Preliminary Design of the Highway 11 2+1 Roadway Model Pilot Project: GWP 5151-21-00

Natural Science Existing Conditions Report – Terrestrial Ecosystems

Ministry of Transportation

60713279

March 2025

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AECOM: 2015-04-13

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Table of Contents

1. Introduction 3
1.1 Study Area 3
1.2 Environmental Legislative Requirements 6

2. Methods 8
2.1 Background Data Review 8
2.2 Agency Consultation 8
2.3 Field Investigations 9
2.3.1 Vegetation Communities and Botanical Inventory 9
2.3.2 Breeding Bird Surveys 9
2.4 Significant Wildlife Habitat Screening 10
2.5 Species at Risk Habitat Screening 19

3. Results 20
3.1 Designated Natural Areas 20
3.1.1 Background Data 20
3.2 Vegetation Communities and Plants 20
3.2.1 Background Data 20
3.2.2 Field Investigations 21
3.3 Breeding Birds 21
3.3.1 Background Data 21
3.3.2 Field Investigations 22
3.3.2.1 Structure Surveys 22
3.3.2.2 Migratory Birds Regulations, 2022 – Schedule 1 Species 22
3.3.2.2.1 Pileated Woodpecker 23
3.3.2.2.2 Great Blue Heron 23
3.4 Significant Wildlife Habitat 23
3.4.1 Background Data 23
3.4.2 Field Investigations 25
3.4.2.1 Seasonal Concentration Areas 25
3.4.2.2 Habitat for Rare Vegetation Communities, Specialized Habitat for Wildlife 25
3.4.2.3 Habitat for Species of Conservation Concern 26
3.4.2.4 Animal Movement Corridors 27
3.5 Species at Risk 27
3.5.1 Background Review 27
3.5.2 Field Investigations 28
3.5.2.1 High Probability/Confirmed 28
3.5.2.2 Medium Probability 29

4. Determination of Significance 30
4.1 Designated Natural Areas 30
4.2 Vegetation Communities and Plants 30
4.3 Wildlife 30
4.4 Species at Risk 31

5. Constraints and Opportunities 32
5.1 Constraints 32
5.2 Opportunities 32
6. Anticipated Permits and Approvals and Next Steps 34
7. Limitation of the Report 35
8. Summary and Recommendations 36
9. References 37

Tables

Table 1-1: Relevant Legislation and Policies 6
Table 3-1: Designated Natural Areas within the Study Area 20
Table 3-2: SOCC Records within the Vicinity of the Study Area 24
Table 3-3: SAR Records in the Vicinity of the Study Area 27
Table 6-1: Summary of Anticipated Permits and Approvals 34

Appendices

Appendix A. Agency Correspondence
Appendix B. ELC Summary Table
Appendix C. Photographic Log
Appendix D. Vascular Plant List
Appendix E. Breeding Bird Survey Results
Appendix F. Significant Wildlife Habitat Screening
Appendix G. Species at Risk Screening

1. Introduction

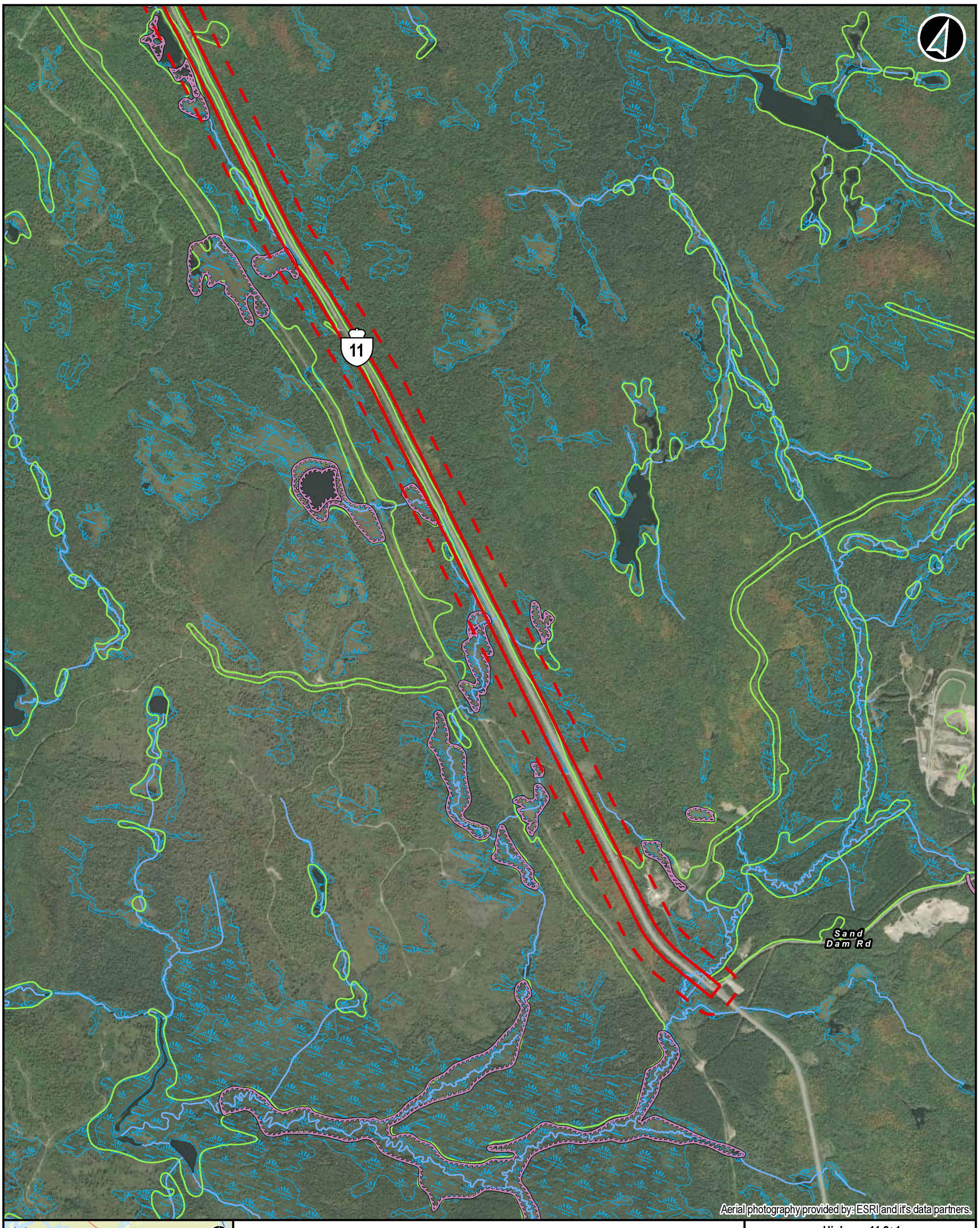
AECOM Canada ULC (AECOM) has been retained by the Ontario Ministry of Transportation (MTO) to undertake the Detail Design Study and Class Environmental Assessment (EA) for a 2+1 Roadway Model Pilot Project on Highway 11, between the City of North Bay and the Municipality of Temagami. A 2+1 highway is three-lane highway that typically involves a passing lane that offers southbound and northbound traffic passing opportunities approximately every two to five kilometres (km). GWP 5151-21-00 is located in the geographic townships of Merrick, Blyth, Notman, and Lyman, in the District of Nipissing, and within the Electoral Riding of Temiskaming-Cochrane. It will stretch from Sand Dam Road north to Ellsmere Road (13.8 km) and is shown in **Figure 1**. The second portion of road (GWP 5033-22-00) will stretch from 4.6 km north of Highway 64 to 340 m south of Jumping Caribou Road (11.4 km) will be discussed under a separate cover titled *Preliminary Design of the Highway 11 2+1 Roadway Model Pilot Project: GWP 5033-22-00 Natural Science Existing Conditions Report – Terrestrial Ecosystems* (AECOM, 2025).

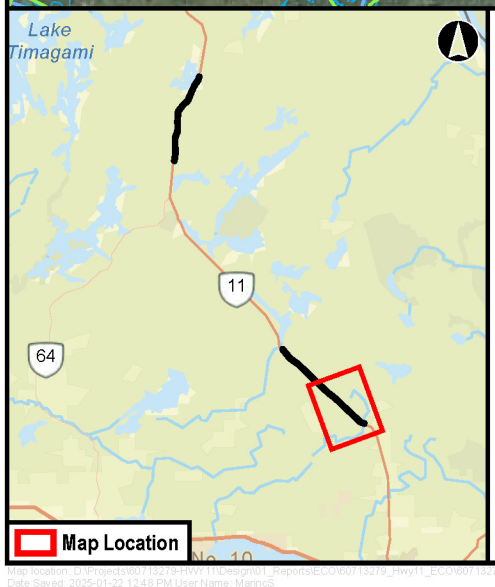
The purpose of the Project is to reconstruct/reconfigure and widen Highway 11 in the two locations specified above to accommodate a 2+1 facility, and to rehabilitate other elements including frost heaves and pavement distress areas, and complete various operational improvements.

The purpose of this Report is to identify terrestrial existing conditions for the Study Area based on the Preliminary Design. An impact assessment and development of mitigation measures for the Project shall be addressed at Detail Design under a separate cover in accordance with the *Environmental Reference for Highway Design* (ERHD; MTO, 2013). Existing conditions of the aquatic environment is documented in the *Highway 11 2+1 Roadway Model Pilot Project from Sand Dam Road northerly to Ellsmere Road (13.8 km) (GWP 5151-21-00) Fish and Fish Habitat Existing Conditions Report* (AECOM, 2025). Similar to the Impact Assessment for Terrestrial Ecosystems, an impact assessment and development of mitigation measures shall be addressed at Detail Design.

1.1 Study Area

The Project Limits extend from Sand Dam Road north to Ellsmere Road (13.8 km) within the geographic townships of Merrick, Blyth, Notman and Lyman, in the District of Nipissing, and within the Electoral Riding of Temiskaming-Cochrane. The Study Area for this Project includes a 120 m buffer around the Project Limits and is shown on **Figure 1**. A 120 metre buffer was used in accordance with Section 3.2.1 of the ERHD (MTO, 2013) and the Natural Heritage Reference Manual (NHRM) for Natural Heritage Policies of the Provincial Policy Statement – Second Edition (MNR, 2010) which recommends using this buffer to sufficiently evaluate the ecological function and potential effects of the proposed development on lands adjacent to natural heritage features protected under the Provincial Planning Statement (PPS; Ontario Ministry of Municipal Affairs and Housing [MMAH], 2024).





Legend

- Study Area (120m)
- Approximate Project Area (GWP5151-21-00)
- Moose Aquatic Feeding Area
- Wooded Area

General Features

- Watercourse
- Unevaluated Wetland

Highway 11 2+1

Study Area and Surrounding Natural Heritage Features

0 250 500 1,000
Meters
Datum: NAD 1983 UTM Zone 17N

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Figure1-1

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Marten River
(E154r)

Ellesmere Rd

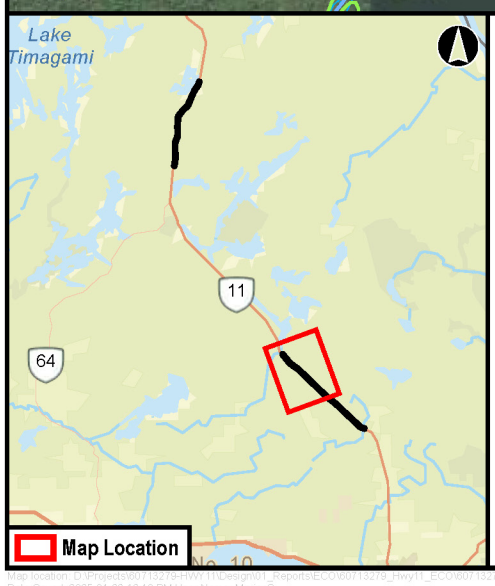
11

Little Tomiko River

Little Tomiko River

11

Aerial photography provided by: ESRI and it's data partners.



Legend

- Study Area (120m)
- Approximate Project Area (GWP5151-21-00)
- Moose Aquatic Feeding Area
- Enhanced Management Area - Marten River
- Wooded Area

General Features

- Watercourse
- Unevaluated Wetland

Highway 11 2+1

Study Area and Surrounding Natural Heritage Features

0 250 500 1,000
Meters
Datum: NAD 1983 UTM Zone 17N

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Figure1-2

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1.2 Environmental Legislative Requirements

Current legislation and policies which are relevant to terrestrial ecosystems and this Project are outlined in **Table 1-1**.

Table 1-1: Relevant Legislation and Policies

Legislation	Governing Authority	Relevant Information
Species at Risk Act, 2002 **(SARA)**	Environmental and Climate Change Canada (ECCC)	■ SARA is federal legislation that monitors and protects Species at Risk (SAR) in Canada, provides recovery strategies for Extirpated, Endangered or Threatened species, and manages species of Special Concern. ■ Species listed as Extirpated, Endangered or Threatened under SARA are only protected on federal lands or lands subject to federal approvals unless they are aquatic species or migratory birds listed on Schedule 1 of the Act. The Governor and Council may issue an order for additional species listed as SAR under SARA to be protected on non-federal lands where critical habitat has been identified and other provincial or municipal legislation does not adequately protect the species. ■ For the purposes of this Report, migratory birds listed as Extirpated, Endangered or Threatened under Schedule 1 of the SARA that are not provincial SAR are considered Species of Conservation Concern (SOCC).
Migratory Birds Convention Act, 1994 **(amended 2022) (MBCA)**	Environment and Climate Change Canada (ECCC)	■ Intended to protect migratory birds, their eggs, and their active nests. ■ Prohibits the possession, destruction, and harm of migratory birds and/or their active nests. ■ The nests of all migratory species are protected when they contain a live bird or a viable egg or if the nest was built by a species listed in Schedule 1 of the *Migratory Birds Regulation, 2022*. ■ Schedule 1 lists 18 migratory bird species whose nests are known to be reused receive year-round protection. Of these, five are documented nesting in Ontario (Cadman et al., 2007) including: Great Egret (*Ardea alba*), Great Blue Heron (*Ardea herodias*), Green Heron (*Butorides virescens*), Black-crowned Night Heron (*Nycticorax nycticorax*) and Pileated Woodpecker (*Dryocopus pileatus*). ■ Nests of these 18 species may be damaged, destroy, disturbed or removed if ECCC has received a notification through the Abandoned Nest Registry regarding the potentially abandoned nest and the nest remains unoccupied by a migratory bird for the period of time designated in Schedule 1 (12, 24 or 36 months, depending on the species). ■ Damage or danger permits are required to remove or relocate nests of these 18 species if required before the end of the designated wait period for each respective species to confirm use of nest.
Endangered Species Act, 2007 **(ESA)**	Ontario Ministry of the Environment, Conservation and Parks (MECP)	■ Under the ESA, species are listed as Extirpated, Endangered, Threatened and Special Concern. ■ The ESA prohibits the killing, harming or harassment of Extirpated, Endangered or Threatened species and the damage or destruction of their habitat. ■ MECP may grant a permit, or other authorization, for activities that would otherwise not be allowable under the ESA. ■ For the purposes of this Report, Extirpated, Endangered and Threated Species are considered SAR and Special Concern species are considered SOCC.
Fish and Wildlife Conservation Act, 1997 **(FWCA)**	Ontario Ministry of Natural Resources (MNR)	■ The FWCA affords protection for some species of birds, amphibians, reptiles, and mammals in Ontario. Some bird species which are not afforded protection under the MBCA are afforded protection under the FWCA, such as raptors. Nests of these bird species can only be removed if a permit is obtained from the MNR.

Legislation	Governing Authority	Relevant Information
		■ The FWCA is not binding of the crown.
Planning Act, 1990 **and** ***Provincial Planning Statement, 2024*** **(PPS)**	Ontario Ministry of Municipal Affairs and Housing	■ The PPS was issued under Section 3 of the Ontario *Planning Act, 1990*. ■ On October 20, 2024, the PPS came into effect which replaced both the Provincial Policy Statement (2020) and A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2019). ■ PPS identifies seven types of natural heritage features to be protected in Ecoregion 5E: - Habitat of endangered or threatened species; - Significant wetlands; - Significant coastal wetlands; - Significant wildlife habitat (including habitat of SOCC); and - Significant Areas of Natural and Scientific Interest (ANSIs). ■ Policies in the PPS are used to guide decision making in the *Class EA for Provincial Transportation Facilities* (MTO, 2000) process. Under the PPS development and site alteration are prohibited in significant wetlands. In addition, development and site alteration are not permitted within the remaining natural heritage features or on adjacent lands to the natural heritage features unless it can be shown that there will be no negative impact or permits or approvals are obtained under other provincial or federal regulations and legislations, as appropriate. ■ The PPS is not binding of the crown.

2. Methods

2.1 Background Data Review

A background review was completed prior to field investigations to obtain information on known natural heritage features and species records, including rare species, i.e., Species at Risk (SAR) and Species of Conservation Concern (SOCC) in the vicinity of the Study Area.

Background information was obtained from the following sources:

Ministry of Natural Resources (MNR) Make-a-Map (2024a) and MNR GeoHub database (2024b) for:

- Designated natural areas (e.g., Areas of Natural and Scientific Interest (ANSIs), wooded areas, Provincially Significant Wetlands [PSWs]/Locally Significant Wetlands [LSWs]/unevaluated wetlands, provincial parks);
- Forest Resource Inventory (FRI) mapping (MNR, 2020);
- Wildlife habitats;
- Aerial Photography; and
- Natural Heritage Information Centre (NHIC) provincially tracked species.

Wildlife Atlases:

- Ontario Breeding Bird Atlas (OBBA; Bird Studies Canada, 2006);
- Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature, 2019);
- Ontario Butterfly Atlas (OBA; MacNaughton et al., 2024);
- Bat Conservation International (BCI) Range Maps (2024);
- Atlas of the Mammals of Ontario (Dobbyn, 1994);
- eBird (2024); and
- iNaturalist (2024).

Planning Documents and Guidelines:

- *NHRM* (MNR, 2010);
- SAR Public Registry (ECCC, 2024);
- *Nipissing Forest Management Plan (*Nipissing Forest Resource Management, 2019*);*
- *Temagami Forest Management Plan (*First Resource Management Group, 2019*);*
- *Significant Wildlife Habitat (SWH) Criteria Schedules for Ecoregion 5E* (MNR, 2015a); and
- *Significant Wildlife Habitat Technical Guide* (MNR, 2000).

2.2 Agency Consultation

The Notice of Study Commencement was sent to the MNR on October 31, 2023. Lynn Moreau, the Regional Planner for the MNR Northeast Region provided a response on November 30, 2023. The full response from the MNR is provided in **Appendix A**. The following key information was provided by the MNR Northeast Region:

- Recommended to not remove any aquatic vegetation from wetlands within Moose Aquatic Feeding Areas (MAFA);
- Recommended to assess the unevaluated wetlands prior to the start of construction;
- Identified the Enhanced Management Area (EMA) Marten River (E154r) less than one kilometre away from the Project Limits. The MNR recommended that even though construction is unlikely to impact the EMA, the project should be consistent with the direction of the EMA;

- Multiple SAR records were identified (See **Section 3.5.1**) by the MNR; however, Blanding's Turtle (*Emydoidea blandingii*) habitat was identified directly adjacent to the Project Limits. The MNR expressed that habitat protection for Blanding's Turtle would be triggered by the General Habitat Description (GHD). The MNR recommended that AECOM reach out to the Ministry of the Environment, Conservation and Parks (MECP) to ensure that there will be no contraventions of the ESA; and
- Exclusion fencing must be erected prior to the initiation of any work if completed during the active season for reptiles and amphibians (April 1 to October 31).

2.3 Field Investigations

Field investigations were completed in 2024 to confirm existing conditions of the terrestrial ecosystems within the Study Area. Field investigations were generally limited to the road right-of-way (ROW) and public spaces. Field investigations conducted within the Study Area included Ecological Land Classification (ELC), a botanical inventory, and breeding bird surveys. Locations of any SOCC, SAR and/or their habitats and incidental wildlife observations including wildlife species sightings, tracks, and scat were recorded during the field investigations. Terrestrial field investigations generally followed the guidance and reporting procedures for the assessment of terrestrial ecosystems found in the ERHD (MTO, 2013), specifically Section 3.2: Terrestrial Ecosystems and The Environmental Standards and Practices Users Guide.

2.3.1 Vegetation Communities and Botanical Inventory

Ontario's FRI represents a large-scale survey using aerial imagery, remote sensing technologies, and field data for modelling and validation. FRI data describes all areas within a forest management unit and is used to support various forest management and land use planning decisions (MNR, 2022). The Study Area falls within the Nipissing Forest Management Unit. FRI data, including mapping for the Forest Management Unit was obtained through the MNR's GeoHub database (2024b; refer to **Section 2.1** above). These data included vegetation communities delineated and classified according to Great Lakes – St. Lawrence Ecosites of Ontario (ELC Working Group, 2009). Ecosites are landscape areas consisting of typical recurring associations of vegetation types and substrate types (ELC Working Group, 2009). ELC provides a method for classifying vegetation communities through the completion of a multilayer (i.e., canopy, sub-canopy, understorey and groundcover) vegetation inventory and soil analysis. Field investigations conducted within the Study Area consisted of confirmatory ELC surveys to ground-truth FRI data and a botanical inventory for each ecosite to characterize vegetation communities. If an area was identified during the field investigations that was not previously delineated but represented a significant area of variation (i.e., at least 0.5 ha in size), a new vegetation community was delineated and classified in the field. Vegetation community boundary delineation and classification to ecosite was conducted in accordance with Ecosites of Ontario Ecological Land Operational Draft (ELC Working Group, 2009) for the Great Lake – St. Lawrence geographic range. Data collected included:

- A summary of conditions within the canopy, sub-canopy, shrub and ground layer;
- A summary of dominant plant species;
- A botanical inventory within each community; and
- A description of the substrates that comprise each community.

2.3.2 Breeding Bird Surveys

Several bird monitoring protocols have been developed that focus on targeting groups of birds including the Forest Bird Monitoring Program developed by the Environment Canada - Canadian Wildlife Service (EC-CWS; 2009) and the Ontario Breeding Bird Atlas (OBBA) *Guide for Participants* (2001). These protocols outline the methods to be conducted to obtain representative and unbiased data. The methods listed below outline proper site selection,

timing including time of day and time of year to conduct the surveys and suitable weather conditions (EC-CWS 2009; OBBA, 2001).

Under the EC-CWS Forest Bird Monitoring Program (2009), survey stations should typically occur within an individual community that is characterized by uniform community structure. Within these communities, stations should be located at least 250 metres apart and 100 metres from the edge of a forest (EC-CWS, 2009). However, as the intent of the study was to determine species composition within the entire Study Area, all habitat types were surveyed. As such, the survey protocol was adapted to encompass all habitat types including associated ecotones located along edges of natural areas. Each station was located at least 250 metres apart to maintain a degree of separation and reduce the chances of double counting individual birds. A total of 14 stations were distributed throughout the Study Area to capture avian diversity across a variety of habitat types (e.g., forest, swamp, marsh, fen). Locations of breeding bird survey stations are shown on **Figure 2**.

As outlined in the OBBA and EC-CWS protocols, two point-count surveys were completed at each station during the breeding bird period between June 1 and July 10 (OBBA, 2001). The separate surveys are recommended as they typically provide data that more accurately reflects the number of species and birds utilizing the habitat at each station (EC-CWS, 2009). Surveys were completed between 5:00 am and 10:00 am under appropriate weather conditions (i.e., no precipitation, calm to light wind) (EC-CWS, 2009). Each point-count consisted of two, ten-minute surveys in 2024 during which time, species, breeding evidence and individual bird movement within a 100-metre radius was recorded. Species heard outside of the 100-metre radius or that were observed outside of their breeding habitat within the 100-metre radius (i.e., flyovers) were recorded separately.

2.4 Significant Wildlife Habitat Screening

The *SWH Criteria Schedules for Ecoregion 5E* (MNR, 2015a) contains information and criteria for identifying SWH, which are defined as areas that have important ecological features and functions and support sustainable populations of plants, wildlife and other organisms within Ecoregion 5E.

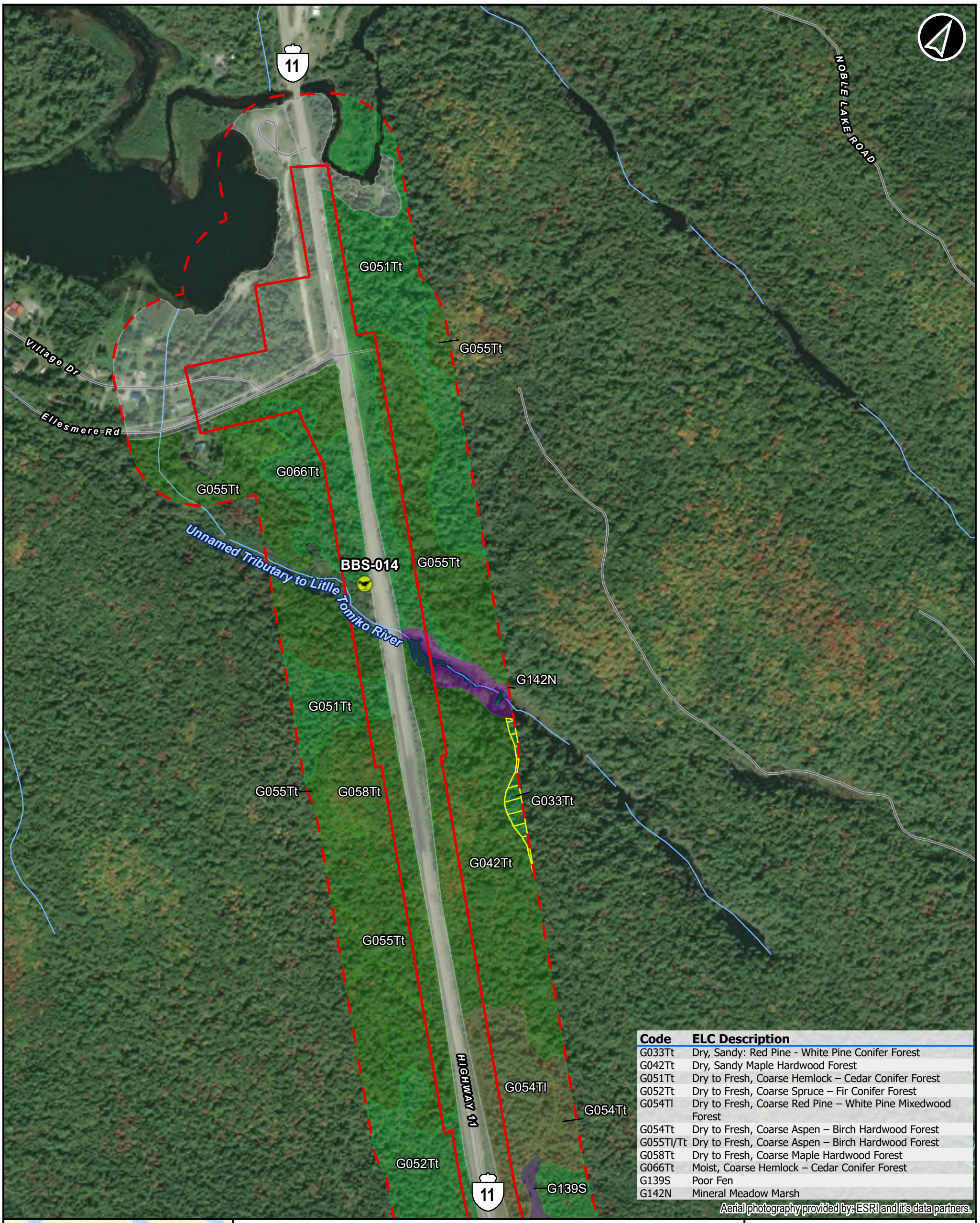
SWH types are divided into the following four broad categories:

- Seasonal concentration areas;
- Rare vegetation communities or specialized habitats of wildlife;
- Habitats of SOCC; and
- Animal movement corridors.

SOCC are considered to be the following:

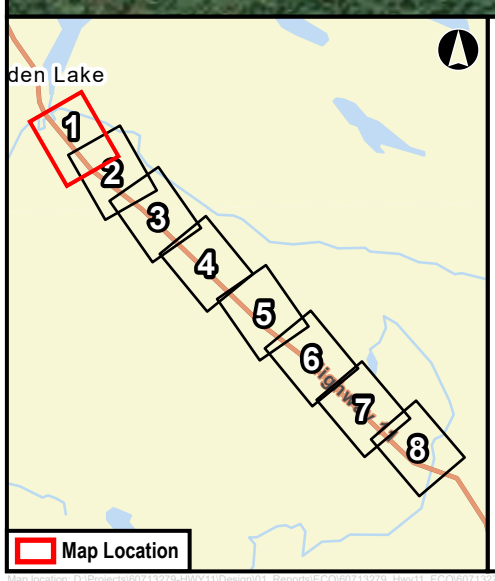
- Species with Provincial S-rank assigned by the NHIC as S1 (critically imperilled), S2 (imperilled) or S3 (vulnerable);
- Species listed as Special Concern under the ESA; and
- Species identified as nationally Endangered or Threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), that are not protected under the ESA.

A SWH screening exercise was conducted using the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 5E* (MNR, 2015a) and the results of the background review (described in **Section 2.1**) to identify the presence of candidate or confirmed SWH within the Study Area. The results of the 2024 field investigations were used to validate candidate or confirmed SWH identified within the Study Area through the desktop review.



Code	ELC Description
G033Tt	Dry, Sandy: Red Pine - White Pine Conifer Forest
G042Tt	Dry, Sandy Maple Hardwood Forest
G051Tt	Dry to Fresh, Coarse Hemlock – Cedar Conifer Forest
G052Tt	Dry to Fresh, Coarse Spruce – Fir Conifer Forest
G054Tl	Dry to Fresh, Coarse Red Pine – White Pine Mixedwood Forest
G054Tt	Dry to Fresh, Coarse Aspen – Birch Hardwood Forest
G055Tl/Tt	Dry to Fresh, Coarse Aspen – Birch Hardwood Forest
G058Tt	Dry to Fresh, Coarse Maple Hardwood Forest
G066Tt	Moist, Coarse Hemlock – Cedar Conifer Forest
G139S	Poor Fen
G142N	Mineral Meadow Marsh

Aerial photography provided by: ESRI and it's data partners.



