	SWT
ECOSITE	Dogwood Mineral Deciduous Thicket	CODE:	SWTM2
VEGETATION TYPE	Silky Dogwood Thicket Swamp	CODE:	SWTM2-2
<input type="checkbox"/> INCLUSION		CODE:	
<input checked="" type="checkbox"/> COMPLEX	Cattail Graminoid Mineral Meadow Marsh	CODE:	MAMM1-2

Breeding Bird Survey

Breeding Bird Surveys were conducted using the Ontario Breeding Bird Atlas (OBBA) Point Counts method, which involves standing in one place and recording all the species that are seen or heard for a minimum of five minutes. Surveys should be conducted between May 24th and July 10th, with at least 10 days between each survey. Point count surveys are completed early in the morning, with the best time for coverage occurring within the first five hours after dawn.

Variations to the OBBA Point Count methods were adapted from the Marsh Monitoring Program Bird Survey Protocols. Point Count stations were established a minimum of 250m apart, and surveys were conducted for a total of fifteen minutes, using a fixed distance sample area of a 100m circle.

Area searches are also conducted, which occur in a series of three, twenty-minute point counts, according to the OBBA 2001-2005 list in accordance with the American Ornithologists Union (AOU) 7th Edition (42nd-47th supplements).

Amphibian Surveys Overview (Bird Studies Canada)

For decades, scientific studies have shown that amphibian populations have been in steady decline across North America, and particularly in the heavily populated and industrialized Great Lakes region. Amphibians are very sensitive to environmental stresses, such as air and water pollution, thus their decline or disappearance in a region is indicative of environmental degradation. Consequently, the presence or absence of amphibians in marshes is a good indicator of marsh habitat health. The Marsh Monitoring Program (MMP) uses aural (hearing-based) surveys to detect the presence or absence and relative abundance of calling amphibians (frogs and toads). Data collected by MMP volunteers are used to determine relative annual population trend changes for calling amphibians at local, regional, and Great Lakes basin levels.

To conduct amphibian (frog and toad) surveys:

- Survey three times per year between April and July 5th, with at least fifteen days between each survey;
- Begin surveying one half-hour after sunset and end by midnight during evenings with little wind and minimum night air temperatures of 5°C (50°F), 10°C (50°F) and 17°C (63°F) for each of the three respective survey periods. These temperature requirements are in place because amphibian calling intensity is strongly associated with season, time of day, and weather conditions;
- Establish monitoring stations at least 500 meters apart to minimize the possibility of double-counting calls. Unlike marsh bird survey stations, amphibian survey stations can be placed back-to-back because the amphibian survey protocol is entirely passive (i.e. call responses are not elicited through use of a call broadcast tape/CD);
- Conduct surveys using an unlimited distance semi-circular sampling area. However, in order to associate calls heard within the defined 100 meter area surveyed with habitat composition within these same areas, surveyors are asked to ascertain and record whether calls were heard outside the 100 meter radius or within this radius.
- Complete a 3-minute survey at each station. Call level codes are assigned to all calling frog and toad species:
 - Code 1: individual calls do not overlap and calling individuals can be discretely counted;
 - Code 2: calls of individuals sometimes overlap, but numbers of individuals can still be estimated;
 - Code 3: overlap among calls seems continuous (full chorus), and a count estimate is impossible;

Bat Monitoring Protocols

Snag surveys were completed on the subject property to determine the density and location of suitable maternal roosting habitat in accordance with the MNRF's Survey Protocol for Species at Risk Bats within Treed Habitats, which are summarized below. Following completion of the snag survey, locations for acoustic monitors were selected based on the criteria in the survey protocols to select optimal locations for monitoring stations. The monitoring location plan was submitted to the Ministry and approved prior to the installation of the acoustic monitors.

Full-spectrum Wildlife Acoustics SongMeter SM4™ monitors were installed during the month of June. Monitors are affixed to trees at a height of four – five meters and microphones are extended approximately three feet away from the unit. Microphones are positioned towards a clearing in the canopy or understory to minimize obstruction of calls and ensure high recording quality. The monitors are set to record for five hours each night, and weather was monitored via Buffalo International Airport data. The scheduling and audio settings used on each monitor are summarized in the Table below.

