Ashfield-Colborne-Wawanosh Pit Licence Application

Level 1 and Level 2 Natural Environment Report

Township of Ashfield-Colborne-Wawanosh
82133 Council Line
Goderich ON N7A 3Y2

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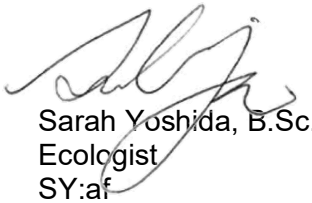
Report Prepared By:



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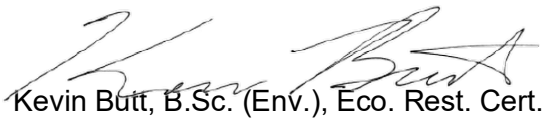

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Table of Contents

Tables

Figures

Appendices

Disclaimer

1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) has been retained by the Township of Ashfield-Colborne-Wawanosh (Township) to conduct a Level 1 and Level 2 Natural Environment Report in order to obtain an aggregate license. The Township is applying for a Category 3 license, which allows for unlimited aggregate extraction annually, no closer than 1.5 m above the established groundwater table.

The Site is located southwest of the intersection between Glen's Hill Road and Halls Hill Line in the Township of ACW, in Huron County (Figure 1). The 100-acre (40.8 ha) property is zoned as Agricultural (AG1) and Natural Environment (NE1). The portion of the Site proposed for aggregate extraction is limited to the Agricultural Zone east of the Nine Mile River (Figure 2), covering an area of roughly 42 acres (17.0 ha).

The Study Area will include the Proposed Licence Area (Figure 1) and all lands within 120 m. For the purposes of this report, the scope of field investigations was limited to the lands east of the Nine Mile River.

1.1 Scope of Work

Under the amended Aggregate Resources Act, a Natural Environment Report (NER) is required to determine if any of the following natural features are present on, or within 120 m of the site:

- Significant wetlands
- Other coastal wetlands in Ecoregions 5E, 6E and 7E
- Fish Habitat
- Significant woodlands and significant valley lands in Ecoregions 6E and 7E
- Habitat of endangered and threatened species
- Significant Wildlife Habitat
- Significant Areas of Natural and Scientific Interest (ANSIs)
- Within the area of one or more provincial plans, any key natural heritage features not included above

Where any of these features are present, any negative impact to the feature or its ecological function must be identified and preventative, mitigative or remedial measures must be identified.

The NER must also identify if the site or any of the above features are located within a natural heritage system identified by a municipality or by the province.

The presence of natural heritage features was determined through a records review of publicly available mapping and datasets, as described in Section 3.0. This was followed

by a site investigation to confirm the findings of the records review and identify any features not previously captured in existing records. The site investigation is summarized in Section 4.0.

2.0 Additional Regulations

In addition to the Aggregate Resources Act requirements, the proposed extraction may be subject to other legislation and regulations, including the following:

2.1 Migratory Birds Convention Act, 1994 and Migratory Birds Regulations, 2022

The MBCA and Migratory Birds Regulations (MBR) are federal legislative requirement that are binding on members of the public and all levels of government, including federal and provincial governments. The legislation protects certain species[1], controls the harvest of others and prohibits the commercial sale of all species.

The MBCA updated and modernized the MBR in 2022. The previous regulations protected the nests of all migratory birds, at all times, for as long as they existed, which meant that many nests were protected when they no longer benefited migratory birds. The new MBR provides protection to migratory bird nests when they are considered to have a high conservation value for migratory birds.

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

- Minister must be notified, via an online registration system (Notice: Abandoned Nest Registry - Canada.ca) that the nest does not contain a live bird or viable egg
- Nest is to remain unused by migratory birds during the designated wait time for that species
- Of the 18 species, three are known to commonly breed in Southern Ontario: Great Blue Heron, Green Heron, and Pileated Woodpecker

Permits are available under limited circumstances and mostly relate to egg or nest destruction or relocation "*for the purpose of reducing the danger that they are causing or are likely to cause to human health or public safety or the damage they are causing or*

[1] *Bird species not regulated under the Act include: Rock Dove, American Crow, Brown-headed Cowbird, Common Grackle, House Sparrow, Red-winged Blackbird, and European Starling. In addition, raptors are not regulated under the MBCA. However, they are protected under provincial legislation which restricts and regulates the taking or possession of eggs and nests. Furthermore, if the species identified is protected under Ontario's ESA or the federal SARA, additional restrictions may apply.*

are likely to cause to agricultural, environmental or other interests". Environment Canada and the Canadian Wildlife Service have compiled nesting calendars that show the variation in nesting intensity, by habitat type and nesting zone, within broad geographical areas distributed across Canada. While this does not mean nesting birds will not nest outside of these periods, the calendars can be used to greatly reduce the risk of encountering a nest. Environment Canada advises avoidance as the best approach.

Migratory birds are present within the Study Area.

2.2 Federal Fisheries Act, 1985

The federal *Fisheries Act* is administered by Fisheries and Oceans Canada (DFO) and provides protection for fish habitat across Canada. Section 35 of the Act prohibits causing Harmful Alteration, Disruption and Destruction (HADD) of fish habitat, as well as causing the death of fish by means other than fishing.

Fish habitat has been identified within the Study Area.

2.3 Provincial Endangered Species Act, 2007 (amended 2025)

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

On June 5, 2025, the Province of Ontario enacted the *Protect Ontario by Unleashing our Economy Act, 2025* (Bill 5). This legislation makes amendments to the ESA and will be in effect until such time as the new *Species Conservation Act, 2025* (SCA) is proclaimed which will replace the amended ESA. The amended ESA reflects changes to the MECP's approach to protecting and conserving species. A new habitat definition has replaced the previous definition in the ESA and "harass" has been removed from the prohibitions regarding harms to species. There are no longer specific permit types and permits now have simplified requirements.

Under the amended ESA, the SARO List remains in effect, and conditional exemptions and new permits are still available. The SARO List continues to include aquatic species and migratory birds, which may also be protected under the federal Species at Risk Act (SARA); however, this will not apply under the future Species Conservation Act (SCA). Any activities that affect species or their habitats protected under the amended ESA (as listed on the SARO List) still require proper authorization or an applicable exemption.

It will be important for the proponent to continue to be apprised of any amendments to the Act that may come into force for the duration of this project.

There is potential for SAR within the Study Area.

2.4 Ontario Regulation 41/24 Maitland Valley Conservation Authority (MVCA)

The Maitland Valley Conservation Authority (MVCA) administers Ontario Regulation 41/24: Prohibited Activities, Exemptions and Permits. O. Reg. 41/24 came into effect on April 1, 2024, and replaced MVCA's previous "*Ontario Regulation 164/06 Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*". Through this regulation, MVCA has the ability to:

- Prohibit, regulate or require the permission of the authority for straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or watercourse, or for changing or interfering in any way with a wetland.
- Prohibit, regulate or require the permission of the authority for development, if in the opinion of the authority, the control of flooding, erosion, dynamic beaches or pollution may be affected by the development.

Regulated lands are located along the western extent of the Proposed Licence Area in association with the valley features and flood-prone corridors of the Nine Mile River.

Any activities that infringe upon or otherwise impact these features may require permitting from MVCA. In such instances, the Authority *"may grant permission for development in [regulated areas] if, in its opinion, the control of flooding, erosion, dynamic beaches, or pollution or the land will not be affected by the proposed development".*

A small portion along the western and southern edge of the proposed extraction area is located within MVCA's regulation limits and will require consent and permit from MVCA.

3.0 Records Review

A comprehensive desktop assessment was completed to compile and review existing natural heritage information available for the Study Area. All lands within 120 m of the property were reviewed as part of the high-level assessment to identify significant natural heritage features that may be impacted by the proposed extraction. Information was reviewed from the following sources:

- Aerial photographic imaging and 1:10,000 Ontario Base Mapping (OBM)
- DFO Aquatic SAR mapping

- Ministry of Natural Resources (MNR) Make a Map: Natural heritage Areas to identify natural heritage features and Natural Heritage Information Centre (NHIC) data of rare wildlife species on, and in the vicinity of, the Study Area: 1x1 km^2 Squares: 17MJ5059, 17MJ5058, 17MJ5159, and 17MJ5158
- MNR Land Information Ontario (LIO) database
- MNR Aquatic Resource Area (ARA) summary data
- MNR Online GeoHub Search
- Ontario Hydrology Network (OHN) mapping
- The Ontario Breeding Bird Atlas (OBBA) 2001-2005 – 10x10 km^2 Square 17MJ55
- Ontario Reptile and Amphibian Atlas (ORAA) – 10x10 km^2 Square 17MJ55
- iNaturalist records
- eBird records
- Township of Ashfield – Colborne – Wawanosh Official Plan (October 2003)

3.1 Site Description

The tablelands of the Site east and west of the Nine Mile River are zoned as agricultural and are planted with cash crops. No permanent structures are present on-site. Areas zoned as Natural Environment under the Township of Ashfield-Colborne-Wawanosh Zoning By-law 32-2008 are present at the centre of the property. The Nine Mile River and its associated valleylands are present at the centre of the property. The topography drops significantly along the valleylands, the ground elevation drops from roughly 255 m above sea level (asl) on the east side of the Site to roughly 246 m asl at the Nine Mile River. The valley walls associated with the watercourse are heavily vegetated by mature mixed wood forest. The bottomlands associated with the watercourse consist of mature White Cedar Forest and White Cedar Swamp as well as mature hawthorn woodlands. The valleylands are continuous north and south of the site.

Adjacent land uses include agricultural to the north, west and east to the south. The Ashfield Landfill is located to the east / southeast. There is a depression on the adjacent property southeast of the Site from historic aggregate extraction.

3.2 Physiography and Soils

Ontario Geological Survey (OGS) Surficial Geology of Southern Ontario mapping indicates the Site is underlain by a few different soil types. On the east side of the Site within the proposed extraction area, the overburden is described as glaciofluvial deposits, river deposits and delta topset facies. Modern alluvial deposits of clay, silt, sand, gravel are found along the Nine Mile River and may contain organic remains. The area west of the river is underlain by clay to silt-textured till. The mapping also shows the presence of historic sand and gravel pits to the north, east and south of the Site boundary in the glaciofluvial deposit.

These soil descriptions correlate with the Quaternary geology mapping of the Wingham-Lucknow Area. In this map onsite soils east of the Nine Mile River are described as glaciofluvial outwash gravel and gravelly sand. Modern alluvium (silt, sand and gravel) is mapped along the Nine Mile. West of the river soils are mapped as St. Joseph Till, a clayey silt to silt till with very low stone content.

3.3 Hydrology and Drainage

The topography of the proposed extraction limits is flat with limited changes in elevation. The valleylands associated with Nine Mile River are steep and experience a significant drop in topography. The ground elevation drops from roughly 255 m above sea level (asl) on the East side of the Site to roughly 246 m asl at the Nine Mile River.

3.4 Preliminary Identification of Natural Features

Findings of the natural feature records review are presented on Figure 2 and described in the following sections.

3.4.1 Significant Wetlands

According to provincial mapping, Provincially Significant Wetlands (PSW) are not present within the Study Area. Unevaluated wetlands are present within the Study Area as depicted on Figure 3.

3.4.2 Significant Woodlands

According to Section 8.0 of the PPS (MMAH, 2024), significant woodland is defined as:

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

The PPS indicates that significant woodland criteria is to be identified using criteria and procedures established by the Province. Significant Woodlands are typically identified by the local municipality by applying the NHRM Evaluation (MNR, 2010) criteria as they apply to that municipality.

Append 4 of the he Township's OP demonstrates that significant woodlands are present within portions of the Study Area. Per the Township OP, Significant Woodlands are defined as woodlands 0.5 ha or greater.

3.4.3 Significant Valleylands

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

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

The NHRM further defines the recommended Significant Valleyland evaluation criteria and standards for areas with well-defined valley morphology (i.e., floodplains, meander belts, and valley slopes). One of the criteria is that features having an average width of 25 m are considered significant. Others, within headwater areas, may not have a defined watercourse channel where flow is overland and originates from springs, seepage areas and surface runoff.

Additionally, Section 8.0 of the PPS (2024) defines Significant Valleylands as:

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

Lands surrounding the Nine Mile River may form a Significant Valleyland. The valley walls are located within the Study Area but will not be affected by the proposed extraction activities.

3.4.4 Significant Areas of Natural and Scientific Interest

According to provincial mapping, no Significant Areas of Natural and Scientific Interest are present within the Study Area.

3.4.5 Significant Wildlife Habitat

According to the Natural Heritage Reference Manual (MNR, 2010) and Significant Wildlife Habitat Technical Guide (MNR, 2000), there are four categories of Significant Wildlife Habitat (SWH), as follows:

- Habitats of Seasonal Concentrations of Animals
- Rare Vegetation Communities / Specialized Habitats
- Habitats of Species of Conservation Concern
- Animal Movement Corridors

These categories are defined in greater detail in the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (MNR, 2015). A screening was conducted, using the SWH Criteria Schedules to determine if any habitats may be present.

The following is a summary of potential wildlife habitat identified on the Study Area based on a review of background aerial imagery, databases, reports, and data collected during the desktop review phase:

- Raptor Wintering Area (Proposed Licence Area and Study Area)
- Bat Maternity Colonies (Study Area)
- Turtle Wintering Areas (Study Area)
- Bald Eagle and Osprey Nesting, Foraging & Perching Habitat (Study Area)
- Amphibian Breeding Habitat (Woodlands – Study Area)
- Marsh Breeding Bird Habitat (Study Area)
- Terrestrial Crayfish (Study Area)
- Species of Conservation Concern (SCC)

SWH confirmed during Burnside's field investigations are summarized further in Sections 4.6 and 4.7. SAR and SWH screening tables are provided in Appendices C and D.

3.4.6 Habitat of Endangered and Threatened Species

To identify potential Habitat of Endangered and Threatened Species, a review of aerial photography, the ORAA, OBBA and NHIC on-line databases was conducted. Results are presented in Appendix D. The following species were identified as being potentially present in the vicinity of the Study Area:

- Bank Swallow (*Riparia riparia*)
- Eastern Red Bat (*Lasiurus borealis*)
- Hoary Bat (*Lasiurus cinereus*)
- Little Brown Myotis (*Myotis lucifugus*)
- Northern Myotis (*Myotis septentrionalis*)
- Silver-haired Bat (*Lasionycteris noctivagans*)
- Tri-colored Bat (*Perimyotis subflavus*)
- Butternut (*Juglans cinerea*)

3.4.7 Fish Habitat

A single watercourse, the Nine Mile River is present west of the Proposed Licence Area. According to the MNR ARA mapping, the Nine Mile River is a permanently flowing, coldwater thermal regime watercourse. The species that have been historically known to inhabit the watercourse are listed below in Table 1.

The DFO SAR mapping indicates that Northern Brook Lamprey (SC) may be supported within the Nine Mile River. Records of American Brook Lamprey (S3) was also reported within the Study Area by the NHIC. American Brook Lamprey is classified as 'Special Concern' under the federal Species at Risk Act (SARA) but is not listed under the provincial ESA. Northern Brook Lamprey is classified as 'Special Concern' under the provincial ESA and federal *Species at Risk Act* (SARA).

Table 1: Species Historically Observed within the Nine Mile River

Common Name	Scientific Name	Thermal Regime Preference
Blackside Darter	*Percina maculata*	Cool
Brook Stickleback	*Culaea inconstans*	Cool
Brook Trout	*Salvelinus fontinalis*	Cold
Brown Trout	*Salmo trutta*	Cold
Central Mudminnow	*Umbra limi*	Cool
Creek Chub	*Semotilus atromaculatus*	Cool
Emerald Shiner	*Notropis atherinoides*	Cool
Northern Hog Sucker	*Hypentelium nigricans*	Warm
Northern Pike	*Esox luciu*	Cool
Pumpkinseed	*Lepomis gibbosus*	Warm
Rainbow Trout	*Oncorhynchus mykiss*	Cold
Rock Bass	*Ambloplites rupestris*	Cool
White Sucker	*Catostomus commersonii*	Cool

As fish habitat is located well away from the Proposed Licence Area and the proponent is seeking to extract aggregate above the established groundwater table, aquatic habitat characterization was not included within the scope of field investigations.

4.0 Site Investigations

4.1 Methodology

Field investigations were conducted in the summer and fall of 2024 and spring of 2025 according to the schedule and protocols listed in Table 2. The purpose of field investigations was to confirm whether the features identified in the records review are present in the Study Area and whether any additional natural heritage features may be present.

Table 2: Field Study Methodology

Field Study	Methodology	Staff Involved	Date(s)	Time of Day (24 hr)	Weather Conditions		
					Precipitation / Cloud Cover	Temperature (°C)	Wind (Beaufort Wind Scale)[1]
Ecological Land Classification	Ecological Land Classification for Southern Ontario (Lee et. al., 1998)	Sarah Yoshida, Ecologist	August 28, 2024	1145 - 1830	No precipitation, partly cloudy or variable	22°C on arrival 23°C on departure	2-3
Spring Botanical Inventory	Meandering surveys throughout the property	S. Yoshida, Ecologist	June 10, 2025	1143 - 1533	No precipitation, partly cloudy or variable	17°C on arrival 22°C on departure	5
Summer Botanical Inventory		S. Yoshida, Ecologist	August 28, 2024	1145 - 1830	No precipitation, partly cloudy or variable	22°C on arrival 23°C on departure	2-3
Fall Botanical Inventory		S. Yoshida, Ecologist	September 27, 2024	1200 - 1635	No precipitation, partly cloudy or variable	21°C on arrival 23°C on departure	4
Search for potential wildlife habitats	Meandering survey throughout property. Search for features such as: • reptile hibernacula • old barns, structures, uncapped chimneys, foundations	All staff, all site visits					

Field Study	Methodology	Staff Involved	Date(s)	Time of Day (24 hr)	Weather Conditions		
					Precipitation / Cloud Cover	Temperature (°C)	Wind (Beaufort Wind Scale)[1]
Breeding Bird Survey	Entire property surveyed. Area specific searches were also conducted in potentially significant habitats	S. Yoshida, Ecologist. E. Hind-Smith, Ecologist N. McLeish, Field Tech	June 16, 2025	0706 - 0806	No precipitation Clear skies, no cloud cover	15°C on arrival 16°C on departure	1
		S. Yoshida, Ecologist. E. Hind-Smith, Ecologist	July 3, 2025	0704 - 08:29	No precipitation, partly cloudy or variable	18°C on arrival 19°C on departure	0
Wildlife Inventory	Incidental observations during all site visits	All field staff	All site visits				

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

4.1.1 Vegetation Communities and Species Inventory

Vegetation communities were characterized using methodologies as presented by Lee et al. (1998) in the Ecological Land Classification (ELC) System for Ontario (First Approximation) and the Vegetation Type List of the Southern Ontario Ecological Land Classification (Lee, May 2008). A three-season botanical inventory has also been completed. During these studies, information on the plant species encountered within the Study Area was also compiled into a plant inventory. Aerial photography was first analyzed to assist with the delineation. All onsite vegetation communities were extensively reviewed for vascular plant species. All offsite communities were viewed from through a desktop review.

4.1.2 Breeding Bird Surveys

Standard breeding bird surveys were completed by Avian Biologists according to the Ontario Breeding Bird Atlas (OBBA General Instructions for Atlassing and Appendices (April 2021), tailored to the needs of this project.

- Surveys were conducted between May 24 and July 10. Surveys were conducted twice at least seven days apart.
- Surveys were conducted under the following weather condition requirements: no precipitation or fog, and winds less than 19 km per hour.
- Ten point counts were completed for both surveys. Surveying at each point count station lasted for ten minutes and all species of birds were recorded. Additional species demonstrating evidence of breeding during the spring botanical inventory were also reported.
- All birds observed and heard were recorded, including level of breeding evidence (refer to Appendix B).