Legend

- Study Area (120m)
- Anticipated Clearing Area
- **ELC** - Forest Resource Inventory (FRI)

ELC - Field Verified (AECOM, 2024)

- Anthropogenic
- Coniferous Forest
- Deciduous Forest
- Fen
- Meadow Marsh
- Mixedwood Forest
- Water
- Breeding Bird Stations

General Features

- Minor Road
- Watercourse

Highway 11 2+1

Breeding Bird Survey Stations and Ecological Land Classification

0 50 100 200 300
Meters
Datum: NAD 1983 UTM Zone 17N

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Figure 2-1

Map location: D:\Projects\60713279-HWY11\Design\01_Reports\ECO\60713279_Hwy11_ECO\60713279_Hwy11_ECO.aprx
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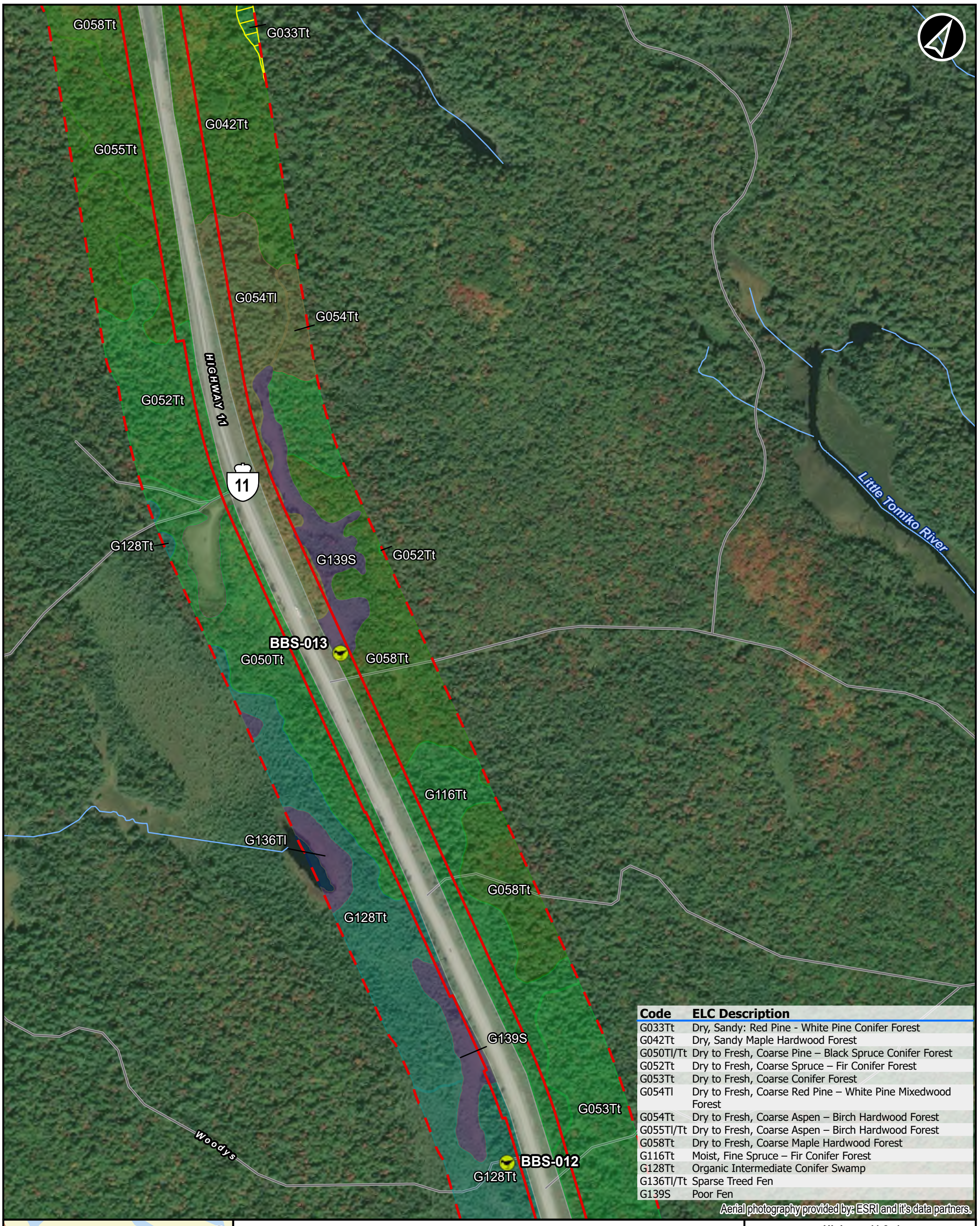
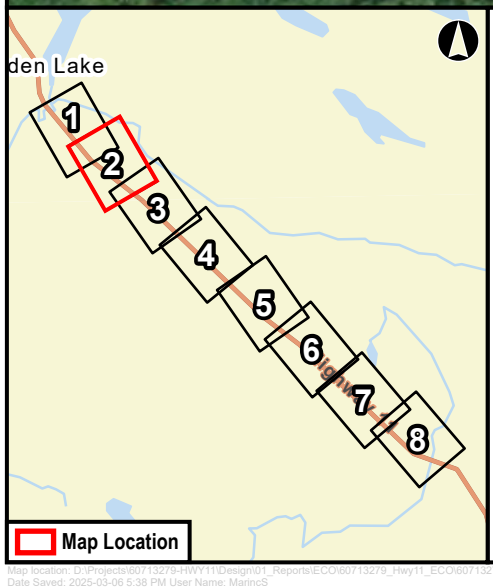


Code	ELC Description
G033Tt	Dry, Sandy: Red Pine - White Pine Conifer Forest
G042Tt	Dry, Sandy Maple Hardwood Forest
G050Tl/Tt	Dry to Fresh, Coarse Pine – Black Spruce Conifer Forest
G052Tt	Dry to Fresh, Coarse Spruce – Fir Conifer Forest
G053Tt	Dry to Fresh, Coarse Conifer Forest
G054Tl	Dry to Fresh, Coarse Red Pine – White Pine Mixedwood Forest
G054Tt	Dry to Fresh, Coarse Aspen – Birch Hardwood Forest
G055Tl/Tt	Dry to Fresh, Coarse Aspen – Birch Hardwood Forest
G058Tt	Dry to Fresh, Coarse Maple Hardwood Forest
G116Tt	Moist, Fine Spruce – Fir Conifer Forest
G128Tt	Organic Intermediate Conifer Swamp
G136Tl/Tt	Sparse Treed Fen
G139S	Poor Fen

Aerial photography provided by: ESRI and it's data partners.



Legend

- Study Area (120m)
- Anticipated Clearing Area
- **ELC** - Forest Resource Inventory (FRI)

ELC - Field Verified (AECOM, 2024)

- Anthropogenic
- Coniferous Forest
- Coniferous Swamp
- Deciduous Forest
- Exposed Mineral Material
- Fen
- Mixedwood Forest
- Water
- Breeding Bird Stations

General Features

- Minor Road
- Watercourse

Highway 11 2+1

Breeding Bird Survey Stations and Ecological Land Classification

0 50 100 200 300
Meters
Datum: NAD 1983 UTM Zone 17N

Mar, 2025	1:6,000	**Data Sources:** Open Government License Ontario
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Figure 2-2

Map location: D:\Projects\60713279-HWY11\Design\01_Reports\ECO\60713279_Hwy11_ECO\60713279_Hwy11_ECO.aprx
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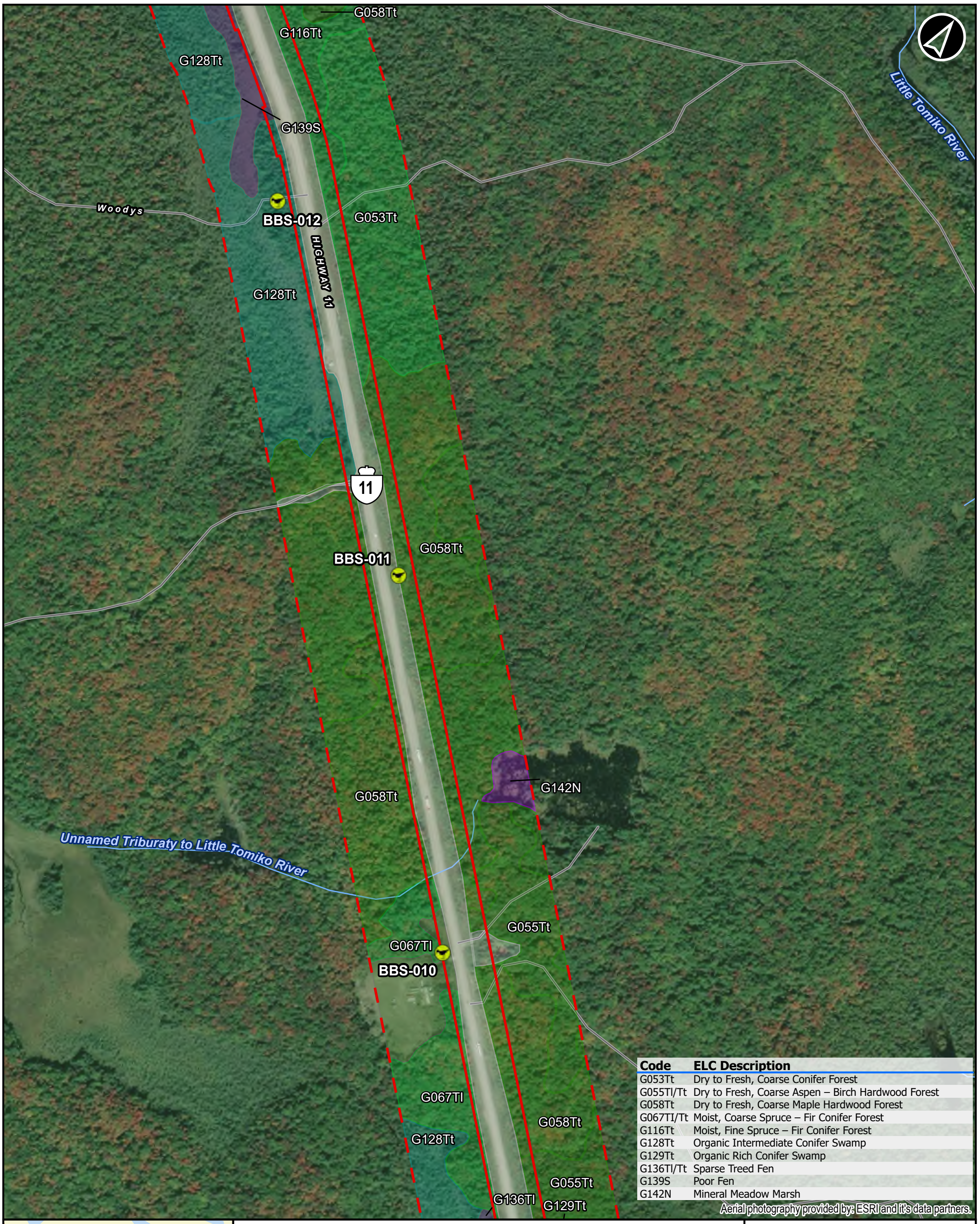
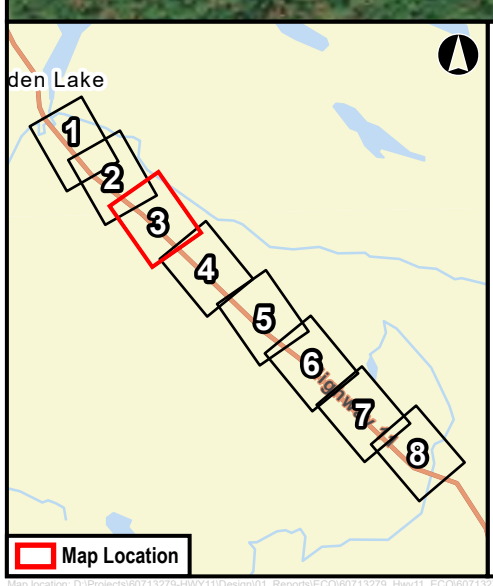


Code	ELC Description
G053Tt	Dry to Fresh, Coarse Conifer Forest
G055TI/Tt	Dry to Fresh, Coarse Aspen – Birch Hardwood Forest
G058Tt	Dry to Fresh, Coarse Maple Hardwood Forest
G067TI/Tt	Moist, Coarse Spruce – Fir Conifer Forest
G116Tt	Moist, Fine Spruce – Fir Conifer Forest
G128Tt	Organic Intermediate Conifer Swamp
G129Tt	Organic Rich Conifer Swamp
G136TI/Tt	Sparse Treed Fen
G139S	Poor Fen
G142N	Mineral Meadow Marsh



Legend

- Study Area (120m)
- Anticipated Clearing Area

ELC - Field Verified (AECOM, 2024)

- Anthropogenic
- Coniferous Forest
- Coniferous Swamp
- Deciduous Forest
- Exposed Mineral Material
- Fen
- Meadow Marsh

- Breeding Bird Stations

General Features

- Minor Road
- Watercourse

Highway 11 2+1

Breeding Bird Survey Stations and Ecological Land Classification

0 50 100 200 300
Meters
Datum: NAD 1983 UTM Zone 17N

Mar, 2025	1:6,000	**Data Sources:** Open Government License Ontario
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Figure 2-3

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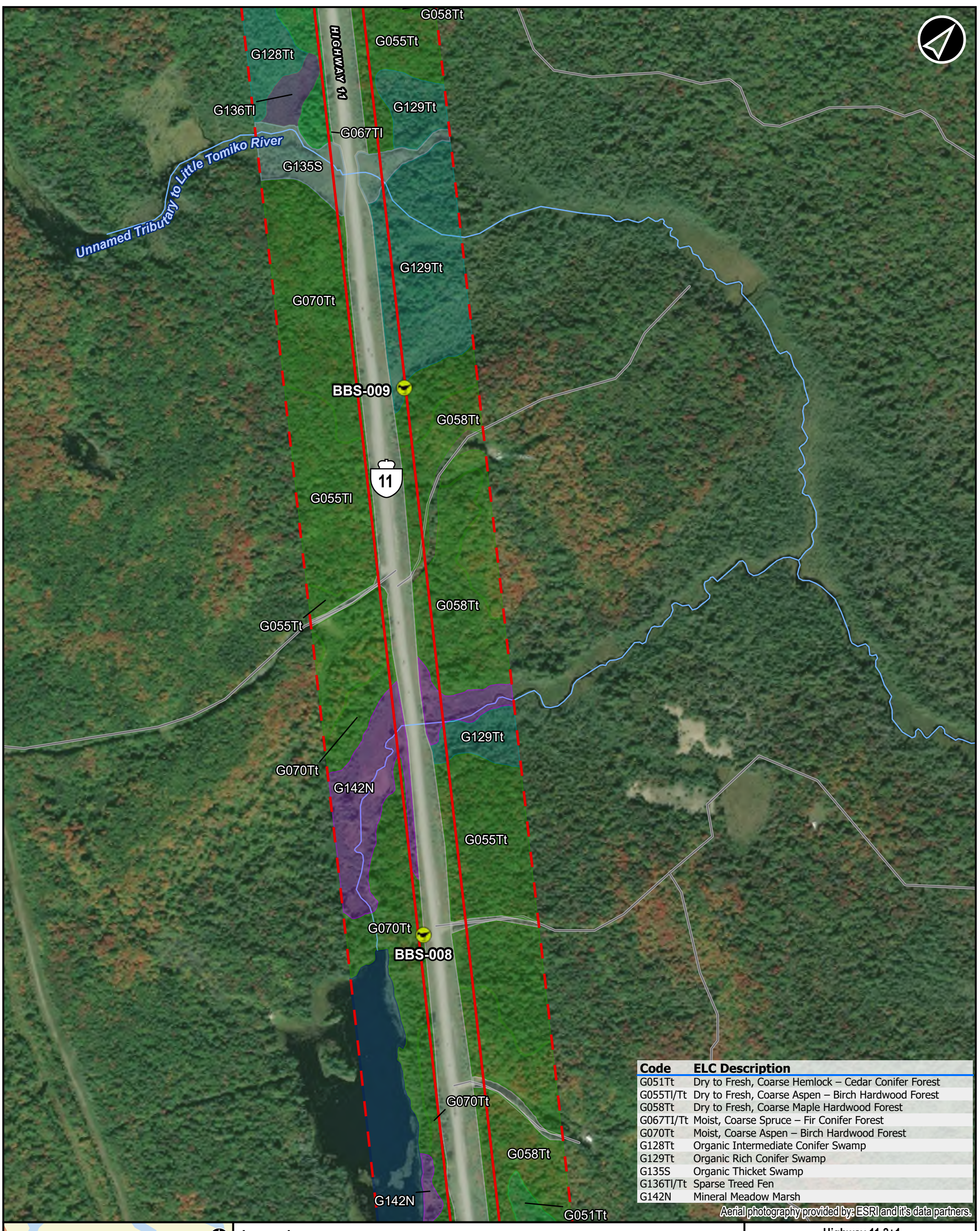
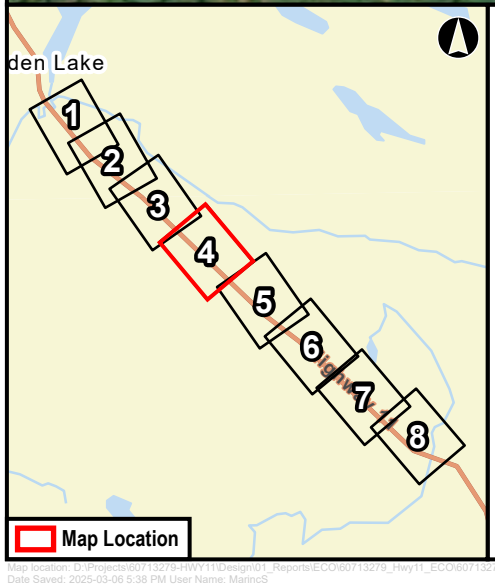


Code	ELC Description
G051Tt	Dry to Fresh, Coarse Hemlock – Cedar Conifer Forest
G055Tl/Tt	Dry to Fresh, Coarse Aspen – Birch Hardwood Forest
G058Tt	Dry to Fresh, Coarse Maple Hardwood Forest
G067Tl/Tt	Moist, Coarse Spruce – Fir Conifer Forest
G070Tt	Moist, Coarse Aspen – Birch Hardwood Forest
G128Tt	Organic Intermediate Conifer Swamp
G129Tt	Organic Rich Conifer Swamp
G135S	Organic Thicket Swamp
G136Tl/Tt	Sparse Treed Fen
G142N	Mineral Meadow Marsh



Legend

- Study Area (120m)
- Anticipated Clearing Area

ELC - Field Verified (AECOM, 2024)

- Anthropogenic
- Coniferous Forest
- Coniferous Swamp
- Deciduous Forest
- Fen
- Meadow Marsh
- Thicket Swamp
- Water

- Breeding Bird Stations

General Features

- Minor Road
- Watercourse

Highway 11 2+1

Breeding Bird Survey Stations and Ecological Land Classification

0 50 100 200 300

Meters

Datum: NAD 1983 UTM Zone 17N

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Figure 2-4

Map location: D:\Projects\60713279-HWY11\Design\01_Reports\ECO\60713279_Hwy11_ECO\60713279_Hwy11_ECO.aprx
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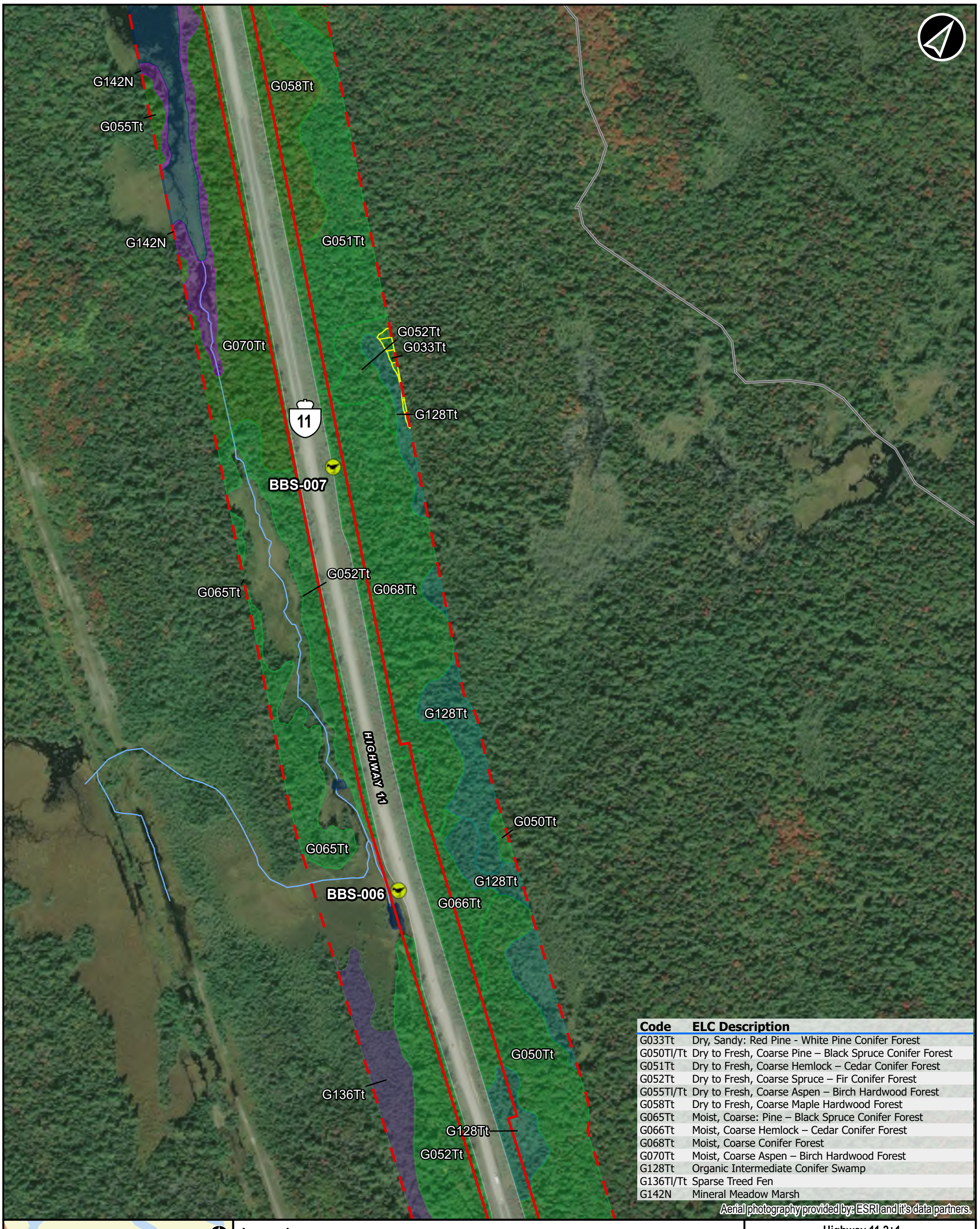
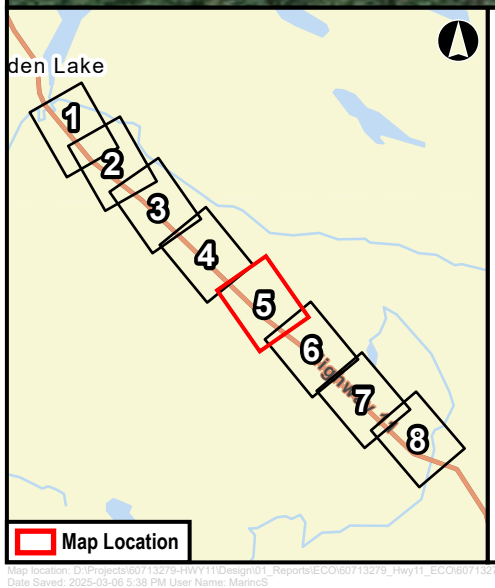


Code	ELC Description
G033Tt	Dry, Sandy: Red Pine - White Pine Conifer Forest
G050Tl/Tt	Dry to Fresh, Coarse Pine – Black Spruce Conifer Forest
G051Tt	Dry to Fresh, Coarse Hemlock – Cedar Conifer Forest
G052Tt	Dry to Fresh, Coarse Spruce – Fir Conifer Forest
G055Tl/Tt	Dry to Fresh, Coarse Aspen – Birch Hardwood Forest
G058Tt	Dry to Fresh, Coarse Maple Hardwood Forest
G065Tt	Moist, Coarse: Pine – Black Spruce Conifer Forest
G066Tt	Moist, Coarse Hemlock – Cedar Conifer Forest
G068Tt	Moist, Coarse Conifer Forest
G070Tt	Moist, Coarse Aspen – Birch Hardwood Forest
G128Tt	Organic Intermediate Conifer Swamp
G136Tl/Tt	Sparse Treed Fen
G142N	Mineral Meadow Marsh



Legend

- Study Area (120m)
- Anticipated Clearing Area
- **ELC** - Forest Resource Inventory (FRI)

ELC - Field Verified (AECOM, 2024)

- Anthropogenic
- Coniferous Forest
- Coniferous Swamp
- Deciduous Forest
- Fen
- Meadow Marsh
- Water
- Breeding Bird Stations

General Features

- Minor Road
- Watercourse

Highway 11 2+1

Breeding Bird Survey Stations and Ecological Land Classification

0 50 100 200 300
Meters
Datum: NAD 1983 UTM Zone 17N

Mar, 2025	1:6,000	**Data Sources:** Open Government License Ontario
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AECOM

Figure 2-5

Map location: D:\Projects\60713279-HWY11\Design\01_Reports\ECO\60713279_Hwy11_ECO\60713279_Hwy11_ECO.aprx
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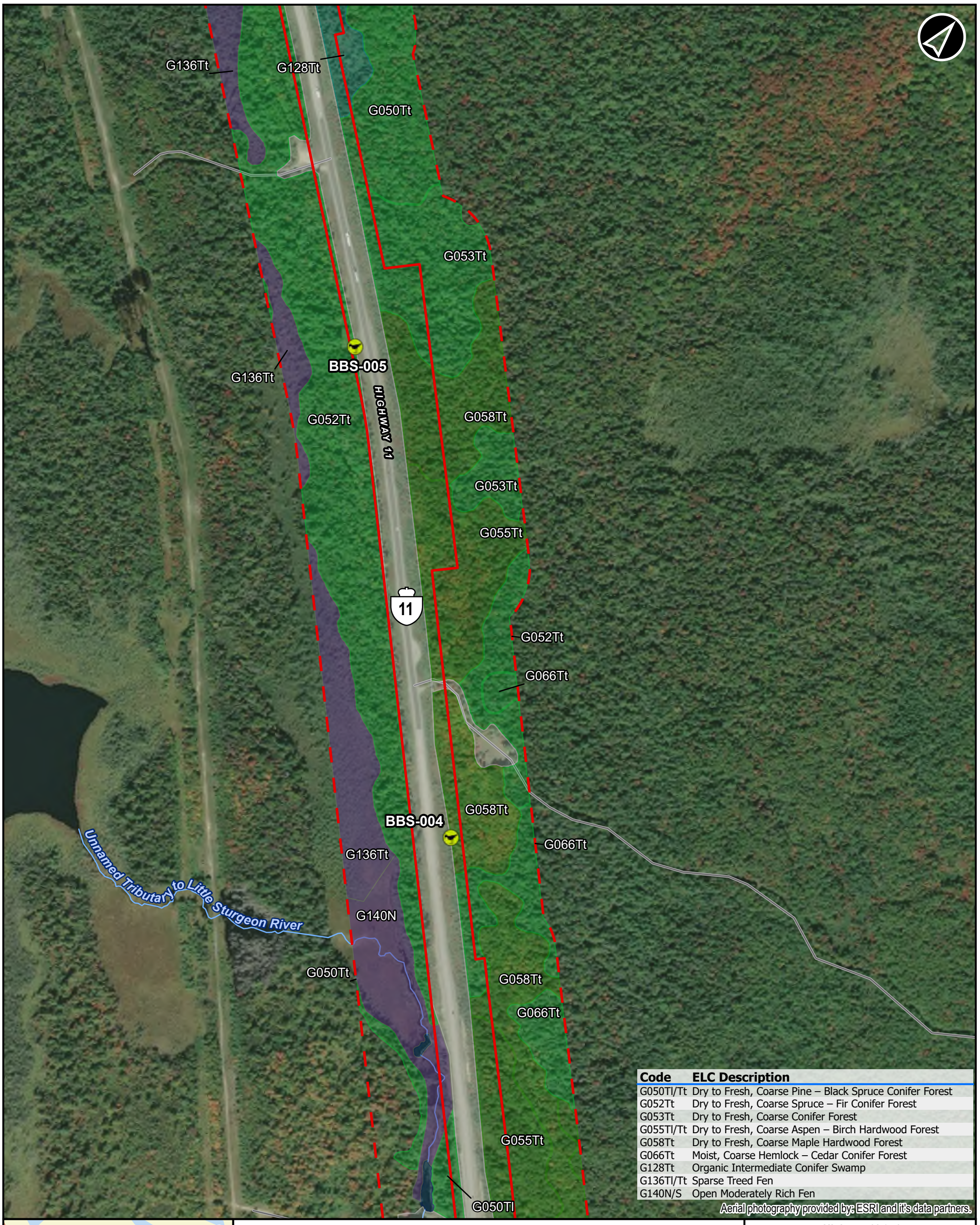
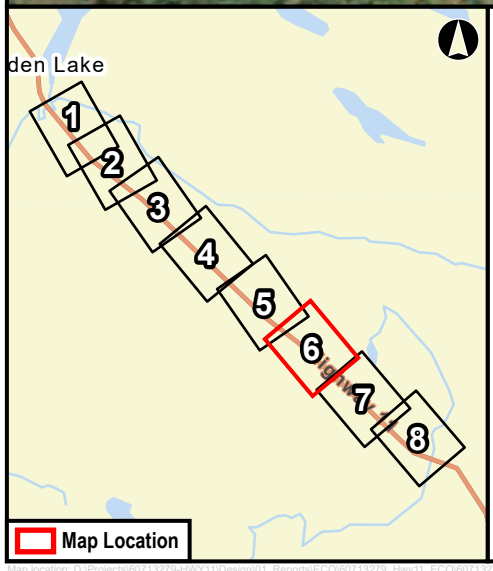


Code	ELC Description
G050Tl/Tt	Dry to Fresh, Coarse Pine – Black Spruce Conifer Forest
G052Tt	Dry to Fresh, Coarse Spruce – Fir Conifer Forest
G053Tt	Dry to Fresh, Coarse Conifer Forest
G055Tl/Tt	Dry to Fresh, Coarse Aspen – Birch Hardwood Forest
G058Tt	Dry to Fresh, Coarse Maple Hardwood Forest
G066Tt	Moist, Coarse Hemlock – Cedar Conifer Forest
G128Tt	Organic Intermediate Conifer Swamp
G136Tl/Tt	Sparse Treed Fen
G140N/S	Open Moderately Rich Fen

Aerial photography provided by: ESRI and it's data partners.