Table: Settings employed for acoustic monitors.

Setting	
Start Time	20:00 est
End Time	01:00 est
Gain Level	12 dB
Sample Rate	256 kHz
Minimum Duration	1.5 ms
Maximum Duration	none
Minimum Trigger Frequency	16 kHz
Trigger Level	12 dB

Based on consultation with Toby Thorne (Bat Biologist), and studies presented by Tyburec and Chengler (2014), which compared the accuracy and reliability of the leading call analysis software programs, SonoBat 4 software was used to process the data compiled from the SM4 monitors. Version 4.2.0 of the software was installed with the Northeast United States regional suite, which includes call repertoires for all species of bats present within Ontario.

Data files from each monitor were processed through batch analysis and classified to species level. Using the batch data, SonoBat will calculate an estimated likelihood of presence for each species known based on the number of classified species and their known overlap and ambiguity of classification. The likelihood estimate

provides a probabilistic estimate and does not convey certainty. The SonoBat Classification Notes document included in this Appendix provides additional information and interpretation of bat acoustic data (SonoBat, 2017).

Manual vetting of files was completed in addition to using the auto-ID feature due to the limitations of the software that results from the inherent variability of bat calls and the overlap that can occur in frequency characteristics between species. A species with similar call characteristics can occasionally (or often depending on the overlap) produce calls with data on the fringes of its parameter space that intrudes into the parameter space of another species, or even falls at the centroid of the other species' parameter space (SonoBat, 2017).

The summary table produced by SonoBat states the caveat that statistical probability of presence requires a sufficient sample size for reliability. For most species, this requires more than ten accepted decisions. As a rule of thumb, any species decision summary count numbering less than ten should be considered to require manual vetting to establish presence. For each batch of files, species with a probability of > 0.80 and with more than ten accepted decisions were considered present on the subject property. Where fewer than ten species decisions were found, call structure and timestamps of individual files were analyzed to determine if there was overlap with other species which had a higher probability of presence on the site

The MNRF approved protocols for the passive monitoring of bats within treed habitats are summarized below.

Survey Protocol for Species at Risk Bats within Treed Habitats

Phase I: Bat Habitat Suitability Assessment

Little Brown Myotis, Northern Myotis and Tri-colored Bat establish maternity roosts in treed areas consisting of deciduous, coniferous or mixed tree species. The study area should be classified using the Ecological Land Classification (ELC) system. Any wooded ecosite containing deciduous, mixed, or coniferous tree species with a diameter at breast height (DBH) $>10\text{cm}$ is considered suitable habitat.

If suitable habitat is to be impacted by a proposed activity, project proponents should proceed to Phase II.

Phase II: Identification of Suitable Maternity Roost Trees

The timing of field visits is important in order for an observer to be able to clearly identify tree attributes that are suitable for the establishment of maternity roosts. Field visits during leaf-on season should be conducted so foliage characteristics can be observed, while leaf-off surveys should be conducted to identify trees with cracks or hollows.

i) Tri-colored Bat

Within each ecosite identified as suitable maternity roost habitat in Phase I, the following trees should be documented on the field data sheet:

- any oak tree $\geq 10\text{cm}$ dbh
- any maple tree $\geq 10\text{cm}$ dbh **IF** the tree includes dead/dying leaf clusters
- any maple tree $\geq 25\text{cm}$ dbh