4.1.3 Incidental Wildlife Sightings

Incidental wildlife sightings were limited to the Study Area and were documented during all field investigations to provide a general characterization of the habitat functions of the Study Area. Incidental observations were recorded during targeted surveys for other terrestrial investigations. Examples include tracks, carcasses, live sightings, etc. A list of incidental wildlife observations is noted below in Section 4.2.4 of this report.

4.2 Site Investigation Findings

4.2.1 Vegetation Communities and Species Inventory

In total, 17 vegetation communities including four inclusions are present within the Study Area.

The locations of the vegetation communities are provided can be found on Figure 3. Descriptions of each community are provided in Table 3 below.

Table 3: ELC Community Descriptions

ELC Name	ELC (2008)	ELC (1998)	ELC Description	Photos
Goldenrod Forb Meadow Type	MEFM1-1	CUM1	This community is located east of the valleylands. This community possesses rolling topography and has occasional bare patches. Previously, structures were present within this community based on historical air photos but are no longer present. This community lacks a canopy and subcanopy layers. Black Raspberry (*Rubus occidentalis*) is occasionally resent within the understory level and Hawthorn (*Crataegus spp.*) is rarely present. The groundcover is dominated by Tall Goldenrod (*Solidago altissima*) with lesser associates of Spotted Knapweed (*Centaurea stoebe*), Yarrow (*Achillea millefolium*), and Frost Aster (*Symphyotrichum pilosum*).	
Dry - Fresh Mixed Regeneration Thicket Ecosite	THMM1	CUT1	This community is located east of the valleylands. This area had been cleared historically in the past and has undergone recent plantings. Young, non-native Scot's Pine is present in row-style planting. A canopy or subcanopy are not present. The understory provides >60% cover and is dominated by dense Black Walnut (*Juglans nigra*) regeneration with lesser associates of Scots Pine (*Pinus sylvestris*), Black Raspberry, and Hawthorn. The groundcover is well established, providing >90% cover and is dominated by Tall Goldenrod, Smooth Brome (*Bromus inermis*), Spotted Knapweed and Yarrow.	

ELC Name	ELC (2008)	ELC (1998)	ELC Description	Photos
Dry - Fresh Mixed Woodland Ecosite	WOMM3	CUW1	This community is located to the east of the valleylands and south of the MEFM1 community. This community has been subject to frequent disturbance. Dumping has occurred within this community including old vehicle parts and household wastes. Mid-aged to mature Scots Pine are planted in row style plantation plantings. Windthrown trees are also prevalent within this community. The canopy of this community provides approximately 50% cover. Large gaps have been created in this community by fallen trees. The canopy is dominated by Scots Pine with lesser associates of Basswood (*Tilia americana*), Black Walnut, and Sugar Maple (*Acer saccharum*). The subcanopy is becoming established, with trees colonizing the gaps created within the canopy, providing 40-50% cover. The subcanopy is dominated by Sugar Maple with lesser associates of Basswood, Scots Pine, and Black Cherry (*Prunus serotina*). The understory is dense, providing >70% cover. Green Ash (*Fraxinus pennsylvanica*) dominates the understory with lesser associates of Chokecherry (*Prunus virginiana*), Black Raspberry, and Prickly Gooseberry (*Ribes cynosbati*). The groundcover is well established, providing >90% cover. Dominant species include Green Ash regeneration, Tall Goldenrod, Thicket Creeper (*Parthenocissus vitacea*), and Avens species (*Geum spp.*). A WODM4-4 inclusion spanning 0.36 ha occurs in association within this community. This inclusion is present within the easternmost portion of this community. The canopy layer is sparser, providing approximately 30% cover and is dominated by Black Walnut, Black Cherry, Eastern Cottonwood (*Populus deltoides*), and White Spruce (*Picea glauca*). The subcanopy layer is denser than the primary portion of the community and is dominated by immature Black Walnut that provides approximately 60% cover and lesser associates of Black Cherry, Basswood, and Sugar Maple. The understory is dense and is dominated by Black Raspberry with lesser associates of Virgin’s Bower (Clematis virginiana), Green	 

ELC Name	ELC (2008)	ELC (1998)	ELC Description	Photos
			Ash and Thicket Creeper. The groundcover layer is consistent with the remainder of the community.	
Dry - Fresh Deciduous Woodland Ecosite	WODM4	CUW1	This community occurs in association with the bottomlands of the Nine Mile River. This community consists of a woodland dominated by young Black Walnut and Hawthorn. Many of the Hawthorn trees are sufficiently large to walk underneath. Informal trails are present throughout this community. Canopy cover within this community Consists of Black Walnut, White Cedar (*Thuja occidentalis*), and Basswood which provide 10-25% cover. The subcanopy provides 25-60% cover and is dominated by Hawthorn with lesser associates of Black Walnut, American Elm (*Ulmus americana*), and White Cedar. The understory is dense and is dominated by Black Raspberry with lesser associates of young Hawthorn, Black Walnut regeneration, and Prickly Gooseberry. The groundcover is dense and dominant species include White Snakeroot (*Ageratina altissima*), Tall Goldenrod, Wood Nettle (*Laportea canadensis*), and Tall Hairy Agrimony (*Agrimonia gryposepala*).	 

ELC Name	ELC (2008)	ELC (1998)	ELC Description	Photos
Fresh – Moist White Cedar Coniferous Forest Type	FOCM4-1	FOC4-1	This community occurs in association with the bottomlands of the Nine Mile River. Standing snags and deadfall logs occur occasionally. Pit and mound topography is present. Limited amounts of standing water were observed in one location adjacent to the boundary of the MAMM2-6 community and the Nine Mile River. Mature White Cedar trees dominate this community forming a dense canopy (>90% cover). Trees with diameter at breast height (dbh) exceeding 80 cm dbh were documented within this community. White Cedar dominates the canopy and subcanopy within this complex. A distinct understory is absent due to the density of the canopy. The groundcover is sparse and is only present where gaps are present and is dominated by Ostrich Fern (*Matteuccia struthiopteris*).	
Dry – Fresh White Cedar Coniferous Forest Type	FOCM2-2	FOC2-2	This community is present north of the Proposed Licence Area. This community is bisected by a utility corridor and is subject to regular pruning. Windblown trash from the adjacent road is present within this community. The canopy is dominated by young to mid-aged White Cedar providing >80% cover. The subcanopy is poorly developed, providing approximately 10% cover and is dominated by White Cedar with lesser associates of Black Walnut and Scots Pine. The understory is sparse due to the density of the canopy cover, providing <10% cover with White Cedar regeneration, Hawthorn, Green Ash regeneration, and American Elm regeneration rarely occurring. The groundcover is sparse, providing <10% cover and consists of green Ash regeneration.	

ELC Name	ELC (2008)	ELC (1998)	ELC Description	Photos
Fresh – Moist White Cedar – Sugar Maple Mixed Forest Type	FOMM7-1	FOM7-1	This community is present along the eastern valley walls of the Nine Mile River. This community slopes steeply towards the Nine Mile River. Standing snags occur occasionally and deadfall logs are abundant where mature trees have fallen, or where infected Ash trees have been intentionally cut. The canopy provides 70-80% cover is dominated by mid-aged to mature Sugar Maple with lesser associates of Red Oak (*Quercus rubra*), Black Walnut, and Basswood. The subcanopy is moderately well developed and is dominated by White Cedar in association with Sugar Maple, Ironwood (*Ostrya virginiana*), and Black Cherry. The understory provides 25-60% cover and is dominated by Green Ash regeneration, Black Raspberry, White Cedar, and Prickly Gooseberry. The groundcover layer provides 50-60% cover and is dominated by Green Ash regeneration, Zigzag Goldenrod (*Solidago flexicaulis*), White Snakeroot, and Tall Goldenrod. Two inclusions are present in association with this community, a Dry – Fresh White Cedar Coniferous Forest Type (FOC2-2) and Scots Pine Plantation (TAGM1). Trees within these inclusions are growing densely, preventing the establishment of an understory or distinct groundcover layer.	 

ELC Name	ELC (2008)	ELC (1998)	ELC Description	Photos
White Cedar Mineral Coniferous Swamp Type	SWCM1-1	SWC1-1	This community is present in association with the bottomlands associated with the Nine Mile River. This community consists of rolling topography. Depressions in the topography, although dry during August and September, appear to contain standing water during the early spring. The canopy of this community provides >70% cover is dominated by mature White Cedar with lesser associates of Yellow Birch. Basswood and Black Walnut occur along high points within the community. The subcanopy provides 10-25% cover and is dominated by White Cedar, with lesser associates of American Elm, Yellow Birch (*Betula alleghaniensis*), and Black Walnut. The understory is open, providing 10-25% cover and consists of regenerating White Cedar, Green Ash, Swamp Dewberry (*Rubus hispidus*), and Virgin's Bower. The groundcover is patchy within this community. Where gaps in the canopy are present, the groundcover layer is dense. Dominant species within the groundcover layer include Wood Nettle, Ostrich Fern, White Snakeroot, and Tall Meadow-rue (*Thalictrum pubescens*).	
Joe Pye Weed Forb Mineral Meadow Marsh Type	MAMM2-6	n/a	This community occurs in the riparian zone of the Nine Mile River. Standing water was not present in association with this community during Burnside's summer and fall site visits. This community does not possess a canopy or subcanopy. Woody species within this community are limited to sparse Black Walnut and Green Ash regeneration as well as rare Red Osier Dogwood, and Swamp Rose. The dominant herbaceous species include Spotted Joe Pye Weed (*Eutrochium maculatum*), Tall Goldenrod, Reed Canary Grass, Spotted Jewelweed (*Impatiens capensis*), Common Milkweed (*Asclepias syriaca*), and Canada Wild Rye (*Elymus canadensis*). Vines including Virgin's Bower and Wild Cucumber (*Echinocystis lobata*).	

ELC Name	ELC (2008)	ELC (1998)	ELC Description	Photos
Hedgerows	TAGM5	n/a	Hedgerows are present through the center of the Proposed Licence Area, along the southeast margin of the THMM1 ecosite, and along the margin of Glen Hill's Road. The hedgerow through the center of the property consists of Black Walnut and American Elm. Species that commonly occur within disturbed habitats such as Canada Horseweed (*Erigeron canadensis*), Common Ragweed (*Ambrosia artemisiifolia*), Black Raspberry, and Canada Thistle (*Cirsium arvense*). The hedgerow along the southeast margin of the THMM1 ecosite consists of Apple (*Malus pumila*), Sugar Maple, and Black Walnut. Species within the hedgerows along Glen Hill's Road include mature White Cedar, Sugar Maple, and Black Walnut. The hedgerow through the center of the property consists of Black Walnut. Hedgerows are also present within offsite agricultural lands.	 
Mixedwood Swamp	SWM	SWM	This community occurs beyond the Proposed Licence Area within the lands owned by the Township in association with the bottomlands west of the Nine Mile River as well as on the privately-owned lands located north of Glens Hill Road. The boundaries of this community were estimated based on topography and the MNR wetlands mapping.	

ELC Name	ELC (2008)	ELC (1998)	ELC Description	Photos
Open Agriculture	OAG	n/a	This community encompasses the majority of the Proposed Licence Area and consists of annual row crops. Agricultural lands are also present beyond the licensing area within the Study Area.	
Coniferous Plantation		TAGM1	This community is associated with the Ashfield Landfill located offsite east of Halls Hill Line and south of Glens Hill Road.	
Disposal and Recycle	CVI_2	n/a	This community is located offsite east of Halls Hill Line and south of Glens Hill Road.	

4.2.2 Botanical Inventory

A detailed list of plants identified on the Study Area during the three-season botanical inventory can be found in Appendix A. The following summarizes the flora observed in the study area:

- 196 plant taxa were observed. Of those, 195 were identified to species, or subspecies level.
- Of those species, 133 (68%) were native and 62 (32%) were non-native to Ontario.
- All of the native species observed are considered 'apparently secure' (uncommon but not rare) (S4) or 'secure' (common, widespread and abundant) (S5) in Ontario.

4.2.3 Avifauna

In total, 42 resident bird species, exhibiting some level of breeding evidence (possible or probable), were observed on the Study Area during breeding bird surveys in 2025 (see Appendix B).

According to MNR's Significant Wildlife Habitat Guide (2000), "area sensitive" species are defined as species that require large areas of suitable habitat for long term population survival. Fragmentation of essential habitats can result in overall declines population. Three area-sensitive bird species, American Redstart (*Setophaga ruticilla*), Hairy Woodpecker (*Dryobates villosus*) and Black-and-white Warbler (*Mniotilta varia*), were observed exhibiting breeding evidence within the Study Area during breeding bird surveys.

Two species of 'Special Concern', Eastern Wood-pewee (*Contopus virens*) and Barn Swallow (*Hirundo rustica*) were observed during the course of surveys. Of the two listed species, only Eastern Wood-pewee exhibited some level of breeding evidence (probable). A Barn Swallow was observed foraging within the agricultural lands.

One 'Threatened' species, Bank Swallow, was documented foraging within the agricultural fields of the Study Area. Suitable habitat to support this species is absent from the Study Area. Steep banks were observed within the adjacent waste management centre.

4.2.4 Incidental Wildlife Observations

Incidental wildlife observed within the Study Area during the course of site investigations are listed in Table 4 below. None of the listed species are considered to be rare within Ontario.

Table 4: Incidental Wildlife Observations

Common Name	Scientific Name	SRank	Comments
Ruffed Grouse	*Bonasa umbellus*	S5	Observed along the hydrocorridor adjacent to the FOCM2-2 community
Great Blue Heron	*Ardea herodias*	S5	Flyover
White-tailed Deer	*Odocoileus virginianus*	S5	
Red Squirrel	*Tamiasciurus hudsonicus*	S5	
Common Raven	*Corvus corax*	S5	Overheard calling outside of the 'safe breeding window'
Wild Turkey	*Meleagris gallopavo*	S5	Observed in association with the FOMM7-1 community
Turkey Vulture	*Cathartes aura*	S5	Flyover
Red-tailed Hawk	*Buteo jamaicensis*	S5	Flyover
Yellow-bellied Sapsucker	*Sphyrapicus varius*	S5B,S3N	Overheard calling from within the FOMM7 community outside of the 'safe breeding window'
Red-breasted Nuthatch	*Sitta canadensis*	S5	Overheard calling from within the FOMM7 community outside of the 'safe breeding window'
Monarch	*Danaus plexippus*	S2N, S4B	Adult Monarchs were observed within the Proposed Licence Area (MEFM1-1 and THMM1 communities) and Study Area (MAMM2-6 community)

5.0 Natural Heritage Features

5.1 Significant Woodlands

As mentioned in Section 3.5.2 above, Significant Woodlands are present within the Study Area. The SWCM1-1, SWM, FOCM4-1, FOCM2-2, and FOMM7-1 communities are Significant Woodlands.

Although Appendix 4 of the Township of Ashfield-Colborne-Wawanosh OP identifies the WOMM3 community as a Significant Woodland, to be considered as a component of a Significant Woodland, canopy cover must exceed 60%. As such, the WOMM3 community and its associated inclusions should not be included within the Significant Woodlands designation.

5.2 Significant Valleylands

As mentioned in Section 3.5.3 above, Significant Valleylands may occur in association with the Nine Mile River that flows north to south through the Study Area.

5.3 Significant Wildlife Habitat

According to the Natural Heritage Reference Manual (MNR, 2010) and Significant Wildlife Habitat Technical Guide (MNR, 2000), there are four types of Significant Wildlife Habitat ("SWH"), as follows:

- Habitats of Seasonal Concentrations of Animals
- Rare Vegetation Communities / Specialized Habitats
- Habitats of Species of Conservation Concern
- Animal Movement Corridors

Significant Wildlife Habitats (SWH) are designated at the local planning level (i.e., municipality). Local designations occur because conditions and features vary widely between municipalities, and what is important and unique in one area may be common and secure in another.

The assessment completed as a part of the study will use broad habitat descriptions from the Significant Wildlife Habitat Technical Guide (SWHTG) and the SWHTG Ecoregion 7E Criterion Schedule (MNR, 2015).

Based on the existing conditions and background information collections, there are four confirmed SWH features and two candidate SWH features are present on the Site.

Confirmed SWH Features present within the Study Area include:

- Habitat for Species of Conservation Concern – Special Concern and Rare Wildlife Species:
  - Eastern Wood-pewee (SC) – Study Area

Candidate SWH features potentially present within the subject site include:

- Raptor Wintering Area – Study Area and Proposed Licence Area
- Bat Maternity Colonies – Study Area
- Turtle Wintering Areas – Study Area
- Bald Eagle & Osprey Nesting, Foraging and Perching Habitat – Study Area
- Amphibian Breeding Habitat (Woodland) – Study Area
- Marsh Breeding Bird Habitat – Study Area
- Habitat for Species of Conservation Concern – Special Concern and Rare Wildlife Species:
  - Candidate:
    - American Brook Lamprey (S3) – Study Area
    - Northern Brook Lamprey (SC) – Study Area
    - Snapping Turtle (SC) – Study Area
  - Confirmed:
    - Barn Swallow (SC) – Study Area*
    - Eastern Wood-pewee (SC) – Study Area
    - Monarch Butterfly (SC) – Proposed Licence Area

The locations of both confirmed and candidate SWH features can be found on Figure 5. Appendix C includes a screening of potential SWH for the Study Area based on a review of background data, agency records, aerial photo interpretation, and result of field investigations for the Study Area.

All confirmed and candidate SWH features with the exception of upland communities that support candidate Raptor Wintering Areas and candidate habitat for Monarch are located beyond the Proposed Licence Area and will not be directly impacted by the proposed aggregate extraction project.

5.3.1 Raptor Wintering Area – Study Area and Licensing Area

Raptor Wintering Areas consist of a combination of open upland habitats for foraging and wooded areas for foraging, roosting, and resting. Alterations to vegetation within Raptor Wintering Areas either through vegetation removal or alterations to soil moisture regime can influence prey availability. All forest and swamp communities may provide suitable habitat to support overwintering raptors.

A suitable matrix of forested and upland communities is present within the Study Area and the immediate vicinity. Several forested communities are present within the Study

Area and in the immediate vicinity of the site. Upland communities WOMM3 and THMM1 are present within the Proposed Licence Area are limited in extent and are unlikely to provide high quality foraging habitat as these areas are well protected from the wind. Higher quality foraging habitat including pastures are located on privately owned lands beyond the Study Area.

5.3.2 Bat Maternity Colonies – Study Area

The presence / absence of this feature could not be confirmed as bat maternity roost surveys and passive acoustic monitoring was not included in the scope of work. Candidate Bat Maternity Habitat may occur in association with the FOMM7-1 and SWM communities. These communities are located beyond the Proposed Licence Area and will not be directly impacted by aggregate extraction activities.

5.3.3 Turtle Wintering Areas – Study Area

Targeted turtle basking surveys were not included within the scope of work to confirm the presence of this feature. Turtles overwinter in the mucky bottom of deep pools or slow-moving streams. Areas of the Nine Mile River flow through the Study Area and may be utilized by turtles for overwintering purposes. The Nine Mile River is located well beyond the Proposed Licence Area and will not be impacted directly or indirectly by the proposed aggregate extraction areas. As such, further consideration for this feature will not be provided within this report.