Legend

- Study Area (120m)
- Anticipated Clearing Area
- **ELC** - Field Verified (AECOM, 2024)
  - Anthropogenic
  - Coniferous Forest
  - Coniferous Swamp
  - Deciduous Forest
  - Fen
  - Water
- Breeding Bird Stations

General Features

- Minor Road
- Watercourse

Highway 11 2+1

Breeding Bird Survey Stations and Ecological Land Classification

0 50 100 200 300
Meters
Datum: NAD 1983 UTM Zone 17N

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Figure 2-6

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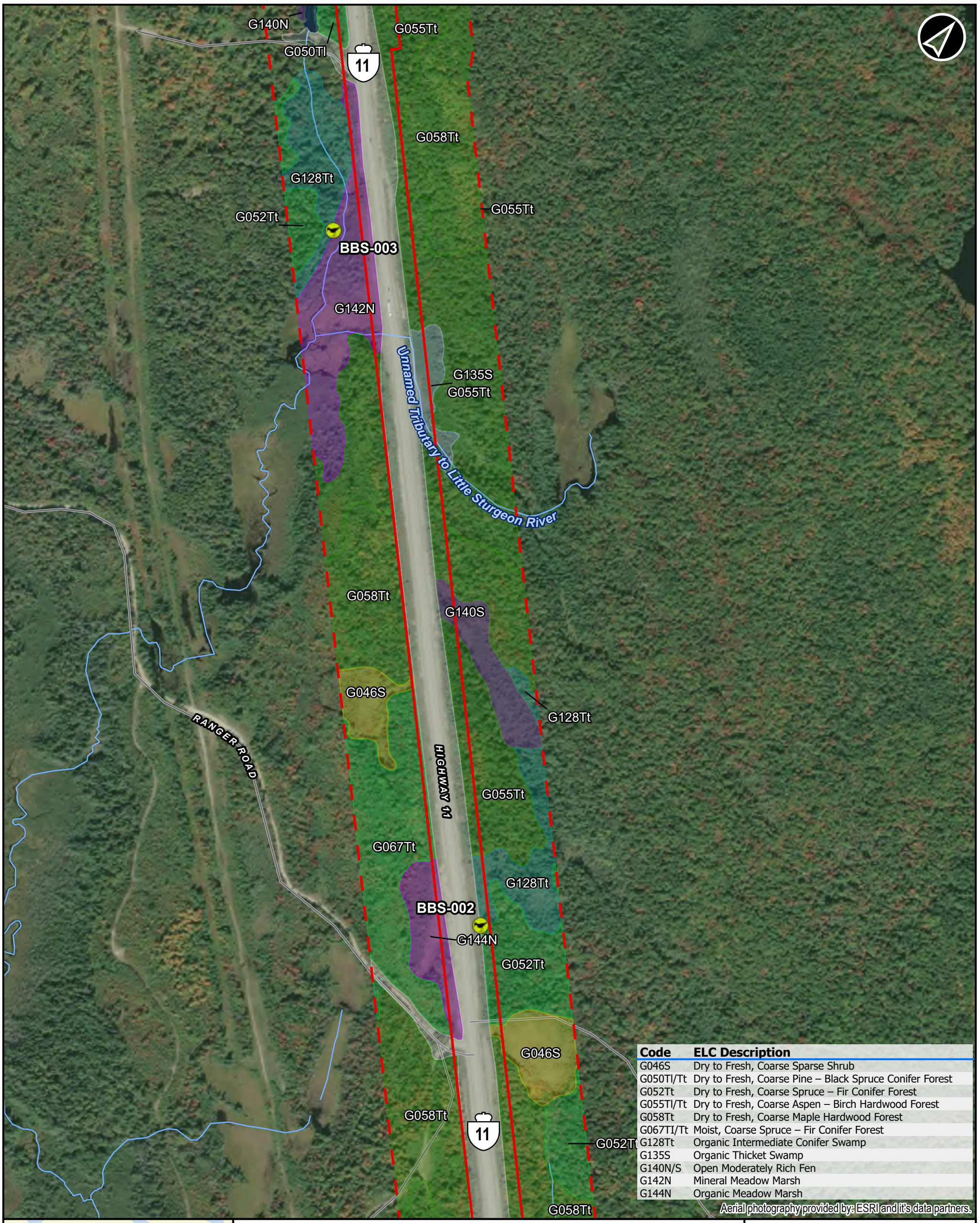
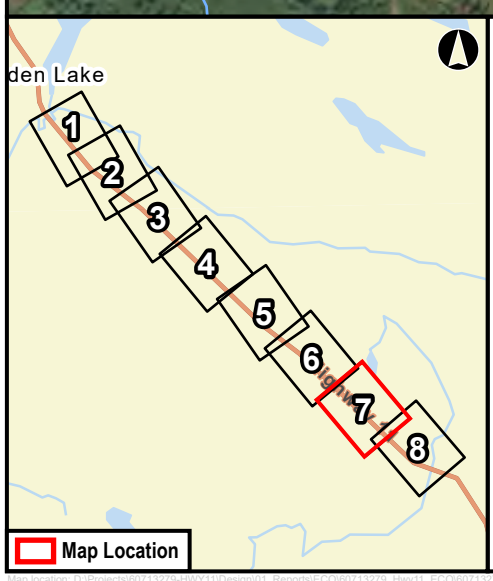


Code	ELC Description
G046S	Dry to Fresh, Coarse Sparse Shrub
G050Tl/Tt	Dry to Fresh, Coarse Pine – Black Spruce Conifer Forest
G052Tt	Dry to Fresh, Coarse Spruce – Fir Conifer Forest
G055Tl/Tt	Dry to Fresh, Coarse Aspen – Birch Hardwood Forest
G058Tt	Dry to Fresh, Coarse Maple Hardwood Forest
G067Tl/Tt	Moist, Coarse Spruce – Fir Conifer Forest
G128Tt	Organic Intermediate Conifer Swamp
G135S	Organic Thicket Swamp
G140N/S	Open Moderately Rich Fen
G142N	Mineral Meadow Marsh
G144N	Organic Meadow Marsh



Legend

- Study Area (120m)
- Anticipated Clearing Area

ELC - Field Verified (AECOM, 2024)

- Anthropogenic
- Coniferous Forest
- Coniferous Swamp
- Deciduous Forest
- Fen
- Meadow Marsh
- Shrub Thicket
- Thicket Swamp
- Water

- Breeding Bird Stations

General Features

- Minor Road
- Watercourse

Highway 11 2+1

Breeding Bird Survey Stations and Ecological Land Classification

0 50 100 200 300
Meters
Datum: NAD 1983 UTM Zone 17N

Mar, 2025	1:6,000	**Data Sources:** Open Government License Ontario
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Figure 2-7

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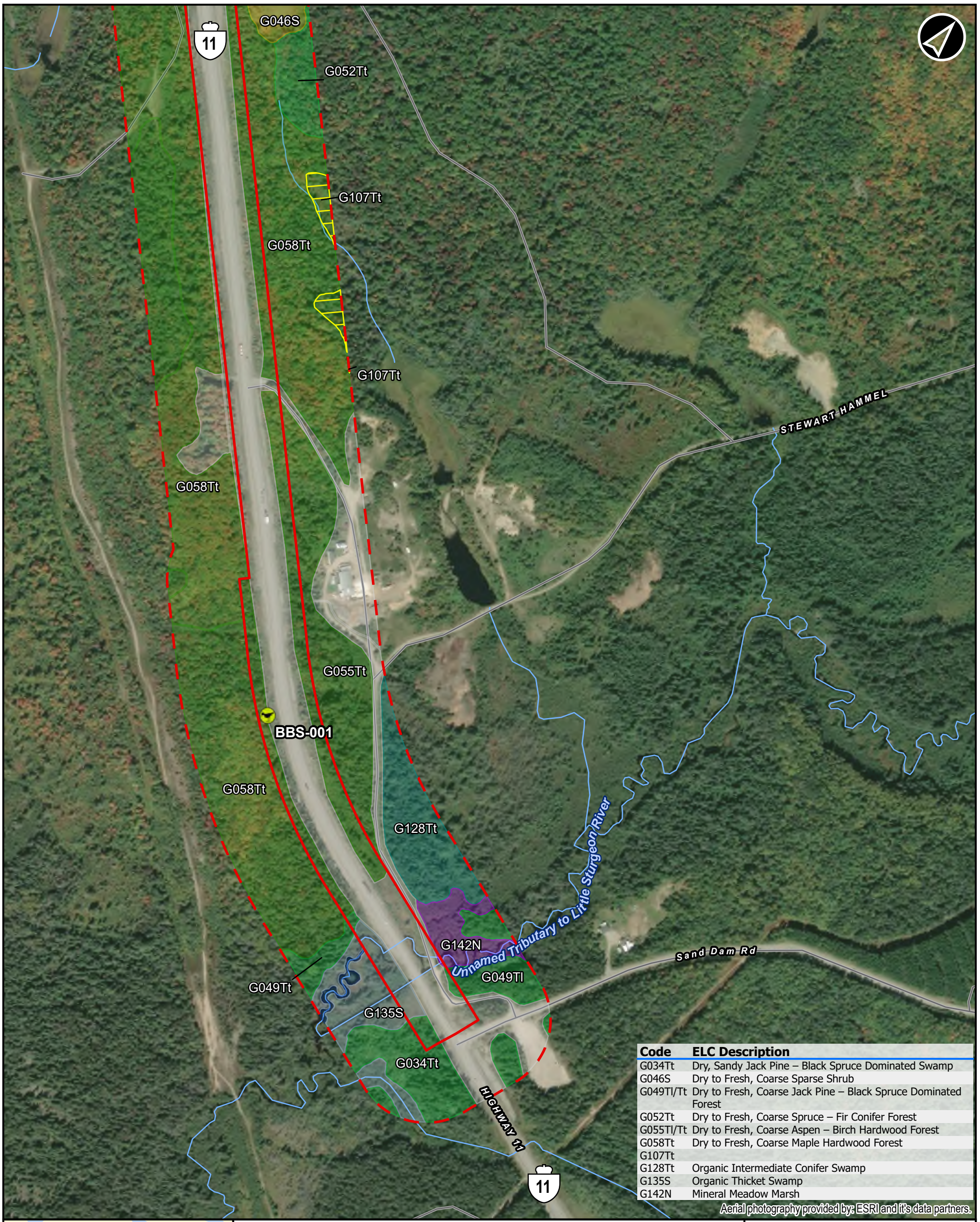
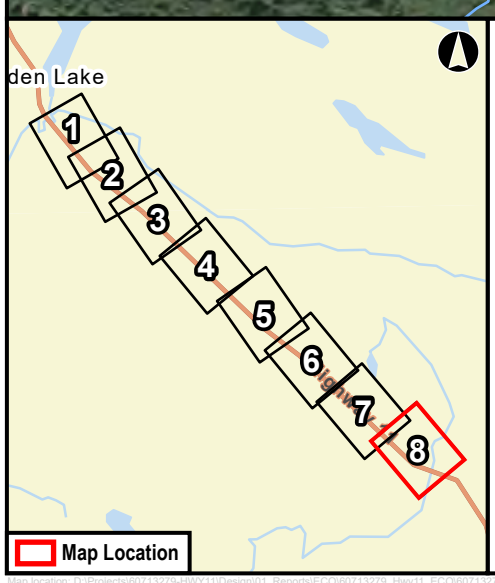


Code	ELC Description
G034Tt	Dry, Sandy Jack Pine – Black Spruce Dominated Swamp
G046S	Dry to Fresh, Coarse Sparse Shrub
G049Tl/Tt	Dry to Fresh, Coarse Jack Pine – Black Spruce Dominated Forest
G052Tt	Dry to Fresh, Coarse Spruce – Fir Conifer Forest
G055Tl/Tt	Dry to Fresh, Coarse Aspen – Birch Hardwood Forest
G058Tt	Dry to Fresh, Coarse Maple Hardwood Forest
G107Tt	
G128Tt	Organic Intermediate Conifer Swamp
G135S	Organic Thicket Swamp
G142N	Mineral Meadow Marsh

Aerial photography provided by: ESRI and it's data partners.



Legend

- Study Area (120m)
- Anticipated Clearing Area
- **ELC** - Forest Resource Inventory (FRI)

ELC - Field Verified (AECOM, 2024)

- Anthropogenic
- Coniferous Forest
- Coniferous Swamp
- Deciduous Forest
- Meadow Marsh
- Shrub Thicket
- Thicket Swamp
- Water

- Breeding Bird Stations

General Features

- Minor Road
- Watercourse

Highway 11 2+1

Breeding Bird Survey Stations and Ecological Land Classification

0 50 100 200 300
Meters
Datum: NAD 1983 UTM Zone 17N

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Figure 2-8

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2.5 Species at Risk Habitat Screening

For the purpose of this report, SAR are defined as species that are listed as Threatened, Endangered or Extirpated, provincially. These species, as well as their habitat, are afforded protection under the ESA. Species listed as Special Concern under the ESA are considered SOCC and are addressed through the SWH screening exercise (**Section 2.4**).

SAR records were compiled through a review of background data (**Section 2.1**) and evidence of these species or their habitats were searched for during the field investigations. A habitat assessment was completed for each of the identified SAR to determine whether or not there is potential for that SAR to occur within the Study Area. This assessment was based on FRI mapping and interpretation of aerial photography and then further refined after field investigations. The species' preferred habitat requirements were compared against the on-site conditions in order to determine the likelihood of that species occurring within the Study Area. The potential for the species to occur was determined through the following rankings:

- Low Probability: No suitable habitat present within the Study Area but there is a recent occurrence record identified through background review;
- Medium Probability: Potentially suitable habitat present within the Study Area. Although species not observed during the 2024 field investigations, there are recent occurrence records in the vicinity of the Study Area identified through background review; and
- High Probability: Good quality habitat identified within the Study Area. To qualify as high probability, species had to either be observed during the 2024 field investigations or had recent occurrence records in the Study Area identified though background review.

It should be noted that habitat assessments for aquatic SAR were not investigated as part of the terrestrial investigations; however, they are included in a separate cover titled the *Highway 11 Improvements from Sand Dam Road northerly to Ellsmere Road (13.8 km) (GWP 5151-21-00); and from 4.6 km north of Highway 64 northerly 11.4 km to 340 m south of Jumping Caribou Road (GWP 5033-22-00) Fish and Fish Habitat Existing Conditions Report* (AECOM, 2025).

3. Results

The following sections document the existing terrestrial conditions within the Study Area. Terrestrial ecosystems are those associated with land including, but not limited to, forests, meadows, thickets and wetlands. Terrestrial ecosystems provide habitat for a variety of wildlife species, some of which are rare or sensitive. These ecosystems and species identified within the Study Area during the background review and site investigations are described in detail below.

3.1 Designated Natural Areas

Natural features and areas identified for protection in the PPS and other legislation are collectively referred to as 'designated natural areas'; these include, but are not limited to significant wetlands, significant wildlife habitat, etc. and may be identified by the planning authority (e.g., province, municipality, conservation authority).

3.1.1 Background Data

A summary of designated areas identified within the Study Area through the background are provided in **Table 3-1** below. Designated natural areas within and in the vicinity of the Study Area are illustrated on **Figure 1.**

Table 3-1: Designated Natural Areas within the Study Area

Designated Natural Area	Present within the Study Area?	Description	Location within the Study Area
Areas of Natural and Scientific Interest (ANSIs)	No	N/A	N/A
Environmentally Significant/Sensitive Areas	No	N/A	N/A
Significant Wildlife Habitat	Yes	Moose Aquatic Feeding Areas	Throughout Study Area. See Figure 1
Provincially Significant Wetlands (PSWs)	No	N/A	N/A
Unevaluated Wetlands	Yes	58 unevaluated wetlands	Throughout Study Area. See **Figure 1**
Parks and Protected Areas	No	Enhanced Management Area (EMA) Marten River (E154r)	The MNR identified that this EMA occurs less than one kilometre from the Project Area. Although the proposed construction is not likely to impact the EMA, the MNR recommends that the project proposal be consistent with the direction of the EMA. See **Figure 1**.

3.2 Vegetation Communities and Plants

In Ontario, vegetation communities are delineated according to the ELC system. The ELC system provides methods for identifying and mapping vegetation communities in a way that can be used for land use planning.

3.2.1 Background Data

The Study Area is within the Ontario Shield Ecozone, the Georgian Bay Ecoregion (5E), and the Tomiko Ecodistrict (5E-6). Mean annual precipitation ranges between 771 and 1134 mm and average temperatures ranging between 2.8 to 6.2°C within this Ecoregion. The Tomiko Ecodistrict is situated on Archean Eon bedrock and generally

contains mixed forests with a discontinuous layer of mineral material and large accumulations of organic material over bedrock and glaciofluvial deposits composed of Humo-Ferric Podzols. Forested areas are sparse and are typically present on rock outcrops interspersed with exposed bedrock (Wester et al., 2018).Common tree species within the Tomiko Ecodistrict included Trembling Aspen (*Populus tremuloides*), Large-toothed Aspen (*Populus grandidentata*), Paper Birch (*Betula papyrifera*), Jack Pine (*Pinus banksiana*), Balsam Fir (*Abies balsamea*), Sugar Maple (*Acer saccharum*), Yellow Birch (*Betula alleghaniensis*), Eastern Hemlock (*Tsuga canadensis*), Northern Red Oak (*Quercus rubra*), Black Spruce (*Picea mariana*), White Spruce (*Picea glauca*), Eastern Hop-hornbeam (*Ostrya virginiana*) and Red Maple (*Acer rubrum*).

3.2.2 Field Investigations

The landscape surrounding the Study Area is primarily undeveloped land and consists of extensive woodland and wetland communities. Vegetation communities within the Study Area were assessed by AECOM on June 3, 4, 24 and 25, 2024. The vegetation within the Study Area was mostly comprised of mature forest with little to no disturbance present in the communities. A total of 25 vegetation communities were delineated within the Study Area using a combination of methods (field verification, edge of community/road survey, or aerial photo interpretation) depending on available access. Field surveys were completed from the road ROW and publicly accessible areas. The location of each vegetation community identified within the Study Area as well as a summary of the vegetation found in the tree canopy, shrub layer and ground layer are found in **Appendix B**. None of the communities identified were considered provincially significant. The delineation of vegetation communities within the Study Area are shown **on Figure 2.** A representative photographic log of each community is provided in **Appendix C**.

A list of vascular plant species observed within each vegetation community is provided in **Appendix D.** A total of 134 plant species were recorded; of which 110 (80%) were native and 15 (11%) were introduced. Nine species were identified to their genus and therefore were not included as either native or introduced. One SAR plant, Black Ash (*Fraxinus nigra*), a species listed as Endangered under the ESA was observed within the following five vegetation communities:

- Dry to Fresh, Coarse Spruce – Fir Conifer Forest (G052Tt);
- Dry to Fresh, Coarse Red Pine – White Pine Mixedwood Forest (G054TI);
- Dry to Fresh, Coarse Aspen – Birch Hardwood Forest (G055Tl/Tt);
- Moist, Coarse Hemlock – Cedar Conifer Forest (G066Tt); and
- Moist, Coarse Aspen – Birch Hardwood Forest (G070Tt).

No other SAR or SOCC plants were recorded during field investigations. Of the 15 introduced species, nine are considered invasive including Broad-leaved Helleborine (*Epipactis helleborine*), Hedge Bedstraw (*Galium album*), Common St. John's-wort (*Hypericum perforatum*), Garden Bird's-foot Trefoil (*Lotus corniculatus*), Purple Loosestrife (*Lythrum salicaria*), Reed Canary Grass (*Phalaris arundinacea*), Common Reed (*Phragmites australis*), Coltsfoot (*Tussilago farfara),* and Tufted Vetch (*Vicia cracca*).

3.3 Breeding Birds

3.3.1 Background Data

Background data was collected from the OBBA (BSC et al., 2006), NHIC (MNR, 2024a), iNaturalist database (iNaturalist, 2024) and eBird database (eBird, 2024) to identify the species of birds that have been recorded in the vicinity of the Study Area. Data obtained from the two 10 km by 10 km atlas squares (17TPM05 and 17TPM15) that encompass the Study Area identified a total of 186 bird species with various levels of breeding evidence including 21 SOCC and nine SAR as discussed in **Section 3.4** and **3.5,** respectively.

3.3.2 Field Investigations

A total of 54 bird species were observed during the two rounds of breeding bird surveys conducted on June 3 and 4, 2024 and on June 24 and 25, 2024. Of these, 'probable[1]' breeding evidence was identified for 18 species and 'possible' breeding evidence was identified for 36 species. No confirmed breeding evidence was observed for any species during the breeding bird surveys. Of the 18 species identified with 'probable' breeding evidence, one species, Blue-headed Vireo (*Vireo solitarius*), was observed building a nest. The remaining 17 species had presumed territory based on the presence of an adult bird observed in the same suitable nesting habitat patch on at least two visits during the breeding bird season. The highest level of breeding evidence for the 36 species identified as having 'possible[2]' breeding evidence was the presence of a singing male. As the MBCA prohibits the possession, destruction, and harm of migratory birds and/or their active nests, recording the breeding evidence of bird species is crucial to determine whether any MBCA protected bird species may be nesting within the Study Area.

One SAR and two SOCC species were observed during the breeding bird surveys. Chimney Swift (*Chaetura pelagica*), a species listed as Threatened under the ESA, was observed at BBS-001 on June 24, 2024, as a 'possible' breeder. Two individuals were observed as flyovers over the Dry to Fresh, Coarse Maple Hardwood Forest (G058Tt). Chimney Swifts are typically found around urban settlements where they nest and roost in chimneys and other manmade structures (MECP, 2024a), however, some Chimney Swifts still use large hollow trees greater than 50 cm diameter at breast height (dbh; COESWIC, 2018). Chimney Swifts that may be using hollow trees and tree cavities in the Study Area may be using old growth or mature forest (hardwood, mixedwood and coniferous) communities. The individuals observed during field investigations may be nesting within the Dry to Fresh, Coarse Maple Hardwood Forest (G058Tt) or within nearby urban structures such as the manufacturing plant along Stewart Hammel Road.

In addition to Chimney Swift, two SOCC birds – Canada Warbler (*Cardellina canadensis*) and Wood Thrush (*Hylocichla mustelina*) – were observed during the breeding bird surveys. Canada Warbler, a species listed as Special Concern under the ESA, was observed as a 'possible' breeder at BBS-012 on June 4, 2024. An individual singing male was heard singing from a Dry to Fresh, Coarse Maple Hardwood Forest (G058Tt) community. Wood Thrush, another species listed as Special Concern under the ESA, was observed as a 'possible' breeder at BBS-012 on June 25, 2024. An individual singing male was heard singing from a Moist, Fine Spruce – Fir Conifer Forest (G116Tt) community.

The remaining species heard during breeding bird surveys are considered widespread and common, and majority receive protection under the MBCA. The complete results of the breeding bird surveys are listed in **Appendix E.**

3.3.2.1 Structure Surveys

Structures within the Study Area may provide nesting habitat to species whose nests are protected under MBCA; although no nests were observed under any of the examined structures including the bridge at Sand Dam Road, a comprehensive inventory was not included as part of the scope for this Report.

3.3.2.2 Migratory Birds Regulations, 2022 – Schedule 1 Species

As described in **Section 1.2,** the MBCA and the *Migratory Birds Regulations, 2022* (MBR) protect most species of migratory birds anywhere they are found in Canada, regardless of land ownership. Upon the enforcement of the MBR in July 2022, nest protection has been limited to active nests for most migratory bird species. However,

1. *Probable breeding evidence is higher likelihood of breeding if actual courtship and displays to females were recorded through behaviors like singing males, pair observations, nest building, alert calls or apparent nest site visits, signifying a stronger indication of active nesting activity during its breeding bird season. Probable breeding evidence codes are provided in* ***Appendix E****.*
2. *Possible breeding evidence indicates a bird was observed or heard in suitable habitat during its breeding season. Possible breeding evidence codes are provided in* ***Appendix E****.*

Schedule 1 of the MBR identifies 18 migratory bird species whose nests are protected year-round and must be confirmed inactive for a defined period (ranging between 12 and 36 months depending on the species) before they can be disturbed or destroyed. The Schedule 1 nests must also be registered with ECCC at the start of the defined period. Based on species' breeding ranges, applicable Schedule 1 species for this Project include Great Blue Heron (*Ardea Herodias*) and Pileated Woodpecker (*Dryocopus pileatus*), which are discussed further in the following subsections.

3.3.2.2.1 Pileated Woodpecker

Pileated Woodpecker was recorded on two occasions during the breeding bird surveys. A singing male Pileated Woodpecker was observed on June 3, 2024, at BBS-002. Another singing male Pileated Woodpecker was observed on June 25, 2024, at BBS-014. Both individuals were recorded as 'possible' breeders as they were observed singing within suitable nesting habitat during the breeding season. Evidence of nesting activity was not observed; however, ample breeding habitat exists within the Study Area.

3.3.2.2.2 Great Blue Heron

Great Blue Heron was not recorded during the 2024 breeding bird surveys. This species is unlikely nesting adjacent to the highway because Great Blue Herons nest in colonies with large stick nests high in trees; therefore, heronries, if present, are conspicuous and easily detected through field investigations.

3.4 Significant Wildlife Habitat

3.4.1 Background Data

The presence of candidate SWH was identified during the background review including, but not limited to Special Concern and Rare Wildlife Species. A list of SOCC with records in the vicinity of the Study Area was compiled based on a review of the background information sources listed in **Section 2.1** and is in **Table 3-2** below. The background review also identified the presence of Moose Aquatic Feeding Areas within the Study Area which are mapped on **Figure 1**.

Table 3-2: SOCC Records within the Vicinity of the Study Area

Taxon	Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	COSEWIC Status[2]	Source of Record[3]	Date of Most Recent Record
Birds	Barn Swallow	*Hirundo rustica*	S4B	SC	SC	eBird, iNaturalist, NHIC, OBBA, MNR	2024
	Black Tern	*Chlidonias niger*	S3B,S4M	SC	NAR	OBBA	-
	Blue-winged Teal	*Spatula discors*	S3B,S4M	-	-	OBBA	-
	Brewer's Blackbird	*Euphagus cyanocephalus*	S2	-	-	OBBA	-
	Canada Warbler	*Cardellina canadensis*	S5B	SC	SC	eBird, NHIC, OBBA, MNR	2022
	Caspian Tern	*Hydroprogne caspia*	S3B,S5M	NAR	NAR	OBBA	-
	Common Gallinule	*Gallinula galeata*	S3B	-	-	OBBA	-
	Common Nighthawk	*Chordeiles minor*	S4B	SC	SC	eBird, iNaturalist, OBBA, MNR	2021
	Eastern Wood-Pewee	*Contopus virens*	S4B	SC	SC	OBBA	-
	Eastern Whip-poor-will	*Antrostomus vociferus*	S4B	SC	SC	OBBA, MNR	-
	Evening Grosbeak	*Coccothraustes vespertinus*	S4	SC	SC	eBird, NHIC, OBBA, MNR	2023
	Golden-winged Warbler	*Vermivora chrysoptera*	S3B	SC	THR	OBBA	-
	Grasshopper Sparrow	*Ammodramus savannarum*	S4B	SC	SC	OBBA	-
	Great Black-backed Gull	*Larus marinus*	S1B,S4N	-	-	eBird, iNaturalist	2019
	Lesser Black-backed Gull	*Larus fuscus*	S3N,S4M	-	-	iNaturalist	2012
	Olive-sided Flycatcher	*Contopus cooperi*	S4B	SC	SC	OBBA	-
	Peregrine Falcon	*Falco peregrinus*	S4	SC	NAR	OBBA	-
	Purple Martin	*Progne subis*	S3B	-	-	OBBA	-
	Rough-legged Hawk	*Buteo lagopus*	S1B,S4N	NAR	NAR	eBird	2018
	Ruddy Duck	*Oxyura jamaicensis*	S3B,S4N,S5M	-	-	OBBA	-
	Rusty Blackbird	*Euphagus carolinus*	S4B,S3N	NAR	SC	OBBA	-
	Upland Sandpiper	*Bartramia longicauda*	S2B	-	-	OBBA	-
	Wood Thrush	*Hylocichla mustelina*	S4B	SC	THR	OBBA	-
Insects	Beaverpond Clubtail	*Phanogomphus borealis*	S3	-	-	iNaturalist, NHIC	2020
	Harpoon Clubtail	*Phanogomphus descriptus*	S3	-	-	NHIC	-
	Hoary Pinion	*Lithophane fagina*	S3S4	-	-	iNaturalist	2020
	Plush-naped Pinion	*Lithophane pexata*	S3S4	-	-	iNaturalist	2020
	Ski-tipped Emerald	*Somatochlora elongata*	S3?	-	-	iNaturalist	2023
	Uhler's Sundragon	*Helocordulia uhleri*	S3	-	-	iNaturalist	2023
	Unsated Sallow	*Metaxaglaea inulta*	S3S4	-	-	iNaturalist	2020
Plants	Red Spruce	*Picea rubens*	S3	-	-	iNaturalist	2022
Reptiles	Snapping Turtle	*Chelydra serpentina*	S4	SC	SC	NHIC, MNR	-

[1] ***S-rank:*** *The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities.* The following status definitions were taken from NatureServe Explorer's (2015) National and Subnational Conservation Status Definitions available at 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.
S1 - Critically Imperiled—Critically imperiled in the 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 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 nation or state/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).

Breeding Status Qualifiers
B - Breeding—Conservation status refers to the breeding population of the species in the province.
N - Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.
M - Migrant—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.
Note: A breeding status is only used for species that have distinct breeding and/or non-breeding populations in the province. A breeding-status S-rank can be coupled with its complementary non-breeding-status S-rank if the species also winters in the province, and/or a migrant-status S-rank if the species occurs regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. The two (or rarely, three) status ranks are separated by a comma (e.g., "S2B,S3N" or "SHN,S4B,S1M").

Other Qualifiers
? -Inexact or Uncertain—Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the S-rank.)

[2] ***ESA Status:*** *The Endangered Species Act 2007 (ESA) protects species listed as Threatened and Endangered on the Species at Risk in Ontario (SARO) List on provincial and private land. The Minister lists species on the SARO list based on recommendations from the Committee on the Status of Species at Risk in Ontario (COSSARO), which evaluates the conservation status of species occurring in Ontario. The following are the categories of at risk:*
END *(Endangered) – A species facing imminent extinction or extirpation in Ontario.*
THR *(Threatened) – Any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a large portion of its Ontario range if the limiting factors are not reversed.*
SC *(Special Concern) – A species that may become threatened or endangered due to 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.*
Note: *species with "-" represent those that were not evaluated by COSSARO.*

[2] ***Source:*** *NHIC: Natural Heritage Information Centre (MNR, 2010), OBBA: Ontario Breeding Bird Atlas (Bird Studies Canada, 2006), INaturalist (2024), eBird (2024), ORAA: Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019)*

3.4.2 Field Investigations

Field investigations, including ELC, botanical inventories, and breeding bird surveys further identified 13 candidate SWH (including several candidate habitats for SOCC) and two confirmed SWH (including confirmed habitat for SOCC). Full results of the SWH screening are provided in **Appendix F** and are summarized in the following sections.

3.4.2.1 Seasonal Concentration Areas

Seasonal Concentration Areas are defined by the SWH Technical Guide (MNR, 2000) as relatively small areas where species of wildlife are concentrated at certain times of the year. For example, in the spring and fall, migratory species of birds and butterflies concentrate in stopover areas where they can rest and feed. Winter deer yards, reptile hibernacula and heronries are other examples of Seasonal Concentration Areas that may be present at a relatively undisturbed site. The following candidate SWH types for Seasonal Concentration Areas were observed within the Study Area:

Candidate

- **Bat Maternity Colonies**
  The Dry to Fresh, Coarse Aspen – Birch Hardwood Forest (G055Tl/Tt), Dry to Fresh, Coarse Maple Hardwood Forest (G058Tt), and Moist, Coarse Aspen – Birch Hardwood Forest (G070Tt) communities likely contain trees with suitable characteristics for roosting (i.e., peeling bark, cavities, cracks, crevices).
- **Turtle Wintering Areas**
  Candidate habitat was identified in the Mineral Meadow Marsh (G142N), Organic Meadow Marsh (G144N), Open Moderately Rich Fen (G140S/N), Organic Intermediate Conifer Swamp (G128Tt), Organic Rich Conifer Swamp (G129Tt), Organic Thicket Swamp (G135S) communities within the Study Area.
- **Reptile Hibernaculum**
  The Dry to Fresh, Coarse Maple Hardwood Forest (G058Tt), and Moist, Coarse Aspen – Birch Hardwood Forest (G070Tt) communities may contain rock piles or slopes that provide hibernacula for snake species and Five-lined Skink (*Plestiodon fasciatus*).

3.4.2.2 Habitat for Rare Vegetation Communities, Specialized Habitat for Wildlife

Rare Vegetation Communities, Specialized Habitat for Wildlife are defined as areas that contain a provincially rare vegetation community, areas that support wildlife species with highly specific habitat requirements and/or habitat that greatly enhances a species' survival respectively. One confirmed SWH and eight candidate SWH for Specialized Habitat for Wildlife were observed within the Study Area.

Confirmed

- **Aquatic Feeding Habitat**
  Moose aquatic feeding habitat was identified within and within vicinity of the Study Area. Moose aquatic feeding areas are shown on **Figure 1**.

Candidate

- **Bald Eagle (*Haliaeetus leucocephalus*) and Osprey (*Pandion haliaetus*) Nesting, Foraging and Perching Habitat**
  Forest communities that are adjacent to wetlands may provide habitat for Bald Eagle and Osprey. One Bald Eagle was observed soaring overhead during the breeding bird surveys on June 3, 2024.

Although this species was observed, no nests were identified within the Study Area and therefore this SWH remains candidate.

- **Turtle and Lizard Nesting Areas**
  Candidate habitat was identified within the Open Moderately Rich Fen (G140S/N), Mineral Meadow Marsh (G142N) and Organic Meadow Marsh (G144N) communities.
- **Seeps and Springs**
  Candidate habitat may be found within the forest communities within the Study Area.
- **Mineral Licks**
  Candidate habitat may be found within the forest communities within the Study Area.
- **Denning Sites for Mink (*Neogale vison*), Otter (*Lontra canadensis*), Marten (*Martes americana*), Fisher (*Pekania pennanti*) and Eastern Wolf (*Canis sp. cf. lycaon*)**
  Candidate habitat may be found within the forest communities within the Study Area.
- **Amphibian Breeding Habitat (Woodland)**
  Candidate habitat may be found within the forest communities within the Study Area.
- **Amphibian Breeding Habitat (Wetland)**
  Candidate habitat was identified within the Organic Rich Conifer Swamp (G129Tt), Organic Thicket Swamp (G135S), Mineral Meadow Marsh (G142N) and Organic Meadow Marsh (G144N) communities.

3.4.2.3 Habitat for Species of Conservation Concern

Although SOCC do not receive legal protection under the ESA, they may be afforded protection under the MBCA and were considered for this Project.

Habitat for SOCC includes four possible sub-categories which include: Marsh Bird Breeding Habitat, Open Country Bird Breeding Habitat, Shrub/Early Successional Bird Breeding Habitat and Special Concern and Rare Wildlife Species. The *SWH Criteria Schedules for Ecoregion 5E* (MNR, 2015a) notes that: “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 to ELC Ecosites needs to be completed.” Confirmed and candidate SWH for Specialized Habitat for Wildlife identified within the Study Area include the following:

Candidate

- **Special Concern and Rare Wildlife Species**

  Both Canada Warbler and Wood Thrush, two species listed as Special Concern under the ESA were observed during field investigations conducted in 2024. Canada Warbler will breed in a range of deciduous and coniferous, typically wet forest types, with well-developed shrub layers (MECP, 2023a). A singing male Canada Warbler was heard singing from a Dry to Fresh, Coarse Maple Hardwood Forest (G058Tt) community. Wood Thrush prefer to live in mature deciduous and mixed forests that contain moist stands of trees with well-developed undergrowth and tall trees for singing perches (MECP, 2023b). A singing male Wood Thrush was heard singing from a Moist, Fine Spruce – Fir Conifer Forest (G116Tt) community. Although these species were observed in suitable habitat during the breeding bird season, they were only observed on one occasion. Therefore, habitat for these species remains candidate.

  In addition to Canada Warbler and Wood Thrush, the following SOCC species were also identified to have candidate habitat after field investigations: Common Nighthawk (*Chordeiles minor*), Eastern Whip-poor-will (*Antrostomus vociferus*), Evening Grosbeak (*Coccothraustes vespertinus*), Great Black-backed Gull (*Larus marinus*), Rough-legged Hawk (*Buteo lagopus*), Beaverpond Clubtail

(*Phanogomphus borealis*), Harpoon Clubtail (*Phanogomphus descriptus*), Hoary Pinion (*Lithophane fagina*), Plush-naped Pinion (*Lithophane pexata*), Ski-tipped Emerald (*Somatochlora elongata*), Uhler's Sundragon (*Helocordulia uhleri*), Unsated Sallow (*Metaxaglaea inulta*), Red Spruce (*Picea rubens*) and Snapping Turtle (*Chelydra serpentina*).