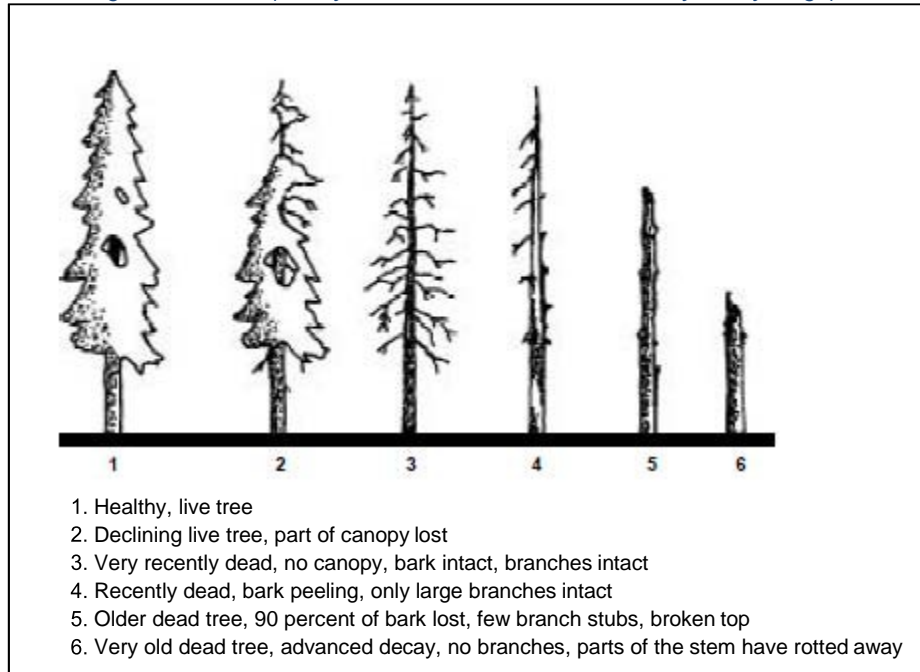
ii) Little Brown Myotis and Northern Myotis

A “snag” is any standing live or dead tree $>10\text{cm}$ dbh with cracks, crevices, hollows, cavities, and/or

loose or naturally exfoliating bark. Within each ecosite identified as suitable maternity roost habitat in Phase I, all “snags” should be identified and relevant information recorded on the field data sheet provided

During the field visit, the Decay Class should be noted for each snag (see Figure 1). Snags in an early stage of decay (which also includes healthy, live trees) may be preferred by Little Brown Myotis and Northern Myotis if suitable attributes for roost space are present. However, since SAR bats will also roost in snags outside of Class 1-3, any snag >10cm dbh with suitable roost features should be documented.

Figure 1: Snag classification (Decay Class 1-3 is considered an early decay stage)



Phase III: Acoustic Surveys

Within each ELC ecosite determined to be suitable maternity roost habitat in Phase I, acoustic surveys are recommended to confirm presence/absence of Little Brown Myotis, Northern Myotis and Tri-colored Bat. As described below, acoustic detectors should be placed in the best possible locations in order to maximize the probability of detecting all three SAR bats species. The data collected in Phase II should be used to select optimal locations for monitoring.

To ensure full coverage of each ecosite, four acoustic monitors per hectare are required. Monitors should be set up 10m from the best potential maternity roosts. The best suitable maternity roosts for Tri-colored bat are live oaks with dead/dying leaf clusters, or dead oaks with retained dead leaf clusters. If oaks are absent, then maples with dead/dying leaf clusters are the best suitable maternity roosts. For Little Brown Myotis and Northern Myotis, the best roosts are the tallest snags, snags with cavities or crevices, and the snags with the largest DBH.

Prior to undertaking acoustic surveys, it is recommended that the proponent discuss the proposed location of acoustic monitoring stations with the MNRF. The best potential

Acoustic surveys should take place on evenings between June 1st and June 30th, commencing after dusk and continuing for 5 hours. Surveys should occur on warm/mild nights (i.e., ambient temperature >10°C) with low wind and no precipitation. At least 10 visits on nights that align with the above conditions where no SAR bat activity is detected are required to confirm absence.

Full spectrum acoustic monitors should be used, and the microphone should be situated away from nearby obstacles to allow for maximum range of detection and angled slightly away from prevailing wind to minimize wind noise. Information on the equipment used should be recorded, including information on all adjustable settings (e.g., gain level), the position of the microphones, and dates and times for each station where recording was conducted.

Analytical software should be used to interpret bat calls and process results. Data should be analyzed to the species level (as opposed to the genus level) in order to confirm presence/absence of SAR bats.

Phase IV: Snag Density Survey

The snag density survey involves a qualitative assessment of the ecosite to determine the density of standing snags present. There is no minimum number of snags for the site to be considered potential roosting habitat, however, a site with 10 or more snags can be considered high quality roosting habitat.

Phase V: Complete an Information Gathering Form

If any species at risk are identified within the ecosite, an Information Gathering Form should be completed and submitted to the OMNRF.