5.3.4 Bald Eagle and Osprey Nesting, Foraging and Perching Habitat – Study Area

Nests for Bald Eagle and Osprey are associated with lakes, ponds, rivers and wetlands along forested shoreline. Suitable habitat to support Bald Eagle and Osprey Nesting may occur in association with the valleylands of the Nine Mile River including the FOMM7-1, FOCM4-1, and SWCM1-1 communities. No stick nests were identified during Burnside's field visits. Foraging and perching habitat may still be supported within the forest and swamp communities along the valley walls of the Nine Mile River.

5.3.5 Amphibian Breeding Habitat (Woodland) – Study Area

The Amphibian Breeding Habitat (Woodland) type of habitat is described as a wetland, pond, or woodland pool (including vernal pools) >500 within or adjacent (within 120 m) to a woodland (no minimum size). Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians. Woodlands with permanent water or those with hydroperiods extending into mid July are most likely to be used by breeding amphibians.

Depressions that are likely to contain standing water were incidentally observed within the SWCM1-1 and FOCM4-1 communities that may support breeding amphibians. The MAMM2-6 and SWM community may also support amphibian breeding. Targeted surveys to confirm the presence of this feature were not included in the scope of field investigation.

5.3.6 Marsh Breeding Bird Habitat – Study Area

All marsh habitats may be considered significant breeding habitat provided standing water and emergent aquatic vegetation are present. Suitable habitat to support Marsh breeding birds may occur in association with the MAMM2-6 Community. Breeding bird surveys were not completed within this community due to its proposed distance from the Proposed Licence Area.

5.3.7 Special Concern and Rare Wildlife Species

Eastern Wood-pewee

Evidence of ‘Probable’ breeding for Eastern Wood-pewee was recorded within the FOMM7-1 community. Wood-pewee was not recorded within the WOMM3 community. Eastern Wood-Pewee often nests near forest edges, clearings roadways, and water, but does not require large swaths of continuous forest.

Monarch Butterfly

The host plant, Milkweed, for the Monarch’s larval phase was observed in low densities within the MEFM1-1 andTHMM1 communities within the Proposed Licence Area as well as the MAMM2-6 community within the Study Area. Adult Monarchs were observed within the MEFM1-1, THMM1, and MAMM2-6 communities; however, given the low densities of Common Milkweed / Swamp Milkweed and lack of larval Monarch observations, it is unlikely that the above communities represent significant habitat for Monarch.

American Brook Lamprey and Northern Brook Lamprey

American Brook Lamprey occur within gravel and sand within riffles and runs of medium to small watercourses that possess strong flows and clear waters and cold-water thermal regime. Ammocete (juvenile) American Brook Lampreys occur within silty or sandy pools (DFO, 2016a).

Northern Brook Lampreys inhabit riffles and runs of small rivers that possess a cool-water thermal regime. Juvenile Northern Brook Lampreys occur within slower moving pool of watercourses that possess soft fine substrates (DFO, 2016b).

Suitable habitat to support both lamprey species may be present in the Nine Mile River. Targeted surveys to confirm the presence / absence of both species was not completed.

The Proposed Licence Area is located well beyond the limits of the Nine Mile River; therefore, impacts are not anticipated.

Proposed Licence Area. As such, further consideration for these species will not be provided.

Snapping Turtle

Snapping Turtles generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles may be supported within backwater areas and pools along the Nine Mile River. Suitable basking habitat is present along the banks of the river.

As mentioned above, impacts to the Nine Mile River are not anticipated. As such, further consideration for Snapping Turtle will not be provided.

5.4 Habitat of Endangered and Threatened Species

Black Ash

The mixed swamp communities west of the Nine Mile River that was not surveyed by Burnside may provide suitable habitat to support Black Ash. As this community and any regulated Black Ash habitat are well beyond the Proposed Licence Area, further consideration for this species will not be provided within this report.

SAR Bats

In Ontario, there are seven species of bats now listed as Endangered under the *Endangered Species Act*, including:

- Eastern Red Bat
- Eastern Small-footed Myotis
- Hoary Bat
- Little Brown Myotis
- Northern Myotis
- Silver-haired Bat
- Tri-colored Bat

The three myotis species prefer to roost in large trees within mature forest, using tree cavities or loose peeling bark as roosting sites. Tri-colored bat prefers to roost in live or dead leaf foliage, preferably within oak trees. Silver-haired bats are also known to roost within cavities and under exfoliating bark (COSEWIC, 2023). Eastern Small-footed

Myotis (*Myotis leibii*), is known to roost within rock piles, rocky outcrops, within structures, under bridges, as well as within caves and hollow trees (MNR, 2017; Humphrey and Fotherby, 2019). Eastern Red and Hoary Bats Roost within the foliage of trees and shrubs in both deciduous and coniferous trees in forests of any age class. Roost sites that have overhead foliage for cover and open flight space below are selected. High quality habitat to support all SAR bat species except for Eastern Small-footed Myotis is present within the Study Area.

High quality bat habitat is present within the Study Area beyond the Proposed Licence Area, specifically within the Valleylands of the Nine Mile River. Mature deciduous trees and standing Ash snags are present within the FOMM7-1 community that may support six of the seven SAR bat species (excluding Eastern Small-footed Myotis). Mature White Cedar trees are present in association with the FOCM4-1 and SWCM1-1 communities may bear cavities to support the Myotis species and Silver-haired Bats. The FOCM2-2 and WODM3 communities lack mature trees, standing snags, and open flight space beneath the canopy trees.

High quality habitat to support SAR bats is absent within the Proposed Licence Area. Although a limited number of tall, large diameter trees are present within the WOMM3 community, the understory layer is dense, limiting open flight space below the canopy trees. Canopy and subcanopy trees present within this community are vigorous and lack cavities and exfoliating bark.

5.5 Fish Habitat

The Nine Mile River is a cold-water watercourse that supports a variety of warm, cool, and cold-water species which include Brook Trout and Rainbow Trout. Brook Trout and Rainbow Trout are sensitive cold-water species and changes to surface or groundwater hydrology could alter their habitat.

Potential impacts to fish habitat are recommended mitigation measures are provided in Section 7.0.

5.6 Municipal Natural Heritage Features

As noted in Section 1.1, under the *Aggregate Resources Act*, the NER must identify if the site or any natural features are located within a natural heritage system identified by a municipality or by the province.

There are no provincial plans (e.g., Niagara Escarpment Plan, Greenbelt Plan etc.) associated with the Study Area.

5.6.1 Township of Ashfield-Colborne-Wawanosh Official Plan (October 7, 2003)

The limits of the Natural Heritage System are identified on Schedule B of the Township's Official Plan. Land uses within the Proposed Licence Area include Natural Environment and Extractive.

Appendices 2 – 5 of the Official Plan mapping also identified that the following features are present within the Proposed Licence Area or within 120 m:

- Significant Woodlands
- Significant Wildlife Habitat
- Watercourses

6.0 Proposed Aggregate Extraction

The extraction area only includes agricultural lands to the east of the Nine Mile River, hedgerows, MEFM1-1, THMM1, and WOMM3 communities. Within this area there is an existing laneway from Glens Hill Road and a tree line along the laneway. The Ashfield Pit (License #4720) and Ashfield Landfill Site (Landfill) are both within 120 m of the licensed boundary to the east.

"The Site Plan Drawings are enclosed with the licence application package.As illustrated on the plans, the 16.6 hectares of the property to the west of the Nine Mile River is proposed to be licensed for extraction. Extraction is to be completed in three phases and to a pit floor elevation ranging from 246.5 m asl to 248.5 m asl. Phase 1 includes excavation of aggregate and construction of the internal haul road in the south portion of the licence area. Phase 2 includes the extension of the haul road to the north and extraction in the north portion of the licence area. Phase 3 includes a site plan variance for excavation of aggregate within the eastern licence setback along Halls Hill Line.

6.1 Haul Roads

The primary entrance is halfway along the length of the licence boundary on Halls Hill Line. A secondary entrance is near the south end of the licence boundary on Halls Hill Line. Both entrances are in line with the adjacent pit's entrances. Using the primary entrance, a 6 m wide haul road will be constructed along the east excavation setback parallel to Halls Hill Line. After exiting the pit, trucks will travel on Halls Hill Line north to Glens Hill Road or south to Dungannon Road.

6.2 Progressive and Final Rehabilitation

Progressive rehabilitation of the site will be undertaken in three phases as pit operations progress. All phases (1, 2, and 3) will be restored to agricultural use. Rehabilitation of each phase will commence upon the complete extraction of the respective phase and be

completed within two years of commencement. All topsoil and subsoil originating from the site shall be retained and used in rehabilitation. As the limits of extraction are reached, the side slopes shall be progressively rehabilitated with a 3:1 side slope for natural or agricultural use. It is anticipated that the rehabilitated Natural Environmental areas of tree plantings will tie in with and enhance the existing block of mixed forested lands creating wildlife habitat and animal movement corridors.

The proposed final land uses will be a combination of Natural Environment and Agricultural. Both are compatible with the surrounding existing land uses. The rehabilitated Natural Environmental areas of tree plantings will have a random mixed native tree and shrub plantings of various sizes, offsetting the loss of the culturally impacted communities. The rehabilitated agricultural area will be returned to productivity.

The following notes are taken from the Progressive and Final Rehabilitation Plan (Drawing No. 3 of 4) and address the details of the rehabilitation for this site.

Rehabilitation

- Rehabilitation slopes shall be established by backfilling with onsite overburden or poorer quality aggregate to establish a 3:1 (horizontal : vertical) slope.
- Areas of the pit floor will be covered with available overburden and subsoil. The pit faces will have a 150 mm depth of topsoil. The pit floor will have 300 mm depth of topsoil. All topsoil shall be seeded with grass / legume seed mixture with cover crop compatible for the soil conditions such as OSC seed mixture 8210 sown at 55 kg/ha.
- The slopes at the limit of extraction will be established by pushing material down or backfilling with excess material. The slopes will be roughly graded prior to placement of topsoil.
- The tree and shrub planting will follow all final slope rehabilitation in relation to the pit operation. Areas within the licence boundary except for agricultural areas will then have random mixed native tree and shrub plantings of various sizes, such as, but not limited to, cedar, poplar, maple, staghorn sumac, red-osier and grey dogwood and ninebark, placed at a rate of 2,100 trees/shrubs per ha.
- Any trees or vegetation that dies or is damaged shall be replanted using native and locally sourced stock appropriate to the local climate and growing zone.
- 5 ft (min) tree shelters are recommended to be installed on all deciduous trees to protect from deer.
- In areas where grass has not been established, it will be re-seeded in the spring of the subsequent year and maintained until it is self-sustaining.
- In areas where trees have failed to grow, they will be replanted the following season and maintained until they are self-sustaining.

7.0 Potential Impacts and Recommended Mitigation Measures

Potential impacts can be categorized as direct (within the footprint of the development) or indirect (adjacent to the development but subject to indirect effects, including air quality, surface water, loss of habitat, etc.). Potential impacts include:

- Disturbing or destroying the nests of migratory birds during land clearing
- Minor losses of supporting raptor wintering habitat (candidate) and Monarch habitat
- Disturbance to Significant Woodlands / Significant Valleylands / bat maternity roosting habitat / Eastern Wood-pewee habitat from erosion / sedimentation and encroachment during construction
- Dust which could affect vegetation in adjacent habitats
- Changes to surface and ground water hydrology which could adversely affect fish habitat and significant wildlife habitat associated with unevaluated wetland communities and the Nine Mile River
- Spills of fuels or sediment from extraction work into adjacent natural areas
- Although Bank Swallow habitat is not currently present, aggregate extraction activities have the potential to create the type of habitat that can attract Bank Swallows to active extraction zones, where their nests can be damaged or destroyed

A detailed discussion of potential impacts and proposed mitigation is present in Table 5 below.

7.1 Natural Environment Areas (NEA) within the Proposed Licence Area

Per Section 6.4 of the ACW OP, development or site alteration is not permitted within NEAs which include the following:

- Wetlands
- Woodlands
- Rivers and streams
- Valleylands
- Lakeshore
- Environmentally sensitive areas (ESAs), including:
  - Life science Areas of Natural and Scientific Interest (ANSI)
  - Earth science ANSIs
  - Habitat for threatened or endangered species
  - Wildlife habitat
  - Fish habitat

The Proposed Licence Area includes the WOMM3 community which has been identified as Significant Woodland and Significant Wildlife Habitat within the Township OP. As

discussed in Section 5.1 above, the WOMM3 community should not be considered Significant Woodland.

In addition, the WOMM3 community does not support SAR habitat. A single candidate SWH feature, Raptor Wintering Areas, was identified in association with the WOMM3 community, but is unlikely to contribute significantly to supporting overwintering raptor species. As a result, the WOMM3 community should not be considered an NEA.

As the WOMM3 community should no longer be designated as an NEA, clearing and aggregate extraction activities, as described within Section 6.0 above, are compliant with provincial and municipal policies.

It is anticipated that the proposed side slope rehabilitation, which includes site-appropriate native tree and shrub species, will offset the loss of the WOMM3 community. The proposed rehabilitation will assist with the implementation of the Natural Environment goals of the OP.

7.2 Significant Woodlands and Significant Valleyland Setbacks

The Significant Woodlands associated with the valleylands of the Nine Mile River are located beyond the Proposed Licence Area. Both the Significant Woodlands and Significant Valleylands will be protected by a minimum 10 m excavation setback from the licence boundary.

7.3 Significant Wildlife Habitat Setbacks

All SWH features except candidate Raptor Overwintering Habitat and Monarch habitat occur in association with the Significant Woodlands, Significant Valleylands, Nine Mile River, or unevaluated wetlands and are not located within the Proposed Licence Area. It is anticipated that the setbacks proposed to these features will afford sufficient protection to the SWH features they support.

7.4 Watercourses, Wetlands, and Fish Habitat Setbacks

The Proposed Licence Area is located >35 m from the Nine Mile River, unevaluated wetland communities, and fish habitat. Further protection of these areas will also be afforded by the vegetated valleylands of the Nine Mile River. It is anticipated that the proposed mitigation measures discussed in Table 5 below will successfully moderate indirect impacts associated with aggregate extraction activities.

Table 5: Summary of Potential Negative Impacts and Recommended Mitigation

Natural Feature	Description of Potential Effects	Mitigation Measures
Migratory Birds	Clearing of trees, shrubs and ground vegetation has the potential to disturb or destroy nests of migratory birds.	• Any vegetation clearing will take place outside of the breeding bird timing window; generally from April to August 31 • Clearing during the breeding bird window is not recommended due to the extent of clearing required • The site will be rehabilitated to comparable conditions which will include tree plantings and seeding following the completion of gravel extraction activities per the progressive rehabilitation plan. This will provide additional habitat for migratory birds and ensure no net losses of habitat.
SAR Bats	Clearing of trees has the potential to disturb or destroy candidate general bat roosting habitat. As discussed above, high quality bat maternal roosting habitat is absent from the Proposed Licence Area.	• Tree clearing must take place outside of the bat active window (April 1 – September 31) in southern Ontario.
Partial loss of candidate SWH communities within the Proposed Licence Area including Raptor Wintering Habitat and Monarch Habitat	Clearing of trees, shrubs and ground vegetation within the Proposed Licence Area will remove portions of upland communities that may support Raptor Wintering Habitat and Monarch habitat. The MEFM1-1, THMM1, and WOMM3 communities are located within the Proposed Licence Area and may support raptor overwintering. Impacted portions of upland habitat these areas are limited in extent and do not constitute “least disturbed sites, idle / fallow or lightly grazed field / meadow” used for foraging by overwintering raptors. These areas are also unlikely to be wind swept during the winter months with limited snow depth of accumulation. The loss of the MEFM1-1, THMM1, and	• Site will be rehabilitated to comparable conditions which will include tree plantings and seeding following the completion of gravel extraction activities. This rehabilitation will provide additional habitat for overwintering raptors. • The side slopes will be planted with Simcoe County Native Seed Mixture 8150 from OSC Seeds in conjunction with a suitable cover crop.

Natural Feature	Description of Potential Effects	Mitigation Measures
	WOMM3 communities will not impact the ability for raptors to overwinter on the landscape. As mentioned in Section 4.6 above, it is unlikely that the significant Monarch habitat is supported within the MEFM1-1 and THMM1 communities. The loss of these communities will impact the ability for Monarch to persist on the landscape.	
Significant Woodlands / Significant Valleylands, and associated SWH features including confirmed Eastern Wood-pewee habitat, and candidate Significant Wildlife Habitat including Raptor Wintering Areas, Bat Maternity Colonies, Bald Eagle & Osprey Nesting, Foraging & Perching Habitat	Potential erosion / sedimentation and encroachment beyond the aggregate extraction envelope due to grading and works within areas of exposed soil	• A setback of 10 m will be established from the top of bank of the Significant Valleylands. These setbacks shall provide a buffer between aggregate extraction activities and the forested areas adjacent. • Detailed erosion and sediment control measures including silt fencing should be included within the final site plan drawings and implemented prior to commencing any aggregate extraction activities. ESC fencing will be placed along the west treeline / licensing boundary. • Sediment fencing should be placed along the west licence boundary and should be monitored regularly throughout the duration of gravel extraction activities, especially following snowmelt or heavy rainfall. Inspections should be carried out until the lands are re-vegetated and stabilized. • All equipment and stockpile should not extent beyond the fencing limits.
	Dust effects on adjacent wildlife habitat	• As appropriate, dust from the work areas will be controlled through suppressants (e.g., water).

Natural Feature	Description of Potential Effects	Mitigation Measures
		• A setback of 15 m will be established from the north, south, and east license boundaries, and 10 m from the western license boundary will provide additional protection to natural areas.
Watercourses, Fish habitat (including candidate American Brook Lamprey and Northern Brook Lamprey habitat), Turtle Wintering Areas, and Snapping Turtle. Other wetlands and associated candidate SWH features including Amphibian Breeding Habitat, and Marsh Breeding Bird Habitat).	The wetland features may be impacted by altered changes in surface water runoff and infiltration, potentially impacting soil moisture regime and wetland hydroperiod. In-water works are not required for the project and thus the death of fish, or harmful alteration, disruption or destruction (HADD) of fish habitat will not occur. Based on the ACW Proposed Gravel Pit Assessment Glen's Hill Road Site Maximum Predicted Water Table Assessment (Burnside, 2023), no impacts are anticipated. Changes to surface runoff / infiltration are expected to be minimal and unlikely to alter nearby hydrological systems due to the permeable nature of the sand and gravel that will be extracted.	• Detailed erosion and sediment control measures including silt fencing should be included within the final site plan drawings and implemented prior to commencing any aggregate extraction activities. • The proposed depth of excavation ranges from 248.5 masl at the northeast corner to 246.5 masl at the west extraction boundary. The maximum predicted water table elevation across the Site is 247 m asl at the northeast corner and 245 masl along the west boundary of the extraction area. • Groundwater levels should continue to be monitored in the spring after operations begin so the predicted maximum water table elevation can be revised if needed.
Groundwater / Surface Water / All Adjacent Natural Features	There is potential for spills of fuels or other hazardous materials to occur during fueling of construction equipment or other construction activities.	• All materials and equipment used for aggregate extraction shall be operated and stored in a manner that prevents any deleterious substances (petroleum products, silt, etc.) from entering natural features. • Refueling and maintenance of construction equipment should occur a minimum of 30 m from a natural feature. • Any fuel storage tanks will be stored in accordance with the Gasoline Handling Act. Fuel storage will primarily take place off-site but may be allowed within the processing area. Portable fuel trucks or portable fuel tanks mounted on trucks may be used to periodically to service vehicles.