3.4.2.4 Animal Movement Corridors

Animal Movement Corridors are elongated areas used by wildlife to move from one habitat to another. The following confirmed and candidate animal movement corridors were identified:

Confirmed

- **Cervid Movement Corridor**
  Cervid Movement Corridors are present in association with the confirmed moose aquatic feeding areas.

Candidate

- **Amphibian Movement Corridor**
  Amphibian Movement Corridors may be found in all forested ecosites adjacent to water within Ecoregion 5E.
- **Furbearer Movement Corridor**
  Furbearer Movement Corridors can be found in all forested ecosites adjacent to or within shoreline habitats within Ecoregion 5E.

3.5 Species at Risk

For the purpose of this report, SAR are defined as species that are listed as Endangered or Threatened, provincially. These species, as well as their habitat, are afforded protection under the *Endangered Species Act, 2007* (ESA).

3.5.1 Background Review

A total of 14 SAR have been recorded within or in the vicinity of the Study Area based on a review of the background information sources listed in **Section 2.1**. These SAR are listed in **Table 3-3** below.

Table 3-3: SAR Records in the Vicinity of the Study Area

Taxon	Common Name	Scientific Name	S-Rank[1]	ESA Status[1]	COSEWIC Status[1]	Source of Record[1]	Date of Most Recent Record
Birds	Bank Swallow	*Riparia riparia*	S4B	THR	THR	OBBA	-
	Bobolink	*Dolichonyx oryzivorus*	S4B	THR	THR	OBBA	-
	Chimney Swift	*Chaetura pelagica*	S3B	THR	THR	eBird, OBBA, MNR	2016
	Eastern Meadowlark	*Sturnella magna*	S4B,S3N	THR	THR	OBBA	-
	Golden Eagle	*Aquila chrysaetos*	S1B,S4N	END	NAR	eBird	2017
	Least Bittern	*Ixobrychus exilis*	S4B	THR	THR	eBird, OBBA	2022
	Short-eared Owl	*Asio flammeus*	S4?B,S2S3N	THR	SC	OBBA	-

Taxon	Common Name	Scientific Name	S-Rank[1]	ESA Status[1]	COSEWIC Status[1]	Source of Record[1]	Date of Most Recent Record
Mammals	Eastern Small-footed Myotis	*Myotis leibii*	S2S3	END	-	BCI	-
	Eastern Red Bat	*Lasiurus borealis*	S3	END	END	BCI	-
	Little Brown Myotis	*Myotis lucifugus*	S3	END	END	BCI	-
	Northern Hoary Bat	*Lasiurus cinereus*	S3	END	END	BCI	-
	Northern Myotis	*Myotis septentrionalis*	S3	END	END	BCI	-
	Silver-haired Bat	*Lasionycteris noctivagans*	S3	END	END	BCI	-
Reptiles	Blanding's Turtle	*Emydoidea blandingii*	S3	THR	END	NHIC, MNR	-

*Note: 1. Refer to notes under **Table 3-2***

3.5.2 Field Investigations

SAR records were compiled through a review of background data (**Table 3-3**) and evidence of these species or their habitats were searched for during the field investigations. A habitat assessment was completed for each SAR to determine whether there was potential for that SAR to occur within the Study Area. This assessment was based on FRI mapping and interpretation of aerial photography and then further refined after field investigations. Through this assessment, eight SAR were determined to have high or medium potential to occur within the Study Area based on the presence of suitable habitat. These species are discussed in the sections below. The remaining SAR were determined to have a low probability of occurrence within the Study Area. The full results of the SAR screening are provided in **Appendix G**. The results of the SAR habitat assessment should not be considered conclusive evidence that these and/or other SAR are not present since targeted surveys, other than vascular plant inventories and breeding bird surveys, were not completed as part of these field investigations.

3.5.2.1 High Probability/Confirmed

Chimney Swift – Chimney Swift is listed as Threatened under the ESA. Suitable nesting habitat for Chimney Swifts include human-made structures (i.e., chimneys) in urban areas and large hollow trees in forested areas (ECCC, 2023). As discussed in **Section 3.3.2,** two Chimney Swifts were observed as flyovers over the Dry to Fresh, Coarse Maple Hardwood Forest (G058Tt) during the breeding bird surveys. Chimney Swifts are typically found around urban settlements where they nest and roost in chimneys and other manmade structures (MECP, 2024a), however, some Chimney Swifts still use large hollow trees greater than 50 cm diameter at breast height (dbh; COESWIC, 2018). Chimney Swifts that may be using hollow trees and tree cavities in the Study Area may be using old growth or mature forest (hardwood, mixedwood and coniferous) communities. The individuals observed during field investigations may be nesting within the Dry to Fresh, Coarse Maple Hardwood Forest (G058Tt) or within nearby urban structures such as the manufacturing plant along Stewart Hammel Road.

Black Ash – Black Ash prefers wetland environments (swamps or fens) but can occur in lower densities in moist upland communities (MECP, 2024b). Black Ash was observed during the 2024 field investigations within five vegetation communities including the Dry to Fresh, Coarse Spruce – Fir Conifer Forest (G052Tt), Dry to Fresh, Coarse Red Pine – White Pine Mixedwood Forest (G054TI), Dry to Fresh, Coarse Aspen – Birch Hardwood Forest (G055Tt), Moist, Coarse Hemlock – Cedar Conifer Forest (G066Tt), and the Moist, Coarse Aspen – Birch Hardwood Forest (G070Tt). Although Black Ash was identified within the Study Area, authorization under the ESA is not anticipated for Black Ash as the Study Area is not located in a municipality or territorial district set out in Schedule 1 of Ontario Regulation (O. Reg.) 6/24: Limitations on Section 9 Prohibitions and O. Reg. 7/24: Amending O. Reg. 832/21 (Habitat).

Blanding's Turtle – This species is listed as Threatened in Ontario. Blanding's Turtles live in shallow water, usually in large wetlands and shallow lakes with lots of water plants (MECP, 2024c). It is not unusual, though, to find them hundreds of metres from the nearest water body, especially while they are searching for a mate or

traveling to a nesting site. Although Blanding's Turtle was not observed during the 2024 field investigations, targeted surveys were not conducted. Suitable habitat was observed within the wetland communities within the Study Area. Furthermore, correspondence with the MNR confirmed that Blanding's Turtle habitat was identified directly adjacent to the Project Limits.

3.5.2.2 Medium Probability

Little Brown Myotis (*Myotis lucifugus*) – In natural areas, Little Brown Myotis roosts in tree cavities in old growth deciduous, mixed or conifer forests (COSEWIC, 2013). Little Brown Myotis is most active in the few hours after dusk, when it emerges from its roost to forage for insects (MECP, 2021a). This species mates late in the summer, and in winter, and females often form large maternal colonies in summer to rear their young. Maternity habitat of Little Brown Myotis primarily consists of buildings or artificial roosting structures in Ontario; however, tree cavities are also known to provide maternity habitat (Humphrey and Fotherby, 2019). Little Brown Myotis has high fidelity to maternity roosting sites, especially to anthropogenic maternity roosting sites. This species likely hibernates from October through April in caves or abandoned mines (MECP, 2021a). In accordance with MECP survey protocols, candidate habitat for Little Brown Myotis was identified within any of the deciduous (G042Tt, G055Tl/Tt, G058Tt, and G070Tt) or mixedwood (G054Tl) ecosites.

Northern Myotis (*Myotis septentrionalis*) – Northern Myotis is primarily a forest-dwelling species. It is often associated with old growth mixed or coniferous forests and is known to roost under loose bark or in tree cavities (COSEWIC, 2013; MECP, 2021b). Unlike other bats, this species rarely roosts in anthropogenic structures (COSEWIC, 2013); only one building roost for Northern Myotis has been confirmed in Ontario to date (Humphrey and Fotherby, 2019). Breeding occurs in late summer in maternal colonies, and migration to hibernation sites in caves or mines begins in October (COSEWIC, 2013). This species remains in hibernation until late March or April (MECP, 2021b). In accordance with MECP survey protocols, candidate habitat for Northern Myotis was identified within any of the deciduous (G042Tt, G055Tl/Tt, G058Tt, and G070Tt) or mixedwood (G054Tl) ecosites.

Eastern Red Bat (*Lasiurus borealis*) – Eastern Red Bats are solitary bats and primarily roost in leaf clusters in both deciduous and coniferous forests, of any age class (COSEWIC, 2023) but in some parts of Eastern Red Bats' range, they will avoid conifer species when suitable deciduous species are present (COSEWIC, 2023). Suitable roosting and foraging habitat were observed throughout the Study Area. In accordance with MECP survey protocols, candidate habitat for Eastern Red Bat was identified within any of the deciduous (G042Tt, G055Tl/Tt, G058Tt, and G070Tt) or mixedwood (G054Tl) ecosites.

Northern Hoary Bat (*Lasiurus cinereus*) – Northern Hoary Bats are solitary bats and primarily roost in leaf clusters in both deciduous and coniferous forests, of any age class (COSEWIC, 2023). Suitable roosting and foraging habitat were observed throughout the Study Area. In accordance with MECP survey protocols, candidate habitat for Northern Hoary Bat was identified within any of the deciduous (G042Tt, G055Tl/Tt, G058Tt, and G070Tt) or mixedwood (G054Tl) ecosites.

Silver-haired Bat (*Lasionycteris noctivagans*) – Silver-haired Bats roost primarily under bark and in the cavities of trees, which makes them dependent on habitats where large, decaying trees are available. Silver-haired Bats roost in a variety of large diameter coniferous and deciduous trees (COSEWIC, 2023). Suitable roosting and foraging habitat were observed throughout the Study Area. In accordance with MECP survey protocols, candidate habitat for Silver-haired Bat was identified within any of the deciduous (G042Tt, G055Tl/Tt, G058Tt, and G070Tt) or mixedwood (G054Tl) ecosites.

4. Determination of Significance

Significant findings are summarized in the sections below.

4.1 Designated Natural Areas

Designated natural areas within the Study Area consisted mostly of unevaluated wetlands. The MNR Identified the EMA Marten River (E154r) less than 1 km away from the Project Limits. No PSWs, ANSI or Environmentally Significant Areas were identified within the Study Area.

4.2 Vegetation Communities and Plants

All vegetation communities identified within the Study Area are common throughout Ecoregion 5E and none are considered significant.

Black Ash, a species listed as Endangered under the ESA, was observed within five vegetation communities including the Dry to Fresh, Coarse Spruce – Fir Conifer Forest (G052Tt), the Dry to Fresh, Coarse Red Pine – White Pine Mixedwood Forest (G054TI), the Dry to Fresh, Coarse Aspen – Birch Hardwood Forest (G055Tl/Tt), the Moist, Coarse Hemlock – Cedar Conifer Forest (G066Tt0 and the Moist, Coarse Aspen – Birch Hardwood Forest (G070Tt).

4.3 Wildlife

One SAR (Chimney Swift) and two SOCC (Canada Warbler and Wood Thrush) species were observed during the breeding bird surveys.

A total of 13 candidate SWH and two confirmed SWH were identified within the Study Area. The following SWH was identified:

Confirmed:

- Aquatic Feeding Habitat, and Cervid Movement Corridor

Candidate:

- Bat Maternity Colonies, Turtle Wintering Areas, Reptile Hibernaculum, Bald Eagle and Osprey Nesting, Foraging and Perching Habitat, Turtle and Lizard Nesting Areas, Seeps and Springs, Mineral Licks, Denning Sites for Mink, Otter, Marten, Fisher and Eastern Wolf, Amphibian Breeding Habitat (Woodland), Amphibian Breeding Habitat (Wetland), Habitat for SOCC (Canada Warbler, Wood Thrush, Eastern Whip-poor-will, Common Nighthawk, Evening Grosbeak, Great Black-backed Gull, Rough-legged Hawk, Beaverpond Clubtail, Harpoon Clubtail, Hoary Pinion, Plush-naped Pinion, Ski-tipped Emerald, Uhler's Sundragon, Unsated Sallow, Red Spruce, and Snapping Turtle), Amphibian Movement Corridor and Furbearer Movement Corridor.

Although MTO is not bound by consideration of SWH, SWH may also provide habitat to species protected under the ESA and MBCA.

4.4 Species at Risk

Suitable habitat was identified within the Study Area for the following Endangered or Threatened species: Chimney Swift, Black Ash, Blanding's Turtle, Eastern Red Bat, Northern Hoary Bat, Northern Myotis, Little Brown Myotis, and Silver-haired Bat.

As noted in **Section 3.5.2.1**, authorization under the ESA is not anticipated for Black Ash as the Study Area is not located in a municipality or territorial district set out in Schedule 1 of Ontario Regulation (O. Reg.) 6/24: Limitations on Section 9 Prohibitions and O. Reg. 7/24: Amending O. Reg. 832/21 (Habitat).

5. Constraints and Opportunities

5.1 Constraints

The following constraints are anticipated based off of the results of the completed desktop review and confirmation of existing conditions:

- Suitable habitat was identified in the Study Area for eight SAR including Chimney Swift, Black Ash, Blanding's Turtle, Eastern Red Bat, Northern Hoary Bat, Northern Myotis, Little Brown Myotis, and Silver-haired Bat.
  - The Study Area is not located in a municipality or territorial district set out in Schedule 1 of Ontario Regulation (O. Reg.) 6/24: Limitations on Section 9 Prohibitions and O. Reg. 7/24: Amending O. Reg. 832/21 (Habitat) and therefore Black Ash within the Study Area is not protected.
- Should removal of SAR habitat be required to accommodate the proposed works, targeted surveys for the SAR listed above may be required to confirm presence within the Study Area. Where it is determined that proposed works result in the damage or destruction of SAR habitat, consultation with the MECP, MNR, and Indigenous communities will be required to determine applicable permitting or authorization requirements. Submission of appropriate permit/approval/authorizations under the ESA should be completed in advance of any proposed works.
- Moose Aquatic Feeding Area and Cervid Movement Corridor SWH were confirmed within the Study Area.

5.2 Opportunities

The following opportunities have been developed through a review of existing conditions, exploring possible mitigation measures and evaluating feedback received from the MNR and Indigenous communities regarding Project design, to date:

- Species at Risk Awareness training to construction staff prior to onset of construction focusing on species identification and encounter/reporting protocols.
- Development of a detailed tree removal plan considering mitigation measures for SAR within the Study Area including and not limited to clearly marking areas identified to be cleared of vegetation to avoid accidental intrusion, and scheduling tree removal to take place outside of the breeding bird and SAR bat active seasons (combined April 15 to September 30) to prevent encounters with individuals.
- Performing vegetation removal without the use of heavy machinery in any areas where Blanding's Turtles may be present. Daily searches for turtles prior to any vegetation removal shall be conducted if within the active turtle season. If a turtle is observed within the work area, work shall stop and only proceed once the turtle has vacated the work area.
- Maintaining the slope of stockpiled substrates (gravel, sand, soil) at 70 degrees or less during the breeding bird season (April 15 to August 31) to prevent burrowing MBCA protected and SAR birds from nesting in the stockpiled material.
- Restricting construction activities to daylight hours when possible or positioning flood lights away from the wooded areas and suitable habitat to reduce impacts to SAR bats.
- Restoring areas of wetland and forest temporarily disturbed by proposed works through the planting of native vegetation and creation of applicable management plans.

- Through prior correspondence, the MTO, MNR, and Indigenous Communities have indicated that wildlife-vehicle conflicts are a concern along Highway 11 and that the 2+1 configuration may exacerbate occurrence of collisions with large wildlife. Construction of Wildlife Passage Systems and wildlife fencing (primarily for large mammals, i.e., Moose) along the proposed ROW should be considered at the Detail Design stages of the Project.
- Considering installation of wildlife exclusion fencing along the proposed ROW adjacent to wetland prior to the start of the turtle nesting period (late May to mid July), and prior to the start of construction.
  - Daily wildlife searches within the excluded area will be completed during the turtle active season (of April 15 to October 31).
- Design and implementation of a comprehensive Erosion and Sediment Control and Spill Prevention Plan.
- The creation of an Invasive Species Management plan should be considered during Detail Design to prevent the spread of invasive species through the proposed corridor.
- The creation of a salt management plan should be considered during Detail Design to avoid the use of excess road salt and avoid road salts entering adjacent natural features including watercourses and wetlands.

6. Anticipated Permits and Approvals and Next Steps

Table 6-1 below summarizes anticipated permits and approvals and additional surveys that may be required during the detail design phase of this project.

Table 6-1: Summary of Anticipated Permits and Approvals

Legislation	Governing Authority	Anticipated Permits and Approvals	Additional Studies to be Completed during Detail Design
Species at Risk Act, 2002 **(SARA)**	Government of Canada	■ Not anticipated as the mitigation measures provided to protect MBCA-protected birds are sufficient to avoid harm/mortality and destruction of residences (nests) of MBCA-protected SAR bird species.	■ None.
Migratory Birds Convention Act, 1994 **(amended 2022) (MBCA)**	Environment and Climate Change Canada (ECCC)	■ Not anticipated as the mitigation measures provided to protect MBCA-protected birds are sufficient to avoid contravention of this Act. However, a Section 71 Permit under the MBCA will be required should a Schedule 1 MBCA-protected bird nest be identified within a tree proposed for removal and impacts to the nest tree cannot be avoided.	■ Searches for nests belonging to MBCA Schedule 1 protected bird species (i.e., Pileated Woodpecker) within the Anticipated Clearing Area shall be conducted prior to construction.
Endangered Species Act, 2007 **(ESA)**	Ontario Ministry of the Environment, Conservation and Parks (MECP)	■ Authorization under the ESA is not anticipated for SAR bats as the project is not likely to impair or eliminate the form and function of the treed habitat providing potential SAR bats habitat within the Study Area or impact individual SAR bats provided the identified mitigation measures are followed. ■ Authorization under the ESA is not anticipated for Black Ash as the Study Area is not located in a municipality or territorial district set out in Schedule 1 of Ontario Regulation (O. Reg.) 6/24: Limitations on Section 9 Prohibitions and O. Reg. 7/24: Amending O. Reg. 832/21 (Habitat).	■ Searches for trees with potentially suitable characteristics (i.e., cavities, crevices, cracks) for bat roosting in forested communities following the with MECP's Bat Survey Standards (2022b) and the Survey Protocol for Species at Risk Bats within Treed Habitats: Little Brown Myotis, Northern Myotis & Tri-colored Bat (MNR, 2017) are recommended to confirm that impacts to potential SAR bats roost habitat can be avoided. ■ Blanding's Turtle surveys within the impacted wetland communities following the *Survey Protocol for Blanding's Turtle in Ontario* (MNR, 2015b) are recommended to confirm that impacts to potential Blanding's Turtle habitat can be avoided.
Planning Act, 1990 **and** ***Provincial Planning Statement, 2024*** **(PPS)**	Ontario Ministry of Municipal Affairs and Housing	■ There are no permits to be obtained under the PPS and development of infrastructure such as transportation corridors and facilities are allowed in and adjacent to natural heritage feature (e.g., PSWs) provided that consideration is given to these natural heritage features	■ None.

7. Limitation of the Report

The observations and results obtained during the terrestrial investigations are representative of the conditions encountered during the 2024 field investigations. Field investigations were generally limited to the road right-of-way (ROW) and public spaces. Many of the species surveyed are migratory and may occur within the Study Area during some years and not others. Habitats (vegetation communities, SWH, SAR habitat, etc.) also change over time and may become more or less suitable for SAR or other wildlife. In addition, changes to legislation may result in new or altered protections for certain species, habitats or designated natural areas. AECOM has used its best professional judgment to interpret the survey results and provide accurate conclusions.

8. Summary and Recommendations

The existing natural heritage features identified within the Study Area for the project through the comprehensive natural heritage background review include the following:

- Recognized natural heritage features:
  - No ANSIs, PSWs or Environmentally Significant Areas were identified within the Study Area;
  - 58 unevaluated wetlands; and
  - Enhanced Management Area (EMA) Marten River (E154r) within one kilometre of Study Area.
- Two SAR species were observed within the Study Area during 2024 field investigations:
  - Black Ash was observed within five vegetation communities (G052Tt, G054TI, G055Tt, G066Tt, G070Tt); and
  - Two Chimney Swifts were observed as flyovers over the Dry to Fresh, Coarse Maple Hardwood Forest (G058Tt) during breeding bird surveys.
- Two SOCC species were observed within the Study Area during 2024 field investigations:
  - An individual singing male Canada Warbler was heard singing from a Dry to Fresh, Coarse Maple Hardwood Forest (G058Tt) community; and
  - An individual singing male Wood Thrush was heard singing from a Moist, Fine Spruce – Fir Conifer Forest (G116Tt) community.
- Structures (i.e., bridges or box culverts) provide suitable nesting habitat for MBCA-protected species; therefore, those likely to be affected by the Project should be checked for the presence/absence of bird nests prior to the start of construction.
- Pileated Woodpecker, listed on Schedule 1 of the MBR, is likely nesting within the Study Area and may be affected by proposed tree clearing of forested communities.
- The following confirmed SWHs were identified:
  - Specialized Habitat of Wildlife: Aquatic Feeding Habitat; and
  - Animal Movement Corridors: Cervid Movement Corridor.
- The following candidate SWHs were identified:
  - Seasonal Concentration Areas: Bat Maternity Colonies, Turtle Wintering Areas, and Reptile Hibernaculum;
  - Specialized Habitat of Wildlife: Bald Eagle and Osprey Nesting, Foraging and Perching Habitat, Turtle and Lizard Nesting Areas, Seeps and Springs, Mineral Licks, Denning Sites, Amphibian Breeding Habitat (Woodland and Wetland);
  - Habitats for SOCC: Special Concern and Rare Wildlife Species (including Canada Warbler, Wood Thrush, Common Nighthawk, Eastern Whip-poor-will, Evening Grosbeak, Great Black-backed Gull, Rough-legged Hawk, Beaverpond Clubtail, Harpoon Clubtail, Hoary Pinion, Plush-naped Pinion, Ski-tipped Emerald, Uhler's Sundragon, Unsated Sallow, Red Spruce, and Snapping Turtle); and
  - Animal Movement Corridors: Amphibian Movement Corridor and Furbearer Movement Corridor.
- The SAR screening identified eight SAR as having potentially suitable habitat present within the Study Area: Chimney Swift, Black Ash, Blanding's Turtle, Eastern Red Bat, Northern Hoary Bat, Northern Myotis, Little Brown Myotis, and Silver-haired Bat.
- An impact assessment shall be conducted at 60% Detail Design.

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Appendix A

Agency Correspondence

Subject: RE: Highway 11 Pilot Project-Preliminary Comments (Biological and Planner Review)
Sent: 2023-11-30, 11:59:24 AM
From: Moreau, Lynn (MNRF)<Lynn.Moreau2@ontario.ca>
To: projectteam@highway11pilot.ca

Good Day Kyle,

Thank you for the opportunity to review the Highway 11 Pilot Project. Please take the following preliminary comments into consideration as you proceed with project planning.

Biological Comments:

Note on Review
I was only provided with a general description and low detail map of the proposed project area. As such I could not be certain of the start and endpoints of the proposed work area which may mean that some information was missed during this review. All reviews must provide coordinate locations or mapping information which can be used to pinpoint the precise locations.

Summary of Proposal
The Ministry of Transportation (MTO) is proposing to widen Highway 11 in two locations north of North Bay.

Aquatic Concerns
Several streams with varying thermal regimes intersect the proposed work areas. It is expected that the water crossings in these locations would have to be extended to accommodate the additional lane. The locations where this is expected to occur is at the following locations:

GWP 5033-22-00
- 17T 593495 5191150
- 17T 592463 5189491
- 17T 591823 5188642
- 17T 591756 5187763
- 17T 591742 5187187
- 17T 591744 5186544
- 17T 591716 5186196
- 17T 591447 5184082
- 17T 591291 5182124

GWP 5151-21-00
- 17T 605005 5189890
- 17T 607524 5156544
- 17T 608082 5156017
- 17T 608744 5155379
- 17T 512580 5151920
- 17T 614762 5150058

All streams should be assessed by MTO for the presence/absence of fish species and to determine if any critical habitat (spawning beds) is present and will be impacted by the proposed construction. Once the streams have been assessed this information can be provided to the Ministry of Natural Resources and Forestry Management Biologist for direction on timing restrictions.

There is a mapped walleye spawning location where the project area intersects a unnamed stream. This location is:
- 17T 591762 5187765

Given the extensive nature of this project it is recommended that the Ministry of Transportation (MTO) seek a Fisheries Act review to confirm there are no additional concerns.

Wildlife Habitat and Wetlands

There are numinous Moose Aquatic Feeding Area (MAFA) which intersect the location of the highway widening. Where possible aquatic vegetation should not be removed from these wetlands to reduce the impact to MAFA's.

None of the wetlands which intersect the proposed work area have been assessed to determine if they are provincially significant or not. An assessment of these wetlands should be conducted prior to the start of construction to confirm all the potential impacts of the proposed work.

Parks and other Protected Areas
The Enhanced Management Area (EMA) Marten River (E154r) occurs less then 1 km away from the project area (GWP 5151-21-00). While the proposed construction is unlikely to impact the EMA all project proposal should be consistent with the direction for the EMA. Additional information regarding what is permitted can be obtained from reviewing the Martin River Provincial Park Management Plan.

Species at Risk
A review of the subject property and the surrounding area identified several Species at Risk (SAR) which are known or suspected to occur in this area. This species include:

GWP 5033-22-00
• Barn Swallow (Special Concern);
• Bank Swallow (Threatened);
• Black Ash (Endangered);
• Canada Warbler (Special Concern);
• Chimney Swift (Threatened);
• Common Nighthawk (Special Concern);
• Eastern Wood-pewee (Special Concern);
• Evening Grosbeak (Special Concern);
• Olive-sided Flycatcher (Special Concern)
• Snapping Turtle (Special Concern).

GWP 5151-21-00
• Barn Swallow (Special Concern);
• Blanding's Turtle (Threatened);
• Canada Warbler (Special Concern);
• Chimney Swift (Threatened);
• Common Nighthawk (Special Concern);
• Eastern Whip-poor-will (Threatened);
• Evening Grosbeak (Special Concern);
• Snapping Turtle (Special Concern).

Blanding's Turtle been detected directly adjacent to the project area (GWP 5151-21-00). This means that the habitat protection would be triggered by the General Habitat Description (GHD; see supporting document folder) for Blanding's Turtle. It is highly recommended that the MTO reach out to the Ministry of Environment, Conservation and Parks (MECP) Species at Risk Branch (SARB) to have a formal review conducted under the Endangered Species Act (ESA) to ensure there are no contraventions. This should be done well in advance (two years) to ensure that if an authorization is required under the ESA that there is sufficient time to process and issue the authorization prior to the start of construction.

To limit the impacts to special concern species and bird protected Migratory Birds Convention Act (MBCA) the following considerations should be incorporated into the work plan.

If work is completed during the active season for reptiles and amphibians (April 1 to October 31) then exclusion fencing must be erected prior to the initiation of any work to ensure that reptiles and amphibians cannot enter the work area and become harmed or killed. Once the exclusion fencing is in place the work area must be searched for any wildlife which may have become trapped within the exclusion fencing during its installation. These animals must be removed from the work area and placed outside of the fencing. This fencing must be suitable to prevent reptiles and amphibians from entering the work area and be designed and maintained to provincial standards

Trees to be removed for this proposed road can only occur outside of the Breeding Bird nesting period (April 1st to August 31st). This will ensure that no bird species listed as special concern are impacted while nesting and ensure that impacts to bird species protect under the Federal Migratory Bird Convention Act are reduced or eliminated.

Terrestrial Concerns
Overall impacts to the terrestrial landscape are expected to be significant given the amount of habitat that will now be disturbed. While this proposed project is directly adjacent to the existing highway the widening of the highway will act as barrier to wildlife movement.

Invasive Species
The proponent must not deposit, release or transport an invasive species listed as prohibited or restricted under the Invasive Species Act.

If any prohibited invasive fish, invertebrate or plant species that are caught during the undertaking of this permit must be immediately destroyed to ensure it can't reproduce or grow.

The construction and use of additional road way increases the likelihood new invasive will be brought into the area. Efforts must be made during construction to reduce the likelihood that invasive species will be introduced. This should include the use of clean material, regularly cleaning trucks and other transport equipment and

Project Completion and Future Use
By providing greater access to northern Ontario means that its natural resources will be exploited to a greater degree.

Increased road width and a likely increase in traffic and speed means that there will be an increase in the amount of roadkill which occurs in this area. Consideration should be given to installing permanent exclusion fencing sufficient to block the passage of large game, reptiles and amphibians.

OTHER INFORMATION/DIRECTION FOR CLIENT

A number of best management practices have been attached to this review for the proponents consideration and reference.

If any animals are injured during the undertaking of this proposed work the proponent will immediately cease work and arrange for an Wildlife Rehabilitator to care for the animal. The proponent will then contact the North Bay Ministry of Natural, Resources and Forestry to inform them of the injuries and to seek direction on how to proceed.

If any animals or fish are killed during the undertaking of this work permit the proponent will immediately cease work and contact the North Bay Ministry of Natural, Resources and Forestry to inform them of the deaths and to seek direction on how to proceed.

Planner Comments:
The Notice of Study Commencement has the incorrect townships indicated for each of the study areas-they are mixed up.

The following comments apply from Jumping Caribou Road going south to 4.6 km north of Highway 64: Starting from Jumping Caribou Road south: There is an electrical distribution line (Permit No HO-2002-PLA-00017) held under Land Use Permit that crosses the highway approx 355 m south of Jumping Caribou Lake Rd. There are a number of unevaluated wetlands within the study area.

There are two research points (FEC-SC-14) and (FEC-SC-15) on the east side in the general vicinity of Rattler Road. Contact: Peter Uhlig, Program Lead, Ecological Land Classification Program. Status (Not Protected). They are 193 m east of the highway.

There is a privately owned parcel of land situated across from Rattler Road (OGF ID: 69323224) in Olive Township. The Crown Parcel Identification Number is 1509443. (Check Geowarehouse). It parallels the road for approx 726 metres on the east side.

There is another unevaluated wetland approximately 2 km south of Jumping Caribou Road along with a small unnamed body of water on the east side of the highway within Olive Township. Flow direction is to the south.

Mining Claims:
705936-Robert Joseph Kosy
705937-Robert Joseph Kosy
710439-Robert Joseph Kosy

Unevaluated wetland-at 3.08 km south of Jumping Caribou Rd flows east to small body of water situated 0.18 km east of the highway. Water continues to flow southward along the eastern periphery of the highway joining with another small body of water. North of Tonomo Lake Road there is another wetland (fen) directly west of the highway and it receives flow from another wetland on the highway's east side.

Research plot-located on Tonomo Lake Road approx 619 m west of the highway. Private property-located on Tonomo Lake Road 237 m west of the highway.

There is a walleye spawning area located just south of Tonomo Lake Road on the west side of the highway at Opechee Creek. Here water flows to the south. There is a swamp wetland in the vicinity. At this same vicinity there is a electrical distribution line LUP HO-2022-PLA-00017. Directly adjacent to this there is patented land owned by another Provincial government agency. (Check this).
At this same location there is an unamed small lake (west side).

There is a BMA TE-40-060 south of Tonomo Lake Road.

There is a natural gas pipeline CL 1333 (Crown Disposition Easement) on the west side of the highway (Olive Twp)
At 3762 Highway 11 there is a privately owned property.

There is an electrical distribution line (HO-2022-PLA-00017) that continues north-south along the highway in the Richfield Road general vicinity.

There is a privately owned parcel of land opposite Richfield road. It is directly adjacent the highway.

At 12 Richfield Road there is a property owned by the Municipality of Temagami. (west of highway). It is approx 105 m west of the highway. South of this, there are two large unevaluated wetlands adjacent the highway on the east side. Olive Lake is considered a warmwater fishery and is located west of the highway.

There is a research plot Protected (Full Protection) located on the east side of the highway east of Opechee Lake's northernmost branch. It is approx. 1029 m east of the highway. Contact is Alison White, S Forest Productivity Specialist (416) 721-2714 Alison.LWhite@ontario.ca. This is a growth and yield permanent sample plot managed by MNRF-BAMS. No disturbance of any kind is allowed within the protected research value.

The following comments apply from Sand Dam road to Ellsmere Road:

There is a privately owned parcel of land on the west side of Sand Dam road in proximity to the Highway. There is a natural gas pipeline Crown Disposition easement suvey location number CL 2633 located just south of Sand Dam Road and branching to the northeast crossing Sand Dam Road. There is a Land Use Permit HO-2022-PLA-00017 for an electrical distribution line located on the east side of the highway for approx. 600 m. This area is located within trapline NB 032. There is a large unevaluated wetland (swamp) on both sides of the highway at this location. Stewart Hammel Road has a privately owned parcel on the east/northeast side. The natural gas pipeline parallels the highway on the southern side (Crown Distribution Easement).