Appendix D

Data Summaries

Table 1: Significant Wildlife Habitat Results for 0 Montrose Road, in the City of Niagara Falls.

Significant Wildlife Habitat (SWH) Type	Rationale for Candidate	Studies Completed	SWH Confirmed
1.1 Seasonal Concentration Areas for Wildlife Species			
Bat Maternity Colonies	Mature Oak trees in woodland habitat with potential standing snags	MNRF Survey Protocol for Species at Risk Bats to confirm presence of snags	No
Reptile Hibernaculum	Potential for slopes and burrows	Area Searches	No
Colonially-Nesting Bird Breeding Habitat (Tree/Shrubs)	Potential nesting trees within wetland habitat	Breeding Bird Surveys and area searches	No
1.2 Rare Vegetation Communities or Specialized Habitat for Wildlife			
Other Rare Vegetation Communities	Variable ELC Ecosites present	ELC surveys	No
Waterfowl Nesting Area	Wetland >0.5ha	Area Searches	No
Woodland Raptor Nesting Habitat	Woodland >30ha with >4ha interior habitat	Area Searches	No
Amphibian Breeding Habitat (Woodland)	Wetland habitat within woodland	None –outside of proposed area of disturbance	No
Amphibian Breeding Habitat (Wetlands)	Presence of wetland habitat	None –outside of proposed area of disturbance	No
Woodland Area- Sensitive Bird Breeding Habitat	Woodland feature contains interior habitat	Area Searches	No
1.3 Habitats of Species of Conservation Concern			
Marsh Breeding Bird Habitat	Wetland habitat available	None –outside of proposed area of disturbance	No
Special Concern and Rare Wildlife Species	MNRF known EOs provided (NHIC). See SAR screening below	Area inventories	Yes
1.4 Animal Movement Corridors			
Amphibian Movement Corridor	Candidate amphibian woodland and wetland breeding habitat identified	None –outside of proposed area of disturbance	No

SCIENTIFIC NAME	COMMON NAME	S-RANK	COSEWIC STATUS	SARA STATUS	SARO STATUS	NIAGARA	COEFF CONSER	COEFF WETNESS	Polygon 1	Polygon 2
TREES										
Acer saccharum	Sugar Maple	S5				C	4	3	•	•
Carpinus caroliniana	Musclewood	S5				C	6	0	•	•
Carya ovata	Shagbark Hickory	S5				C	6	3	•	•
Crataegus sp.	Hawthorn species								•	
Fraxinus sp.	Ash species								•	•
Ostrya virginiana	Ironwood	S5				C	5	3	•	
Quercus alba	White Oak	S5				C	6	3	•	•
Quercus palustris	Pin Oak	S4				C	8	-3	•	•
Quercus rubra	Northern Red Oak	S5				C	6	3	•	
Tilia americana	American Basswood	S5				C	4	3	•	
Ulmus sp.	Elm species								•	•
SHRUBS										
Cornus amomum	Silky Dogwood	S5				C	2	-3		•
Cornus racemosa	Gray Dogwood	S5				C	2	0	•	
Rhamnus cathartica	Common Buckthorn	SNA				IC		0	•	•
Rosa multiflora	Multiflora Rose	SNA				IC		3	•	•
HERBS										
Agrimonia gryposepala	Agrimony	S5				C	2	3	•	
Alliaria petiolata	Garlic Mustard	SNA				IC		0	•	
Ambrosia artemisiifolia	Common Ragweed	S5				C	0	3	•	
Asclepias incarnata	Swamp Milkweed	S5				C	6	-5		•
Boehmeria cylindrica	False Nettle	S5				C	4	-5		•
Calystegia sepium	Hedge Bindweed	S5				C	2	0		•
Carex Crinita	Fringed Sedge	S5				C	6	-5		•
Carex sp.	Carex species								•	•
Circaea canadensis	Enchanter's Nightshade	S5				C	2	3	•	•
Claytonia sp.	Spring Beauty species								•	
Equisetum sp.	Horsetail species									•
Erythronium americanum	Trout Lily	S5				C	5	5	•	
Eupatorium perfoliatum	Boneset	S5				C	2	-3		•
Eurybia macrophylla	Large-leafed Aster	S5				C	5	5	•	
Fragaria sp.	Strawberry species								•	
Fragaria virginiana	Wild Strawberry	S5				C	2	3	•	
Geranium maculatum	Wild Geranium	S5				C	4	3	•	
Geum canadense	White Avens	S5				C	1	0		
Geum laciniatum	Rough Avens	S4				C	2	-3		•
Geum sp.	Avens species								•	
Hypericum sp.	St. John's-wort species									•
Impatiens capensis	Spotted Jewelweed	S5				C	4	-3	•	•
Onoclea sensibilis	Sensitive Fern	S5				C	4	-3		•
Oxalis sp.	Wood-sorrel species								•	
Penthorum sedoides	Ditch Stonecrop	S5				C	4	-5		•
Persicaria virginiana	Jumpseed	S4				C	6	0	•	•
Podophyllum peltatum	May-apple	S5				C	5	3		•
Potentilla reptans	Creeping Cinquefoil	SNA				IR	*	0	•	•
Prunella vulgaris	Self-heal	S5				C	0	0		•
Ranunculus sp.	Buttercup species								•	
Solanum dulcamara	Bittersweet Nightshade	SNA				IC		0		•
Solidago canadensis	Canada Goldenrod	S5				C	1	3	•	
Solidago nemoralis	Gray-stemmed Goldenrod	S5				C	2	5	•	
Solidago rugosa	Rough-stemmed Goldenrod	S5				C	4	0	•	
Symphotrichum lanceolatum	Panicled Aster	S5				C	3	-3	•	•
Symphotrichum novae-angliae	New England Aster	S5				C	2	-3	•	
Symphotrichum urophyllum	Arrow-leafed Aster	S4				U	6	5	•	
Toxicodendron radicans	Poison Ivy	S5				C	2	0	•	•
Typha angustifolia	Narrow-leaved Cattail	S5				C		-5		•
Viola sp.	Violet species								•	•
Vitis riparia	Riverbank Grape	S5				C	0	0		•
TOTAL									38	33