Natural Feature	Description of Potential Effects	Mitigation Measures
		• All spills will be removed and disposed at an offsite facility approved by the MECP. • The Township will develop spill prevention and contingency plans and have them in place prior to aggregate extraction. Personnel will be trained in how to apply the plans and the plans will be reviewed on a regular basis to strengthen their effectiveness and facilitate continuous improvement. • A hydrocarbon spill response kit will be on site at all times during the work. Spills will be reported to the Ontario Spills Action Centre at 1-800-268-6060.
Slopes and Bank Swallows	Given the presence of Bank Swallow within the Proposed Licence Area, there is potential for Bank Swallows to colonize banks of the aggregate extraction pits.	• Stockpiles or extraction faces should be graded in the fall to early spring to a slope of less than 70 degrees to prevent bird nesting during the active breeding season (April 1 to August 31). • Predator models including plastic Great Horned Owls and kites shaped as hawks can be used as supplemental mitigation measures. It should be noted that these models are not as effective as slope management (MNR, 2017b).

8.0 Conclusions

The proposed aggregate extraction activities are proposed to take place within an agricultural field and anthropogenically impacted forb meadow, mixed thicket, and mixed woodland communities.

Most significant natural features on the Study Area and vicinity occur in association with the Nine Mile River and its forested valleylands. These areas provide habitat for breeding birds and support rare species, including Eastern Wood-pewee. The forested valleylands may also provide Bald Eagle and Osprey foraging and perching habitat and bat maternity roosting habitat. The Nine Mile River and associated riparian wetlands provide fish habitat and may support a number of SWH features including Turtle Wintering Areas, Amphibian Breeding Habitat, and Marsh Breeding Bird Habitat.

Setbacks of 10 m will be established from the valleylands of the Nine Mile River which will provide adequate protection of the natural areas. Provided that the listed mitigation measures are adhered to, it is Burnside's opinion that the proposed development is consistent with all applicable natural heritage policies.

9.0 References

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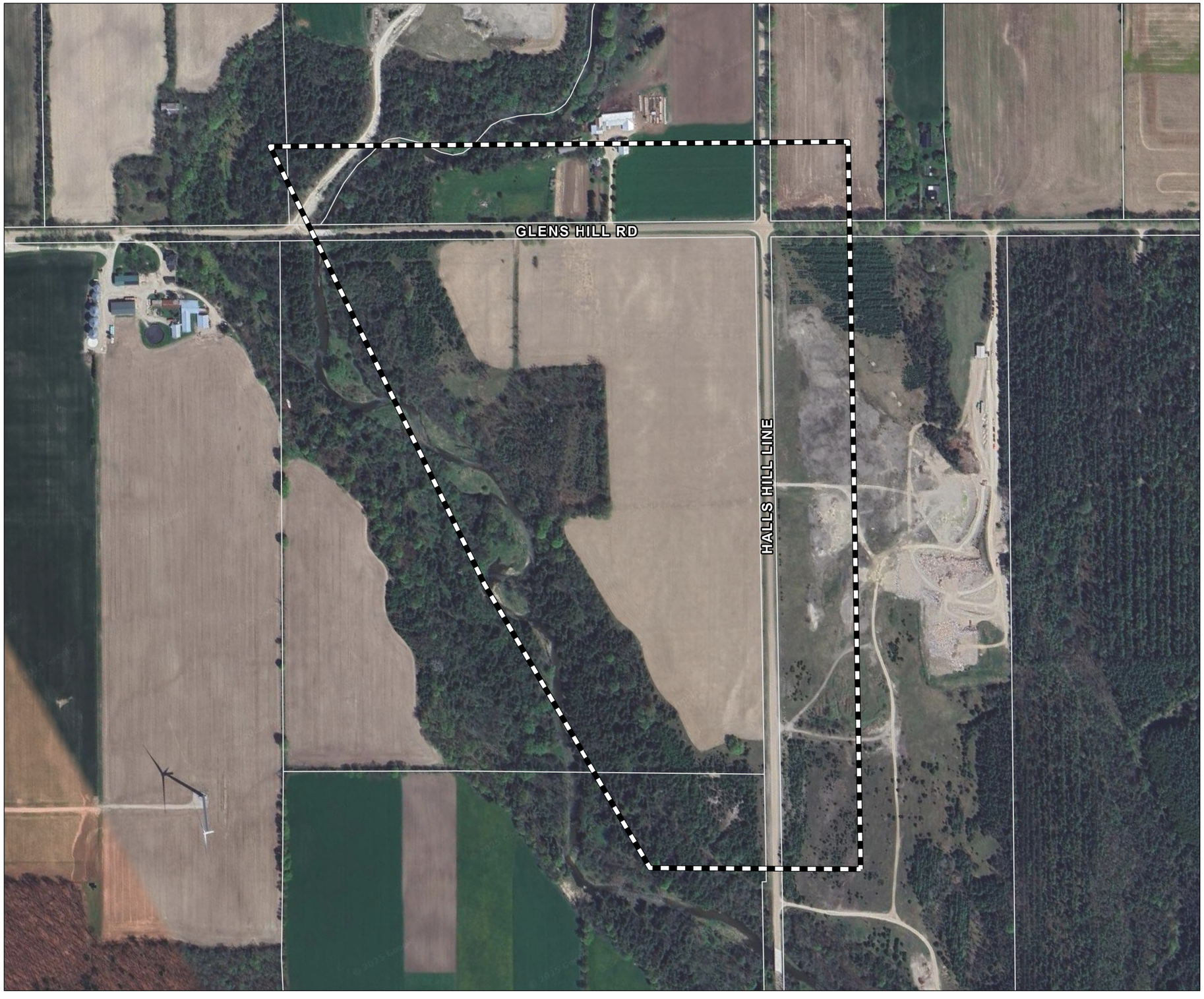
Figures



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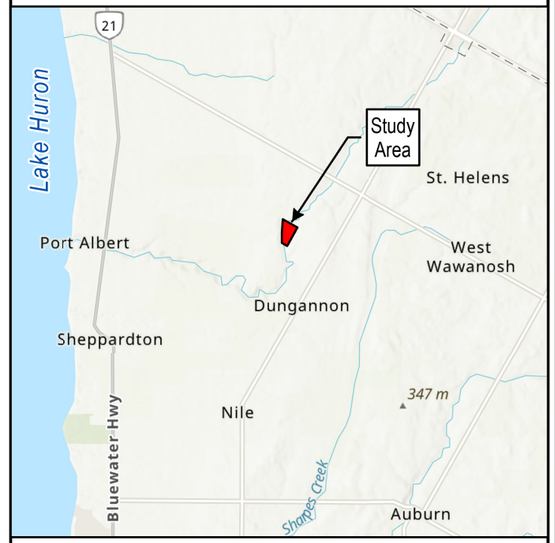

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TOWNSHIP OF ASHFIELD-COLBORNE-WAWANOSH

Figure Title

ACW GRAVEL PIT DEVELOPMENT

STUDY AREA

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Study Area

Maitland Valley Conservation Authority Regulation Limit

Township of Ashfield-Colborne-Wawanosh Zoning By-law 32-2008, Consolidated August, 2024:

Natural Environment (NE1)

All other zones

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Figure Title

ACW GRAVEL PIT DEVELOPMENT

POLICY CONSTRAINTS

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Breeding Bird Survey Station

Watercourse - Thermal Regime: Cold

Ecological Land Classification

Ecological Land Classification - Inclusion

Wetland

Significant Woodlands

Study Area

ELC Descriptions

CVI_2: Disposal and Recycle
FOCM2-2: Dry - Fresh White Cedar Coniferous Forest
FOCM4-1: Fresh - Moist White Cedar Coniferous Forest
FOMM7-1: Fresh - Moist White Cedar - Sugar Maple Mixed Forest
MAMM2-6: Joe Pye Weed Forb Mineral Meadow Marsh
MEFM1-1: Goldenrod Forb Meadow
OAG: Open Agriculture
SWCM1-1: White Cedar Mineral Coniferous Swamp
SWM: Mixed Swamp
TAGM1: Coniferous Plantation
TAGM5: Fencerow
THMM1: Dry - Fresh Mixed Regeneration Thicket
WODM4: Dry - Fresh Deciduous Woodland

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Figure Title

ACW GRAVEL PIT DEVELOPMENT

ECOLOGICAL LAND CLASSIFICATION

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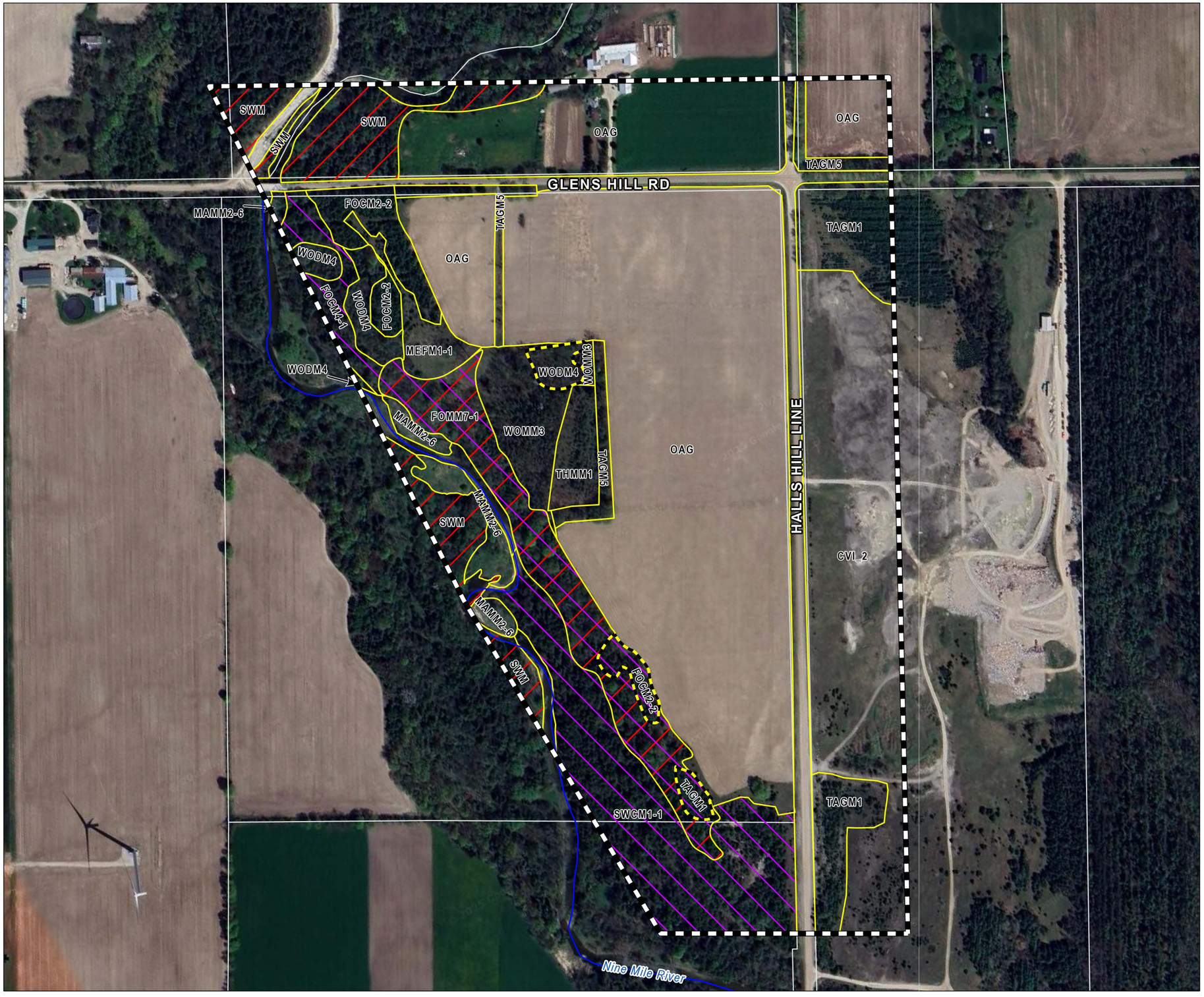

Study Area

Ecological Land Classification

Ecological Land Classification - Inclusion

Watercourse

Potential Species at Risk:

Eastern Red Bat, Hoary Bat, Tri-colored Bat

Little Brown Myotis, Northern Myotis, Silver-haired Bat

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ACW GRAVEL PIT DEVELOPMENT

POTENTIAL SPECIES AT RISK

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Study Area

Ecological Land Classification - Inclusion

Ecological Land Classification

Candidate SWH:

Turtle Wintering Areas, American Brook Lamprey, Northern Brook Lamprey, Snapping Turtle

Marsh Breeding Bird Habitat

Amphibian Breeding Habitat (Woodland)

Bat Maternity Colonies

Bald Eagle & Osprey Nesting, Foraging & Perching Habitat

Raptor Wintering Area

Confirmed SWH:

Eastern Wood-pewee

Monarch Butterfly

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Figure Title

ACW GRAVEL PIT DEVELOPMENT

SIGNIFICANT WILDLIFE HABITAT

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- Study Area
- Property Boundary
- Licence Boundary
- Excavation Setback
- Haul Road
- 1.5m (Min) High Berm

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TOWNSHIP OF ASHFIELD-COLBORNE-WAWANOSH

Figure Title
ACW GRAVEL PIT DEVELOPMENT

PROPOSED LICENCE AREA

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Appendix A

Plant List

Botanical Inventory Plant List

Scientific Name	Common Name	ESA	COSEWIC	SARA	G-Rank	S-Rank	Native/ Introduced
Acer saccharum	Sugar Maple				G5	S5	N
Achillea millefolium	Common Yarrow				G5	SNA	I
Actaea pachypoda	White Baneberry				G5	S5	N
Ageratina altissima	White Snakeroot				G5	S5	N
Agrimonia gryposepala	Hooked Agrimony				G5	S5	N
Agrimonia striata	Woodland Agrimony				G5	S4	N
Agrostis gigantea	Redtop				G4G5	SNA	I
Ajuga reptans	Creeping Bugleweed				GNR	SNA	I
Alliaria petiolata	Garlic Mustard				GNR	SNA	I
Allium tricoccum	Wild Leek				G5	S4	N
Ambrosia artemisiifolia	Common Ragweed				G5	S5	N
Amphicarpaea bracteata	American Hog-peanut				G5	S5	N
Anemonastrum canadense	Canada Anemone				G5	S5	N
Anemone cylindrica	Long-headed Anemone				G5	S4	N
Angelica atropurpurea	Purple-stemmed Angelica				G5	S5	N
Apocynum androsaemifolium	Spreading Dogbane				G5	S5	N
Aquilegia canadensis	Red Columbine				G5	S5	N
Arctium lappa	Great Burdock				GNR	SNA	I
Arctium minus	Common Burdock				GNR	SNA	I
Arisaema triphyllum	Jack-in-the-pulpit				G5	S5	N
Asclepias incarnata	Swamp Milkweed				G5	S5	N
Asclepias syriaca	Common Milkweed				G5	S5	N
Asparagus officinalis	Garden Asparagus				G5?	SNA	I
Barbarea vulgaris	Bitter Wintercress				GNR	SNA	I
Berberis thunbergii	Japanese Barberry				GNR	SNA	I
Betula alleghaniensis	Yellow Birch				G5	S5	N
Bidens connata	Purple-stemmed Beggarticks				G5	S4?	N
Bidens frondosa	Devil's Beggarticks				G5	S5	N
Bromus inermis	Smooth Brome				G5T5	SNA	I
Calystegia sepium ssp. americana	American False Bindweed				G5T5	S5	N
Carex albursina	White Bear Sedge				G5	S5	N
Carex blanda	Woodland Sedge				G5	S5	N
Carex vulpinoidea	Fox Sedge				G5	S5	N
Caulophyllum thalictroides	Blue Cohosh				G5	S5	N
Celastrus scandens	Climbing Bittersweet				G5	S5	N
Centaurea stoebe	Spotted Knapweed				GNR	SNA	I
Cichorium intybus	Wild Chicory				GNR	SNA	I
Cicuta maculata	Spotted Water-hemlock				G5	S5	N
Circaea canadensis	Broad-leaved Enchanter's Nightshade				G5	S5	N

Cirsium arvense	Canada Thistle				G5	SNA	I
Cirsium vulgare	Bull Thistle				GNR	SNA	I
Clematis virginiana	Virginia Clematis				G5	S5	N
Clinopodium vulgare	Wild Basil				G5	S5	N
Cornus alternifolia	Alternate-leaved Dogwood				G5	S5	N
Cornus canadensis	Bunchberry				G5	S5	N
Cornus sericea	Red-osier Dogwood				G5	S5	N
Crataegus spp.	Hawthorn Species						
Crataegus monogyna	English Hawthorn				G5	SNA	I
Cryptotaenia canadensis	Canada Honewort				G5	S5	N
Dactylis glomerata	Orchard Grass				GNR	SNA	I
Danthonia spicata	Poverty Oatgrass				G5	S5	N
Daucus carota	Wild Carrot				GNR	SNA	I
Dipsacus fullonum	Common Teasel				GNR	SNA	I
Dryopteris carthusiana	Spinulose Wood Fern				G5	S5	N
Dryopteris intermedia	Evergreen Wood Fern				G5	S5	N
Dryopteris marginalis	Marginal Wood Fern				G5	S5	N
Echinochloa crus-galli	Large Barnyard Grass				GNR	SNA	I
Echinocystis lobata	Wild Cucumber				G5	S5	N
Echium vulgare	Common Viper's Bugloss				GNR	SNA	I
Elymus canadensis	Canada Wildrye				G5	S5	N
Elymus virginicus	Virginia Wildrye				G5	S5	N
Epilobium ciliatum	Northern Willowherb				G5	S5	N
Epipactis helleborine	Broad-leaved Helleborine				GNR	SNA	I
Equisetum arvense	Field Horsetail				G5	S5	N
Erigeron canadensis	Canada Horseweed				G5	S5	N
Erigeron philadelphicus	Philadelphia Fleabane				G5	S5	N
Erysimum cheiranthoides	Wormseed Wallflower				G5	S5?	N
Eurybia macrophylla	Large-leaved Aster				G5	S5	N
Eutrochium maculatum	Spotted Joe Pye Weed				G5	S5	N
Fragaria virginiana	Wild Strawberry				G5	S5	N
Fraxinus americana	White Ash				G4	S4	N
Fraxinus pennsylvanica	Red Ash				G4	S4	N
Galium asprellum	Rough Bedstraw				G5	S5	N
Geranium maculatum	Spotted Geranium				G5	S5	N
Geranium robertianum	Herb-Robert				G5	S5	N
Geum aleppicum	Yellow Avens				G5	S5	N
Geum canadense	Canada Avens				G5	S5	N
Geum macrophyllum	Large-leaved Avens				G5	S5	N
Glyceria canadensis	Canada Mannagrass				G5	S5	N