In Blyth Township there is a disposition for Tree Tapping on the West side that is 3.4 ha in area. The area is held by a Land Use Permit number 1554-1010777. Overlapping this same location is a large Research Polygon study name: Wildlife Monitoring and Assessment (Retired). Contact: Philip Dewitt, Provincial Wildlife Monitoring Program Lead (705) 755-1552. Plot Identifier 09032-PB-D-1999. This polygon crosses the highway and includes land on both sides. Its general location is at the junction of Stewart Hammel Road and Highway 11.

An elongated unevaluated wetland (fen) runs along the southern portion of the highway for quite some distance moving north.

A Private Recreation Camp (Members of the Stag Hunt Club) is held under Land Use Permit and is located 32 m (approx) east of the highway (Con 5 Lot 4 Blyth) . It is located south of a road that branches east off the highway (unnamed road).

751765-Brian G Windsor Mining Claim (just north Stewart Hammel)

There is a research Point FEC-CO-02-1084 which is part of the study " Central Ontario Forest Ecosystem Classification". Contact Name is Peter Uhlig, Program Lead, Ecological Land Classification Program (705) 946-7478. It is not protected. It is located on the west side approx 212 m of the highway west of a small water body.

There is a research plot (Con 6, Lot 4 Blyth) for Growth and Yield (contact Alison White (416) 721-2714) that is plot Identifier NOR 2013002PSP. No disturbance of any kind is allowed within the protected research value. It is 257.8 m from the highway centre.

There is a Private Recreation Camp (Crown Disposition LUP) located in Notman Twp Con 1 Lot 7 beside a water body on the west side of the highway. HO-2022-PLA-00017. is directly across the highway and is an electrical distribution line that flows to a privately owned parcel on Con 1 Lot 7.

There is a LUP for Tree Tapping (Pending) located in Con 1 Lot 8. This LUP needs to be checked to determine if it actually exists. (Purple block).

There is a Communications Tower Crown Lease (CL 9865) Registered Plan No. 36R-10330 (Lands File No 194777) located on the north side of the highway in Lot 8 Con 1 Notman Twp.

Within Con 2 Lot 9 (Notman) there is a LUP for Tree Tapping Permit No 1554-1010638. It is directly adjacent to the highway's east side. There is a private parcel located directly across from it.

There is an assessment parcel located on Lot 1 Con 8 on the north side of the highway (east side) that is close to the highway. (more info needs to be researched for this.)

General: The Natural Heritage Information Centre should be contacted (MECP) for more information on species at risk located within the areas.

Natural heritage areas: There are no identified natural heritage areas within the identified project areas.

The southerly expansion area is located within G 1941 (Tomiko Lake Area). Road development and maintenance (new) is permitted within this policy area, in accordance with the locations and policies proposed in the Ministry's Access Point Policy. Road use (public) new-Roads are permitted in accordance with the locations and policies proposed in the Ministry's Access Road Policy.

The northerly expansion area-From Jumping Caribou Road to north of Highway 64 is located within G 1968 (Milne Lake General Use Area). Within this area, Road Development and Maintenance (new) is permitted and new roads may be permitted subject to the applicable planning process. No new unplanned motorized access to lakes is permitted.

The more southern portion of this stretch is located within policy area G 1970-Jumping Caribou Lake policy area. Part or all of this Management Area contains lands set aside pending resolution of the Temagami area aboriginal land claim. Road Development and Maintenance is permitted and new roads may be permitted subject to the applicable planning process. No new unplanned motorized access to lakes and to E 339r-Wasaksina Lake is permitted.

E154r (Marten River EMA) is located in the area west of the highway around Opechee Lake. It is a Recreation Enhanced Management Area. Road Development and Maintenance (New) is permitted. The Nipissing Crown Game Preserve makes up most of the eastern half of the enhanced management area. A portion of the area is subject to First Nation land claims negotiations. A 120 m Area of Concern will be applied to all Natural Lake Trout

Lakes in the area. Crown Land Disposition may be permitted and there are significant restrictions on land disposition on designated lake trout lakes. Road development and maintenance (new) is permiitted. Where the Recreation Enhanced Management area has been identified to protect remote recreation values, industrial activities and the related construction and use of new roads needs to be carried out in such a way as to maintain or enhance the remote recreation qualities. Roads may be constructed in accordance with MNR's access road policy. Semi-remote tourism areas and important recreational areas will be protected through future semi-remote access planning. No new primary or secondary roads or landings shall be constructed within 300 m of Gooderham, Otter and Little Otter Lakes.

Please feel free to contact me if you have any additional questions or concerns.

Lynn Moreau
Regional Planner

Land Use Planning & Strategic Issues Section
Regional Operations Division-Northeast Region
Ministry of Natural Resources and Forestry
Cell: (705) 491-2052
Pronouns: she/her

From: projectteam@highway11pilot.ca <projectteam@highway11pilot.ca>
Sent: October 31, 2023 9:25 AM
To: Moreau, Lynn (MNRF) <Lynn.Moreau2@ontario.ca>
Subject: RE: Highway 11 Pilot Project

Thank you for your interest in the Highway 11 2+1 Pilot Project and Detail Design Study.

We have included you on our Project contact list. Please find attached a digital copy of the Notice of Study Commencement for the Project, issued on October 25, 2023.

You will be notified through email of future public information centres and updates for this Study. For further information, visit the study website: www.highway11pilot.ca.

Sincerely,

The Highway 11 2+1 Pilot Project Team

Email: projectteam@highway11pilot.ca

You are receiving this email because you have contacted the Project Team for the Highway 11 2+1 Pilot Project and/or are on the contact list for the Detail Design Assignment. At any time, you may unsubscribe or update your contact information by emailing projectteam@highway11pilot.ca

---

From: Moreau, Lynn (MNRF) <Lynn.Moreau2@ontario.ca>
Sent: Monday, October 30, 2023 12:57 PM
To: projectteam@highway11pilot.ca
Subject: Highway 11 Pilot Project

Hi Kyle,

Please add my email to your distribution list for this project.
Thank you!
Lynn

Lynn Moreau
Regional Planner

Land Use Planning & Strategic Issues Section
Regional Operations Division-Northeast Region
Ministry of Natural Resources and Forestry
Cell: (705) 491-2052
Pronouns: she/her

Appendix B

ELC Summary Table

Appendix B. Ecological Land Classification Community Descriptions

Vegetation Community Code	Ecological Land Classification Code	Tree Canopy	Shrub Layer	Ground Layer	Location in Study Area	Comments
G034Tt	**Dry, Sandy Jack Pine – Black Spruce Dominated Forest**	Dominated by Black Spruce, with associates of Jack Pine, Balsam Fir, Red Maple, Sugar Maple, and Black Cherry.	Composed of Black Spruce, Balsam Fir, Speckled Alder, Mountain Holly, Beaked Hazelnut, Sheep Laurel, Lowbush Blueberry, and Labrador Tea.	Dominated by Bunchberry, Canada Mayflower, Skunk Currant, and grasses. Less common species include Ostrich Fern and Bracken Fern.	The community is located on both sides of Hwy 11 at the southern tip of the study area, around the intersection with Sand Dam Road.	None.
G046S	**Dry to Fresh, Coarse Sparse Shrub**	The community lacks a defined forest canopy. Scattered trees include Red Maple (*Acer rubrum*), White Spruce (*Picea glauca*), Trembling Aspen (*Populus tremuloides*), and Paper Birch (*Betula papyrifera*).	Dominated by regenerating Red Maple, Paper Birch, Trembling Aspen, and Red Raspberry (*Rubus idaeus*).	Composed of forbs, such as Large-leaved Aster (*Eurybia macrophylla*), Wild Strawberry (*Fragaria virginiana*), and Tall Goldenrod (*Solidago altissima*); and grasses including Reed Canary Grass (*Phalaris arundinacea*).	There are two occurrences of this community in the study area. The first community is located east of Hwy 11 at the intersection with Ranger Road. The second is located west of Hwy 11 approximately 450 m north of the intersection with Ranger Road.	Heavily disturbed soil with back fill and blasted rocks.
G042Tt	**Dry, Sandy Maple Hardwood Forest**	The canopy is dominated by Red Maple, Paper Birch, Sugar Maple (*Acer saccharum*), and Red Oak (*Quercus rubra*), with associates of Balsam Fir (*Abies balsamea*) and Black Spruce (*Picea mariana*).	The most abundant species are Balsam Fir, Red Maple, Paper Birch, and Striped Maple (*Acer pensylvanicum*), which grow in association with Beaked Hazelnut (*Corylus cornuta*), Trembling Aspen, and Canada Yew (*Taxus canadensis*).	Dominated by Red Maple seedlings, Starflower (*Lysimachia borealis*), Bunchberry (*Cornus canadensis*), and Bracken Fern (*Pteridium aquilinum*).	The community is located east of Hwy 11 at the northern tip of the study area, approximately 1.3 km south of Ellesmere Road.	None.
G049Tl/Tt	**Dry to Fresh, Coarse Jack Pine – Black Spruce Dominated Forest**	Canopy dominants are Jack Pine (*Pinus banksiana*) and Balsam Fir, which grow in association with Red Maple, Sugar Maple, and Black Cherry (*Prunus serotina*).	Dominated by Sugar Maple, Black Cherry, and Beaked Hazelnut.	The ground layer is composed of Bunchberry, Ostrich Fern (*Matteuccia struthiopteris*), Bracken Fern, grasses, and dwarf shrubs such as Lowbush Blueberry (*Vaccinium angustifolium*), and Sheep Laurel (*Kalmia angustifolia*).	The community is located east of Hwy 11, approximately 80 m north of the intersection with Sand Dam Road.	None.
G050Tl/Tt	**Dry to Fresh, Coarse Pine – Black Spruce Conifer Forest**	White Pine (*Pinus strobus*), Black Spruce, Balsam Fir, Red Maple and Paper Birch are the most abundant canopy species. Associates include Eastern White Cedar (*Thuja occidentalis*), Tamarack (*Larix laricina*), and Sugar Maple.	Major shrub species include Mountain Maple (*Acer spicatum*) and the saplings of Balsam Fir, Paper Birch, and Sugar Maple.	Dominated by Starflower, Red Maple seedlings, and Canada Mayflower (*Maianthemum canadense*) which grow in association with Spreading Dogbane (*Apocynum androsaemifolium*), Wild Sarsaparilla (*Aralia nudicaulis*), Goldthread (*Coptis trifolia*), Bunchberry, and New York Fern (*Parathelypteris noveboracensis*).	The community occurs throughout the study area.	None.
G051Tt	**Dry to Fresh, Coarse Hemlock – Cedar Conifer Forest**	Dominant species include Eastern White Cedar, Red Maple, Black Spruce, Paper Birch, and Balsam Fir with associates of Sugar Maple and Red Oak.	The most abundant shrub species are the saplings of canopy dominants, which grow in association with Mountain Maple, Striped Maple, and Canada Yew.	Starflower and the seedlings of Balsam Fir, Striped Maple, Red Maple, and Eastern White Cedar are the most abundant groundcover species. Associates include Wild Sarsaparilla, Bluebead Lily (*Clintonia borealis*), Bunchberry, Goldthread, Rose Twisted-Stalk (*Streptopus lanceolatus*), Canada Mayflower, Interrupted Fern (*Claytosmunda claytoniana*), Bracken Fern, and New York Fern.	There are two occurrences of this community in the study area. The first is located on both sides of Hwy 11, just south of the intersection with Ellesmere Road. The second is located east of Hwy 11, approximately 4.1 km south of the intersection with Woodys Road.	None.
G052Tt	**Dry to Fresh, Coarse Spruce – Fir Conifer Forest**	The canopy is predominantly composed of Balsam Fir, Paper Birch, Black Spruce, and Red Maple with associates of Black Ash (*Fraxinus nigra*), Jack Pine, White Pine, and Eastern White Cedar.	Commonly observed shrub species include Canada Fly Honeysuckle (*Lonicera canadensis*), Mountain Ash (*Sorbus americana*), and the saplings of Balsam Fir and Red Maple.	Major species include Starflower, Wild Sarsaparilla, and Red Maple seedlings. Less common species include Interrupted Fern, Goldthread, Bunchberry, and Sensitive Fern (*Onoclea sensibilis*).	The community occurs throughout the study area.	Substrate composed of exposed bedrock, large boulders, and very shallow mineral soil.
G053Tt	**Dry to Fresh, Coarse Conifer Forest**	Dominated by Eastern Hemlock (*Tsuga canadensis*), Eastern White Cedar, Red Maple, and Paper Birch which grow in association with Sugar Maple, White Spruce, White Spruce, and Trembling Aspen.	The shrub layer is composed of Beaked Hazelnut, Wild Raisin (*Viburnum cassinoides*), and the saplings of Balsam Fir, Eastern Hemlock, Red Maple, and Paper Birch.	Dominated by Starflower, Wintergreen (*Gaultheria procumbens*), Bluebead Lily, and Goldthread. Less common species include Wild Sarsaparilla, Bunchberry, Northern Bush Honeysuckle (*Diervilla lonicera*), Creeping Snowberry (*Gaultheria hispidula*), Twinflower (*Linnaea borealis*), Sensitive Fern, and Bracken Fern.	There are two occurrences of this community in the study area. The first is located east of Hwy 11, opposite of the intersection with Woodys Road. The second is located east of Hwy 11 approximately 3 km north of the intersection with Ranger Road.	None.
G054Tl	**Dry to Fresh, Coarse Red Pine – White Pine Mixedwood Forest**	The primary canopy trees are White Pine, Red Pine (*Pinus resinosa*), Paper Birch, Red Maple, and Balsam Fir, with associates of Yellow Birch (*Betula alleghaniensis*), Black Ash, Black Spruce, Balsam Poplar (*Populus balsamifera*),Trembling Aspen, and Eastern White Cedar.	Primarily composed of the saplings of Balsam Fir and Red Maple.	Primarily composed of the seedlings of Balsam Fir, with some Red Maple seedlings. Less abundant species include Bluebead Lily, Goldthread, Bunchberry, Twinflower, and other forbs.	The community is located east of Hwy 11, approximately 1.3 km south of the intersection with Ellesmere Road.	None.

Appendix B. Ecological Land Classification Community Descriptions

Vegetation Community Code	Ecological Land Classification Code	Tree Canopy	Shrub Layer	Ground Layer	Location in Study Area	Comments
G055Tl/Tt	**Dry to Fresh, Coarse Aspen – Birch Hardwood Forest**	The characteristic canopy trees include Trembling Aspen, Balsam Fir, Paper Birch, Yellow Birch, Red Maple, Sugar Maple, and Eastern White Cedar, with the occasional Black Ash, White Spruce, Red Oak, and Large-toothed Aspen (*Populus grandidentata*).	Dominated by Canada Yew, Hobblebush (*Viburnum lantanoides*), Mountain Maple, and the saplings of Balsam Fir, Red Maple, Paper Birch, and Sugar Maple. Less common shrubs include Canada Fly Honeysuckle, Pin Cherry (*Prunus pensylvanica*), Red Elderberry (*Sambucus racemosa*), Willows (*Salix spp.*), and Wild Raisin.	Characterized by high cover of Bracken Fern, Interrupted Fern, Ostrich Fern, New York Fern, False Solomon's Seal (*Maianthemum racemosum*), Red Trillium (*Trillium erectum*), and the seedlings of Red Maple and Balsam Fir.	The community occurs throughout the study area.	None
G058Tt	**Dry to Fresh, Coarse Maple Hardwood Forest**	Dominated By Sugar Maple and Red Maple, with associates of Eastern Hemlock, Paper Birch, Balsam Fir, White Spruce, White Pine, Red Oak, Yellow Birch, and Eastern White Cedar.	Predominantly composed of the saplings of canopy dominants as well as Canada Fly Honeysuckle, Striped Maple, Mountain Maple, Alternate-leaved Dogwood (*Cornus alternifolia*), Canada Yew, Pussy Willow (*Salix discolor*), and Ironwood (*Ostrya virginiana*).	Common ground cover species include New York Fern, Interrupted Fern, Red Trillium, and the seedlings of Red Maple, Balsam Fir, and Striped Maple. Less common species include Bunchberry, Bluebead Lily, Marginal Wood Fern (*Dryopteris marginalis*), Starflower, Rose Twisted-stalk, Canada Mayflower, and Blue Flag (*Iris versicolor*).	The community occurs throughout the study area.	None.
G065Tt	**Moist, Coarse: Pine – Black Spruce Conifer Forest**	Predominantly composed of Black Spruce, Balsam Fir, Paper Birch and Trembling Aspen growing in association with White Spruce, Jack Pine and White Pine.	Dominated by Mountain Maple and the saplings of Balsam Fir, Red Maple, Paper Birch, Black Spruce, and Black Ash.	The most common ground vegetation species include Bluebead Lily, Bracken Fern, and Wild Sarsaparilla. Less common species include Bunchberry, Intermediate Wood Fern (*Dryopteris intermedia*), Field Horsetail (*Equisetum arvense*), Starflower and other forbs.	The community occurs west of Hwy 11 approximately 4.5 km north of the intersection with Ranger Road.	None.
G066Tt	**Moist, Coarse Hemlock – Cedar Conifer Forest**	Composed predominantly of Eastern White Cedar, Balsam Fir, Red Maple, Black Ash, Paper Birch, and Black Spruce, with some Sugar Maple, White Spruce, and Yellow Birch.	Shrub dominants include Striped Maple and the saplings of Red Maple, Balsam Fir, Eastern White Cedar, and Paper Birch. Subordinate species include Mountain Maple, Canada Fly Honeysuckle, Skunk Currant (*Ribes glandulosum*), Hobblebush, and Canada Yew.	Predominantly composed of Bluebead Lily, Bunchberry, Starflower, New York Fern, Bracken Fern, and the seedlings of maples, Canada Yew, Balsam Fir, and Red Maple. Less common species include Wild Sarsaparilla, Goldthread, Canada Mayflower, Wild Cucumber Root (*Medeola virginiana*), Rose Twisted-stalk, and Red Trillium.	The community occurs throughout the study area.	None.
G067Tt/Tl	**Moist, Coarse Spruce – Fir Conifer Forest**	Canopy dominants include White Pine, Paper Birch, Black Spruce, Balsam Fir, and Eastern White Cedar. Subordinate species include Red Maple, Sugar Maple, Yellow Birch, Trembling Aspen, and Tamarack.	The predominant species in the shrub layer are the saplings of Balsam Fir, Paper Birch, and Eastern White Cedar, which grow in association with Mountain Maple and Wild Raisin.	Dominated by the seedlings of Balsam Fir, Eastern White Cedar, and Paper Birch. Associates include Wild Sarsaparilla, Bluebead Lily, Goldthread, Bunchberry, Field Horsetail, Twinflower, Creeping Wood-sorrel (*Oxalis corniculata*), Bracken Fern, and Painted Trillium (*Trillium undulatum*).	There are two occurrences of this community in the study area. The first occurs west of Hwy 11 approximately 1.8 km south of the intersection with Woodys Road. The second community is located west of Hwy 11 at the intersection with Ranger Road.	None.
G068Tt	**Moist, Coarse Conifer Forest**	Predominantly composed of White Pine, Paper Birch, Black Spruce, Balsam Fir, and Eastern White Cedar, which grow in association with Red Maple, Sugar Maple, Black Spruce, and Black Cherry.	Dominated by the saplings of Balsam Fir, Red Maple, Black Spruce, and Paper Birch. Less common species include Mountain Holly (*Ilex mucronata*), Canada Fly Honeysuckle, and Hobblebush.	Predominantly composed of Red Maple seedlings, Bluebead Lily, Starflower, and Goldthread, with associates of Bunchberry, Northern Bush Honeysuckle, Canada Mayflower, Creeping Wood-sorrel, and Bracken Fern.	The community occurs east of Hwy 11 approximately 4.4 km north of the intersection with Ranger Road.	None.
G070Tt	**Moist, Coarse Aspen – Birch Hardwood Forest**	Dominated by Paper Birch, Red Maple, Balsam Fir, White Spruce, and Eastern White Cedar, with associates of Red Maple, Sugar Maple, Yellow Birch, Black Ash, Black Spruce, and White Pine.	Predominantly composed of the saplings of Balsam Fir, Red Maple, White Spruce, and Paper Birch, with associates of Mountain Maple, Speckled Alder (*Alnus incana*), Canada Fly Honeysuckle, Pin Cherry, Mountain Ash, Canada Yew, Wild Raisin, Willows, and Red Raspberry.	Dominated by ferns, including Interrupted Fern, Ostrich Fern, and Sensitive Fern, and the seedlings of Canada Yew and Red Maple. Other species present include Wild Sarsaparilla, Goldthread, Bunchberry, Northern Bush Honeysuckle, Starflower, Tall Goldenrod (*Solidago altissima*), Hairy Goldenrod (*Solidago hispida*), and Red Trillium.	The community occurs throughout the study area.	None.
G116Tt	**Moist, Fine Spruce – Fir Conifer Forest**	Dominated by White Pine, Black Spruce, Balsam Fir, Red Maple, and Paper Birch, with associates of Tamarack, Balsam Poplar, and Trembling Aspen.	The most abundant shrub species are the saplings of canopy dominants, which grow interspersed with Speckled Alder, Red Osier Dogwood (*Cornus sericea*), Mountain Holly, White Meadowsweet (*Spiraea alba*), and Wild Raisin.	Predominantly composed of Bracken Fern and the seedlings of Balsam Fir, Mountain Holly, and Red Maple. Associates include Reed Canary Grass, Purple Meadow Rue (*Thalictrum dasycarpum*), and Broadleaf Cattail (*Typha latifolia*).	The community occurs east of Hwy 11 approximately 200 m north of the intersection with Woodys Road.	None.

Appendix B. Ecological Land Classification Community Descriptions

Vegetation Community Code	Ecological Land Classification Code	Tree Canopy	Shrub Layer	Ground Layer	Location in Study Area	Comments
G142N	**Mineral Meadow Marsh**	This community lacks a defined forest canopy. Some scattered Black Spruce and Tamarack trees are present.	Dominated by Speckled Alder and White Meadowsweet.	Dominated by Eastern Rough Sedge *(Carex scabrata*) and other sedge species, Broad-leaved Cattail (*Typha latifolia*), and Four-winged St. John's-wort (*Hypericum tetrapterum*). Field Horsetail, Yellow Pond Lily (*Nuphar lutea*), Sensitive Fern, Rough-stemmed Goldenrod (*Solidago rugosa*), and Purple Meadow Rue are also present.	The community occurs throughout the study area.	None.
G144N	**Organic Meadow Marsh**	This community lacks a defined forest canopy. Some scattered Red Maple, Black Spruce, and Tamarack trees are present.	Predominantly composed of Black Spruce and Tamarack saplings, with some Speckled Alder, Red Chokecherry (*Aronia arbutifolia*), Leatherleaf (*Chaemadaphne calyculata*), Pale Bog Laurel (*Kalmia polifolia*), Sweet Gale (*Myrica gale*), Labrador Tea (*Rhododendron groenlandicum*), White Meadowsweet, and Velvet-leaved Blueberry (*Vaccinium myrtilloides*).	Dominated by Soft-stemmed Bulrush (*Schoenoplectus tabernaemontani*), Cattail, Common Reed (*Phragmites australis*), Bluejoint Reedgrass (*Calamagrostis canadensis*), Reed Canary Grass, and other grasses. Round-leaved Sundew (*Drosera rotundifolia*), Water Horsetail (*Equisetum fluviatile*), Cottongrasses (*Eriophorum spp.*), Royal Fern (*Osmunda regalis*), and Small Red Peatmoss (*Sphagnum capillifolium*) are also present.	The community occurs west of Hwy 11 approximately 200 m north of the intersection with Ranger Road.	Underlain by deep organic soil with floating mats of plant matter.
G136Tt/Tl	**Sparse Treed Fen**	Dominated by Tamarack, Black Spruce, and Red Maple. Sugar Maple is also present in lower abundances.	Common shrub species include White Meadowsweet, Leatherleaf, and Sweet Gale. Less common species include Speckled Alder, Red Osier Dogwood, and Wild Raisin.	Predominantly composed of mosses and sedges, with some Reed Canary Grass, Northern Pitcher Plant (*Sarracenia purpurea*), Cattail, and Purple Meadow Rue.	The community occurs throughout the study area.	Too wet for access due to a beaver dam. ELC was delineated from as close as possible with binoculars.
G139N/S	**Poor Fen**	This community lacks a defined forest canopy. Some scattered Black Spruce and Tamarack trees are present.	Dominated by Speckled Alder, Bebb's Willow (*Salix bebbiana*), and White Meadowsweet. Less abundant shrubs include Bog Rosemary (*Andromeda polifolia*), Leatherleaf, Mountain Holly, Sheep Laurel, Pale Bog Laurel, Sweet Gale, and Labrador Tea.	Primarily composed of Cattail, Soft-stemmed Bulrush, Swollen-beaked Sedge (*Carex rostrata*), and other sedges. Tawny Cottongrass (*Eriophorum virginicum*) and Small Cranberry (*Vaccinium oxycoccus*) are also present.	The community occurs west of Hwy 11 approximately 200 m north of the intersection with Woodys Road.	None.
G140SN	**Open Moderately Rich Fen**	This community lacks a defined forest canopy. Some Black Spruce, Tamarack, and White Pine trees are present.	Dominated by Speckled Alder, Sweet Gale, White Meadowsweet, Leatherleaf, Labrador Tea, and the saplings of Black Spruce and Tamarack. Some Mountain Holly, Sheep Laurel, Pale Bog Laurel, and Mountain Ash are also present.	Cattail, Interrupted Fern, sedges, Reed Canary Grass and other grasses, and peatmoss are abundant. Less common species include Pink Lady's Slipper (*Cypripedium acaule*), Water Horsetail, Joe Pye Weed (*Eutrochium maculatum*), Spotted Jewelweed (*Impatiens capensis*), Water Horehound (*Lycopus uniflorus*), Royal Fern, Broad-leaved Arrowhead (*Sagittaria latifolia*), and Purple Meadow Rue.	There are two occurrences of this community in the study area. The first is located west of Hwy 11 approximately 2.2 km north of the intersection with Ranger Road. The second occurs east of Hwy 11, approximately 0.65 km north of the intersection with Ranger Road.	The second community is underlain by 15 cm of peatmoss on top of loamy clay and has a gleyed layer at a depth of 15 cm.
G128Tt	**Organic Intermediate Conifer Swamp**	Dominated by Black Spruce and Balsam Fir, with associates of White Spruce and Eastern White Cedar.	Primarily composed of Speckled Alder, Balsam Fir saplings, White Meadowsweet, and Labrador Tea, with some Lowbush Blueberry and Wild Raisin.	Dominated by Green Peatmoss (*Sphagnum girgensohnii*) and other mosses, grasses, Bunchberry, Twin Flower, and Canada Mayflower. Bluebead Lily, Goldthread, Creeping Snowberry, and Spotted Jewelweed are also present.	The community occurs throughout the study area.	None.
G129Tt	**Organic Rich Conifer Swamp**	Predominantly composed of Black Spruce, Tamarack, and Paper Birch, with White Pine as an associate.	Dominated by Speckled Alder, Labrador Tea, and the saplings of Black Spruce, Tamarack, and Red Maple. Sheep Laurel, Pale Bog Laurel, Skunk Currant, Red Raspberry, White Meadowsweet, Velvet-leaved Blueberry, and Wild Raisin are also present in lower abundances.	Primarily composed of the seedlings of Black Spruce, Speckled Alder, Tamarack, and Labrador Tea. Brownish Sedge (*Carex brunnescens*), Bladder Sedge (*Carex intumescens*), Goldthread, Horsetails (*Equisetum spp.*), Creeping Snowberry, Twin Flower, Starflower, Canada Mayflower, Sensitive Fern, Cinnamon Fern (*Osmundastrum cinnamomeum*), Creeping Wood-sorrel, Rough-stemmed Goldenrod, and Fraser's St. John's-wort (*Triadenum fraseri*) are also present.	The community is located east of Hwy 11 approximately 2.9 km south of the intersection with Woodys Road.	None.
G135S	**Organic Thicket Swamp**	Dominated by Black Spruce with some Red Maple and Tamarack.	Predominantly composed of Speckled Alder, Wild Raisin, and White Meadowsweet, with Leatherleaf, Mountain Holly, and Red Raspberry also present in lower abundances.	Dominated by grasses with Brownish Sedge, Bladder Sedge, Royal Fern, Purple Meadow Rue, and Cattail also present.	The community occurs throughout the study area.	None.

Appendix C

Photographic Log

Photographic Log

Client Name:	Report Name	Project No.
Ministry of Transportation	Detail Design of the Highway 11 2+1 Roadway Model Pilot Project	60713279

Photo 1

Dry to Fresh, Coarse Sparse Shrub (G046S). There are two occurrences of this community in the study area. The first community is located east of Hwy 11 at the intersection with Ranger Road. The second is located west of Hwy 11 approximately 450 m north of the intersection with Ranger Road

Photo 2

Dry, Sandy Maple Hardwood Forest (G042Tt). The community is located east of Hwy 11 at the northern tip of the study area, approximately 1.3 km south of Ellesmere Road.

Photo 3

Dry to Fresh, Coarse Jack Pine – Black Spruce Dominated Forest (G049Tl/Tt). The community is located east of Hwy 11, approximately 80 m north of the intersection with Sand Dam Road.

Photo 4

Dry to Fresh, Coarse Pine – Black Spruce Conifer Forest (G050Tl/Tt). The community occurs throughout the study area.

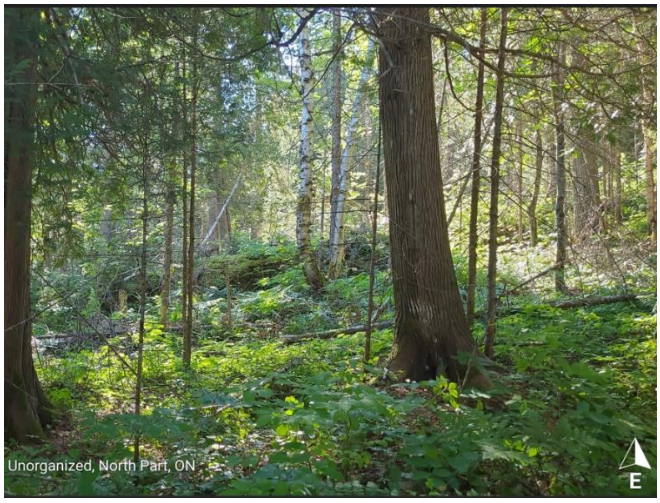


Photo 5

Dry to Fresh, Coarse Hemlock – Cedar Conifer Forest (G051Tt). There are two occurrences of this community in the study area. The first is located on both sides of Hwy 11, just south of the intersection with Ellesmere Road. The second is located east of Hwy 11, approximately 4.1 km south of the intersection with Woodys Road.

Photo 6

Dry to Fresh, Coarse Spruce – Fir Conifer Forest (G052Tt). The community occurs throughout the study area.

Photo 7

Dry to Fresh, Coarse Conifer Forest (G053Tt). There are two occurrences of this community in the study area. The first is located east of Hwy 11, opposite of the intersection with Woodys Road. The second is located east of Hwy 11 approximately 3 km north of the intersection with Ranger Road.

Photo 8

Dry to Fresh, Coarse Red Pine – White Pine Mixedwood Forest (G054TI). The community is located east of Hwy 11, approximately 1.3 km south of the intersection with Ellesmere Road.

Photo 9

Dry to Fresh, Coarse Aspen – Birch Hardwood Forest (G055Tl/Tt). The community occurs throughout the study area.

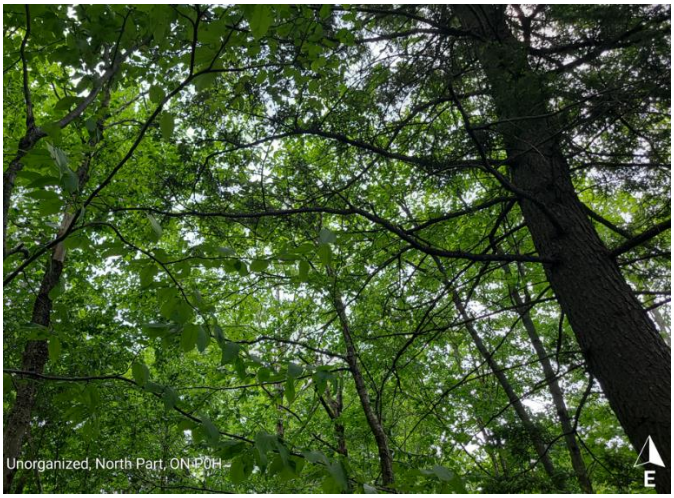


Photo 10

Dry to Fresh, Coarse Maple Hardwood Forest (G058Tt). The community occurs throughout the study area.