EESN BIRD INVENTORY 2021

Montrose Rd

Survey Dates June 3, 17

Observers N Litwin, A Brunning

#Species = 28

#SARs = 2

OBBA: Ontario Breeding Bird Atlas (2001-2005) 10km X 10km Squares

COSEWIC July 2021: LOW, MID, HIGH = Candidate Priority Status

SARA status current to July 2021

SARO status current to July 2021

OPIF (Ontario Partners in Flight) July 2014

OPIF BCR 13 = Bird Conservation Region 13

OPIF Population Objective M = Maintain, I = Increase, R = Recovery, D = Decrease

Area Sensitivity: (v) = uses edge if forest interior also nearby

List in accordance with the American Ornithologists Union (AOU) 7th edition, 61st supplement

Reference Ontario Field Ornithologists Checklist of the Birds of Ontario

<http://www.ofo.ca/site/page/view/checklist.checklist#top>

COMMON NAME	SCIENTIFIC NAME	OBBA	COSEWIC	SARA	SARO	S RANK (I N RANK	G RANK	OPIF BCR13	HABITAT NOTES	AREA SENSITIVITY
17PH56										
Charadriidae										
Killdeer	Charadrius vociferus	CONF				S5B,S5N N5B	G5	I	open fields	
Scolopacidae										
Spotted Sandpiper	Actitis macularius	CONF				S5 N5B	G5	I	open fields, near water	
Picidae										
Downy Woodpecker	Picoides pubescens	CONF				S5 N5	G5		cavity nester	
Northern Flicker	Colaptes auratus	POSS				S4B N5B	G5	I	cavity nester, primary excavator requiring snags >30cm dbh; ant predator	
Tyrannidae										
Eastern Wood-Pewee	Contopus virens	CONF		SC	SC	S4B N5B	G5	I	aerial insectivore; intermediate, closed-canopy woodlands; does not nest near d	(v)
Willow Flycatcher	Empidonax traillii	PROB				S5B N5B	G5		riparian and wetland shrub/successional	v