Glyceria striata	Fowl Mannagrass				G5	S5	N
Hackelia virginiana	Virginia Stickseed				G5	S5	N
Heracleum maximum	American Cow Parsnip				G5	S5	N
Hesperis matronalis	Dame's Rocket				G4G5	SNA	I
Hydrophyllum virginianum	Virginia Waterleaf				G5	S5	N
Hypericum perforatum	Common St. John's-wort				GNR	SNA	I
Impatiens capensis	Spotted Jewelweed				G5	S5	N
Juglans nigra	Black Walnut				G5	S4?	N
Laportea canadensis	Canada Wood Nettle				G5	S5	N
Lapsana communis	Common Nipplewort				GNR	SNA	I
Leersia oryzoides	Rice Cutgrass				G5	S5	N
Leonurus cardiaca	Common Motherwort				GNR	SNA	I
Leucanthemum vulgare	Oxeye Daisy				GNR	SNA	I
Ligustrum vulgare	European Privet				GNR	SNA	I
Linaria vulgaris	Butter-and-eggs				GNR	SNA	I
Lobelia siphilitica	Great Blue Lobelia				G5	S5	N
Lycopus uniflorus	Northern Water-horehound				G5	S5	N
Lysimachia nummularia	Creeping Yellow Loosestrife				GNR	SNA	I
Maianthemum canadense	Wild Lily-of-the-valley				G5	S5	N
Maianthemum racemosum	Large False Solomon's Seal				G5T5	S5	N
Maianthemum stellatum	Star-flowered False Solomon's Seal				G5	S5	N
Malus pumila	Common Apple				G5	SNA	I
Matricaria discoidea	Pineappleweed				G5	SNA	I
Matteuccia struthiopteris	Ostrich Fern				G5	S5	N
Medicago lupulina	Black Medick				GNR	SNA	I
Melilotus albus	White Sweet-clover				G5	SNA	I
Menispermum canadense	Canada Moonseed				G5	S4	N
Morus alba	White Mulberry				GNR	SNA	I
Nabalus albus	White Rattlesnakeroot				G5	S5	N
Nepeta cataria	Catnip				GNR	SNA	I
Onoclea sensibilis	Sensitive Fern				G5	S5	N
Ostrya virginiana	Eastern Hop-hornbeam				G5	S5	N
Oxalis stricta	Upright Yellow Wood-sorrel				G5	SNA	I
Parthenocissus vitacea	Thicket Creeper				G5	S5	N
Pedicularis canadensis	Canada Lousewort				G5	S5	N
Phalaris arundinacea	Reed Canarygrass				G5	S5	N
Phleum pratense	Common Timothy				GNR	SNA	I
Picea glauca	White Spruce				G5	S5	N
Pilea pumila	Dwarf Clearweed				G5	S5	N
Pilosella officinarum	Mouse-ear Hawkweed				GNR	SNA	I
Pinus resinosa	Red Pine				G5	S5	N

Pinus sylvestris	Scots Pine				GNR	SNA	I
Plantago lanceolata	English Plantain				G5	SNA	I
Plantago major	Common Plantain				G5	SNA	I
Poa alsodes	Grove Bluegrass				G4G5	S4	N
Poa compressa	Canada Bluegrass				GNR	SNA	I
Poa pratensis	Kentucky Bluegrass				G5	S5	N
Polygonatum biflorum	Giant Solomon's Seal				G5	S4	N
Populus deltoides	Eastern Cottonwood				G5	S5	N
Populus tremuloides	Trembling Aspen				G5	S5	N
Potentilla recta	Sulphur Cinquefoil				GNR	SNA	I
Prunella vulgaris	Common Self-heal				G5	S5	N
Prunus avium	Sweet Cherry				GNR	SNA	I
Prunus serotina	Black Cherry				G5	S5	N
Prunus virginiana	Chokecherry				G5	S5	N
Pyrus communis	Common Pear				G5	SNA	I
Quercus rubra	Northern Red Oak				G5	S5	N
Ranunculus acris	Common Buttercup				G5	SNA	I
Ranunculus recurvatus	Hooked Buttercup				G5	S5	N
Rhamnus cathartica	European Buckthorn				GNR	SNA	I
Rhus typhina	Staghorn Sumac				G5	S5	N
Ribes americanum	American Black Currant				G5	S5	N
Ribes cynosbati	Eastern Prickly Gooseberry				G5	S5	N
Ribes lacustre	Bristly Black Currant				G5	S5	N
Ribes rubrum	European Red Currant				G4G5	SNA	I
Rosa blanda	Smooth Rose				G5	S5	N
Rosa carolina	Carolina Rose				G5	S4	N
Rosa multiflora	Multiflora Rose				GNR	SNA	I
Rosa palustris	Swamp Rose				G5	S5	N
Rubus hispidus	Bristly Dewberry				G5	S4	N
Rubus idaeus	Red Raspberry				G5	S5	N
Rubus occidentalis	Black Raspberry				G5	S5	N
Rubus pubescens	Dwarf Raspberry				G5	S5	N
Sagittaria latifolia	Broad-leaved Arrowhead				G5	S5	N
Salix nigra	Black Willow				G5	S4	N
Sambucus canadensis	Common Elderberry				G5T5	S5	N
Sanguinaria canadensis	Bloodroot				G5	S5	N
Silene vulgaris	Bladder Campion				GNR	SNA	I
Smilax tamnoides	Bristly Greenbriar				G5	S5	N
Solanum dulcamara	Bittersweet Nightshade				GNR	SNA	I
Solanum lycopersicum	Tomato				GNR	SNA	I
Solidago altissima	Tall Goldenrod				G5	S5	N

Solidago caesia	Blue-stemmed Goldenrod				G5	S5	N
Solidago canadensis	Canada Goldenrod				G5	S5	N
Solidago flexicaulis	Zigzag Goldenrod				G5	S5	N
Stellaria graminea	Grass-leaved Starwort				GNR	SNA	I
Symphyotrichum cordifolium	Heart-leaved Aster				G5	S5	N
Symphyotrichum ericoides	White Heath Aster				G5	S5	N
Symphyotrichum lanceolatum	Panicled Aster				G5	S5	N
Symphyotrichum lateriflorum	Calico Aster				G5	S5	N
Symphyotrichum novae-angliae	New England Aster				G5	S5	N
Symphyotrichum pilosum	Old Field Aster				G5	S5	N
Symphyotrichum puniceum	Purple-stemmed Aster				G5	S5	N
Syringa vulgaris	Common Lilac				GNR	SNA	I
Tanacetum vulgare	Common Tansy				GNR	SNA	I
Taraxacum officinale	Common Dandelion				G5	SNA	I
Thalictrum dasycarpum	Purple Meadow-rue				G5	S4?	N
Thalictrum dioicum	Early Meadow-rue				G5	S5	N
Thalictrum pubescens	Tall Meadow-rue				G5	S5	N
Thuja occidentalis	Eastern White Cedar				G5	S5	N
Tilia americana	Basswood				G5	S5	N
Tilia cordata	Little-leaved Linden				GNR	SNA	I
Toxicodendron radicans	Poison Ivy				G5	S5	N
Trifolium pratense	Red Clover				GNR	SNA	I
Trifolium repens	White Clover				GNR	SNA	I
Triosteum aurantiacum	Orange-fruit Horse-gentian				G5	S4S5	N
Tsuga canadensis	Eastern Hemlock				G4G5	S5	N
Ulmus americana	White Elm				G4	S5	N
Ulmus rubra	Slippery Elm				G5	S5	N
Urtica dioica	Stinging Nettle				G5	SNA	I
Verbascum thapsus	Common Mullein				GNR	SNA	I
Verbena hastata	Blue Vervain				G5	S5	N
Verbena urticifolia	White Vervain				G5	S5	N
Veronica officinalis	Common Speedwell				G5	SNA	I
Viburnum opulus var. americanum	Highbush Cranberry				G5T5	S5	N
Viola pubescens var. pubescens	Downy Yellow Violet				G5T5	S5	N
Viola sororia	Woolly Blue Violet				G5	S5	N

Natural Heritage Information Centre. 2023. Vascular Plant Species List (20 Sept 2023). Downloaded on September 20, 2023.

Varga, S., Leadbeater, D., Webber, J., Kaiser, J., Crins, B., Kamstra, J., Banville, D., Ashley, E., Miller, G., Kingsley, C., Jacobsen, C., Mewa, K., Tebby, L., Mosley, E., and E. Zajc. 2000. Distribution and Status of the Vascular Plants of the Greater Toronto Area. Ontario Ministry of Natural Resources Aurora District. 103 pp.

ESA Status

Species at Risk in Ontario list: The list of species that are classified as species at risk under the Endangered Species Act (2007).

EXT:	Extinct – A species that no longer exists anywhere.
EXP:	Extirpated – A species that no longer exists in the wild in Ontario but still occurs elsewhere.
END:	Endangered – A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's Endangered Species Act (ESA).
THR:	Threatened – A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
SC:	Special Concern (formerly Vulnerable) – A species with characteristics that make it sensitive to human activities or natural events.
NAR:	Not at Risk – A species that has been evaluated and found to be not at risk.
DD:	Data Deficient (formerly Indeterminate) – A species for which there is insufficient information for a provincial status recommendation.

COSEWIC Status

Committee on the Status of Endangered Wildlife in Canada status: Species has been assessed by COSEWIC as having status, but status is not necessarily adopted on the official Schedule 1 to SARA.

EXT:	Extinct – A species that no longer exists.
EXP:	Extirpated – A species no longer existing in the wild in Canada, but occurring elsewhere.
END:	Endangered – A species facing imminent extirpation or extinction.
THR:	Threatened – A species likely to become endangered if limiting factors are not reversed.
SC:	Special Concern (formerly vulnerable) – A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
NAR:	Not At Risk – A species that has been evaluated and found to be not at risk of extinction given the current circumstances.
DD:	Data Deficient (formerly Indeterminate) – Available information is insufficient to resolve a species' eligibility for assessment or to permit an assessment of the species' risk of extinction.

SARA Schedule 1 Status

Species at Risk Act Schedule 1 Status: Schedule 1 is the official list of species that are classified as extirpated, endangered, threatened, and of special concern. The Act establishes Schedule 1, as the official list of species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed species are implemented.

EXT:	Extinct – A species that no longer exists.
EXP:	Extirpated – A species that no longer exists in the wild in Canada but exists elsewhere in the wild.
END:	Endangered – A species that is facing imminent extirpation or extinction.
THR:	Threatened – A species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
SC:	Special Concern – A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

Global Rank

GX	Presumed Extinct (species)/Eliminated (ecological communities and systems) — Species not located despite intensive searches and virtually no likelihood of rediscovery. Ecological community or system eliminated throughout its range, with no restoration potential.
GH	Possibly Extinct (species)/ Eliminated (ecological communities and systems) — Known from only historical occurrences but still some hope of rediscovery. There is evidence that the species may be extinct or the ecosystem may be eliminated throughout its range, but not enough to state this with certainty.
G1	Critically Imperiled—At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
G2	Imperiled—At high risk of extinction or elimination due to very restricted range, very few populations, steep declines, or other factors.
G3	Vulnerable—At moderate risk of extinction or elimination due to a restricted range, relatively few populations, recent and widespread declines, or other factors.
G4	Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
G5	Secure—Common; widespread and abundant.

Variant Ranks

G#G#:	Range Rank – A numeric range rank (e.g., G2G3, G1G3) is used to indicate the range of uncertainty about the exact status of a taxon or ecosystem type. Ranges cannot skip more than two ranks (e.g., GU should be used rather than G1G4).
GU:	Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends. NOTE: Whenever possible (when the range of uncertainty is three consecutive ranks or less), a range rank (e.g., G2G3) should be used to delineate the limits (range) of uncertainty.
GNR:	Unranked – Global rank not yet assessed
GNA:	Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

Rank Qualifiers

?:	Inexact Numeric Rank – Denotes inexact numeric rank; this should not be used with any of the Variant Global Conservation Status Ranks or GX or GH.
Q:	Questionable taxonomy that may reduce conservation priority – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon or type in another taxon or type, with the resulting taxon having a lower priority (numerically higher) conservation status rank. The "Q" modifier is only used at a global level and not at a national or subnational level.
C:	Captive or Cultivated Only – Taxon or ecosystem at present is presumed or possibly extinct or eliminated in the wild across their entire native range but is extant in cultivation, in captivity, as a naturalized population (or populations) outside their native range, or as a reintroduced population or ecosystem restoration, not yet established. The "C" modifier is only used at a global level and not at a national or subnational level. Possible ranks are GXC or GHC. This is equivalent to "Extinct" in the Wild (EW) in IUCN's Red List terminology (IUCN 2001).

Subnational Rank

S-Rank: Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks but consider only those factors within the political boundaries of Ontario.

S1:	Critically Imperiled – Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
S2:	Imperiled – Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
S3:	Vulnerable – Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4:	Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5:	Secure – Common, widespread, and abundant in the nation or state/province.
S#S#:	Range Rank – A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
SX:	Presumed Extirpated – Species or community is believed to be extirpated from the nation or state/province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH:	Possibly Extirpated (Historical) – Species or community occurred historically in the nation or state/province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become NH or SH without such a 20-40 year delay if the only known occurrences in a nation or state/province were destroyed or if it had been extensively and unsuccessfully looked for. The NH or SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.
SE:	Species is considered exotic in Ontario
SNR:	Unranked – Nation of state/province conservation status not yet assessed.
SU:	Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA:	Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

Native?:

N:	Native to Ontario. Species does not have exotic status under NHIC database.
I:	Introduced to Ontario. Species has exotic status rank under NHIC database.

BURNSIDE

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Appendix B

Breeding Bird Summary Tables

Breeding Bird Survey Summary Table

Common Name	Scientific Name	Provincial S-Rank[1]	Provincial SARO (Endangered Species Act, 2007)[2]	Federal COSEWIC[3]	Federal SARA (Species at Risk Act)[3]	Federal SARA Schedule[4]	Provincial MNR Area Sensitive Species[5]	Highest Number Recorded (All Habitat Units Combined)	Highest Recorded Breeding Evidence[6]	Comments
American Crow	*Corvus brachyrhynchos*	S5						5	Possible, S	
American Goldfinch	*Spinus tristis*	S5						13	Probable, T	
American Redstart	*Setophaga ruticilla*	S5B					Yes	1	Possible, S	
American Robin	*Turdus migratorius*	S5						20	Confirmed, CF/FY	
Baltimore Oriole	*Icterus galbula*	S4B						6	Probable, V/P	
Bank Swallow	*Riparia riparia*	S4B	THR	THR	THR	1		1	Observed, X	Observed foraging onsite. May be nesting on steep banks near the adjacent landfill.
Barn Swallow	*Hirundo rustica*	S4B	SC	SC	THR	1		1	Observed, X	Observed foraging onsite. No structures to support breeding are present within the Study Area.
Belted Kingfisher	*Megaceryle alcyon*	S5B, S4N						1	Possible, S	
Black-and-white Warbler	*Mniotilta varia*	S5B					Yes	1	Probable, T	
Black-billed Cuckoo	*Coccyzus erythropthalmus*	S4S5B						1	Possible, S	
Black-capped Chickadee	*Poecile atricapillus*	S5						6	Possible, S	
Blue Jay	*Cyanocitta cristata*	S5						6	Possible, S	
Brown-headed Cowbird	*Molothrus ater*	S5						5	Probable, T	
Cedar Waxwing	*Bombycilla cedrorum*	S5						7	Probable, T	
Chipping Sparrow	*Spizella passerina*	S5B, S3N						4	Probable, T	
Common Grackle	*Quiscalus quiscula*	S5						9	Probable, T	
Common Yellowthroat	*Geothlypis trichas*	S5B,S3N						1	Possible, S	
Downy Woodpecker	*Dryobates pubescens*	S5						4	Probable, T	
Eastern Bluebird	*Sialia sialis*	S5B, S4N	NAR					1	Possible, S	
Eastern Kingbird	*Tyrannus tyrannus*	S4B						3	Possible, S	
Eastern Towhee	*Pipilo erythrophthalmus*	S4B, S3N						3	Probable, T	
Eastern Wood-pewee	*Contopus virens*	S4B	SC	SC	SC	1		2	Probable, T	
Great Crested Flycatcher	*Myiarchus crinitus*	S5B						1	Probable, T	
Hairy Woodpecker	*Dryobates villosus*	S5					Yes	1	Possible, S	
Horned Lark	*Eremophila alpestris*	S4						1	Possible, S	

Common Name	Scientific Name	Provincial S-Rank[1]	Provincial SARO (Endangered Species Act, 2007)[2]	Federal COSEWIC[3]	Federal SARA (Species at Risk Act)[3]	Federal SARA Schedule[4]	Provincial MNR Area Sensitive Species[5]	Highest Number Recorded (All Habitat Units Combined)	Highest Recorded Breeding Evidence[6]	Comments
House Sparrow	*Passer domesticus*	SNA						4	Possible, S	
House Wren	*Troglodytes aedon*	S5B						9	Probable, T	
Indigo Bunting	*Passerina cyanea*	S5B						14	Probable, T	
Killdeer	*Charadrius vociferus*	S4B						3	Probable, T	
Mourning Dove	*Zenaida macroura*	S5						11	Possible, S/H	
Mourning Warbler	*Geothlypis philadelphia*	S5B						2	Possible, S	
Northern Cardinal	*Cardinalis cardinalis*	S5						6	Probable, T	
Northern Flicker	*Colaptes auratus*	S5						3	Probable, T	
Northern Mockingbird	*Mimus polyglottos*	S4						1	Possible, S	
Osprey	*Pandion haliaetus*	S5B						1	Observed, X	Flyover.
Red-bellied Woodpecker	*Melanerpes carolinus*	S5						4	Possible, S	
Red-eyed Vireo	*Vireo olivaceus*	S5B						2	Probable, T	
Red-winged Blackbird	*Agelaius phoeniceus*	S5						7	Possible, S	
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	S5B						4	Confirmed, CY	
Song Sparrow	*Melospiza melodia*	S5						7	Probable, T	
Tree Swallow	*Tachycineta bicolor*	S4S5B						1	Possible, S	
Turkey Vulture	*Cathartes aura*	S5B, S3N						1	Possible, H	Flyover.
Warbling Vireo	*Vireo gilvus*	S5B						3	Probable, T	
Willow Flycatcher	*Empidonax traillii*	S4B						1	Possible, S	
Yellow Warbler	*Setophaga petechia*	S5B						3	Possible, S	
TOTAL SPECIES	**45**									

[1]S-Ranks (provincial)
Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario (Please refer to: Conservation Status Categories | NatureServe Explorer)

SX — Presumed Extirpated - Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH — Possibly Extirpated (Historical) - Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20–40 years. A species or community could become SH without such a 20–40-year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for. The SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.
S1 — Critically Imperiled - Critically imperiled in the province or state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.
S2 — Imperiled - Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.
S3 — Vulnerable - Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 — Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 — Secure - Common, widespread, and abundant in the province.
SNR — Unranked - Province conservation status not yet assessed.

SU — Unrankable - Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA — Not Applicable - A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S# — Range Rank - A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
S#? – Inexact or Uncertain - Denotes inexact or uncertain numeric rank.