Photo 11

Moist, Coarse: Pine – Black Spruce Conifer Forest (G065Tt). The community occurs west of Hwy 11 approximately 4.5 km north of the intersection with Ranger Road.

Photo 12

Moist, Coarse Hemlock – Cedar Conifer Forest (G066Tt). The community occurs throughout the study area.

Photo 13

Moist, Coarse Spruce – Fir Conifer Forest (G067Tt/Tl). There are two occurrences of this community in the study area. The first occurs west of Hwy 11 approximately 1.8 km south of the intersection with Woodys Road. The second community is located west of Hwy 11 at the intersection with Ranger Road.

Photo 14

Moist, Coarse Conifer Forest (G068Tt). The community occurs east of Hwy 11 approximately 4.4 km north of the intersection with Ranger Road.

Photo 15

Moist, Coarse Aspen – Birch Hardwood Forest (G070Tt). The community occurs throughout the study area.

Photo 16

Moist, Fine Spruce – Fir Conifer Forest (G116Tt). The community occurs east of Hwy 11 approximately 200 m north of the intersection with Woodys Road.

Photo 17

Mineral Meadow Marsh (G142N). The community occurs throughout the study area.

Photo 18

Organic Meadow Marsh (G144N). The community occurs west of Hwy 11 approximately 200 m north of the intersection with Ranger Road.

Photo 19

Sparse Treed Fen (G136Tt/Tl). The community occurs throughout the study area.

Photo 20

Poor Fen (G139N/S). The community occurs west of Hwy 11 approximately 200 m north of the intersection with Woodys Road.

Photo 21

Open Moderately Rich Fen (G140S/N). There are two occurrences of this community in the study area. The first is located west of Hwy 11 approximately 2.2 km north of the intersection with Ranger Road. The second occurs east of Hwy 11, approximately 0.65 km north of the intersection with Ranger Road.

Photo 22

Dry, Sandy Jack Pine – Black Spruce Dominated Swamp (G034Tt). The community is located on both sides of Hwy 11 at the southern tip of the study area, around the intersection with Sand Dam Road.

Photo 23

Organic Intermediate Conifer Swamp (G128Tt). The community occurs throughout the study area.

Photo 24

Organic Rich Conifer Swamp (G129Tt). The community is located east of Hwy 11 approximately 2.9 km south of the intersection with Woodys Road.

Photo 25 ↑

Organic Thicket Swamp (G135S). The community is located west of Hwy 11 approximately 100 m north of the intersection with Sand Dam Road. The community occurs throughout the study area.

Appendix D

Vascular Plant List

Appendix D: Vascular Plant List

AECOM

Botanical Name	Plant Species Information												ELC ID#:																						
Common Name	Scientific Name	Family	CC (2023)	CW (2023)	Native Status	Invasive (Y/N)	Tall-grass Species (Y/N)	SRANK	NRANK	GRank	COSEWIC	SARO	ELC Code:	G034Tt	G042Tt	G046S	G049Tt/Tt	G050Tt/Tt	G051Tt	G052Tt	G053Tt	G054Tt	G055Tt/Tt	G058Tt	G065Tt	G066Tt	G067Tt/Tt	G068Tt	G070Tt	G116Tt	G128Tt	G129Tt	G135S	G136Tt/Tt	G139N/S	G140N	G140S	G142N	G144N
Balsam Fir	Abies balsamea	Pinaceae	5	-3	N	N		S5	N5	G5				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
Striped Maple	Acer pensylvanicum	Aceraceae	7	3	N	N		S4	N5	G5					X				X					X		X			X										
Red Maple	Acer rubrum	Aceraceae	4	0	N	N		S5	N5	G5				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X
Sugar Maple	Acer saccharum	Aceraceae	4	3	N	N		S5	N5	G5				X	X		X	X	X		X		X	X		X	X	X	X	X									
Mountain Maple	Acer spicatum	Aceraceae	6	3	N	N		S5	N5	G5								X					X	X	X	X	X		X										
Speckled Alder	Alnus incana	Betulaceae	6	-3	N	N		S5	N5	G5																			X	X	X	X	X	X	X	X	X	X	X
Bog Rosemary	Andromeda polifolia	Ericaceae	10	-5	N	N		S5	N5	G5																								X					
Spreading Dogbane	Apocynum androsaemifolium	Apocynaceae	3	5	N	N		S5	N5	G5								X																					
Wild Sarsaparilla	Aralia nudicaulis	Araliaceae	4	3	N	N		S5	N5	G5					X			X	X	X	X	X	X				X	X		X									
Red Chokeberry	Aronia arbutifolia	Rosaceae	8	-3	N	N		SU	N4N5	G5																													Y
Yellow Birch	Betula alleghaniensis	Betulaceae	6	0	N	N		S5	N5	G5					X							X	X	X		X	X		X										
Paper Birch	Betula papyrifera	Betulaceae	2	3	N	N		S5	N5	G5						X		X	X	X	X	X	X	X	X	X	X	X	X	X		X							
Bluejoint Reedgrass	Calamagrostis canadensis	Poaceae	4	-5	N	N	Y	S5	N5	G5																													Y
Yellow Marsh Marigold	Caltha palustris	Ranunculaceae	5	-5	N	N		S5	N5	G5																											X		
Brownish Sedge	Carex brunnescens	Cyperaceae	6	-3	N	N		S5	N5	G5																						X	X						
Bladder Sedge	Carex intumescens	Cyperaceae	6	-3	N	N		S5	N5	G5																						X	X						
Swollen Beaked Sedge	Carex rostrata	Cyperaceae	10	-5	N	N		S4?	N5	G5																									X				
Eastern Rough Sedge	Carex scabrata	Cyperaceae	8	-5	N	N		S5	N5	G5																												X	
Sedge	Carex spp.	Cyperaceae	NA	NA	NA	NA		NA	NA	NA																						X	X	X	X		X	X	X
Leatherleaf	Chamaedaphne calyculata	Ericaceae	9	-5	N	N		S5	N5	G5																							X	X	X	X	X	X	
Reindeer Lichen	Cladonia rangerifina	Cladoniaceae	NA	NA	N	N		S5	N5	G5																	X												
Interrupted Fern	Claytosmunda claytoniana	Osmundaceae	7	0	N	N		S5	N5	G5									X	X			X						X								X		
Bluebead Lily	Clintonia borealis	Liliaceae	7	0	N	N		S5	N5	G5									X		X	X	X	X	X	X	X	X			X								
Goldthread	Coptis trifolia	Ranunculaceae	7	-3	N	N		S5	N5	G5								X	X	X		X				X	X	X	X		X	X							
Alternate-leaved Dogwood	Cornus alternifolia	Cornaceae	6	3	N	N		S5	N5	G5														X															
Bunchberry	Cornus canadensis	Cornaceae	7	0	N	N		S5	N5	G5				X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		X								
Red Osier Dogwood	Cornus sericea	Cornaceae	2	-3	N	N		S5	N5	G5																				X				X					
Beaked Hazelnut	Corylus cornuta	Betulaceae	5	3	N	N		S5	N5	G5				X	X		X				X																		
Pink Lady's-slipper	Cypripedium acaule	Orchidaceae	7	-3	N	N		S5	N5	G5																										X			
Flat-branched Tree-clubmoss	Dendrolycopodium obscurum	Lycopodiaceae	6	3	N	N		S4	N5	G5														X		X													
Northern Bush-honeysuckle	Diervilla lonicera	Caprifoliaceae	5	5	N	N		S5	N5	G5						X						X	X					X	X										
Round-leaved Sundew	Drosera rotundifolia	Droseraceae	7	-5	N	N		S5	N5	G5																													X
Evergreen Wood Fern	Dryopteris intermedia	Dryopteridaceae	5	0	N	N		S5	N5	G5															X														
Marginal Wood Fern	Dryopteris marginalis	Dryopteridaceae	5	3	N	N		S5	N5	G5					X									X														
Broad-leaved Helleborine	Epipactis helleborine	Orchidaceae	NA	3	I	Y		SE5	NNA	GNR									X		X						X											
Field Horsetail	Equisetum arvense	Equisetaceae	0	0	N	N		S5	N5	G5															X											X		
Water Horsetail	Equisetum fluviatile	Equisetaceae	7	-5	N	N		S5	N5	G5																											X		X
Horsetail	Equisetum spp.	Equisetaceae	NA	NA	NA	NA		NA	NA	NA																						X						
Cottongrass	Eriophorum spp.	Cyperaceae	NA	NA	NA	NA		NA	NA	NA																													X
Tawny Cottongrass	Eriophorum virginicum	Cyperaceae	8	-5	N	N		S5	N5	G5																									X				
Yellow Trout-lily	Erythronium americanum	Liliaceae	5	5	N	N		S5	N5	G5				X			X						X																
Flowering Spurge	Euphorbia corollata	Euphorbiaceae	7	5	N	N	Y	S4	N4	G5																					X								
Large-leaved Aster	Eurybia macrophylla	Asteraceae	5	5	N	N		S5	N5	G5						X						X																	
Spotted Joe Pye Weed	Eutrochium maculatum	Asteraceae	3	-5	N	N		S5	N5	G5																											X		
Wild Strawberry	Fragaria virginiana	Rosaceae	2	3	N	N	Y	S5	N5	G5						X																							
Black Ash	Fraxinus nigra	Oleaceae	7	-3	N	N		S3	N5	G5	THR	END								X			X	X					X										
Hedge Bedstraw	Galium album	Rubiaceae	NA	5	I	Y		SNA	NNA	GNA						X										X												
Creeping Snowberry	Gaultheria hispidula	Ericaceae	8	-3	N	N		S5	N5	G5												X									X	X							
Eastern Teaberry	Gaultheria procumbens	Ericaceae	6	3	N	N		S5	N5	G5												X																	
Common St. John's-wort	Hypericum perforatum	Clusiaceae	NA	5	I	Y	Y	SE5	NNA	GNR																											X		X
Four-winged St. John's-wort	Hypericum tetrapterum	Clusiaceae		-3	I	N		SE1	NNA	GNR																											X		
Mountain Holly	Ilex mucronata	Aquifoliaceae	7	-5	N	N		S5	N5	G5																		X		X						X		
Spotted Jewelweed	Impatiens capensis	Balsaminaceae	4	-3	N	N		S5	N5	G5																					X						X		
Blue Flag	Iris versicolor	Iridaceae	5	-5	N	N		S5	N5	G5														X															
Sheep Laurel	Kalmia angustifolia	Ericaceae	9	0	N	N		S5	N5	G5				X			X															X			X		X		
Pale Bog Laurel	Kalmia polifolia	Ericaceae	10	-5	N	N		S5	N5	G5																						X			X				X
Tamarack	Larix laricina	Pinaceae	7	-3	N	N		S5	N5	G5						X		X									X			X		X	X	X	X	X	X	X
Small Duckweed	Lemna minor	Lemnaceae	5	-5	N	N		S5?	N5	G5																									X				
Pincushion Moss	Leucobryum glaucum	Leucobryaceae	NA	NA	N	N		S5	N5	G5								X																					
Twinflower	Linnaea borealis	Caprifoliaceae	7	0	N	N		S5	N5	G5					X							X	X				X				X		X						
Canada Fly Honeysuckle	Lonicera canadensis	Caprifoliaceae	6	3	N	N		S5	N5	G5					X					X		X		X	X		X		X										
Garden Bird's-foot Trefoil	Lotus corniculatus	Fabaceae	NA	3	I	Y		SE5	NNA	GNR						X																							
Northern Water-horehound	Lycopus uniflorus	Lamiaceae	5	-5	N	N		S5	N5	G5																											X		
Starflower	Lysimachia borealis	Primulaceae	6	0	N	N	Y	S5	N5	G5					X			X	X	X	X			X	X	X			X	X									
Purple Loosestrife	Lythrum salicaria	Lythraceae	NA	-5	I	Y		SE5	NNA	G5																											X		
Canada Mayflower	Maianthemum canadense	Liliaceae	5	3	N	N		S5	N5	G5					X			X	X		X	X		X	X	X	X	X		X	X							
Large False Solomon's Seal	Maianthemum racemosum	Liliaceae	4	3	N	N		S5	N5	G5													X																
Ostrich Fern	Matteuccia struthiopteris	Dryopteridaceae	5	0	N	N		S5	N5	G5				X			X												X									
Wild Cucumber Root	Medeola virginiana	Liliaceae	8	3	N	N		S5	N5	G5																X													
Sweet Gale	Myrica gale	Myricaceae	6	-5	N	N		S5	N5	G5																								X	X	X	X		X
Yellow Pond Lily	Nuphar lutea	Nymphaceae	NA	NA	N	N		SNA	N5	G5																												X	
Sensitive Fern	Onoclea sensibilis	Dryopteridaceae	4	-3	N	N		S5	N5	G5										X	X		X						X			X					X		
Royal Fern	Osmunda regalis	Osmundaceae	7	-5	N	N		S5	N5	G5																							X				X		X
Cinnamon Fern	Osmundastrum cinnamomeum	Osmundaceae	7	-3	N	N		S5	N5	G5																						X							
Ironwood	Ostrya virginiana	Betulaceae	4	3	N	N		S5	N5	G5					X									X															
Creeping Wood-sorrel	Oxalis corniculata	Oxalidaceae	NA	3	I	N		SE1	NNA	GNR													X			X	X	X	X			X							
New York Fern	Parathelypteris noveboracensis	Thelypteridaceae	7	0	N	N		S4S5	N5	G5								X	X					X		X													
Reed Canary Grass	Phalaris arundinacea	Poaceae	0	-3	N	Y		S5	N5	G5						X															X				X			X
Common Reed	Phragmites australis	Poaceae	0	-3	I	Y		S4?	N5	G5																													X
White Spruce	Picea glauca	Pinaceae	6	3	N	N		S5	N5	G5						X					X			X	X			X	X									
Black Spruce	Picea mariana	Pinaceae	8	-3	N	N		S5	N5	G5						X		X	X		X	X			X	X			X	X	X	X	X	X	X	X	X	X	X
Orange Hawkweed	Pilosella aurantiaca	Asteraceae	NA	5	I	N		SE5	NNA	GNR						X																							
Meadow Hawkweed	Pilosella caespitosa	Asteraceae	NA	5	I	N		SE5	NNA	GNR						X																							
Jack Pine	Pinus banksiana	Pinaceae	5	3	N	N		S5	N5	G5				X			X			X					X													
Red Pine	Pinus resinosa	Pinaceae	8	3	N	N		S5	N5	G5													X																
Eastern White Pine	Pinus strobus	Pinaceae	4	3	N	N		S5	N5	G5						X		X			X		X	X	X		X	X	X	X	X				X			
Common Haircap Moss	Polytrichum commune	Polytrichaceae	NA	NA	NA	NA		S5	N5	G5																					X							
Haircap Mosses	Polytrichum spp	Polytricaceae	NA	NA	NA	NA		NA	NA	NA																X												
Balsam Poplar	Populus balsamifera	Salicaceae	4	-3	N	N		S5	NNR	G5												X			X				X									
Large-toothed Aspen	Populus grandidentata	Salicaceae	5	5	N	N		S5	N5	G5													X															
Trembling Aspen	Populus tremuloides	Salicaceae	2	0	N	N		S5	N5	G5					X	X				X	X		X			X			X									
Pin Cherry	Prunus pensylvanica	Rosaceae	3	3	N	N		S5	N5	G5						X								X	X				X									
Black Cherry	Prunus serotina	Rosaceae	3	3	N	N		S5	N5	G5				X			X											X										
Bracken Fern	Pteridium aquilinum	Dennstaedtiaceae	2	3	N	N		S5	N5	G5				X		X	X		X		X	X	X	X	X	X	X	X	X	X								
Northern Red Oak	Quercus rubra	Fagaceae	6	3	N	N		S5	N5	G5					X				X				X	X														
Common Labrador Tea	Rhododendron groenlandicum	Ericaceae	9	-5	N	N		S5	N5	G5				X			X						X							X	X				X		X	
Skunk Currant	Ribes glandulosum	Grossulariaceae	6	-3	N	N		S5	N5	G5				X																	X							
European Red Currant	Ribes rubrum	Grossulariaceae	NA	5	I	N		SE5	NNA	G4G5																X												
Red Raspberry	Rubus idaeus	Rosaceae	2	3	N	N		S5	N5	G5						X												X			X	X					
Sheep Sorrel	Rumex acetosella	Polygonaceae	NA	3	I	N		SE5	NNA	GNR						X																						
Broad-leaved Arrowhead	Sagittaria latifolia	Alismataceae	4	-5	N	N		S5	N5	G5																										X		
Bebb's Willow	Salix bebbiana	Salicaceae	4	-3	N	N		S5	N5	G5																									X			
Pussy Willow	Salix discolor	Salicaceae	3	-3	N	N		S5	N5	G5														X														
Bog Willow	Salix pedicellaris	Salicaceae	9	-5	N	N		S5	N5	G5																									X			
Willow	Salix spp.	Salicaceae	NA	NA	NA	NA		NA	NA	NA													X						X									
Red Elderberry	Sambucus racemosa	Caprifoliaceae	5	3	N	N		S5	N5	G5													X															
Northern Pitcher Plant	Sarracenia purpurea	Sarraceniaceae	10	-5	N	N		S5	N5	G5																								X				
Soft-stemmed Bulrush	Schoenoplectus tabernaemontani	Cyperaceae	5	-5	N	N		S5	N5	G5																													X
Bladder Campion	Silene vulgaris	Caryophyllaceae	NA	5	I	N		SE5	NNA	GNR						X																							
Tall Goldenrod	Solidago altissima	Asteraceae	1	3	N	N		S5	N5	G5						X													X									
Canada Goldenrod	Solidago canadensis	Asteraceae	1	3	N	N		S5	N5	G5													X															
Hairy Goldenrod	Solidago hispida	Asteraceae	7	5	N	N		S5	N5	G5																			X									
Rough-stemmed Goldenrod	Solidago rugosa	Asteraceae	4	0	N	N		S5	N5	G5																						X					X		
Mountain Ash	Sorbus americana	Rosaceae	8	0	N	N		S5	N5	G5										X									X									
Small Red Peatmoss	Sphagnum capillifolium	Sphagnaceae	NA	NA	NA	NA		S5	N5	G5																					X							X
Green Peatmoss	Sphagnum girgensohnii	Sphagnaceae	NA	NA	NA	NA		S5	N5	G5								X													X							
Peatmoss	Sphagnum spp.	Sphagnaceae	NA	NA	NA	NA		NA	NA	NA																											X		
White Meadowsweet	Spiraea alba	Rosaceae	3	-3	N	N		S5	N5	G5						X													X	X	X		X	X	X	X	X	X

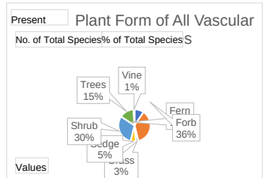
Appendix D: Vascular Plant List

AECOM

Common Name	Scientific Name	Family	CC (2023)	CW (2023)	Native Status	Invasive (Y/N)	Tall-grass Species (Y/N)	SRANK	NRANK	GRank	COSEWIC	SARO	ELC Code:	G034Tt	G042Tt	G046S	G049Tl/Tt	G050Tl/Tt	G051Tt	G052Tt	G053Tt	G054Tl	G055Tl/Tt	G058Tt	G065Tt	G066Tt	G067Tt/Tl	G068Tt	G070Tt	G116Tt	G128Tt	G129Tt	G135S	G136Tt/Tl	G139N/S	G140N	G140S	G142N	G144N
Rose Twisted-stalk	Streptopus lanceolatus	Liliaceae	7	3	N	N		S5	N5	G5					X								X	X		X													
Canada Yew	Taxus canadensis	Taxaceae	7	3	N	N		S4	N5	G5					X				X				X	X		X			X										
Purple Meadow Rue	Thalictrum dasycarpum	Ranunculaceae	5	-3	N	N	Y	S4?	N5?	G5																				X			X	X		X	X	X	
Eastern White Cedar	Thuja occidentalis	Cupressaceae	4	-3	N	N		S5	N5	G5								X	X	X	X	X	X	X		X	X	X	X		X								
Fraser's St. John's-wort	Triadenum fraseri	Clusiaceae	7	-5	N	N		S5	N5	G5																						X							
Red Trillium	Trillium erectum	Liliaceae	6	3	N	N		S5	N5	G5													X	X		X			X										
Painted Trillium	Trillium undulatum	Liliaceae	8	3	N	N		S4	N5	G5																	X												
Coltsfoot	Tussilago farfara	Asteraceae	NA	3	I	Y		SE5	NNA	GNR						X																						
Broad-leaved Cattail	Typha latifolia	Typhaceae	1	-5	N	N		S5	N5	G5																				X	X		X	X		X	X	X	X
Lowbush Blueberry	Vaccinium angustifolium	Ericaceae	6	3	N	N		S5	N5	G5				X			X				X																		
Velvet-leaved Blueberry	Vaccinium myrtilloides	Ericaceae	7	-3	N	N		S5	N5	G5																						X							X
Small Cranberry	Vaccinium oxycoccos	Ericaceae	10	-5	N	N		S5	N5	G5																									X				
Wild Raisin	Viburnum cassinoides	Caprifoliaceae	7	-3	N	N		S5	N5	G5T5											X		X				X		X	X	X	X		X					
Hobblebush	Viburnum lantanoides	Caprifoliaceae	8	0	N	N		S5	N5	G5													X			X													
Nannyberry	Viburnum lentago	Caprifoliaceae	4	0	N	N		S5	N5	G5																		X											
Tufted Vetch	Vicia cracca	Fabaceae	NA	5	I	Y		SE5	NNA	GNR						X																						

Floristic Summary and Analysis for Entire Study Area			
Summary			
Total Species:	134	N/A	
Native Species:	110	82%	
Introduced Species:	15	11%	
Invasive Species:	9	7%	
ESA Status			
END	1	1%	
THR	0	0%	
SC	0	0%	
COSEWIC Status			
END	0	0%	
THR	1	1%	
SC	0	0%	
Provincially Rare (S-rank of			
S1	0	0%	
S1?	0	0%	
S1S2	0	0%	
S1S3	0	0%	
S2	0	0%	
S2?	0	0%	
S2S3	0	0%	
S2S4	0	0%	
S3	1	1%	
S3?	0	0%	
S3S4	0	0%	
Total S1-S3:	**1**	**1%**	
Co-efficient of Conservatism and Floral Quality Index			
Co-efficient of Conservatism (CC) (average):	**5.55**		
CC 0 to 3	lowest sensitivity	18	16%
CC 4 to 6	moderate sensitivity	49	45%
CC 7 to 8	high sensitivity	32	29%
CC 9 to 10	highest sensitivity	9	8%
Floral Quality Index (FQI)			
FQI:	**58.17**		
Presence of Wetland Species			
Wetness Value (CW) (average):	**-0.221311475**		
upland	5	14	10%
facultative upland	2 to 4	38	28%
facultative	1 to -1	17	13%
facultative wetland	-2 to -4	27	20%
obligate wetland	-5	26	19%

Physiognomy		
Vascular Plant Form	**No. of Total Species**	**% of Total Species**
Fern	11	10%
Forb	42	37%
Grass	3	3%
Sedge	6	5%
Shrub	35	30%
Trees	17	15%
Vine	1	1%
Grand Total	**115**	**100%**



Floristic Summary and Analysis Per ELC																										
Summary																										
Total Species:	16	18	26	13	18	18	15	24	32	27	28	23	20	34	19	30	13	14	17	12	24	14	21			
Native Species:	15	18	18	13	17	18	15	24	30	27	26	21	19	31	17	26	12	13	16	12	20	11	16			
Introduced Specie	1	0	8	0	0	0	0	0	1	0	2	1	1	2	0	1	0	0	0	0	2	2	2			
Invasive Species	0	0	5	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	1	2	1	3			
ESA Status																										
END	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0			
THR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
SC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
COSEWIC Status																										
END	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
THR	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0			
SC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
ly Rare (S-rank of S1-S3)																										
S1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
S1?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
S1S2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
S1S3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
S2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
S2?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
S2S3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
S2S4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
S3	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0			
S3?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
S3S4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Total S1-S3:	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**			
servatism and Floral Quality Index																										
Co-efficient of Conservatism (CC) (average):	**5**	**5.388888889**	**3.888888889**	**5.307692308**	**5.1875**	**5.5**	**5.333333333**	**5.208333333**	**5.2**	**5.333333333**	**5.846153846**	**4.9**	**5.05263158**	**5.258064516**	**5.823529412**	**6**	**5.666666667**	**5.230769231**	**7.8125**	**4.91666667**	**6.3**	**4.6**	**5.647058824**			
CC 0 to 3	3	1	9	2	2	2	1	3	4	3	2	4	3	5	2	3	2	4	1	3	3	3	4			
CC 4 to 6	9	12	6	8	9	8	9	15	18	18	13	9	11	16	6	11	5	4	3	5	6	4	4			
CC 7 to 8	1	5	2	1	5	8	5	6	8	6	11	7	5	10	8	9	4	3	4	3	7	3	6			
CC 9 to 10	2	0	1	2	0	0	0	0	0	0	0	0	0	0	1	3	1	2	8	1	4	0	3			
l Quality Index (FQI)																										
FQI:	**19.36**	**22.86**	**16.50**	**19.14**	**21.39**	**23.33**	**20.66**	**25.52**	**28.48**	**27.71**	**29.81**	**22.45**	**22.02**	**29.28**	**24.01**	**30.59**	**19.63**	**18.86**	**31.25**	**17.03**	**28.17**	**15.26**	**22.59**			
ce of Wetland Species																										
Wetness Value (CW) (average):	**1.125**	**1.666666667**	**1.846153846**	**1.153846154**	**0.5**	**0.666666667**	**0**	**0.916666667**	**1.387096774**	**1.37037037**	**1.25**	**0.571428571**	**0.75**	**1.03030303**	**-1.529411765**	**-1.555555556**	**-2.916666667**	**-3.384615385**	**-4.0625**	**-3.3333333**	**-3.318181818**	**-2.166666667**	**-3.388888889**			
upland	1	0	7	1	1	0	0	2	2	0	1	0	1	2	1	0	0	0	0	0	1	1	1			
facultative uplan	8	11	11	6	6	8	5	10	16	17	15	9	9	16	2	5	1	0	0	1	0	0	0			
facultative	4	6	2	4	4	6	5	6	8	6	7	7	5	7	3	5	1	1	1	0	3	2	1			
facultative wetlar	2	1	5	1	5	4	5	6	5	3	5	5	4	8	9	14	6	8	5	6	6	7	7			
obligate wetlanc	1	0	1	1	0	0	0	0	0	1	0	0	1	0	2	3	4	4	10	5	12	2	9			

Glossary

Rarity Ranks	
RANK	**DEFINITION**
EXP	**Extirpated -** A wildlife species that no longer exists in the wild in Canada, but exists elsewhere.
END	**Endangered -** A wildlife species facing imminent extirpation or extinction.
THR	**Threatened -** A wildlife 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 wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

SARO Status	
RANK	**DEFINITION**
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.
THR	**Threatened -** A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
SC	**Special Concern** - A species with characteristics that make it sensitive to human activities or natural events.

Global (G) Conservation Status Ranks	
GLOBAL RANK	**DEFINITION**
GX	**Presumed Extinct** (species) - Not located despite intensive searches and virtually no likelihood of rediscovery **Presumed Eliminated** (ecosystems, i.e., ecological communities and systems) - Eliminated throughout its range, due to loss of key dominant and characteristic taxa and/or elimination of the sites and ecological processes on which the type depends
GH	**Possibly Extinct** (species) or **Possibly Eliminated** (ecosystems) - Known from only historical occurrences but still some hope of rediscovery. Examples of evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is extinct or eliminated throughout its range.
G1	**Critically Imperiled -** At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
G2	**Imperiled -** At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
G3	**Vulnerable -** At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
G4	**Apparently Secure -** At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
G5	**Secure -** At very low risk or extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.

Variant Global Conservation Status Ranks	
RANK	**DEFINITION**
G#G#	**Range Rank -** A numeric range rank (e.g., G2G3, G1G3) is used to indicate 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 or ecosystem is not a suitable target for conservation activities. A global conservation status rank may be not applicable for several reasons, related to its relevance as a conservation target. For species, typically the species is a hybrid without conservation value, or of domestic origin. For ecosystems, the type is typically non-native (e.g, many ruderal vegetation types), agricultural (e.g. pasture, orchard) or developed (e.g. lawn, garden, golf course).

Rank Qualifiers	
RANK	**DEFINITION**
?	**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).

Infraspecific Taxon Global Conservation Status Ranks	
RANK	**DEFINITION**
T#	**Infraspecific Taxon** (trinomial) - The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank. Rules for assigning T-ranks follow the same principles outlined above. For example, the global rank of a critically imperiled subspecies of an otherwise widespread and common species would be G5T1. A T subrank cannot imply the subspecies or variety is more abundant than the species, for example, a G1T2 subrank should not occur. A vertebrate animal population (e.g., listed under the U.S. Endangered Species Act or assigned candidate status) may be tracked as an infraspecific taxon and given a T rank; in such cases a Q is used after the T-rank to denote the taxon's informal taxonomic status.

Plant Form or Type Codes		
CODE	**FORM**	**DESCRIPTION**
FE	Fern	non-flowering, vascular plant, reproducing by spores - Pteridophytes. Including the fern allies such as horsetail, club-moss and quillwort.
FO	Forb	herbaceous broad-leaved plant
GR	Grass	graminoid plants in the Poaceae
LI	Lichen	symbiosis of algae and fungi
MO	Moss	Small non-vascular plants that reproduce by spores - mosses, liverworts and hornworts.
RU	Rush	graminoid plants in the Juncaceae
SE	Sedge	graminoid plants in the Cyperaceae
SH	Shrub	plants with erect, reclining or prostrate woody stems (usually with more than one stem)
TR	Tree	woody perennial plant having a single (1-3) stem, usually with an elongate main stem (trunk)
VI	Vine	herbaceous plant that trail, cling, or twine, and requires support to grow vertically
VW	Woody Vine	a vine with a perennial woody stem

Coefficient of Wetness				
CW VALUE	**ABBRV.**	**INDICATOR STATUS**	**% OCCUR. IN WETLANDS**	**DEFINITION**
-5	**OBL**	Obligate Wetland	99	Almost always occur in wetlands. With few exceptions, these plants (herbaceous or woody are found in standing water or seasonally saturated soils (14 or more consecutive days) near the surface.
-4	**FACW+**			
-3	**FACW**	Facultative Wetland	67-99	Usually occur in wetlands, but may occur in non-wetlands. These plants predominately occur with hydric soils, often in geomorphic settings where water saturates the soils or floods the soil surface at lease seasonally.
-2	**FACW-**			
-1	**FAC+**			
1	**FAC-**			
2	**FACU+**			
3	**FACU**	Facultative Upland	1-33	Usually occur in non-wetlands, but may occur in wetlands. These plants predominately occur on drier or more mesic sites in geomorphic settings where water rarely saturates the soils or floods the soil surface seasonally.
4	**FACU-**			
5	**UPL**	Obligate Upland	1	Almost never occur in wetlands. These plants occupy mesic to xeric non-wetland habitats. They almost never occur in standing water or saturated soils. Typical growth forms include herbaceous, shrubs, woody vines, and trees.
"+" or "-" signs have been attached to the three Facultative categories to express exaggerated tendencies for those species. The "+" sign denotes that the species generally has a greater estimated probability of occurring in wetlands than species having the general indicator category, but a lesser estimated probability of occurring in wetlands than those having the next higher general indicator. The"-" sign denotes that the species generally has a lesser estimated probability of occurring in wetlands than those having the general indicator status, but a greater estimated probability of occurring in wetlands than those having the next lowest general indicator.				

Flowering Season		
CODE	**FORM**	**DESCRIPTION**
Win	Winter	Flowers from from December through March.
Spr	Spring	Flowers from mid-March through to about mid-June.
Sum	Summer	Flowers from about early June through to the end of August.
Aut	Autumn	Flowers from late August through to the end of November.
The flowering seasons, as they are used within the 'Species List' worksheet, utilize the convention applied by the Ontario Wildflowers website. The seasons are not defined in the strict calendar sense (i.e., summer starting on June 21, etc). Rather, a looser definition is used in order to more accurately characterize a species flowering phenology for southern Ontario. Species with longer flowering periods are listed as flowering during multiple seasons (e.g., Spr-Sum - flowers in the Spring and Summer seasons if it typically blooms from late May through mid June).		