Vireonidae											
Red-eyed Vireo	Vireo olivaceus	PROB				S5B	N5B	G5		woodlots	(v)
Corvidae											
Blue Jay	Cyanocitta cristata	CONF				S5	N5	G5			
American Crow	Corvus brachyrhynchos	CONF				S5B	N5B,N5N	G5			
Paridae											
Black-capped Chickadee	Poecile atricapillus	CONF				S5	N5	G5		cavity nester	
Tufted Titmouse	Baeolophus bicolor	PROB				S4	N3	G5		deep woods	v
Sittidae											
White-breasted Nuthatch	Sitta carolinensis	PROB				S5	N5	G5		cavity nester	v
Turdidae											
Eastern Bluebird	Sialia sialis	CONF				S5B	N4B	G5		cavity nester	v
Wood Thrush	Hylocichla mustelina	CONF	THR	THR	SC	S4B	N4B	G5	M	woodland	(v)
American Robin	Turdus migratorius	CONF				S5B	N5B,N5N	G5			
Mimidae											
Gray Catbird	Dumetella carolinensis	CONF				S4B	N5B	G5		shrubby thickets	
Fringillidae											
House Finch	Carpodacus mexicanus	PROB				SNA	N5	G5			
American Goldfinch	Carduelis tristis	PROB				S5B	N5B,N5N	G5			
Emberizidae											
Field Sparrow	Spizella pusilla	PROB				S4B	N4B	G5	I	grassland, shrub/successional	v
Song Sparrow	Melospiza melodia	CONF				S5B	N5B,N5N	G5		thickets	
Eastern Towhee	Pipilo erythrophthalmus	PROB				S4B	N4B	G5	I	shrub/mid- to late successional	(v)
Icteridae											
Baltimore Oriole	Icterus galbula	CONF				S4B	N5B	G5	M	deciduous trees and park-like areas; susceptible to pesticides, vehicular collisions	
Common Grackle	Quiscalus quiscula	CONF				S5B	N5B	G5			
Parulidae											

Ovenbird	<i>Seiurus aurocapilla</i>	PROB	S4B	N5B	G5		deep woods	v
Yellow Warbler	<i>Setophaga petechia</i>	CONF	S5B	N5B	G5		shrubby thickets	

Cardinalidae

Northern Cardinal	<i>Cardinalis cardinalis</i>	CONF	S5	N5	G5			
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	CONF	S4B	N5B	G5	M	woodlands, may be area-sensitive	(v)
Indigo Bunting	<i>Passerina cyanea</i>	CONF	S4B	N5B	G5		fields, hedgerows, woodlot edges	

Table D-1: Table showing the call codes recorded at each survey station during Marsh Monitoring Protocols. Call codes were recorded as 1 (individuals can be clearly distinguished), 2 (Some overlap in calls, but number of individuals can be estimated), 3 (full chorus of calls) and NC (no call heard).

Species	Station 1		
	S1	S2	S3
Western Chorus Frog	NC	NC	NC
Gray Treefrog	NC	NC	FC
Green Frog	NC	NC	2

Table D-3: Summary of the results of bat acoustic monitoring surveys. CONF – confirmed presence; NC – not confirmed; POSS – presence is possible based on results; PROB – presence is probable based on results.

Species	Monitor Results (SM-10)	Presence
Big Brown Bat	100% (100 files)	CONF
Hoary Bat	100% (25 files)	CONF
Silver-haired Bat	86% (19 files)	POSS

Table D-3: Summary of incidental fauna species observations on the subject property

Latin name	Common name	Date Observed
<i>Thamnophis sp.</i>	Gartersnake species	21-May-21, 09-Jul-21

Appendix E

Site Photos



Figure 1: Upland Forest, Polygon 1 (FODM9-4)



Figure 2: Upland Forest, Polygon 1 (FODM9-4)



Figure 3: Soil sample in Polygon 1 (SiCL)



Figure 4: Wetland, Polygon 2 (SWTM2-2) south of the watercourse.



Figure 5: Cattail Marsh (MAMM1-2) inclusion in Polygon 2



Figure 6: Culvert downstream of the Cattail Marsh



Figure 7: looking downstream at the watercourse on the north subject property



Figure 8: In Polygon 2, north of the watercourse



Figure 9: Soil sample in Polygon 2