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

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

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

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

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

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

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

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

[6]Ontario Breeding Bird Atlas - Breeding Evidence Codes

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

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

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

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

BURNSIDE

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Appendix C

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Project Name: Ashfield Gravel Pit License Application

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Project Number: 300054343.0000

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
Table 1.1: Seasonal Concentration Areas of Animals						
Waterfowl Stopover & Staging Areas (Terrestrial) **<u>Rationale</u>**: Habitat important to migrating waterfowl.	CUM1 CUT1 - Plus evidence of annual spring flooding from melt water or run-off within these ecosites.	Fields with sheet water during Spring (mid-March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available.	Unlikely to be supported within the Study Area or Proposed Licensing Area. • Meadow and cultural thicket communities are present but are not sufficiently large to support large aggregations of waterfowl.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects. • Any mixed species aggregations of 100 or more individuals required. • The flooded field ecosite habitat plus a 100-300 m radius area, dependent on local site conditions and adjacent land use is the SWH. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • **SWHMiST Index #7** provides development effects and mitigation measures.	No potential within the Proposed Licensing Area or Study Area. Suitably large upland communities that meet the defining criteria for significance are absent from the Study Area.
Waterfowl Stopover & Staging Areas (Aquatic) **<u>Rationale:</u>**	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and SWM ponds do not qualify as a SWH, however a reservoir managed as a large wetland or	No potential within the Study Area or Proposed Licensing Area. • Suitable ELC communities are absent.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser	**Studies carried out & verified presence of:** • Aggregations of 100 or more of listed species for 7 days, results in >700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH.	No potential within the Proposed Licensing Area or Study Area. Suitable ELC communities to support this SWH feature are absent.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	SWD7	pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water).		Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback Ruddy Duck	• The combined area of the Ecological Land Classification (ELC) ecosites and a 100 m radius area is the SWH. • Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are SWH. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • **SWHMiST Index #7** provides development effects and mitigation measures.	
Shorebird Migratory Stopover Area **<u>Rationale</u>**: High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	• Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October.	No potential within the Proposed Licensing Area. • Suitable communities to support this feature are absent. Unlikely to be present the Study Area. • Although MAM2 (MAMM2-6) communities are present, they are not extensive and are unlikely to be able to support large aggregations of shorebirds.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird’s Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling	**Studies confirming:** • Presence of 3 or more of listed species and >1000 shorebird use days during spring or fall migration period (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period). • Whimbrel stop briefly (<24 hrs.) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100 m radius area.	No potential within the Proposed Licensing Area or Study Area. Suitably large MAM communities that meet the defining criteria for significance are absent from the Study Area.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
		• Sewage treatment ponds and storm water ponds do not qualify as a SWH.		Dunlin	• Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • **SWHMiST Index #8** provides development effects and mitigation measures.	
Raptor Wintering Area **<u>Rationale</u>**: Sites used by multiple species, a high number of individuals and used annually are most significant.	<u>Hawks/Owls:</u> Combination of ELC Community Series; need to have present one Community Series from each land class; <u>Forest:</u> FOD, FOM, FOC. <u>Upland</u>: CUM; CUT; CUS; CUW. <u>Bald Eagle:</u> Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Raptor wintering sites (hawk/owl) need to be **>** 20 ha, with a combination of forest and upland. • Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. • Field area of the habitat is to be wind swept with limited snow depth or accumulation. • Eagle sites have open water, large trees and snags available for roosting.	Moderate potential within the Study Area and proposed lincesing limits. • A suitable matrix of forested and upland communities are present. Several forested communities are present within the Study Area and in the immediate vicinity of the site. Upland communities (I.e. CUW1 and CUT1) are present within the proposed lincesing area. • Least disturbed sites, idle/fallow or lightly grazed field/meadow are located on lands adjacent to the Study Area.	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl **<u>Special Concern:</u>** Short-eared Owl Bald Eagle	**Studies confirm the use of these habitats by:** • One or more Short-eared Owls or; One or more Bald Eagle or; At least 10 individuals and two of the listed hawk/owl species. • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects." • **SWHMiST Index #10 and #11** provides development effects and mitigation measures.	Candidate SWH within the Proposed Licensing Area and Study Area.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
Bat Hibernacula **<u>Rationale</u>:** Bat hibernacula are rare habitats in all Ontario landscapes.	**Bat Hibernacula may be found in these ecosites:** CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	• Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. • Active mine sites should not be considered as SWH. • The locations of bat hibernacula are relatively poorly known.	No potential within the Proposed Licensing Area or Study Area. • Suitable ELC communities are absent.	Big Brown Bat Tri-coloured Bat	• All sites with confirmed hibernating bats are SWH. • The habitat area includes a 200 m radius around the entrance of the hibernaculum for most development types and 1000 m for wind farms. • Studies are to be conducted during the peak swarming period (August to September). Surveys should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #1** provides development effects and mitigation measures.	No potential within the Proposed Licensing Area or Study Area. Suitable ELC communities to support this SWH feature are absent.
Bat Maternity Colonies **<u>Rationale:</u>** Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	Maternity colonies considered SWH are found in forested ecosites. **All ELC ecosites in ELC Community Series:** FOD FOM SWD SWM	• Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario. • Maternity colonies located in Mature deciduous or mixed forest stands with >10 ha large diameter (>25 cm dbh) wildlife trees. • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2. • Silver-haired Bats prefer older mixed or deciduous forest	No potential within the Proposed Licensing Area. • Suitable communities to support this feature are absent. High potential within the Study Area: • High quality candidate roost trees were identified in association with the FOMM7-1 community. • Suitable bat Maternity roosting habitat may be present within the SWM community,	Big Brown Bat Silver-haired Bat	• Maternity Colonies with confirmed use by: – >10 Big Brown Bats – >5 Adult Female Silver-haired Bats • The area of the habitat includes the entire woodland, or a forest stand ELC ecosite or an ecoelement containing the maternity colonies. • Evaluation methods for maternity colonies should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #12** provides development effects and mitigation measures.	No potential within the Proposed Licensing Area. Suitable ELC communities to support this SWH feature are absent. Candidate SWH within the Study Area.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
		and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred.				
Turtle Wintering Areas **<u>Rationale:</u>** Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Snapping and Midland Painted Turtles. **ELC Community Classes:** SW, MA, OA and SA **ELC Community Series:** FEO and BOO For Northern Map Turtle: Open water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	• For most turtles, wintering areas are in the same general area as their core habitat. Water must be deep enough not to freeze and have soft mud substrates. • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH.	No potential within the Proposed Licensing Area. • Suitable communities to support this feature are absent. Moderate potential: • May occur in association with the Nine Mile River.	Midland Painted Turtle **<u>Special Concern:</u>** Northern Map Turtle Snapping Turtle	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (September–October) or spring (March–May). • Congregation of turtles is more common where wintering areas are limited and therefore significant. • **SWHMiST Index #28** provides development effects and mitigation measures for turtle wintering habitat.	No potential within the Proposed Licensing Area. Suitable ELC communities to support this SWH feature are absent. Candidate SWH within the Study Area.
Reptile Hibernaculum **<u>Rationale</u>**: Generally, sites are the only known sites in the area. Sites	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave,	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized	No potential within the Proposed Licensing Area or Study Area. • No discrete structures were identified within the Proposed Licensing Area or Study Area.	**<u>Snakes</u>**: Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake	**Studies confirming:** • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp.	No potential within the Proposed Licensing Area or Study Area. No discrete structures identified within the limits of the Proposed Licensing Area.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
with the highest number of individuals are most significant.	and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and ecosites: FOC1 and FOC3.	locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock groundcover. • Five-lined Skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures.		**<u>Special Concern</u>**: Milksnake Eastern Ribbonsnake **<u>Lizard: Special Concern:</u>** (Southern Shield population): Five-lined Skink	• Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (e.g., foundation or rocky slope) on sunny warm days in Spring (April/May) and Fall (September/October). • **Note**: If there are Special Concern Species present, then site is SWH. • **Note:** Sites for hibernation possess specific habitat parameters (e.g., temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population (i.e., strong hibernation site fidelity). Other critical life processes (e.g., mating) often take place near hibernacula. The feature in which the hibernacula is located plus a 30 m radius area is the SWH. • **SWHMiST Index #13** provides development effects and mitigation measures for snake hibernacula. • Presence of any active hibernaculum for Skink is significant. • SWHMiST Index #37 provides development effects and mitigation measures for five-lined Skink wintering habitat.	
Colonially - Nesting Bird Breeding	Eroding banks, sandy hills, borrow pits, steep slopes,	• Any site or areas with exposed soil banks, undisturbed or naturally eroding	No potential within the Proposed Licensing Area.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	**Studies confirming:** • Presence of 1 or more nesting sites with 8 or more cliff	No potential within the Proposed Licensing Area or Study Area.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
Habitat (Bank & Cliff) **<u>Rationale</u>:** Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario.	and sand piles. Cliff faces, bridge abutments, silos, barns. **Habitat found in the following ecosites:** CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	that is not a licensed permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation.	• Eroded areas along slopes are absent within the Proposed Licensing Area. No potential within the Study Area. • Eroded areas along the valley walls free of vegetation were not observed.		swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50 m radius habitat area from the peripheral nests. • Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #4** provides development effects and mitigation measures.	Suitable habitats to support colonically nesting bird species are absent from both the Study Area and Proposed Licensing Area. Additionally, indicator species were not documented during the course of breeding bird surveys.
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs) **<u>Rationale:</u>** Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15 m from ground, near the top of the tree.	No potential within the Proposed Licensing Area or Study Area. • Suitable communities to support this feature are absent.	Great Blue Heron Black-crowned Nigh-Heron Great Egret Green Heron	**Studies confirming:** • Presence of 2 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300 m radius or extent of the Forest ecosite containing the colony or any island <15.0 ha with a colony is the SWH. • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells. • **SWHMiST Index #5** provides development effects and mitigation measures.	No potential within the Proposed Licensing Area or Study Area. Suitable habitats to support these species are absent within the Study Area and Proposed Lincensing Area. No nests were identified during the course of all field invetsigations.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
Colonially - Nesting Bird Breeding Habitat (Ground) **<u>Rationale;</u>** Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird). MAM1 – 6 MAS1 – 3 CUM CUT CUS	• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in low bushes in close proximity to streams and irrigation ditches within farmlands.	No potential within the Proposed Licensing Area or Study Area. • Suitable communities to support this feature are absent.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	**Studies confirming:** • Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. • Presence of 5 or more pairs for Brewer's Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. • The edge of the colony and a minimum 150 m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0 ha with a colony is the SWH. • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • **SWHMiST Index #6** provides development effects and mitigation measures.	No potential within the Proposed Licensing Area or Study Area.
Migratory Butterfly Stopover Areas **<u>Rationale:</u>** Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate	Combination of ELC Community Series; need to have present one Community Series from each land class. <u>Field</u>: CUM CUT CUS <u>Forest</u>: FOC FOD	• A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present and will be located within 5 km of Lake Erie or Ontario. • The habitat is typically a combination of field and forest and provides the butterflies with a	No potential within the Proposed Licensing Area or Study Area. • The Study Area is not located within 5km of Lake Ontario.	Painted Lady Red Admiral <u>Special Concern</u> Monarch	S**tudies confirm:** • The presence of Monarch Use Days (MUD) during fall migration (August/October). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur.	No potential within the Proposed Licensing Area or Study Area. • The Study Area and Proposed Licensing Area are not located within 5km of Lake Ontario.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
south for the winter.	FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	location to rest prior to their long migration south. • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes.			• Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. • MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant. • **SWHMiST Index #16** provides development effects and mitigation measures.	
Landbird Migratory Stopover Areas **<u>Rationale:</u>** Sites with a high diversity of species as well as high numbers are most significant.	**All ecosites associated with these ELC Community Series:** FOC FOM FOD SWC SWM SWD	• Woodlots >10 ha in size and within 5 km of Lake Ontario. • If woodlands are rare in an area of shoreline, woodland fragments 2-5 ha can be considered for this habitat. • If multiple woodlands are located along the shoreline those Woodlands <2 km from Lake Ontario are more significant. • Sites have a variety of habitats; forest, grassland and wetland complexes.	No potential within the Proposed Licensing Area or Study Area. • The Study Area is not located within 5km of Lake Ontario.	All migratory songbirds. Canadian Wildlife Service Ontario website: http://www.ec.gc.ca/nature/default.asp?lang=En&n=421B7A9D-1 All migrant raptors species: *Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997.* Schedule 7: Specially Protected Birds (Raptors)	**Studies confirm:** • Use of the habitat by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (April/May) and fall (August/October) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • **SWHMiST Index #9** provides development effects and mitigation measures.	No potential within the Proposed Licensing Area or Study Area. • The Study Area and Proposed Licensing Area are not located within 5km of Lake Ontario.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
		• The largest sites are more significant. • Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5 km of Lake Ontario are Candidate SWH.				
Deer Yarding Areas **<u>Rationale:</u>** Winter habitat for deer is considered to be the main limiting factor for northern deer populations. In winter, deer congregate in "yards" to survive severe winter conditions. Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an areas summer range.	**Note:** MNRF to determine this habitat. **ELC Community Series** providing a thermal cover component for a deer yard would include: FOM FOC SWM SWC **Or these ELC ecosites:** CUP2 CUP3 FOD3 CUT	• Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when	Confirmed absent within the Proposed Licensing Area and Study Area. • No White Tailed Deer overwintering habitat was identified by the MNRF within the Study Area.	White-tailed Deer	**No Studies Required:** • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40 cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. • Deer Yards are mapped by MNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by MNRF will be available at local MNRF offices or via Land Information Ontario (LIO). • Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area,	Confirmed absent within the Proposed Licensing Area and Study Area Deer overwintering habitat has not been identified by the MNRF.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
		snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. • MNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual". • Woodlots with high densities of deer due to artificial feeding are not significant.			then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST Index #2 provides development effects and mitigation measures.	
Deer Winter Congregation Areas	**All Forested ecosites with these ELC**	• Woodlots will typically be >100 ha in size. Woodlots <100 ha may be	No potential within the Proposed Licensing Area or Study Area.	White-tailed Deer	**Studies confirm:** • Deer management is an MNRF responsibility, deer winter	Confirmed absent.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
<u>Rationale:</u> Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.	**Community Series:** FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands. • If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule. • Large woodlots > 100 ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. • Woodlots with high densities of deer due to artificial feeding are not significant.	• No White Tailed Deer overwintering habitat was identified by the MNRF within the Study Area.		congregation areas considered significant will be mapped by MNRF. • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. • Studies should be completed during winter (January/February) when >20 cm of snow is on the ground using aerial survey techniques, ground or road surveys. or a pellet count deer density survey. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area, then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • **SWHMiST Index #2** provides development effects and mitigation measures.	
Table 1.2.1: Rare Vegetation Communities						
Cliffs and Talus Slopes **<u>Rationale:</u>** Cliffs and Talus Slopes are extremely rare	**Any ELC ecosite within Community Series:** TAO CLO TAS	• A Cliff is vertical to near vertical bedrock >3 m in height. • A Talus Slope is rock rubble at the base of a cliff made	No potential within the Proposed Licensing Area or Study Area. • Suitable communities to support this feature are absent.		• Most cliff and talus slopes occur along the Niagara Escarpment. • Confirm any ELC Vegetation Type for Cliffs or Talus Slopes. • **SWHMiST Index #21** provides development effects and mitigation measures.	Confirmed absent within the Proposed Licensing Area and Study Area.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
habitats in Ontario.	CLS TAT CLT	up of coarse rocky debris.				
Sand Barren **<u>Rationale;</u>** Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry.	**ELC ecosites:** SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always <u>≤</u> 60%.	• Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered, but less than 60%.	No potential within the Proposed Licensing Area or Study Area. • Suitable communities to support this feature are absent.		• A sand barren area >0.5 ha in size. • Confirm any ELC Vegetation Type for Sand Barrens. • Site must not be dominated by exotic or introduced species (<50% vegetative cover is exotic sp.). • **SWHMiST Index #20** provides development effects and mitigation measures.	Confirmed absent within the Proposed Licensing Area and Study Area.
Alvar **<u>Rationale;</u>** Alvars are extremely rare habitats in Ecoregion 6E.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 **Five Alvar Indicator Species:** *Carex crawei* *Panicum philadelphicum* *Eleocharis compressa* *Scutellaria parvula* *Trichostema brachiatum*	• An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or	No potential within the Proposed Licensing Area or Study Area. • Suitable communities to support this feature are absent.		**Field studies that identify:** • An Alvar site > 0.5 ha in size. • Four of the five Alvar Indicator Species at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover is exotic sp.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses. • **SWHMiST Index #17** provides development effects and mitigation measures.	Confirmed absent within the Proposed Licensing Area and Study Area.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
	These indicator species are very specific to Alvars within Ecoregion 6E.	indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover. • Alvar is particularly rare in Ecoregion 6E where the only known sites are found in the western islands of Lake Erie.				
Old Growth Forest **<u>Rationale;</u>** Due to historic logging practices and land clearance for agriculture, old growth forest is rare in the Ecoregion 6E.	**Forest Community Series:** FOD FOC FOM SWD SWC SWM	• Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	No potential within the Proposed Licensing Area or Study Area. • Suitable communities to support this feature are absent.		**Field Studies will determine:** • If dominant trees species are >140 years old, then the area containing these trees is SWH. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present). • The area of forest ecosites combined or an eco-element within an ecosite that contains the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest area containing the old growth characteristics. • **SWHMiST Index #23** provides development effects and mitigation measures.	Confirmed absent within the Proposed Licensing Area and Study Area.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
Savannah **<u>Rationale:</u>** Savannahs are extremely rare habitats in Ontario.	TPS1 TPS2 TPW1 TPW2 CUS2	• A Savannah is a tallgrass prairie habitat that has tree cover between 25–60%.	No potential within the Proposed Licensing Area or Study Area. • Suitable communities to support this feature are absent.		**Field studies confirm:** • No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. • One or more of the Savannah indicator species listed in Appendix N should be present. **Note**: Savannah plant spp. list from Ecoregion 6E should be used. • Area of the ELC ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover is exotic sp.). • **SWHMiST Index #18** provides development effects and mitigation measures.	Confirmed absent within the Proposed Licensing Area and Study Area.
Tallgrass Prairie **<u>Rationale:</u>** Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	• No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway Right of Ways (ROW) are not considered to be SWH. • A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover.	No potential within the Proposed Licensing Area or Study Area. • Suitable communities to support this feature are absent.		**Field studies confirm:** • One or more of the Prairie indicator species listed in Appendix N should be present. **Note:** Prairie plant spp. list from Ecoregion 6E should be used. • Area of the ELC ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover is exotic sp.). • **SWHMiST Index #19** provides development effects and mitigation measures.	Confirmed absent within the Proposed Licensing Area and Study Area.
Other Rare Vegetation Communities	• Provincially Rare S1, S2 and S3 vegetation	• Rare Vegetation Communities may include beaches, fens, forest, marsh,	No potential within the Proposed Licensing Area or Study Area.		• ELC ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in Appendix M.	Confirmed absent within the Proposed Licensing Area and Study Area.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
Rationale: Plant communities that often contain rare species which depend on the habitat for survival.	communities are listed in Appendix M of the SWHTG. • Any ELC ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	barrens, dunes and swamps.	• Suitable communities to support this feature are absent.		• The MNRF/Natural Heritage Information Centre (NHIC) will have up to date listing for rare vegetation communities. **Field studies should confirm:** • If an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. • Area of the ELC Vegetation Type polygon is the SWH. • **SWHMiST Index #37** provides development effects and mitigation measures.	
Table 1.2.2: Specialized Habitats for Wildlife considered Significant Wildlife Habitat						
Waterfowl Nesting Area **Rationale;** Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	**All upland habitats located adjacent to these wetland ELC ecosites are Candidate SWH:** MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 Note: includes adjacency to Provincially Significant Wetlands (PSW).	• A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120 m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded	No potential within the Proposed Licensing Area. • Suitable communities to support this feature are absent. Low potential within the Study Area: • May be supported in association with the woodland and forest communities occurring in association with the MAMM2-6 community. It is important to note that the MAMM2-6 communities are not extensive.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	**Studies confirmed:** • Presence of 3 or more nesting pairs for listed species excluding Mallards, or; • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide	Confirmed absent from within the Study Area and Proposed Licensing Area. None of the indicator species were documented during the course of Burnside’s breeding bird surveys.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
		Mergansers utilize large diameter trees (>40 cm dbh) in woodlands for cavity nest sites.			enough habitat for waterfowl to successfully nest. • **SWHMiST Index #25** provides development effects and mitigation measures.	
Bald Eagle & Osprey Nesting, Foraging & Perching Habitat **<u>Rationale;</u>** Nest sites are fairly uncommon in Eco-region 6E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	**ELC Forest Community Series:** FOD FOM FOC SWD SWM and SWC (directly adjacent to riparian areas – rivers, lakes, ponds and wetlands.	• Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. • Nests located on man-made objects are not to be included as SWH (e.g., telephone poles and constructed nesting platforms).	No potential within the Proposed Licensing Area. • Suitable communities to support this feature are absent. Moderate potential within the Study Area: • May be supported in association with the FOMM7-1 community, FOCM4-1, and mixed and coniferous swamps associated with the Nine Mile River. No stick nests were identified during Burnside's field visits.	Osprey **Special Concern** Bald Eagle	**Studies confirm the use of these nests by**: • One or more active Osprey or Bald Eagle nests in an area. • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is important. • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800 m is dependent on-site lines from the nest to the development and inclusion of perching and foraging habitat. • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for >3 years or suspected of not being used for >5 years before being considered not significant. • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid-March to mid-August.	Candidate SWH (Study Area). No nests were observed within the Study Area or Proposed Licensing Area boundary. Foraging and perching habitat may be supported within Study Area, specifically the forest and swamp communities along the valley walls of the Nine Mile River.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
					• Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • **SWHMiST Index #26** provides development effects and mitigation measures.	
Woodland Raptor Nesting Habitat **<u>Rationale:</u>** Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	May be found in all forested ELC ecosites. **May also be found in:** SWC SWM SWD and CUP3	• All natural or conifer plantation woodland/forest stands >30 ha with >10ha of interior habitat. Interior habitat determined with a 200 m buffer. • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers Hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest.	No potential within the Proposed Licensing Area or Study Area. • Interior forest habitat is not present.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	**Studies confirm:** • Presence of 1 or more active nests from species list is considered significant. • Red-shouldered Hawk and Northern Goshawk – A 400 m radius around the nest or 28 ha area of habitat is the SWH (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest). • Barred Owl – A 200 m radius around the nest is the SWH. • Broad-winged Hawk and Coopers Hawk– A 100 m radius around the nest is the SWH. • Sharp-Shinned Hawk – A 50 m radius around the nest is the SWH. • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • **SWHMiST Index #27** provides development effects and mitigation measures.	No potential. • Interior forest habitat is not present within the Proposed Licensing Area and Study Area.
Turtle Nesting Areas **<u>Rationale;</u>**	**Exposed mineral soil (sand or gravel) areas adjacent**	• Best nesting habitat for turtles are close to water and away from roads and	No potential within the Proposed Licensing Area or Study Area	Midland Painted Turtle <u>Special Concern Species:</u> Northern Map Turtle	**Studies confirm:** • Presence of 5 or more nesting Midland Painted Turtles.	No potential within the Proposed Licensing Area and Study Area. • Exposed mineral soils within 100m of the Nine Mile River are absent.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	**(<100 m) or within the following ELC ecosites:** MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used.	• Suitable communities to support this feature are absent. • Wetland communities are separate from upland forest communities by steep slopes and forested communities spanning >120m from the margins of the Nine Mile River and wetland communities.	Snapping Turtle	• One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100 m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100 m area of habitat. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • **SWHMiST Index #28** provides development effects and mitigation measures for turtle nesting habitat.	
Seeps and Springs **<u>Rationale</u>:** Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Seeps/Springs are areas where ground water comes to the surface. Often, they are found within headwater areas within forested habitats. Any forested ecosite within the headwater areas of a stream could have seeps/springs.	• Any forested area (with <25% meadow/field/ pasture) within the headwaters of a stream or river system. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species.	No potential within the Study Area or Proposed Licensing Area. • The Study Area is not located within the headwaters of the Nine Mile River.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	**Field Studies confirm:** • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat.	No potential within the Study Area or Proposed Licensing Area. No plant species that would indicate the potential presence of a seep or spring are present within the surveyed portions of the Study Area.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
					• **SWHMiST Index #30** provides development effects and mitigation measures.	
Amphibian Breeding Habitat (Woodland) **<u>Rationale:</u>** These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	All ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	• Presence of a wetland, pond or woodland pool (including vernal pools) >500 m^2 (about 25 m diameter) within or adjacent (within 120 m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.	No potential within the Proposed Licensing Area. • Suitable communities to support this feature are absent. Moderate potential within the Study Area: • May be supported in association with the SWM, FOCM4-1, SWCM1-1 and MAMM2-6 communities.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	**Studies confirm:** • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the wetland area plus a 230 m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. • **SWHMiST Index #14** provides development effects and mitigation measures.	No potential within the Proposed Licensing Area. Vernal pools are absent from this area. Candidate SWH (Study Area) in association with the SWM, FODM4-1, SWCM1-1 and MAMM2-6 communities of the Study Area.
Amphibian Breeding Habitat (Wetlands) **<u>Rationale;</u>** Wetlands supporting breeding for these amphibian species are	**ELC Community Classes:** SW MA FE BO OA and SA.	• Wetlands >500 m^2 (about 25 m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important	No potential within the Study Area or Proposed Licensing Area. • Suitable communities to support this feature are absent.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	**Studies confirm:** • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3 or; Wetland with confirmed	No potential within the Study Area or Proposed Licensing Area. • Wetland communities are absent from the Proposed Licensing Area. • Suitable communities to support this feature are absent from the Study Area. All wetland communities occur in association with forested communities.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
extremely important and fairly rare within Central Ontario landscapes.	Typically, these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g., Bull Frog) may be adjacent to woodlands.	amphibian breeding habitats. • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation.			breeding Bullfrogs are significant. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • **SWHMiST Index #15** provides development effects and mitigation measures.	
Woodland Area-Sensitive Bird Breeding Habitat **<u>Rationale</u>:** Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	**All ecosites associated with these ELC Community Series:** FOC FOM FOD SWC SWM SWD	• Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs. old) forest stands or woodlots >30 ha. • Interior forest habitat is at least 200 m from forest edge habitat.	No potential within the Proposed Licensing Area and Study Area. • Interior forest habitat is absent from the Study Area.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren **Special Concern:** Cerulean Warbler Canada Warbler	**Studies confirm:** • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • **Note**: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #34** provides development effects and mitigation measures.	Confirmed absent within the Proposed Licensing Area and Study Area • None of the indicators species were documented during the course of breeding bird surveys.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
Table 1.3: Habitat for Species of Conservation Concern considered Significant Wildlife Habitat						
Marsh Breeding Bird Habitat **<u>Rationale;</u>** Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 **For Green Heron:** All SW, MA and CUM1 sites	• Nesting occurs in wetlands. • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water.	No potential within the Proposed Licensing Area. • Suitable communities to support this feature are absent. Low potential within the Study Area: • May be supported in association with the MAMM2-6 community.	American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan **Special Concern:** Black Tern Yellow Rail	**Studies confirm:** • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes breeding by any combination of 5 or more of the listed species. • **Note**: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #35** provides development effects and mitigation measures.	Candidate SWH (Study Area). • Targeted breeding bird surveys did not include the MAMM2-6 ocmmunity. Confirmed absent within the Proposed Licensing Area. • Habitat to support this feature is not present. • None of the indicators species were documented during the course of breeding bird surveys.
O**p**en **Country Bird Breedi**ng Ha**b**itat **<u>Rationale;</u>** This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the	CUM1 CUM2	• Large grassland areas (includes natural and cultural fields and meadows) >30 ha. • Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e., no row cropping or intensive hay or livestock pasturing in the last 5 years).	No potential within the Proposed Licensing Area or Study Area. • Suitably large CUM1 / CUM2 communities are absent from the Study Area.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow **Special Concern** Short-eared Owl	**Field Studies confirm:** • Presence of nesting or breeding of 2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories.	No potential within the Proposed Licensing Area or Study Area. • Suitably large CUM1 or CUM2 communities are absent.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
past 40 years based on CWS (2004) trend records.		• Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. • The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.			• Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • **SWHMiST Index #32** provides development effects and mitigation measures.	
Shrub/Early Successional Bird Breeding Ha**b**itat **<u>Rationale;</u>** This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species.	• Large field areas succeeding to shrub and thicket habitats >10 ha in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e., no row-cropping, haying or live-stock pasturing in the last 5 years). • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. • Shrub and thicket habitat sites considered significant should have a history of longevity, either	No potential within the Proposed Licensing Area or Study Area. • Suitably large CUT1 and CUW1 communities are absent from the Study Area	**Indicator Spp:** Brown Thrasher Clay-coloured Sparrow **Common Spp.** Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher **Special Concern:** Yellow-breasted Chat Golden-winged Warbler	**Field Studies confirm:** • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as SWH. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • **SWHMiST cxlix Index #33** provides development effects and mitigation measures.	No potential within the Proposed Licensing Area or Study Area. • Suitably large CUT, CUS, or CUW communities are absent.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
		abandoned fields or pasturelands.				
Terrestrial Crayfish **<u>Rationale:</u>** Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh or swamp ecosites can be used by terrestrial crayfish.	• Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for Terrestrial Crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed.	No potential within the Proposed Licensing Area. • Suitable ELC communities are absent. Moderate potential within the Study Area. •Suitable habitat may occur in association with the MAMM2-6 and SWCM1-1 communities.	Chimney or Digger Crayfish (*Fallicambarus fodiens*) Devil Crayfish or Meadow Crayfish (*Cambarus Diogenes*)	**Studies Confirm:** • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August in temporary or permanent water. **Note** the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult. • **SWHMiST Index #36** provides development effects and mitigation measures.	Confirmed absent within the Study Area. • No burrows were incidentally observed by Burnside during field investigations. Confirmed absent within the Proposed Licensing Area.
Special Concern and Rare Wildlife Species **<u>Rationale:</u>** These species are quite rare or have experienced significant population declines in Ontario.	All plant and animal Element Occurrences (EO) within a 1 or 10 km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC ecosites.	Candidate habitat to support the following species of Special Concern may be present within the Study Area: • American Brook Lamprey (S3) • Northern Brook Lamprey (SC) • Snapping Turtle (SC) • Eastern Wood-pewee (SC) • Canada Warbler (SC) • Wood Thrush (SC) • Monarch (SC)	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the NHIC.	**Studies Confirm:** • Assessment/inventory of the site for the identified Special Concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g.,	Confirmed SWH within the Study Area for the following species: • Eastern Wood-pewee in association with the FOMM7-1 community. • Monarch were observed within the MEFM1-1 and THMM1 communities of the Proposed Lincesing Area and MAMM2-6 community within the Study Area. Only adult Monarchs were observed within the proposed lincensng area (MEFM1-1 and THMM1 communities) and Study Area (MAMM2-6 community), no larvae were observed. Candidate SWH within the Study Area for the following species:

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
					specific nesting habitat or foraging habitat. • **SWHMiST Index #37** provides development effects and mitigation measures.	• American Brook Lamprey (Nine Mile River) • Northern Brook Lamprey (Nine Mile River) • Snapping Turtle (Nine Mile River) All other species are confirmed absent.
Table 1.4.1: Animal Movement Corridors						
Amphibian Movement Corridors **<u>Rationale;</u>** Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Corridors may be found in all ecosites associated with water. Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1.	• Movement corridors between breeding habitat and summer habitat. • Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (Amphibian Breeding Habitat–Wetland) of this Schedule.	No potential within the Study Area or Proposed Licensing Area. • Amphibian Breeding Habitat–Wetland is absent.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. • Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. • Corridors should have at least 15 m of vegetation on both sides of waterway or be up to 200 m wide of woodland habitat and with gaps <20 m. • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat. • **SWHMiST Index #40** provides development effects and mitigation measures.	No potential. Amphibian Breeding Habitat–Wetland habitat is not supported within the Proposed Licensing Area or Study Area.
Deer Movement Corridors **<u>Rationale:</u>**	Corridors may be found in all forested ecosites.	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH from Table 1.1 of this schedule.	No potential within the Study Area or Proposed Licensing Area. • Deer Wintering habitat is absent.	White-tailed Deer	• Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas.	No potential. Deer Wintering habitat was not identified within the Study Area or Proposed Licensing Area by the MNRF.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	• A deer wintering habitat identified by the MNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion. • Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges).			• Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas. • Corridors should be at least 200 m wide with gaps <20 m and if following riparian area with at least 15 m of vegetation on both sides of waterway. • Shorter corridors are more significant than longer corridors, SWHMiST Index #39 provides development effects and mitigation measures.	
Table 1.5.1: Significant Wildlife Habitat Exceptions for Ecodistricts within EcoRegion 6E						
6E-14 Mast Producing Areas **<u>Rationale</u>:** The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracts with mast-producing tree species is important for bear.	**All Forested habitat represented by ELC Community Series**: FOM FOD	• Woodland ecosites >30 ha with mast-producing tree species, either soft (cherry) or hard (oak and beech). • Black bears require forested habitat that provides cover, winter hibernation sites, and mast-producing tree species. • Forested habitats need to be large enough to provide cover and protection for black bears.	No potential within the Proposed Licensing Area and Study Area. • Forested communities do not span >30ha.	Black Bear	**All woodlands >30 ha with a 50% composition of these ELC Vegetation Types are considered significant:** FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5 SWHMiST Index #3 provides development effects and mitigation measures.	Confirmed absent within the Study Area and Proposed Licensing Area. • Forested communities do not span >30ha. • Suitably large forested habitat containing a high density of mast producing tree species are absent.

Significant Wildlife Habitat Screening in the Study Area – Ecoregion 6E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
6E- 17 **Lek** **<u>Rationale</u>:** Sharp-tailed grouse only occur on Manitoulin Island in Ecoregion 6E, Leks are an important habitat to maintain their population.	CUM CUS CUT	• The Lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography. • Leks are typically a grassy field/meadow >15 ha with adjacent shrublands and >30 ha with adjacent deciduous woodland. Conifer trees within 500 m are not tolerated. • Grasslands (field/meadow) are to be >15 ha when adjacent to shrubland and >30 ha when adjacent to deciduous woodland. • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying). • Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting.	No potential within the Study Area or Proposed Licensing Area. • The Study Area is not located on Manitoulin Island.	Sharp-tailed Grouse	• Studies confirming Lek habitat are to be completed from late March to June. • Any site confirmed with sharp-tailed grouse courtship activities is considered significant. • The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the Lek habitat. • SWHMiST cxlix Index #32 provides development effects and mitigation measures.	No potential within the Study Area or Proposed Licensing Area.

BURNSIDE

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Appendix D

Background Review of Potential Species at Risk and Species of Conservation Concern on the Study Area and/or Adjacent Lands

Background Review of Potential Species at Risk and Species of Conservation Concern within the Proposed Licensing Area o/ Study Area

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present within the Proposed Licensing Area and/or Study Area?	Species Observed?
Bird									
Bank Swallow (Source: OBBA)	*Riparia riparia*	S4B	THR	THR	THR	Schedule 1	Prefers open habitats including, farmland, lake/river shorelines, grasslands, and wetlands. Nests in exposed earthen banks along shorelines and in artificial sites such as gravel pits.[7]	Moderate potential foraging habitat within the Study Area. Low potential nesting habitat within the Study Area along the Nine Mile River. Moderate potential foraging habitat within the Proposed Licensing Area. No potential nesting habitat. Steep earthen banks are absent.	Confirmed present within the Proposed Licensing Area. Documented foraging over the agricultural areas. Breeding habitat is not supported within the Proposed Licensing Area.
Barn Swallow (Source: OBBA)	*Hirundo rustica*	S4B	SC	SC	THR	Schedule 1	Prefers farmland, lake/river shorelines, wooded clearings, urban populated areas, rocky cliffs, and wetlands. Nests inside or on exterior of buildings; under bridges and in road culverts; on rock faces, and in caves, etc.[8]	Moderate potential foraging habitat within the Study Area and Proposed Licensing Area. No potential nesting habitat within the Study Area and Proposed Licensing Area. Nesting structures are absent.	Confirmed present within the Proposed Licensing Area. Documented foraging over the agricultural areas of the Proposed Licensing Area. Breeding habitat is not supported within the Proposed Licensing Area.
Bobolink (Source: OBBA)	*Dolichonyx oryzivorus*	S4B	THR	SC	THR	Schedule 1	Generally prefers open grasslands and hay fields for nesting, typically featuring relatively tall vegetation. Sometimes uses large fields of winter wheat and rye in southwestern Ontario. Sensitive to vegetation structure and composition. Positively associated with high grass-to-forb ratios; moderate litter depth; tolerate wetter portions of fields compared to Eastern Meadowlark (EAME) and more likely to nest closer to field centres rather than field margins. Lower tolerance to presence of patches of bare ground. Appear to prefer larger fields than EAME.[9]	No potential. Suitable habitat is absent from the Study Area and Proposed Licensing Area.	Confirmed absent within the Study Area and Proposed Licensing Area

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present within the Proposed Licensing Area and/or Study Area?	Species Observed?
Canada Warbler (Source: OBBA)	*Cardellina canadensis*	S5B	SC	SC	THR	Schedule 1	Generally prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer. Nests on the ground, on logs or hummocks, and uses dense shrub layer to conceal the nest.[7]	Low potential within the Study Area and Proposed Licensing Area. Suitable habitat may be present in association with the WODM4 and WOMM3 communities.	Confirmed absent within the Study Area and Proposed Licensing Area
Chimney Swift (Source: OBBA)	*Chaetura pelagica*	S3B	THR	THR	THR	Schedule 1	Historically nested in large hollow trees, other tree cavities and cracks in cliffs. Currently, most are found in developed areas in large, uncapped chimneys. Proximity to lakes is also a preferred habitat feature as they will forage for flying insects close to water.[7]	No potential within the Study AreaSuitable structures to support this species are absent within the Study Area. No potential within the Proposed Licensing Area. Suitable habitat to support this species is absent.	Confirmed absent within the Study Area and Proposed Licensing Area.
Eastern Meadowlark (Source: OBBA)	*Sturnella magna*	S4B, S3N	THR	THR	THR	Schedule 1	Generally prefers grassy pastures, meadows and hay fields. Prefers moderately tall grass with abundant litter cover, a high proportion of grass cover, moderate forb density, low proportions of shrub and woody vegetation cover, and low percent of bare ground. Prefers to nest in drier sites and frequently nests around field margins.[9]	No potential. Suitable habitat is absent from the Study Area. No potential within the Proposed Licensing Area. Suitable habitat to support this species is absent.	Confirmed absent within the Study Area and Proposed Licensing Area
Eastern Wood-pewee (Source: OBBA)	*Contopus virens*	S4B	SC	SC	SC	Schedule 1	Prefers open space near the nest in the form of forest edges, clearings, roadways, and water. Does not require large areas of woods but occurs less frequently in woodlots surrounded by development than in those without.[7]	Moderate potential in the Study Area within the FOC, SWC, and FOM communities. No potential in the Proposed Licensing Area.	Confirmed present within the Study Area. Breeding evidence within the FOMM7-1 community. Confirmed absent within the Proposed Licensing Area.
Grasshopper Sparrow (Source: OBBA)	*Ammodramus savannarum pratensis*	S4B	SC	SC	SC	Schedule 1	Prefers drier, sparsely vegetated grasslands, particularly rough or unimproved pastures with scattered forb and shrub growth, at least 30 ha in size. It will occasionally also use cultivated hayfields and cereal crops.[7]	No potential. Suitable habitat is absent from the Study Area. No potential within the Proposed Licensing Area. Suitable habitat to	Confirmed absent within the Study Area and Proposed Licensing Area.