Climate Change Vulnerability Index (CCVI)	
CCVI Score Abbreviations	
CODE	**DEFINITION**
EV	**Extremely Vulnerable** - Abundance and/or range extent within geographical area assessed extremely likely to substantially decrease or disappear by 2050.
HV	**Highly Vulnerable** - Abundance and/or range extent within geographical area assessed likely to decrease significantly by 2050.
MV	**Moderately Vulnerable** - Abundance and/or range extent within geographical area assessed likely to decrease by 2050.
LV	**Less Vulnerable** - Available evidence does not suggest that abundance and/or range extent within the geographical area assessed will increase/decrease substantially by 2050. Actual range boundaries may change.

CCVI Confidence Levels	
LEVEL	**DEFINITION**
VH	**Very High** - >90% confidence.
High	**High -** 80–90% confidence.
Mod	**Moderate** - 60 - 80% confidence.
Low	**Low** - <60% confidence.

National (N) and Subnational (S) Conservation Status Ranks	
RANK	**DEFINITION**
NX **SX**	**Presumed Extirpated** - Species or ecosystem is believed to be extirpated from the jurisdiction (i.e., 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. [equivalent to "Regionally Extinct" in IUCN Red List terminology]
NH **SH**	**Possibly Extirpated** - Known from only historical records but still some hope of rediscovery. There is evidence that the species or ecosystem may no longer be present in the jurisdiction, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction.
N1 **S1**	**Critically Imperiled** - At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.
N2 **S2**	**Imperiled** - At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
N3 **S3**	**Vulnerable**— At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
N4 **S4**	**Apparently Secure** - At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
N5 **S5**	**Secure -** At very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.

Variant National and Subnational Conservation Status Ranks	
RANK	**DEFINITION**
N# **S#**	**Range Rank** - A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem. Ranges cannot skip more than two ranks (e.g., SU is used rather than S1S4).
NU **SU**	**Unrankable** - Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
NNR **SNR**	**Unranked** - National or subnational conservation status not yet assessed.
NNA **SNA**	**Not Applicable** - A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., long distance aerial and aquatic migrants, hybrids without conservation value, and non-native species or ecosystems (see Master et al. 2012, Appendix A, pg 70 for further details).
Not Provided	Species or ecosystem is known to occur in this nation or state/province. Contact the appropriate NatureServe network program for assignment of conservation status.

Rank Qualifier	
RANK	**DEFINITION**
N#? **S#?**	**Inexact Numeric Rank** - Denotes inexact numeric rank; this should not be used with any of the Variant National or Subnational Conservation Status Ranks, or NX, SX, NH, or SH.

Appendix E

Breeding Bird Survey Results

Appendix E. Breeding Bird Survey Results

										BBS-001		BBS-002		BBS-003		BBS-004		BBS-005		BBS-006
Family	Common Name	Scientific Name	S-Rank	ESA Status	COSEWIC Status	SARA Status	MBCA Protected?	Area-sensitive?	Breeding Evidence	2024-06-03	2024-06-24	2024-06-03	2024-06-24	2024-06-03	2024-06-24	2024-06-03	2024-06-24	2024-06-03	2024-06-24	2024-06-03
Accipitridae	Bald Eagle	Haliaeetus leucocephalus	S4	NAR	NAR	(blank)	No	Yes	H											1
Fringillidae	American Goldfinch	Spinus tristis	S5	(blank)	(blank)	(blank)	Yes	No	H				6							
	Purple Finch	Haemorhous purpureus	S5	(blank)	(blank)	(blank)	Yes	No	S					1						
	Red Crossbill	Loxia curvirostra	S5	(blank)	(blank)	(blank)	Yes	No	S											
Parulidae	Yellow Warbler	Setophaga petechia	S5B	(blank)	(blank)	(blank)	Yes	No	H											
									S						1	3				
									T	2	3	4	2					2	1	
	Chestnut-sided Warbler	Setophaga pensylvanica	S5B	(blank)	(blank)	(blank)	Yes	No	S							3		2		1
									T	2	2	1	2	4			2			
	Ovenbird	Seiurus aurocapilla	S5B	(blank)	(blank)	(blank)	Yes	Yes	S					1		1				
									T	3	1	2	2							
	American Redstart	Setophaga ruticilla	S5B	(blank)	(blank)	(blank)	Yes	Yes	S		4					2			2	
									T					6	3					
	Common Yellowthroat	Geothlypis trichas	S5B,S3N	(blank)	(blank)	(blank)	Yes	No	S						2		2	1		
									T			9	1							5
	Magnolia Warbler	Setophaga magnolia	S5B	(blank)	(blank)	(blank)	Yes	Yes	S			3				1			4	1
									T											
	Nashville Warbler	Leiothlypis ruficapilla	S5B	(blank)	(blank)	(blank)	Yes	No	S					2				4		
									T			2	1							
	Blackburnian Warbler	Setophaga fusca	S5B	(blank)	(blank)	(blank)	Yes	Yes	S		2			1				2		
									T											
	Northern Parula	Setophaga americana	S5B	(blank)	(blank)	(blank)	Yes	Yes	S					3						
	Black-and-white Warbler	Mniotilta varia	S5B	(blank)	(blank)	(blank)	Yes	Yes	S			2							1	
									T					1			1			
	Black-throated Blue Warbler	Setophaga caerulescens	S5B	(blank)	(blank)	(blank)	Yes	Yes	S											
	Yellow-rumped Warbler	Setophaga coronata	S5B,S4N	(blank)	(blank)	(blank)	Yes	No	S		1	3				1				
	Black-throated Green Warbler	Setophaga caerulescens	S5B	(blank)	(blank)	(blank)	Yes	Yes	S								3			
		Setophaga virens	S5B	(blank)	(blank)	(blank)	Yes	Yes	S											
	Canada Warbler	Cardellina canadensis	S5B	SC	SC	Threatened/ Menacée	Yes	Yes	S											
	Wilson's Warbler	Cardellina pusilla	S5B	(blank)	(blank)	(blank)	Yes	No	S											
	Orange-crowned Warbler	Leiothlypis celata	S5B	(blank)	(blank)	(blank)	Yes	No	S											
	Northern Waterthrush	Parkesia noveboracensis	S5B	(blank)	(blank)	(blank)	Yes	No	S											
Vireonidae	Red-eyed Vireo	Vireo olivaceus	S5B	(blank)	(blank)	(blank)	Yes	No	S							4	3			
									T	4	3	3	2	3	3			5	2	1
	Blue-headed Vireo	Vireo solitarius	S5B	(blank)	(blank)	(blank)	Yes	Yes	S											
									N											
Strigidae	Northern Saw-whet Owl	Aegolius acadicus	S5	(blank)	(blank)	(blank)	No	No	S	1										
	Long-eared Owl	Asio otus	S4	(blank)	(blank)	(blank)	No	No	S											
Passerellidae	White-throated Sparrow	Zonotrichia albicollis	S5	(blank)	(blank)	(blank)	Yes	No	S		1						2			
									T			5	5	3	4			1	3	1
	Swamp Sparrow	Melospiza georgiana	S5B,S4N	(blank)	(blank)	(blank)	Yes	No	S				1							
									T					2	2					4
	Dark-eyed Junco	Junco hyemalis	S5	(blank)	(blank)	(blank)	Yes	No	S				1							
	Song Sparrow	Melospiza melodia	S5	(blank)	(blank)	(blank)	Yes	No	S					1	5					
	Chipping Sparrow	Spizella passerina	S5B,S3N	(blank)	(blank)	(blank)	Yes	No	S							2	2			2
									T									1	1	
Cardinalidae	Rose-breasted Grosbeak	Pheucticus ludovicianus	S5B	(blank)	(blank)	(blank)	Yes	No	S		1									
	Indigo Bunting	Passerina cyanea	S5B	(blank)	(blank)	(blank)	Yes	No	S		2									
Picidae	Northern Flicker	Colaptes auratus	S5	(blank)	(blank)	(blank)	Yes	No	S		1		1							
Turdidae	Veery	Catharus fuscescens	S5B	(blank)	(blank)	(blank)	Yes	Yes	S											3
									T					1	3					
	Swainson's Thrush	Catharus ustulatus	S5B	(blank)	(blank)	(blank)	Yes	No	S				1				3		3	
									T					1	3					1
	Hermit Thrush	Catharus guttatus	S5B,S4N	(blank)	(blank)	(blank)	Yes	Yes	S										1	
	American Robin	Turdus migratorius	S5	(blank)	(blank)	(blank)	Yes	No	S											
	Wood Thrush	Hylocichla mustelina	S4B	SC	THR	Threatened/ Menacée	Yes	No	S											
Tyrannidae	Alder Flycatcher	Empidonax alnorum	S5B	(blank)	(blank)	(blank)	Yes	No	S					1						
	Least Flycatcher	Empidonax minimus	S5B	(blank)	(blank)	(blank)	Yes	Yes	S											
	Yellow-bellied Flycatcher	Empidonax flaviventris	S5B	(blank)	(blank)	(blank)	Yes	No	S											
Regulidae	Golden-crowned Kinglet	Regulus satrapa	S5	(blank)	(blank)	(blank)	Yes	No	S									1		1
Paridae	Black-capped Chickadee	Poecile atricapillus	S5	(blank)	(blank)	(blank)	Yes	No	S			6								

Appendix E. Breeding Bird Survey Results

										BBS-006	BBS-007		BBS-008		BBS-009		BBS-010		BBS-011	
Family	Common Name	Scientific Name	S-Rank	ESA Status	COSEWIC Status	SARA Status	MBCA Protected?	Area-sensitive?	Breeding Evidence	2024-06-24	2024-06-03	2024-06-24	2024-06-03	2024-06-24	2024-06-24	2024-06-04	2024-06-24	2024-06-04	2024-06-04	2024-06-25
Accipitridae	Bald Eagle	Haliaeetus leucocephalus	S4	NAR	NAR	(blank)	No	Yes	H											
Fringillidae	American Goldfinch	Spinus tristis	S5	(blank)	(blank)	(blank)	Yes	No	H											
	Purple Finch	Haemorhous purpureus	S5	(blank)	(blank)	(blank)	Yes	No	S											
	Red Crossbill	Loxia curvirostra	S5	(blank)	(blank)	(blank)	Yes	No	S											
Parulidae	Yellow Warbler	Setophaga petechia	S5B	(blank)	(blank)	(blank)	Yes	No	H		1									
									S	1				1	2				5	
									T								1	2		
	Chestnut-sided Warbler	Setophaga pensylvanica	S5B	(blank)	(blank)	(blank)	Yes	No	S		1			2	3					
									T								1	4	2	3
	Ovenbird	Seiurus aurocapilla	S5B	(blank)	(blank)	(blank)	Yes	Yes	S				2					1		
									T										1	1
	American Redstart	Setophaga ruticilla	S5B	(blank)	(blank)	(blank)	Yes	Yes	S											
									T						2	4	1	4	4	2
	Common Yellowthroat	Geothlypis trichas	S5B,S3N	(blank)	(blank)	(blank)	Yes	No	S			2	1					5	5	
									T	3					2	2				
	Magnolia Warbler	Setophaga magnolia	S5B	(blank)	(blank)	(blank)	Yes	Yes	S			3		1						
									T						2	1				
	Nashville Warbler	Leiothlypis ruficapilla	S5B	(blank)	(blank)	(blank)	Yes	No	S	2					1				1	
									T											
	Blackburnian Warbler	Setophaga fusca	S5B	(blank)	(blank)	(blank)	Yes	Yes	S		2							2		
									T						3	3				
	Northern Parula	Setophaga americana	S5B	(blank)	(blank)	(blank)	Yes	Yes	S											
	Black-and-white Warbler	Mniotilta varia	S5B	(blank)	(blank)	(blank)	Yes	Yes	S			1	1						3	
									T											
	Black-throated Blue Warbler	Setophaga caerulescens	S5B	(blank)	(blank)	(blank)	Yes	Yes	S				1							
	Yellow-rumped Warbler	Setophaga coronata	S5B,S4N	(blank)	(blank)	(blank)	Yes	No	S		1									
	Black-throated Green Warbler	Setophaga caerulescens	S5B	(blank)	(blank)	(blank)	Yes	Yes	S											
		Setophaga virens	S5B	(blank)	(blank)	(blank)	Yes	Yes	S				1							2
	Canada Warbler	Cardellina canadensis	S5B	SC	SC	Threatened/ Menacée	Yes	Yes	S											
	Wilson's Warbler	Cardellina pusilla	S5B	(blank)	(blank)	(blank)	Yes	No	S											
	Orange-crowned Warbler	Leiothlypis celata	S5B	(blank)	(blank)	(blank)	Yes	No	S											
	Northern Waterthrush	Parkesia noveboracensis	S5B	(blank)	(blank)	(blank)	Yes	No	S											
Vireonidae	Red-eyed Vireo	Vireo olivaceus	S5B	(blank)	(blank)	(blank)	Yes	No	S									3		
									T	2	2	3	1	1	1	2			4	2
	Blue-headed Vireo	Vireo solitarius	S5B	(blank)	(blank)	(blank)	Yes	Yes	S											1
									N				2							
Strigidae	Northern Saw-whet Owl	Aegolius acadicus	S5	(blank)	(blank)	(blank)	No	No	S											
	Long-eared Owl	Asio otus	S4	(blank)	(blank)	(blank)	No	No	S											
Passerellidae	White-throated Sparrow	Zonotrichia albicollis	S5	(blank)	(blank)	(blank)	Yes	No	S										2	
									T	3	3	1	1	4	1	2	1	2		
	Swamp Sparrow	Melospiza georgiana	S5B,S4N	(blank)	(blank)	(blank)	Yes	No	S			1		1				2		
									T	2										
	Dark-eyed Junco	Junco hyemalis	S5	(blank)	(blank)	(blank)	Yes	No	S									3		
	Song Sparrow	Melospiza melodia	S5	(blank)	(blank)	(blank)	Yes	No	S			1		1						
	Chipping Sparrow	Spizella passerina	S5B,S3N	(blank)	(blank)	(blank)	Yes	No	S					1				1	1	
									T											
Cardinalidae	Rose-breasted Grosbeak	Pheucticus ludovicianus	S5B	(blank)	(blank)	(blank)	Yes	No	S											
	Indigo Bunting	Passerina cyanea	S5B	(blank)	(blank)	(blank)	Yes	No	S											
Picidae	Northern Flicker	Colaptes auratus	S5	(blank)	(blank)	(blank)	Yes	No	S											
Turdidae	Veery	Catharus fuscescens	S5B	(blank)	(blank)	(blank)	Yes	Yes	S						5					
									T										1	1
	Swainson's Thrush	Catharus ustulatus	S5B	(blank)	(blank)	(blank)	Yes	No	S					2			1			
									T	5									1	2
	Hermit Thrush	Catharus guttatus	S5B,S4N	(blank)	(blank)	(blank)	Yes	Yes	S											
	American Robin	Turdus migratorius	S5	(blank)	(blank)	(blank)	Yes	No	S	1									1	
	Wood Thrush	Hylocichla mustelina	S4B	SC	THR	Threatened/ Menacée	Yes	No	S											
Tyrannidae	Alder Flycatcher	Empidonax alnorum	S5B	(blank)	(blank)	(blank)	Yes	No	S											
	Least Flycatcher	Empidonax minimus	S5B	(blank)	(blank)	(blank)	Yes	Yes	S									1		
	Yellow-bellied Flycatcher	Empidonax flaviventris	S5B	(blank)	(blank)	(blank)	Yes	No	S											
Regulidae	Golden-crowned Kinglet	Regulus satrapa	S5	(blank)	(blank)	(blank)	Yes	No	S							1				
Paridae	Black-capped Chickadee	Poecile atricapillus	S5	(blank)	(blank)	(blank)	Yes	No	S					1						

Appendix E. Breeding Bird Survey Results

										BBS-012		BBS-013		BBS-014		Grand Total
Family	Common Name	Scientific Name	S-Rank	ESA Status	COSEWIC Status	SARA Status	MBCA Protected?	Area-sensitive?	Breeding Evidence	2024-06-04	2024-06-25	2024-06-04	2024-06-25	2024-06-04	2024-06-25	
Accipitridae	Bald Eagle	Haliaeetus leucocephalus	S4	NAR	NAR	(blank)	No	Yes	H							1
Fringillidae	American Goldfinch	Spinus tristis	S5	(blank)	(blank)	(blank)	Yes	No	H					6		12
	Purple Finch	Haemorhous purpureus	S5	(blank)	(blank)	(blank)	Yes	No	S							1
	Red Crossbill	Loxia curvirostra	S5	(blank)	(blank)	(blank)	Yes	No	S					1		1
Parulidae	Yellow Warbler	Setophaga petechia	S5B	(blank)	(blank)	(blank)	Yes	No	H							1
									S		1	3				17
									T							17
	Chestnut-sided Warbler	Setophaga pensylvanica	S5B	(blank)	(blank)	(blank)	Yes	No	S		2	4			4	22
									T							23
	Ovenbird	Seiurus aurocapilla	S5B	(blank)	(blank)	(blank)	Yes	Yes	S			1		1		7
									T							10
	American Redstart	Setophaga ruticilla	S5B	(blank)	(blank)	(blank)	Yes	Yes	S		2			4		14
									T							26
	Common Yellowthroat	Geothlypis trichas	S5B,S3N	(blank)	(blank)	(blank)	Yes	No	S							18
									T			3	1	2	2	30
	Magnolia Warbler	Setophaga magnolia	S5B	(blank)	(blank)	(blank)	Yes	Yes	S			1			1	15
									T	3	4					10
	Nashville Warbler	Leiothlypis ruficapilla	S5B	(blank)	(blank)	(blank)	Yes	No	S	2		5				17
									T							3
	Blackburnian Warbler	Setophaga fusca	S5B	(blank)	(blank)	(blank)	Yes	Yes	S		2	2			1	14
									T							6
	Northern Parula	Setophaga americana	S5B	(blank)	(blank)	(blank)	Yes	Yes	S					5		8
	Black-and-white Warbler	Mniotilta varia	S5B	(blank)	(blank)	(blank)	Yes	Yes	S				1	3		12
									T	2	2					6
	Black-throated Blue Warbler	Setophaga caerulescens	S5B	(blank)	(blank)	(blank)	Yes	Yes	S							1
	Yellow-rumped Warbler	Setophaga coronata	S5B,S4N	(blank)	(blank)	(blank)	Yes	No	S	1		2				9
	Black-throated Green Warbler	Setophaga caerulescens	S5B	(blank)	(blank)	(blank)	Yes	Yes	S							3
		Setophaga virens	S5B	(blank)	(blank)	(blank)	Yes	Yes	S							3
	Canada Warbler	Cardellina canadensis	S5B	SC	SC	Threatened/ Menacée	Yes	Yes	S	1						1
	Wilson's Warbler	Cardellina pusilla	S5B	(blank)	(blank)	(blank)	Yes	No	S	1						1
	Orange-crowned Warbler	Leiothlypis celata	S5B	(blank)	(blank)	(blank)	Yes	No	S					1		1
	Northern Waterthrush	Parkesia noveboracensis	S5B	(blank)	(blank)	(blank)	Yes	No	S	3						3
Vireonidae	Red-eyed Vireo	Vireo olivaceus	S5B	(blank)	(blank)	(blank)	Yes	No	S			1		3		14
									T	3	2					49
	Blue-headed Vireo	Vireo solitarius	S5B	(blank)	(blank)	(blank)	Yes	Yes	S							1
									N							2
Strigidae	Northern Saw-whet Owl	Aegolius acadicus	S5	(blank)	(blank)	(blank)	No	No	S							1
	Long-eared Owl	Asio otus	S4	(blank)	(blank)	(blank)	No	No	S						1	1
Passerellidae	White-throated Sparrow	Zonotrichia albicollis	S5	(blank)	(blank)	(blank)	Yes	No	S						3	8
									T	1	5	2	2			50
	Swamp Sparrow	Melospiza georgiana	S5B,S4N	(blank)	(blank)	(blank)	Yes	No	S							5
									T			3	1			14
	Dark-eyed Junco	Junco hyemalis	S5	(blank)	(blank)	(blank)	Yes	No	S							4
	Song Sparrow	Melospiza melodia	S5	(blank)	(blank)	(blank)	Yes	No	S							8
	Chipping Sparrow	Spizella passerina	S5B,S3N	(blank)	(blank)	(blank)	Yes	No	S					1		10
									T							2
Cardinalidae	Rose-breasted Grosbeak	Pheucticus ludovicianus	S5B	(blank)	(blank)	(blank)	Yes	No	S							1
	Indigo Bunting	Passerina cyanea	S5B	(blank)	(blank)	(blank)	Yes	No	S							2
Picidae	Northern Flicker	Colaptes auratus	S5	(blank)	(blank)	(blank)	Yes	No	S			1			1	4
Turdidae	Veery	Catharus fuscescens	S5B	(blank)	(blank)	(blank)	Yes	Yes	S							8
									T					1	2	9
	Swainson's Thrush	Catharus ustulatus	S5B	(blank)	(blank)	(blank)	Yes	No	S				2	2		14
									T	5	3					21
	Hermit Thrush	Catharus guttatus	S5B,S4N	(blank)	(blank)	(blank)	Yes	Yes	S							1
	American Robin	Turdus migratorius	S5	(blank)	(blank)	(blank)	Yes	No	S							2
	Wood Thrush	Hylocichla mustelina	S4B	SC	THR	Threatened/ Menacée	Yes	No	S		1					1
Tyrannidae	Alder Flycatcher	Empidonax alnorum	S5B	(blank)	(blank)	(blank)	Yes	No	S							1
	Least Flycatcher	Empidonax minimus	S5B	(blank)	(blank)	(blank)	Yes	Yes	S							1
	Yellow-bellied Flycatcher	Empidonax flaviventris	S5B	(blank)	(blank)	(blank)	Yes	No	S	1						1
Regulidae	Golden-crowned Kinglet	Regulus satrapa	S5	(blank)	(blank)	(blank)	Yes	No	S			1				4
Paridae	Black-capped Chickadee	Poecile atricapillus	S5	(blank)	(blank)	(blank)	Yes	No	S							7

Appendix E. Breeding Bird Survey Results

										BBS-001		BBS-002		BBS-003		BBS-004		BBS-005		BBS-006
Family	Common Name	Scientific Name	S-Rank	ESA Status	COSEWIC Status	SARA Status	MBCA Protected?	Area-sensitive?	Breeding Evidence	2024-06-03	2024-06-24	2024-06-03	2024-06-24	2024-06-03	2024-06-24	2024-06-03	2024-06-24	2024-06-03	2024-06-24	2024-06-03
Paridae	Black-capped Chickadee	Poecile atricapillus	S5	(blank)	(blank)	(blank)	Yes	No	T					6	5					
Sittidae	Red-breasted Nuthatch	Sitta canadensis	S5	(blank)	(blank)	(blank)	Yes	Yes	S											
Cathartidae	Turkey Vulture	Cathartes aura	S5B,S3N	(blank)	(blank)	(blank)	No	No	H											
Corvidae	American Crow	Corvus brachyrhynchos	S5	(blank)	(blank)	(blank)	No	No	H											
									S			1								
	Blue Jay	Cyanocitta cristata	S5	(blank)	(blank)	(blank)	No	No	T											
Apodidae	Chimney Swift	Chaetura pelagica	S3B	THR	THR	THR	Yes	No	H		2									
Bombycillidae	Cedar Waxwing	Bombycilla cedrorum	S5	(blank)	(blank)	(blank)	Yes	No	S			1								
Picidae	Pileated Woodpecker	Dryocopus pileatus	S5	(blank)	(blank)	(blank)	Yes	Yes	S			1								
Fringillidae	Pine Siskin	Spinus pinus	S5	(blank)	(blank)	(blank)	Yes	No	S											
Parulidae	Tennessee Warbler	Leiothlypis peregrina	S5B	(blank)	(blank)	(blank)	Yes	No	S											
Regulidae	Ruby-crowned Kinglet	Corthylio calendula	S5B,S3N	(blank)	(blank)	(blank)	Yes	No	S											1
Grand Total										12	23	43	25	37	31	17	18	19	18	22

Appendix E. Breeding Bird Survey Results

										BBS-006	BBS-007		BBS-008		BBS-009		BBS-010		BBS-011	
Family	Common Name	Scientific Name	S-Rank	ESA Status	COSEWIC Status	SARA Status	MBCA Protected?	Area-sensitive?	Breeding Evidence	2024-06-24	2024-06-03	2024-06-24	2024-06-03	2024-06-24	2024-06-24	2024-06-04	2024-06-24	2024-06-04	2024-06-04	2024-06-25
Paridae	Black-capped Chickadee	Poecile atricapillus	S5	(blank)	(blank)	(blank)	Yes	No	T											
Sittidae	Red-breasted Nuthatch	Sitta canadensis	S5	(blank)	(blank)	(blank)	Yes	Yes	S					1						
Cathartidae	Turkey Vulture	Cathartes aura	S5B,S3N	(blank)	(blank)	(blank)	No	No	H						1					
Corvidae	American Crow	Corvus brachyrhynchos	S5	(blank)	(blank)	(blank)	No	No	H								1			
									S											
	Blue Jay	Cyanocitta cristata	S5	(blank)	(blank)	(blank)	No	No	T											
Apodidae	Chimney Swift	Chaetura pelagica	S3B	THR	THR	THR	Yes	No	H											
Bombycillidae	Cedar Waxwing	Bombycilla cedrorum	S5	(blank)	(blank)	(blank)	Yes	No	S	5								6		
Picidae	Pileated Woodpecker	Dryocopus pileatus	S5	(blank)	(blank)	(blank)	Yes	Yes	S											
Fringillidae	Pine Siskin	Spinus pinus	S5	(blank)	(blank)	(blank)	Yes	No	S											
Parulidae	Tennessee Warbler	Leiothlypis peregrina	S5B	(blank)	(blank)	(blank)	Yes	No	S											1
Regulidae	Ruby-crowned Kinglet	Corthylio calendula	S5B,S3N	(blank)	(blank)	(blank)	Yes	No	S											
Grand Total										24	10	12	10	16	23	15	6	36	31	15

Appendix E. Breeding Bird Survey Results

										BBS-012		BBS-013		BBS-014		Grand Total
Family	Common Name	Scientific Name	S-Rank	ESA Status	COSEWIC Status	SARA Status	MBCA Protected?	Area-sensitive?	Breeding Evidence	2024-06-04	2024-06-25	2024-06-04	2024-06-25	2024-06-04	2024-06-25	
Paridae	Black-capped Chickadee	Poecile atricapillus	S5	(blank)	(blank)	(blank)	Yes	No	T							11
Sittidae	Red-breasted Nuthatch	Sitta canadensis	S5	(blank)	(blank)	(blank)	Yes	Yes	S		1					2
Cathartidae	Turkey Vulture	Cathartes aura	S5B,S3N	(blank)	(blank)	(blank)	No	No	H							1
Corvidae	American Crow	Corvus brachyrhynchos	S5	(blank)	(blank)	(blank)	No	No	H				1			2
									S						1	2
	Blue Jay	Cyanocitta cristata	S5	(blank)	(blank)	(blank)	No	No	T					1	1	2
Apodidae	Chimney Swift	Chaetura pelagica	S3B	THR	THR	THR	Yes	No	H							2
Bombycillidae	Cedar Waxwing	Bombycilla cedrorum	S5	(blank)	(blank)	(blank)	Yes	No	S							12
Picidae	Pileated Woodpecker	Dryocopus pileatus	S5	(blank)	(blank)	(blank)	Yes	Yes	S						1	2
Fringillidae	Pine Siskin	Spinus pinus	S5	(blank)	(blank)	(blank)	Yes	No	S			1				1
Parulidae	Tennessee Warbler	Leiothlypis peregrina	S5B	(blank)	(blank)	(blank)	Yes	No	S							1
Regulidae	Ruby-crowned Kinglet	Corthylio calendula	S5B,S3N	(blank)	(blank)	(blank)	Yes	No	S							1
Grand Total										23	25	30	8	31	18	598

Evidence Code	Description	Level of Breeding Evidence
Flyover	Flyover. Not breeding.	
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.	Observed
H	Species observed in suitable nesting Habitat during its breeding season.	Possible
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.	Possible
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.	Probable
P	Pair observed in suitable nesting habitat during the species' breeding season.	Probable
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).	Probable
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.	Probable
V	Bird Visiting a probable nest site in suitable nesting habitat during the species' breeding season.	Probable
A	Agitated behavior or alarm calls of an adult in suitable nesting habitat during the species' breeding season.	Probable
B	Brood patch or cloacal protuberance on an adult in suitable nesting habitat during the species' breeding season.	Probable
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).	Probable
NB	Nest building, including the carrying of nesting material, by all species except wrens and woodpeckers.	Confirmed
DD	Distraction Display, injury-feigning, or other displays attempting to draw attention away from a nest or young.	Confirmed
NU	Empty Nest Used or identifiable eggshells from earlier in the same nesting season.	Confirmed
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.	Confirmed
AE	Adult Entering, occupying, or leaving a nest site (visible or not) or whose behavior suggests the presence of an occupied nest.	Confirmed
FS	Adult carrying a Faecal Sac.	Confirmed
CF	Adult Carrying Food for young.	Confirmed
NE	Nest containing eggs	Confirmed
NY	Nest with Young (seen or heard)	Confirmed