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present within the Proposed Licensing Area and/or Study Area?	Species Observed?
								support this species is absent.	
Least Bittern (Source: OBBA)	*Ixobrychus exilis*	S4B	THR	THR	THR	Schedule 1	Most frequently found in marshes of at least 5 ha, although much smaller marshes, including sites such as cattail stands along creeks and farm ponds partially filled with cattail, may be used occasionally. Breeding sites typically dominated by cattail, but also sometimes bulrush, grasses, horsetail, and willow. Nests usually close to edge of a stand of vegetation or near openings such as muskrat trails, although may be as far as 45 m from open water.[7]	No potential. Suitable habitat is absent from the Study Area. No potential within the Proposed Licensing Area. Suitable habitat to support this species is absent. .	Confirmed absent within the Study Area and Proposed Licensing Area.
Wood Thrush (Source: OBBA)	*Hylocichla mustelina*	S4B	SC	THR	THR	Schedule 1	Inhabits and breeds in woodlands ranging from small (3 ha) and isolated to large and contiguous. The presence of tall trees and a thick understorey are usually prerequisites for site occupancy.[7]	Moderate potential in the Study Area within the FOC, SWC, and FOM communities. No potential in the Proposed Licensing Area.	Confirmed absent within the Study Area and Proposed Licensing Area.
Fish									
American Brook Lamprey (Source: NHIC)	*Lethenteron appendix*	S3					Adult American Brook Lamprey occur within gravel and sand within riffles and runs of medium to small watercourses that possess strong flows and clear waters and cold-water thermal regime. Ammocete (juvenile) American Brook Lampreys occur within silty or sandy pools.[27]	Moderate potential within the Study Area. Suitable habitat occurs in association with the Nine Mile River. No potential within the Proposed Licensing Area. Suitable habitat to support this species is absent.	Moderate potential within the Study Area. Targeted surveys were not completed to confirm the presence / absence of this species. No potential within the Proposed Licensing Boundary. The proposed licensing boundary is located well beyond the limits of the Nine Mile River; therefore, impacts are not anticipated.
Northern Brook Lamprey *Great Lakes- Upper St. Lawrence Population*	*Ichthyomyzon fossor*	S3	SC	SC	SC	1	Generally, inhabits small rivers and clear streams of varying sizes. Adults spawn in gravelly riffles.[14]	Moderate potential within the Study Area. Suitable habitat occurs	Moderate potential within the Study Area. Targeted surveys were not

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present within the Proposed Licensing Area and/or Study Area?	Species Observed?
(Source: DFO SAR)								in association with the Nine Mile River. No potential within the Proposed Licensing Area. Suitable habitat to support this species is absent.	completed to confirm the presence / absence of this species. The proposed licensing boundary is located well beyond the limits of the Nine Mile River; therefore, impacts are not anticipated.
Insects									
Monarch (Source: RJB)	*Danaus plexippus*	S2N, S4B	SC	END	END	1	Throughout their life cycle, Monarchs use three different types of habitats. Only the caterpillars (larvae) feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers. Monarchs spend the winter in Oyamel Fir forests found in central Mexico. The largest threat to Ontario Monarchs is habitat loss and fragmentation at overwintering sites in central Mexico where forests are being logged and converted into agricultural fields and pastures. Widespread pesticide and herbicide use throughout the Monarch's range may also limit recovery.[9]	Moderate potential within the Study Area. Common Milkweed and Swamp Milkweed were observed in low densities in the Study Area within the Meadow Marsh (MAMM2-6) community. Moderate potential in the Proposed Licensing Area. Common Milkweed, one of the host species for Monarch larvae is present within the forb meadow and thicket communities (MEFM1-1 and THMM1) as well as hedgerows.	Confirmed present. Adult Monarchs were observed within the Proposed Licensing Area (MEFM1-1 and THMM1 communities) and Study Area (MAMM2-6 community). Milkweed (host plant for larvae) is present but no larvae were incidentally observed.
Mammals									
Eastern Red Bat (Source: RJB)	*Lasiurus borealis*	S4	END	END			Roost within the foliage of trees and shrubs in both deciduous and coniferous trees in forests of any age class. Roost sites that have overhead foliage for cover and open flight space below are selected.	Moderate potential in the Study Area within the FOMM7-1 community. Low potential in the Proposed Licensing Area. Although a limited	Moderate potential within the Study Area. Targeted surveys to confirm the presence / absence of this species were not included in the scope of work for this project.

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present within the Proposed Licensing Area and/or Study Area?	Species Observed?
							Eastern Red bats are known to avoid roosting within conifer species if deciduous trees are present. Typical roost trees are large in diameter and are as tall or taller than the surrounding canopy. Roost sites tend to be along southern aspects and are sheltered from the wind, with Eastern Red Bats being known to be select locations are that unlikely to experience temperature extremes. This species is known to utilize a number of roost trees during the season with average roosting areas spanning < 1 ha during the summer months. [26]	number of tall, large diameter trees are present within the WOMM3 community, the understory and subcanopy layers are dense, limiting open flight space below the canopy trees.	Very low potential within the Proposed Licensing Area. Targeted surveys to confirm the presence / absence of this species were not included in the scope of work for this project.
Eastern Small-footed Myotis	*Myotis leibii*	S2	END	END	END	Schedule 1	Overwintering habitat: Caves and abandoned mines. According to the Recovery Strategy for the Eastern Small-footed Myotis in Ontario, summer / roosting habitats used by the species in Ontario are poorly understood, but elsewhere in its range it primarily roosts in open, sunny rocky habitats, and, occasionally, in buildings. Summer roosts for this species are believed to be located in close proximity to their hibernacula (i.e., less than 100 m). The species' preference for rocky habitats in summer may limit an individual's home range to those rocky areas which also contain hibernacula (i.e., karst areas and Canadian Shield areas containing abandoned mines with adits).16	No potential. Suitable habitat is absent from the Study Area and Proposed Licensing Area.	No potential.
Hoary Bat (Source: RJB)	*Lasiurus cinereus*	S4	END	END			Roost within the foliage of trees and shrubs in both deciduous and coniferous trees in forests of any age class. Typical roost trees are large in diameter and are as tall or taller than the surrounding canopy. Roost sites tend to be along southern aspects and are sheltered from the wind.[26]	Moderate potential in the Study Area. May be supported within the FOMM7-1 community. Low potential in the Proposed Licensing Area. Although a limited number of tall, large diameter trees are present within the WOMM3 community, the understory and subcanopy layers are	Moderate potential within the Study Area. Targeted surveys to confirm the presence / absence of this species were not included in the scope of work for this project. Very low potential within the Proposed Licensing Area. Targeted surveys to confirm the presence / absence of this species were not included in the

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present within the Proposed Licensing Area and/or Study Area?	Species Observed?
								dense, limiting open flight space below the canopy trees.	scope of work for this project.
Little Brown Myotis	*Myotis lucifugus*	S3	END	END	END	Schedule 1	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Often associated with buildings (attics, barns etc.). Occasionally found in trees (25-44 cm dbh).15	Moderate potential in the Study Area. May be supported within the FOMM7-1 community. Mature trees are present and may bear cavities and exfoliating bark that support roosting habitat. Very low potential in the Proposed Licensing Area. Although a limited number of tall, large diameter trees are present within the WOMM3 community; however, trees present within this community are predominantly young and vigorous and lacking cavities and exfoliating bark.	Moderate potential within the Study Area. Targeted surveys to confirm the presence / absence of this species were not included in the scope of work for this project. Very low potential within the Proposed Licensing Area. Targeted surveys to confirm the presence / absence of this species were not included in the scope of work for this project.
Northern Myotis	*Myotis septentrionalis*	S3	END	END	END	Schedule 1	Overwintering habitat: Caves and mines that remain above 0 Maternal Roosts: Often associated with cavities of large diameter trees (25-44 cm dbh). Occasionally found in structures (attics, barns etc.)15	Moderate potential in the Study Area. May be supported within the FOMM7-1 community. Mature trees are present and may bear cavities and exfoliating bark that support roosting habitat. Very low potential in the Proposed Licensing Area. Although a limited number of tall, large diameter trees are	Moderate potential within the Study Area. Targeted surveys to confirm the presence / absence of this species were not included in the scope of work for this project. Very low potential within the Proposed Licensing Area. Targeted surveys to confirm the presence / absence of this species were not included in the

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present within the Proposed Licensing Area and/or Study Area?	Species Observed?
								present within the WOMM3 community; however, trees present within this community are predominantly young and vigorous and lacking cavities and exfoliating bark.	scope of work for this project.
Silver-haired Bat (Source: RJB)	*Lasionycteris noctivagans*	S4	END	END			Primarily roost under large sheets of exfoliating bark and within tree cavities. This species will typically roost within a variety of large diameter coniferous and deciduous roost trees. High-quality roost trees include trees with heart-rot infections at the site of limb breakages that have resulted in the creation of well-protected inner chambers. Members of this species, including lactating females, are well documented to roost switch. Silver-haired bats are also known to occasionally roost on or within buildings but only when treed habitats are scarce. [26]	Moderate potential in the Study Area. May be supported within the FOMM7-1 community.. Mature trees are present and may bear cavities and exfoliating bark that support roosting habitat. Very low potential in the Proposed Licensing Area. Although a limited number of tall, large diameter trees are present within the WOMM3 community; however, trees present within this community are predominantly young and vigorous and lacking cavities and exfoliating bark.	Moderate potential within the Study Area. Targeted surveys to confirm the presence / absence of this species were not included in the scope of work for this project. Very low potential within the Proposed Licensing Area. Targeted surveys to confirm the presence / absence of this species were not included in the scope of work for this project.
Tri-colored Bat	*Perimyotis subflavus*	S3?	END	END	END	Schedule 1	Overwintering habitat: Deepest parts of caves and mines where temperature is the least variable. Maternal Roosts: Less is known about roosts of Tri-colored Bats. Most roost sites found within forested habitats. May roost in clumps of dead foliage and lichens. In more anthropogenically modified landscapes, maternity roosts may be barns or similar human-made structures.15	Moderate potential in the Study Area. May be supported within the FOMM7-1 community.Both Red Oak and Sugar Maple trees are present within this community. Very low potential in the Proposed Licensing Area within the WOMM3 community. Limited quantities of Sugar Maple were present.	Moderate potential within the Study Area. Targeted surveys to confirm the presence / absence of this species were not included in the scope of work for this project. Very low potential within the Proposed Licensing Area. Targeted surveys to confirm the presence / absence of this species were not included in the scope of work for this project.

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present within the Proposed Licensing Area and/or Study Area?	Species Observed?
Plants									
American Ginseng (Source: Oldham and Brinker, 2009)	*Panax quinquefolius*	S2	END	END	END	Schedule 1	Grows in rich, moist, undisturbed and relatively mature deciduous woods in areas of neutral soil (such as over limestone or marble bedrock).20	No potential. Suitable habitat is absent from the Study Area. No potential within the Proposed Licensing Area. Suitable habitat to support this species is absent.	Confirmed absent within the Study Area / Proposed Licensing Area.
Butternut (Source: Oldham and Brinker, 2009)	*Juglans cinerea*	S2?	END	END	END	Schedule 1	Butternut grows best in rich, moist and well-drained soils or limestone gravel sites. They are less commonly found in dry, rocky and sterile soils. They generally grow alone or in small groups in deciduous forests that are commonly comprised of Basswood, Black Cherry, Beed, Black Walnut, Elm, Hemlock, Hickory, Oak, Red Maple, Sugar Maple, Poplar, White Ash and Yellow Birch.6 In Ontario, they can be found throughout the southern Ontario, south of the Canadian Shield.10	Moderate potential in the Study Area and Proposed Licensing Area. May be supported within the mixed woodlands and mixed forests communities.	Confirmed absent within Proposed Licensing Area. and all areas within 50 m.
Black Ash	*Fraxinus nigra*	S4		THR		0	Occurs in wetlands including swamps, floodplains, fens up to 51° latitude.10	Moderate potential in the Study Area within the SWM, MAMM2-6, and SWCM1-1 communities. No potential within the Proposed Licensing Area. Suitable habitat to support this species is absent.	Confirmed absent within the MAMM2-6 and SWCM1-1 communities of the Study Area. Candidate habitat is still present in association with the SWM community west of the Nine Mile River well beyond the Proposed Licensing Area that was not surveyed by RJB. Confirmed absent within the Proposed Licensing Area.

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present within the Proposed Licensing Area and/or Study Area?	Species Observed?
Eastern Prairie Fringed Orchid (Source: Oldham and Brinker, 2009)	*Platanthera leucophaea*	S2	END	END	END	Schedule 1	Occurs within fens, along limestone shorelines, and in wet mesic prairie and old field habitat.22	No potential. Suitable habitat is absent from the Study Area. No potential within the Proposed Licensing Area. Suitable habitat to support this species is absent.	Confirmed absent within the Study Area / Proposed Licensing Area.
Goldenseal (Source: Oldham and Brinker, 2009)	*Hydrastis canadensis*	S2	THR	SC	THR	Schedule 1	Occur within rich sugar maple forests as well as moist floodplain forests dominated by red maple and white oak.20	No potential. Suitable habitat is absent from the Study Area. No potential within the Proposed Licensing Area. Suitable habitat to support this species is absent.	Confirmed absent within the Study Area / Proposed Licensing Area.
Green Dragon (Source: Oldham and Brinker, 2009)	*Arisaema dracontium*	S3	SC	SC	SC	Not on Schedule 1	Rich floodplain woods within the Carolinian Zone. Suitable habitats also include damp deciduous forests and swamps. 21	Low potential within the Study Area. May be supported along the banks of the Nine Mile River or in association with the MAMM2-6 community. No potential within the Proposed Licensing Area. Suitable habitat to support this species is absent.	Confirmed absent within the Study Area / Proposed Licensing Area.
Tuberous Indian-plantain (Source: Oldham and Brinker, 2009)	*Arnoglossum plantagineum*	S2	SC	SC	SC	Schedule 1	Fens, moist prairies, sedge meadows, and calcareous shores.20	No potential within the Study Area. Suitable habitat is absent. No potential within the Proposed Licensing Area. Suitable habitat to support this species is absent.	Confirmed absent within the Study Area / Proposed Licensing Area.
Reptiles and Amphibians									
Eastern Milksnake (Source: ORAA)	*Lampropeltis triangulum*	S4		SC	SC	Schedule 1	Habitat generalist. Found in wide variety of habitats, from open	Moderate potential in the Study Area and	Moderate potential within the Study Area and

COMMON NAME **(Source)	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description[5]	Habitat Present within the Proposed Licensing Area and/or Study Area?	Species Observed?
							woodlands, bogs, swamps, woodland edges, marshes, lakeshores, old fields, pastures, farmyards, parks, gardens. Often in or near farm outbuildings, barns, and sheds, and are attracted to piles of rocks, logs, firewood, or building materials, or any place that offers shelter to snakes and their prey (rodents).14	Proposed Licensing Area.	Proposed Licensing Area. Targeted surveys to confirm the presence / absence of this species were not included in the scope of work for this project.
Midland Painted Turtle (Source: ORAA)	*Chrysemys picta marginata*	S4		SC	SC	Schedule 1	Generally prefers waterbodies such as ponds, marshes, lakes and slow-moving creeks that have a soft bottom and provide abundant basking sites and aquatic vegetation.14	Moderate potential in the Study Area within the Nine Mile River. No potential in the Proposed Licensing Area.	Moderate potential within the Study Area. Targeted surveys to confirm the presence / absence of this species were not included in the scope of work for this project. No potential within the Proposed Licensing Area.
Snapping Turtle (Source: ORAA)	*Chelydra serpentina*	S4	SC	SC	SC	Schedule 1	Generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits.10	Moderate potential in the Study Area. Suitable habitat occurs in association with the Nine Mile River. No potential in the Proposed Licensing Area.	Moderate potential within the Study Area. Targeted surveys to confirm the presence / absence of this species were not included in the scope of work for this project. No potential within the Proposed Licensing Area.
Western Chorus Frog (Great Lakes/St. Lawrence - Canadian Shield population) (Source: ORAA)	*Pseudacris triseriata*	S4		THR	THR	Schedule 1	Inhabits forest openings around woodland ponds but can also be found in or near damp meadows, marshes, bottomland swamps, and temporary ponds in open country, or even urban areas. Breeds in almost any fishless pond with at least 10 cm of water, including quiet, shallow, temporary waterbodies with vegetation that is submerged or protrudes from the water, especially in rain-flooded meadows and ditches, and in temporary ponds on floodplains.14	Moderate potential in the Study Area within swamp and meadow marsh communities. No potential in the Proposed Licensing Area.	Moderate potential within the Study Area. Targeted surveys to confirm the presence / absence of this species were not included in the scope of work for this project. No potential within the Proposed Licensing Area.

** Sources: Natural Heritage Information Centre (NHIC) database of records searched on January 6, 2025 (4- 1x1 km2 Squares: 17MJ5059, 17MJ5058, 17MJ5159, and 17MJ5158); Ontario Breeding Bird Atlas (2001-2005) searched on January 6, 2025 (Squares 17MJ56); Ontario Reptile and Amphibian Atlas (ORAA) searched on January 6, 2025 (Squares 17MJ56).

[1]S-Ranks (provincial)

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario (Please refer to: http://explorer.natureserve.org/nsranks.htm)

SX — Presumed Extirpated - Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH — Possibly Extirpated (Historical) - Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20–40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for. The SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.
S1 — Critically Imperiled - Critically imperiled in the province or state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.
S2 — Imperiled - Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.
S3 — Vulnerable - Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 — Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 — Secure - Common, widespread, and abundant in the province.
SNR — Unranked - Province conservation status not yet assessed.
SU — Unrankable - Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA — Not Applicable - A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S# — Range Rank - A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
S#? – Inexact or Uncertain - Denotes inexact or uncertain numeric rank.

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

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

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

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

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

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

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

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

[5]Sources:

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[8] Species at Risk Public Registry http://www.sararegistry.gc.ca

[9] McCracken, J.D. et al. 2013. Recovery Strategy for the Bobolink (Dolichonyx oryzivorus) and Eastern Meadowlark (Sturnella magna) in Ontario .Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario, viii + 88 pp.

[10] MNR SARO List Species Descriptions (http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/MNR_SAR_CSSR_SARO_LST_EN.html)

[11] COSEWIC Species Assessment Report

[12] Naughton, Donna. 2012. *The Natural History of Canadian Mammals*. Canadian Museum of Nature and University of Toronto Press, Toronto, + 784 pp

[13] Farrar, John Laird, 2017, *Trees in Canada*, Natural Resources Canada | Canada Forest Services, and, Fitchenry &Whiteside Limited, pp.238 - 239

[14] Ontario Nature Reptile and Amphibian Atlas (https://ontarionature.org/programs/citizen-science/reptile-amphibian-atlas/species/)

[15] Environment Canada. 2015. Recovery Strategy for Little Brown Myotis (Myotis lucifugus), Northern Myotis (Myotis septentrionalis) and Tri-colored Bat (Perimyotis subflavus) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. Ix + 110 pp.

16 Humphrey, C. 2017. Recovery Strategy for the Eastern Small-footed Myotis (Myotis leibii) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 76 pp.

[17] Department of Fisheries and Oceans (DFO) Aquatic Species at Risk found online at: http://www.dfo-mpo.gc.ca/species-especes/sara-lep/identify-eng.html.

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[20] MNRF. 2018. City of Niagara Falls Species at Risk Table. Guelph District.

[21] Michigan Flora found online at https://michiganflora.net/search.aspx

[22] Natural Heritage Information Centre (https://www.ontario.ca/page/get-natural-heritage-information)

[2 3]McKnight, K.B. et al. 2013. Common Mosses of the Northeast and Appalachians. Princeton University Press. Princeton, New Jersey.

[24] Oldham, M.J., and S.R. Brinker. 2009. Rare Vascular Plants of Ontario, Fourth Edition. Natural Heritage Information Centre, Ontario Ministry of Natural Resources. Peterborough, Ontario. 188 pp.

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[26.]COSEWIC. 2023. COSEWIC assessment and status report on the Hoary Bat Lasiurus cinereus, Eastern Red Bat Lasiurus borealis and Silver-haired Bat, Lasionycteris noctivagans, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxi + 100 pp. (Species at risk public registry).

[27.]Holm, E., N. Mandrak, and M. Burridge. 2021. A field guide to freshwater fishes of Ontario, second edition. Royal Ontario Museum Science Publication. Toronto, ON. 486 pp.

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