Appendix F

Significant Wildlife Habitat Screening

SWH Ecoregion 5E Criterion Schedule – January 2015

Table 1.1 Seasonal Concentration Areas of Animals.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Found Within the Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria		
Waterfowl Stopover and Staging Areas (Terrestrial) **Rationale:** Habitat important to migrating waterfowl.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	These field/meadow ELC Ecosites with appropriate soils and vegetation: G060-062 G077-079 G093-095 G109-111 Plus evidence of annual spring flooding from melt water or run-off.	■ 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. Information Sources ■ Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. ■ Sites documented through waterfowl planning processes (eg. EHJV implementation plan) ■ Field Naturalist Clubs ■ Ducks Unlimited Canada ■ Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow *Birds and Bird Habitats: Guidelines for Wind Power Projects* (MNRF, 2011) ■ Any mixed species aggregations of 100 or more individuals required. ■ The flooded field Ecosite habitat plus a 100-300m radius area, dependent on local site conditions and adjacent land use is the significant wildlife habitat ■ 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;** Candidate Habitat is not present within the Study Area. The Study Area does not contain fields with sheet water and does not contain historical records of aggregations of 100 or more individuals utilizing sheet water on fields.	**No;** Candidate habitat was not identified.
Waterfowl Stopover and Staging Areas (Aquatic) **Rationale:** Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only oneof a few in the eco-district.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback	ELC Ecosites: G142-G152	■ Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. ■ These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water); Information Sources ■ Environment Canada. ■ Field Naturalist clubs often are aware of staging/stopover areas. ■ OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. ■ Sites documented through waterfowl planning processes (eg. EHJV implementation plan) ■ Ducks Unlimited projects ■ Element occurrence specification by Nature Serve: http://www.natureserve.org ■ Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of: ■ Aggregations of 100 or more of listed species for 7 days, results in > 700 waterfowl use days. ■ Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH. ■ The combined area of the ELC Ecosites and a 100m radius area is the SWH ■ Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are significant wildlife habitat. ■ Evaluation methods to follow Birds and Bird Habitats: Guidelines for Wind Power Projects (MNRF, 2011) ■ 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).	**No;** Wetland and open water communities within the Study Area are not large enough o hold 100 or more of the listed species for 7 days.	**No;** Candidate habitat was not identified.
Shorebird Migratory Stopover Area **Rationale:** High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	ELC Ecosites: G005-G006 G160-G162 G170-G172 G176-G178 G186-G188 G204-G214	■ Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. ■ Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. ■ Sewage treatment ponds and storm water ponds do not qualify as a SWH. Information Sources ■ Western hemisphere shorebird reserve network ■ Canadian Wildlife Service (CWS) Ontario Shorebird Survey ■ Bird Studies Canada ■ Ontario Nature ■ Local birders and field naturalist clubs ■ Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	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 (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. ■ The area of significant shorebird habitat includes the mapped ELC shoreline Ecosites plus a 100m radius area. ■ Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects ■ SWHMiST Index #8 provides development effects and mitigation measures.	**No;** Candidate habitat is not present within the Study Area. Suitable shoreline habitat is not present within the Study Area. Wetland and open water communities are present within the Study Area; however, these areas are likely insufficient in size to support large aggregations of migratory shorebirds.	**No;** Candidate habitat was not identified.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Found Within the Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria		
Raptor Wintering Area **Rationale:** Sites used by multiple species, a high number of individuals and used annually are most significant	Rough-legged Hawk Long-eared Owl Boreal Owl Northern Saw-whet Owl **Special Concern:** Short-eared Owl	Combination of meadow/field and forest/woodland Ecosites. Need to have a forest ELC Ecosite : G011-G019 G023-G028 G033-G043 G048-G059 G064-G076 G081-G092 G097-G108 G113-G125 And A meadow/field ELC Ecosite: G020-022 G029-032 G044-047 G060-063 G077-080 G093-096 G109-112	■ The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. ■ Raptor wintering sites need to be >20 ha with a combination of forest and upland ■ Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15 ha) with adjacent woodlands ■ Field area of the habitat is to be wind swept with limited snow depth or accumulation. Information Sources: ■ OMNRF Ecologist or Biologist ■ Field Naturalist clubs ■ Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area ■ Data from Bird Studies Canada, most notably for Short-eared Owls. ■ Results of Christmas Bird Counts	Studies confirm the use of these habitats by: ■ One or more Short-eared Owls or; at least 10 individuals and two of the listed 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. ■ Evaluation methods to follow *Birds and Bird Habitats: Guidelines for Wind Power Projects* (MNRF, 2011) ■ SWHMiST Index #10 provides development effects and mitigation measures.	**No;** Candidate habitat is not present within the Study Area. Suitable forest and woodland communities are present; however, the Study Area lacks suitable field or meadow communities.	**No;** Although one observation of a Northern Saw-whet Owl was recorded during spring 2024 Breeding Bird surveys completed by AECOM staff, candidate habitat was not identified.
Bat Hibernacula **Rationale;** Bat hibernacula are rare habitats in all Ontario landscapes.	Big Brown Bat	Bat Hibernacula may be found in association with components of cliffs and rock talus in these ELC Ecosites; G158-G159 G164 G180-G181 Calcareous bedrock is fairly rare in Ecoregion 5E. Or; Central Ontario FEC: ES4S4 ES5 (Note: buildings are not considered to be SWH)	■ Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. ■ Active mine sites are not SWH. ■ The locations of bat hibernacula are relatively poorly known. Information Sources: ■ OMNRF for possible locations and contact for local experts ■ Natural Heritage Information Center (NHIC) Bat Hibernaculum ■ Ministry of Northern Development and Mines for location of mine shafts. ■ Clubs that explore caves (eg. Sierra Club). ■ University Biology Departments with bat experts.	All sites with confirmed hibernating bats are SWH. ■ The habitat area includes a 200m radius around the entrance of the hibernaculum for most development types and 10000m for wind farms ■ Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects" (MNRF, 2011). ■ SWHMiST Index #1 provides development effects and mitigation measures.	**No;** Candidate habitat is not present within the Study Area. The Study Area does not contain or is adjacent to any of the listed habitat communities.	**No;** Candidate habitat was not identified. Acoustic monitoring studies have not been completed.
Bat Maternity Colonies **Rationale:** Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. ELC Ecosites: G016-G019 G028 G040-G043 G055-G059 G070-G076 G088-G092 G103- G108 G118-G125 Or; Central Ontario Forest Ecosites: ES14 ES17 ES18 ES23 ES24 ES25 ES26 ES27 ES28 ES29 ES30	■ 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 (dominant trees > 80yrs old) deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees. ■ Female Bats prefer wildlife trees (snags) in early stages of decay, class 1-3 or class 1 or 2. ■ Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred Information Sources: ■ OMNRF for possible locations and contact for local experts. ■ University Biology Departments with bat experts.	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.	**Yes;** Forest communities within the Study Area may provide Significant Wildlife Habitat	**Yes;** Candidate habitat was identified in the Dry to Fresh, Coarse Aspen – Birch Hardwood Forest (G055Tl/Tt), Dry to Fresh, Coarse Maple Hardwood Forest (G058Tt), and Moist, Coarse Aspen – Birch Hardwood Forest (G070Tt) communities within the Study Area. Acoustic monitoring studies have not been completed.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Found Within the Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria		
Turtle Wintering Areas **Rationale:** Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Midland Painted Turtle **Special Concern:** Northern Map Turtle Snapping Turtle	For Snapping and Midland Painted turtles - ELC Ecosites: G128-G135 G140-G152 For Northern Map Turtle - Open Water areas such as deeper rivers or streams and lakes with current can also be used as overwintering habitat.	■ For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. ■ Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. ■ Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. Information Sources: ■ Local naturalists and experts, as well as university herpetologists may also know where to find some of these sites. ■ OMNRF Ecologist or Biologist ■ Field Naturalist clubs ■ Natural Heritage Information Center (NHIC)	Studies confirming: ■ 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 (Sept. – Oct.) or spring (Mar. – April). 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.	**Yes;** Wetland communities within the Study Area may provide Significant Wildlife Habitat.	**Candidate;** Candidate habitat was identified in the Mineral Meadow Marsh (G142N), Organic Meadow Marsh (G144N), Open Moderately Rich Fen (G140S/N), Organic Intermediate Conifer Swamp (G128Tt), Organic Rich Conifer Swamp (G129Tt), Organic Thicket Swamp (G135S) communities within the Study Area.
Reptile Hibernaculum **Rationale:** Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	**Snakes:** Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake **Special Concern:** Milksnake Eastern Ribbonsnake **Lizard:** Special Concern: Five-lined Skink	For all snakes, habitat may be found in any forested Ecosite in central Ontario other than very wet ones. Talus, Rock Barren, Crevice and Cave, and Alvar sites may be directly related to these habitats. The existence of rock piles or slopes, stone fences, and crumbling foundations assist in identifying candidate SWH. For Five-lined Skink; Central Ontario Forest Ecosites: ES14.2, ES17 – ES20, ES23 – ES30 Or; ELC Ecosites: G056-G059 G070-G076 G087-G092 G103-G108 G118-G125	■ For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. ■ Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. ■ Wetlands can also be important overwintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. ■ Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures. Information Sources: ■ In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g. old dug wells). ■ Reports and other information available from Conservation Authorities. ■ Field Naturalists clubs ■ University herpetologists ■ Natural Heritage Information Center (NHIC) ■ OMNRF ecologists or biologists may be aware of locations of wintering skinks.	Studies confirming: ■ Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. ■ Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula ■ (e.g. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct) ■ Note: If there are Special Concern Species present, then site is SWH. ■ Note: Sites for hibernation possess specific habitat parameters (e.g. temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population (i.e. strong hibernation site fidelity). Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 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.	**Yes;** Forest, woodland, and wetland communities with the presence of exposed rock crevices located within the Study Area may provide Significant Wildlife Habitat.	**Candidate;** Candidate Significant Wildlife Habitat exists for the different snake species within the various forest communities within the Study Area. Candidate Significant Wildlife Habitat exists for the Five-lined skink specifically within the Dry to Fresh, Coarse Maple Hardwood Forest (G058Tt), and Moist, Coarse Aspen – Birch Hardwood Forest (G070Tt) communities within the Study Area.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Found Within the Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria		
Colonially -Nesting Bird Breeding Habitat (Cliff) **Rationale:** Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, barns. Habitat found in the following ELC Ecosites: G001-G004 G007-G008 G020-G021 G029-G031 G044-G046 G060-G062 G077-G079 G093-G095 G109-G111 G173-G175 G201-G203 G210-G212	■ Any site or areas with exposed soil banks, sandy hills, borrow pits, steep slopes, and sand piles that are undisturbed or naturally eroding that is not a licensed/permitted aggregate area. ■ Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, and soil or aggregate stockpiles. ■ Does not include a licensed/permitted Mineral Aggregate Operation. Information Sources: ■ Ontario Breeding Bird Atlas. ■ Bird Studies Canada; *NatureCounts* http://www.birdscanada.org/bird mon/ ■ Field Naturalist Clubs.	Studies confirming: ■ Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough- winged swallow pairs during the breeding season. ■ A colony identified as SWH will include a 50m 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” (MNRF, 2011). ■ SWHMiST Index #4 provides development effects and mitigation measures.	**No;** Cliffs or steep slopes are not present within the Study Area.	**No;** Although the Dry to Fresh, Coarse Sparse Shrub (G046S) communities are present within the Study Area, they are not near eroding banks, cliffs, or have any barns, bridge abutments or silos present.
Colonially -Nesting Bird Breeding Habitat (Tree/Shrubs) **Rationale:** Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night Heron	ELC Ecosites: G064-G076 G081-G092 G097-G108 G113-G125 G128-G136 Central Ontario Forest Ecosites: ES11.2 ES12.2ES13.2 ES14.2 ES15.2 ES16.2ES17.2 ES18.2 ES19.2 ES20.2ES21.2 ES23.2 ES24.2 ES25.2ES26.2 ES27.2 ES28.2 ES29.2ES30.2 ES31 ES32 ES33 ES34 ES35	■ 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. Information Sources ■ Breeding Bird Atlas, colonial nest records. ■ Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF). ■ Aerial photographs can help identify large heronries. ■ MNRF District Offices. ■ Field Naturalist clubs.	Studies confirming: ■ Presence of 10 or more active nests of Great Blue Heron. ■ Presence of 1 or more active nests of Black-crowned Night Heron is significant. ■ The habitat extends from edge of the colony and a minimum 300m 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 must be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells. ■ SWHMiST Index #5 provides development effects and mitigation measures.	**Yes;** Forest, woodland, and wetland communities located within the Study Area may provide Significant Wildlife Habitat.	**No;** None of the identified species were observed using these habitats during the 2024 field investigations.
Colonially -Nesting Bird Breeding Habitat (Ground) **Rationale:** Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer’s Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1:50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer’s Blackbird) G001-G004 G007-G008 G020-G021 G029-G031 G044-G046 G060-G062 G077-G079 G093-G095 G109-G111 G142-G145	■ Nesting colonies of gulls and terns are on islands or peninsulas (natural or artificial) associated with open water, marshy areas, lake or large river (two-lined on a 1:50,000 NTS map). ■ Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands. Information Sources: ■ Ontario Breeding Bird Atlas, rare/colonial species records. ■ Canadian Wildlife Service ■ Reports and other information available from CAs. ■ Natural Heritage Information Center (NHIC) Colonial Waterbird Nesting Area ■ MNRF District Offices. ■ Field Naturalist clubs.	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 150m radius area of habitat or the extent of the ELC Ecosites containing the colony or any island <3.0ha with a colony is the SWH. ■ Studies would be done during May/June when actively nesting. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” (MNRF, 2011). ■ SWHMiST Index #6 provides development effects and mitigation measures.	**No;** No rocky islands or peninsula within a lake or larger river are present within the Study Area.	**No;** Candidate habitat is not present.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Found Within the Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria		
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 normally encountered. Sites typically have a long history of annual use by deer. Sites identified are typically the only known sites in the area.	White-tailed Deer	May be found in all tall treed forest and swamp ELC Ecosites; G12-G15 G23-G27 G33-G38 G48-G54 G64-G69 G81-G87 G97-G103 G113-G118 G128-G129 Central Ontario Forest Ecosites: ES11 ES14 ES16 - ES18 ES20 ES21 ES22 ES27 ES28 ES30 ES31 ES32 ES33 ES34 Note: OMNRF to determine this habitat.	■ Deer wintering areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioral response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. ■ The Core of a deer yard (Stratum I) is located within Stratum II and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. ■ OMNRF determines deer yards following methods outlined in “Selected Wildlife and Habitat Features: Inventory Manual" (MNRF, 1998). ■ Woodlots with high densities of deer due to artificial feeding are not significant.	No Studies Required: ■ Generally, there will be a history of traditional use of the yard by deer, although deer do move to other areas over the course of time if conditions in the yard change or due to societal impacts (i.e. artificial deer feeding). There may be circumstances where deer have recently moved to new areas. ■ Deer Yards are mapped by OMNRF District offices. Locations of Core (Stratum 1) and Stratum 2 deer yards identified by OMNRF will be available at local MNRF offices. ■ 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 a Stratum II yarding area then Movement Corridors are to be considered.	**No;** Deer Yarding Areas have not been identified by the MNRF within the Study Area.	**No;** Candidate habitat is not present.

Table 1.2.1 Rare Vegetation Communities.

Rare Vegetation Community	CANDIDATE SWH			CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria		
Beach/ Beach Ridge/ Bar/ Sand Dunes **Rationale:** Uncommon to rare in Ecoregion, some of the best examples are in the North Channel (e.g. Mississagi River delta).	Central Ontario FEC: ES1 ES2 ELC Ecosites: G005-G006 G166-G168 G182-G184 G213-G214 **Indicator Spp**. Marram Grass (*Ammophila breviligulata*) Beach Pea (*Lathyrus japonicus*)	Vegetation can vary from patchy and barren to tree cover but less than 60%. Characterized by unstable sand.	■ Any identified beach, beach ridge, or sand dune. Information Sources: ■ OMNRF Districts. ■ Natural Heritage Information Center (NHIC) will have information on their website. ■ Field Naturalist clubs ■ County soil maps (sand map units along coastal bays)	■ Field studies confirm the presence of at least one of the indicator plant species identified is to be considered significant. ■ ELC Ecosite Area for Beach Ridge or Bar or Sand Dune is the SWH. ■ SWHMiST Index #37 provides direction for rare species and habitats.	**No;** Candidate habitat is not present within the Study Area. The Study Area does not contain or is adjacent to any of the listed habitat communities.	**No;** Candidate habitat was not identified.
Shallow Atlantic Coastal Marsh **Rationale:** Provincially rare communities almost entirely restricted to Eco-region 5E.	ELC Ecosites: G143-G145 G148-G152 **Indicator Spp**.: Virginia Meadow- beauty (*Rhexia virginica*) **Other Associated Spp**: *Rhynchospora capitellata*, *Xyris difformis*, *Panicum spretum, Triadenum virginicum, Polygonum careyi* and *Juncus militaris.*	Shallow marsh occurs on shallow mineral (sand) or mineral organic (sandy peat) shoreline subject to low wave energy, on inland lakes and beaver ponds particularly those that experience fluctuating water levels from year to year (i.e. some years with exposed shorelines in summer/fall).	Information Sources ■ OMNRF Districts. ■ Natural Heritage Information Center (NHIC) will have information on their website. ■ Field Naturalist clubs ■ Nature Serve Canada	■ A Shallow Marsh is considered significant if the indicator species and >4 Other Associated Spp. Are present. ■ ELC Ecosite Area for Shallow Atlantic Coastal Marsh is the SWH. ■ SWHMiST Index #37 provides direction for rare species and habitats.	**No;** Candidate habitat is not present within the Study Area. The Study Area does not contain or is adjacent to any of the listed habitat communities.	**No;** Candidate habitat was not identified.
Cliffs and Talus Slopes **Rationale:** Uncommon to rare in Ecoregion 5E, Calcium rich, marble cliffs are a much rarer feature.	ELC Ecosites: G158-G159 G166-G168 G173 G175 G182-G184 G201-G203 Central Ontario Forest Ecosites: ES6 ES7 Characteristic flora for cliffs and talus slopes include: lichen, such as Rock Tripe *Umbilicaria* spp., and ferns *Polypodium virginianum, Cystopteris fragilis* and *Woodsia ilvensis, Cryptogramma stelleri, Woodsia alpina*, and *Saxifraga paniculata*.	Vegetation can vary from patchy and barren to tree cover but less than 60%. Cliffs and talus slopes in 5E are primarily Precambrian rock and are typically sparsely vegetated.	■ Any cliff or talus slope. Information Sources: ■ OMNRF Districts. ■ Natural Heritage ■ Information Center (NHIC) will have information on their website. ■ Field Naturalist clubs	■ Any cliff or talus slope with lichen *Umbilicaria spp.* and ≥3 of the characteristic species identified is considered significant ■ Fragrant Cliff Fern (*Dryopteris fragrans*), is rare in Eco-region 5E and *Woodsia scopulina* ssp. *Laurentiana*, has a significant portion of its global range in 5E, where it occurs on a variety of substrates, including granite. Any cliff or talus slope with these rare plant species is significant ■ SWHMiST Index #21 provides development effects and mitigation measures.	**No;** Candidate habitat is not present within the Study Area. The Study Area does not contain or is adjacent to any of the listed habitat communities.	**No;** Candidate habitat was not identified.

Rare Vegetation Community	CANDIDATE SWH			CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area
	ELC Ecosite Code	**Habitat Description**	**Detailed Information and Sources**	**Defining Criteria**		
Rock Barren Precambrian Rock Barren **Rationale:** Uncommon to rare in Ecoregion.	ELC Ecosites: G163-G165 G179-G181 Central Ontario Forest Ecosites: ES8 Characteristic flora for Rock Barrens include: lichens *Cladina* spp. and mosses *Polytrichum* spp.), sparse grasslands *of Danthonia spicata* and *Deschampsia flexuosa*, low shrubs (*Juniperus communis, Vaccinium angustifolium, Comptonia peregrina*, and stunted open grown trees *Quercus alba, Quercus rubra* and *Pinus strobus*. Also, *Pteridium aquilinum, Aralia hispida, Spiranthes casei, Saxifraga virginiensis, Gaylussacia baccata, Corydalis sempervirens, Prunus pensylvanica*, and *Comandra umbellate.*	Vegetation can vary from patchy and barren to tree cover but less than 60%. Rock barrens are characterized by extensive areas of exposed granitic rock bedrock sparsely vegetated.	■ Any rock barren area greater than 1 ha. Information Sources: ■ OMNRF Districts. ■ Natural Heritage Information Center (NHIC) will have information on their website. ■ Field Naturalist clubs ■ County soil maps will show these as bedrock with sparse soil map units	■ Field studies identifying the presence of >4 characteristic plant spp. and a relatively undisturbed site should be considered significant. ■ ELC Ecosite Area for the rock barren is the SWH ■ SWHMiST Index #21 provides development effects and mitigation measures.	**No;** Candidate habitat is not present within the Study Area. The Study Area does not contain or is adjacent to any of the listed habitat communities.	**No;** Candidate habitat was not identified.
Sand Barren **Rationale:** Uncommon to rare in Ecoregion.	ELC Ecosites: G007 G215 Central Ontario Forest Ecosite: ES10 Characteristic plant species of sand barrens in 5E include:*Cladina spp., Carex houghtoniana, Carex merritt- fernaldii, Comptonia peregrina, Rubus flagellaris, Selaginella rupestris,* and *Viola labradorica, Polygonella articulata*, and *Stipa spartea*.	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little or no soil and the underlying rock protrudes through the surface. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%.	■ Any sand barren area, no minimum size. Information Sources: ■ OMNRF Planner, Forester, Ecologist or Biologist may be aware of locations. ■ Field Naturalist clubs	■ Sand Barrens containing any characteristic plant species should be considered significant. ■ Site must not be dominated by exotic or introduces species (<50% vegetative cove exotics) ■ SWHMiST Index #20 provides development effects and mitigation measures.	**No;** Candidate habitat is not present within the Study Area. The Study Area does not contain or is adjacent to any of the listed habitat communities.	**No;** Candidate habitat was not identified.

Rare Vegetation Community	CANDIDATE SWH			CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria		
Alvar **Rationale:** Alvars are extremely rare habitats in Ecoregion 5E. Most alvars in Ontario are in Ecoregions 6E and 7E. Alvars in 5E are small and highly localized just north of the Palaeozoic-Precambrian contact.	Southern Ontario ELC Ecosites: ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 Central Ontario Forest Ecosites on very shallow soils: ES13.1 ES14.1 ES16.1 ES21.1 ES9 **5E Alvar Plant Indicator species**: *Penstemon hirsutus, Panicum philadelphicum, Scutellaria parvula, Rhus aromatica, Monarda fistulosa, Senecio pauperculus*	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 may be complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plant. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animals species. Vegetation cover varies from patchy to barren with a less than 60% tree cover	■ An Alvar site > 0.5 ha in size Information Sources: ■ Alvars of Ontario (2000), Federation of Ontario Naturalists. ■ Ontario Nature – Conserving Great Lakes Alvars. ■ Natural Heritage Information Centre (NHIC) has information available on their website. ■ OMNRF Districts. ■ Field Naturalist clubs	■ Field studies identify one or more of the 5E Plant Indicator species ■ Site must not be dominated by exotic or introduced species. The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses. ■ SWHMiST Index #17 provides development effects and mitigation measures.	**No;** Candidate habitat is not present within the Study Area. The Study Area does not contain or is adjacent to any of the listed habitat communities.	**No;** Candidate habitat was not identified.
Old Growth Forest **Rationale:** Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species.	Long-lived forest spp. within these Central Ontario Forest Ecosites: ES11 ES12 ES14 ES20 ES21 ES22 ES23 ES24 ES25 ES26 ES27 ES28 ES29 ES30 Or; ELC Ecosites: G011-G15 G017-G018 G023 G027 G033 G036 G039-G042 G048 G051 G054-G058 G064 G066 G069 G071-G075 G081 G084 G087 G089-G091 G103 G105-G107 G113 G115 G118 G120-G124	Old Growth forests are characterized by exhibiting the greatest number of old-growth characteristics, such as mature forest with large trees that has been undisturbed. Heavy mortality or turnover of over- story trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	■ Stands 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest. Information Sources: ■ OMNRF Forest Resource Inventory mapping ■ OMNRF Districts. ■ Field Naturalist clubs ■ Sustainable Forestry Licence (SFL) companies will possibly know locations through field operations.	Field Studies will determine: ■ If dominant trees species of the Ecosite are >140 years old, then stand is Significant Wildlife Habitat ■ The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present) ■ The stand will have experienced no recognizable forestry activities ■ The area of forest Ecosites combined or an eco-element within the Ecosites that contains the old growth characteristics is the SWH. ■ SWHMiST Index #23 provides development effects and mitigation measures.	**No;** Forest and woodland communities located within the Study Area fall within the Nipissing Forest, which is used for forestry activities.	**No;** Candidate habitat was not identified.

Rare Vegetation Community	CANDIDATE SWH			CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria		
Bog **Rationale:** Bogs are a fairly rare vegetation community in Ecoregion 5E.	ELC Ecosites: G126 G137-G138	Bogs are nutrient- poor, acid peatlands dominated by peat mosses (*Sphagnum* sp.), ericaceous shrubs and sedges (Cyperaceae). The water table is at or near the surface in spring and slightly lower the remainder of the year and is vitually isolated from mineral soil waters	■ Any size Bog. Information Sources: ■ Ontario wetland Evaluation System available at OMNRF District Offices ■ OMNRF Districts. ■ Natural Heritage Information Center (NHIC) will have information on their website. ■ Field Naturalist clubs	■ The Bog ELC Ecosite identified is SWH. ■ ELC Ecosite area is the SWH ■ SWHMiST Index #22 provides development effects and mitigation measures.	**No;** Candidate habitat is not present within the Study Area. The Study Area does not contain or is adjacent to any of the listed habitat communities.	**No;** Candidate habitat was not identified.
Tallgrass Prairie **Rationale:** In Ecoregion 5E, there are few if any tallgrass prairie remnants. Tallgrass plant species occur, often together, primarily along shorelines.	Southern ELC Ecosites: TPO1 TPO2 Central Ontario Ecosite: ES10 **Indicator Spp.** *Andropogon gerardii* and *Spartina pectinate*. **Characteristic Spp.** *Bromus kalmii, Ceanothus herbaceus, Lechea intermedia, Monarda fistulosa, Penstemon hirsutus, Polygala polygama, Rudbeckia hirta, Sorghastrum nutans* and *Viola fimbriatula*.	Tallgrass Prairie is an open vegetation with less than < 25% tree cover, and dominated by prairie species, including grasses.	■ 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. Information Sources ■ Natural Heritage Information Center (NHIC) has location information available on their website ■ OMNRF Districts ■ Feld Naturalist clubs.	■ Field studies confirm one or more of the Tallgrass Prairie Indicator Species listed and 2 or more of the Characteristic Spp. identified is a SWH. ■ Area of the ELC Ecosite is the SWH. ■ Site must not be dominated by exotic or introduced species. ■ SWHMiST Index #19 provides development effects and mitigation measures.	**No;** Candidate habitat is not present within the Study Area. The Study Area does not contain or is adjacent to any of the listed habitat communities.	**No;** Candidate habitat was not identified.
Savannah **Rationale:** Savannahs are extremely rare habitats in Ontario.	Southern ELC Ecosites: TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is related to tallgrass prairie but includes trees, which vary from 25 – 60% canopy cover. The open areas between the trees are dominated by prairie species, while forest species are found beneath the tree canopy.	■ No minimum size to site. ■ Site must be restored or a natural site. Information Sources: ■ Natural Heritage Information Center (NHIC) has location information available on their website. ■ OMNRF Districts. ■ Feld Naturalist clubs.	■ Field studies confirm 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. ■ SWHMiST Index #18 provides development effects and mitigation measures.	**No;** Candidate habitat is not present within the Study Area. The Study Area does not contain or is adjacent to any of the listed habitat communities.	**No;** Candidate habitat was not identified.
Rare Forest Type: Red Spruce **Rationale:** Stands containing red spruce trees are rare in Ecoregion 5E.	ELC Ecosites: G036 G051 G066 G084 G086 G100 G102 G116 G117 Central Ontario Forest Ecosites: ES 30.1 ES 30.2	Red Spruce is a valued wildlife cover tree. Historically red spruce was much more abundant then it is now within the Ecoregion 5e forests. Red spruce is a shade tolerant conifer that evolved within tolerant hardwood forests. Red spruce grows best in a cool, moist climate. It will grow in shallow, till soils (ave. of 46 cm) and may grow on sites unfavourable for other species such as organic soils over rock, steeper slopes, and wet bottomlands, although poorly drained sites will inhibit growth.	■ No minimum size to stand. Information Sources: ■ OMNRF Districts. ■ Natural Heritage Information Center (NHIC) will have information on their website. ■ Field Naturalist clubs	■ Any forest stand with ≥ 10% red spruce is to be considered significant. ■ The ELC Ecosites containing the red spruce woodland/forest stand is the SWH. ■ SWHMiST Index #37 provides direction for rare species and habitats.	**No;** Candidate habitat is not present within the Study Area. The Study Area does contain or is adjacent to any of the listed habitat communities, but the community lacks Red Spruce that makes up > 10% red spruce in the forest stand.	**No;** Candidate habitat was not identified.

Rare Vegetation Community	CANDIDATE SWH			CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria		
Rare Forest Type: White Oak **<u>Rationale:</u>** Stands containing white oak trees are rare in Ecoregion 5E.	**White Oak** ELC Ecosites: G017 G041 G057 G072 G090 G106 G121 Central Ont. FEC: ES 14.1 ES14.2	White oak is a valued wildlife mast producing tree. The mast produced by the white oak tree is often preferred over the more common red oak acorn. Forest stands containing white oak trees are uncommon in the Great Lakes St. Lawrence Forest.	■ No minimum size to stand. <u>Information Sources:</u> ■ OMNRF Districts. ■ Natural Heritage Information Center (NHIC) will have information on their website. ■ Field Naturalist clubs	■ Any forest stand with <u>></u> 10% white oak is to be considered significant. ■ The ELC Ecosites containing the white oak woodland/forest stand is the SWH. ■ SWHMiST Index #37 provides direction for rare species and habitats.	**No;** Candidate habitat is not present within the Study Area. The Study Area does not contain or is adjacent to any of the listed habitat communities.	**No;** Candidate habitat was not identified.

Table 1.2.2 Specialized Habitats of Wildlife considered SWH.

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria		
Waterfowl Nesting Area **Rationale:** Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Common Merganser Red-breasted Merganser Mallard Canada Goose American Widgeon Bufflehead Common Goldeneye	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: G129-G135 G142-G152 Note: includes adjacency to Provincially Significant Wetlands	■ A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) 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, Bufflehead, Common Goldeneye and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. Information Sources: ■ Ducks Unlimited staff may know the locations of particularly productive nesting sites. ■ OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. ■ EIS reports and other studies	Studies confirmed: ■ Presence of 3 or more nesting pairs for listed species excluding Mallards, or; ■ Presence of 10 or more nesting pairs for listed species including Mallards. ■ Any active nesting site of an American Black Duck is considered significant. ■ Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” ■ A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest. ■ SWHMiST Index #25 provides development effects and mitigation measures.	**Yes;** Upland communities adjacent to wetland communities are present within the Study Area and may provide habitat for the identified species.	**No;** None of the identified species were observed using these habitats during the 2024 field investigations.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat **Rationale:** Nest sites are fairly uncommon in Eco-region 5E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey **Special Concern:** Bald Eagle	Forest communities 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). Information Sources: ■ Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. ■ MNRF values information (LIO/NRVIS) will list known nesting locations. ■ Nature Counts, Ontario Nest Records Scheme data. ■ OMNRF Districts. ■ Sustainable Forestry License (SFL) companies will identify additional nesting locations through field operations. ■ Check the Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented. ■ EIS reports and other studies. ■ Field Naturalist clubs.	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- 800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat cvi ■ To be significant a site must be used annually. When found inactive, the site must be known to be inactive for ≥ 3 years or suspected of not being used for >5 years before being considered not significant. ■ Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid-March to mid-August. ■ Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”(MNRF, 2011) ■ SWHMiST Index #26 provides development effects and mitigation measures.	**Yes;** Forest communities adjacent to wetland communities are present within the Study Area may provide Significant Wildlife Habitat.	**Candidate;** One observation of a Bald Eagle was recorded during spring 2024 Breeding Bird surveys completed by AECOM staff. However, no nests were observed.

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria		
Woodland Raptor Nesting Habitat **Rationale:** Nests sites for these species are rarely identified; these habitats are often used annually by these species.	Red-tailed Hawk Great Horned Owl Broad-winged Hawk Sharp-shinned Hawk Merlin Barred Owl Red-shouldered Hawk Coopers Hawk Northern Goshawk	May be found in all forested ELC Ecosites in Community Class: TR May also be found in the forested swamp ELC Ecosites: G128-G133	■ All natural or conifer plantation woodland/forest stands. ■ 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 Merlin or Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore islands. ■ Includes nest sites within tree cavities for Barred Owl and sometime Great Horned Owls and Merlin. ■ In disturbed sites nests may be used again or a new nest will be in close proximity to the old nest. Information Sources: ■ OMNRF Districts. ■ Sustainable Forestry License (SFL) companies will identify additional nesting locations through field operations. ■ Check the Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented. ■ Check data from Bird Studies Canada. ■ EIS reports and other studies.	Studies confirm: ■ Presence of 1 or more active nests from species list is considered significant. ■ Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha of suitable habitat is the SWH. ■ Barred Owl – A 200m radius around the nest is the SWH. ■ Broad-winged Hawk, Coopers Hawk, Great Horned Owl, Red-tailed Hawk – A 100m radius around the nest is the SWH ■ Merlin and Sharp-Shinned Hawk – A 50m radius around the nest is the SWH[ccvii]. ■ 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 bynarrowing down the search area. ■ SWHMiST Index #27 provides development effects and mitigation measures.	**Yes;** Forest and forested swamp communities within the Study Area may provide Significant Wildlife Habitat.	**No;** None of the indicator species were observed during breeding bird surveys, and no stick nests suitable for the indicator species were observed within the Study Area.
Turtle and Lizard Nesting Areas **Rationale:** These habitats are rare and when identified will often be the only breedingsite for local populations of turtles.	Midland Painted Turtle **Special Concern Species**: Northern Map Turtle Snapping Turtle Five-lined Skink	Turtle Nesting areas may be adjacent to these ELC Ecosites: G138 G140-149 For Five-lined Skink; Central Ontario Forest Ecosites: ES14.2 ES17 - ES20 ES23 - ES30 Or; ELC Ecosites: G056-G059 G070-G076 G087-G092 G103-G108 G118-G125	■ Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. ■ For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and is 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. ■ Skinks will nest under logs, in stumps or under loose rock in partially wooded areas. Information Sources: ■ Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). ■ Check the Ontario Herpetofaunal Summary records for uncommon turtles; location information may help to find potential nesting habitat for them. ■ EIS reports and other studies. ■ Field Naturalist clubs.	Studies confirm: ■ Presence of 5 or more nesting Midland Painted Turtles. ■ One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. ■ The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m 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 30-100m area of habitat. ■ Any confirmed active skink nest site and a 30 m radius around it is significant. ■ 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 and Index #37 provides information for Five-lined Skink.	**Yes;** Wetland communities present within the Study Area may provide Significant Wildlife Habitat.	**Candidate;** Candidate habitat was identified within the Open Moderately Rich Fen (G140S/N), Mineral Meadow Marsh (G142N) and Organic Meadow Marsh (G144N) communities. Field investigations targeting turtle and lizard nesting areas have not been completed.

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria		
Seeps and Springs **Rationale:** Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse Moose White-tailed Deer Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	■ Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. ■ Seeps and springs are important feeding and drinking areas, especially in the winter, will typically support a variety of plant and animal species. Information Sources: ■ Topographical Map. ■ Thermography. ■ Hydrological surveys conducted by MOE. ■ Municipalities may have drainage maps and headwater areas mapped.	Field Studies confirm: ■ Presence of a site with 2 or more seeps/springs should be considered SWH. ■ The area of an 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.	**Yes;** Seeps and springs may be present within the forest communities.	**Candidate;** Although no seeps and springs were identified during the 2024 field investigations, this SWH remains candidate as field investigations were conducted from roadside, and therefore seeps and springs may still be present within the forest communities.
Aquatic Feeding Habitat **Rationale:** Aquatic Feeding Habitats are an extremely important habitat component for moose and other wildlife as they supply important nutrients.	Moose White-tailed Deer	Habitat may be found in all forested Ecosites adjacent to water.	■ MNRF maps these locations on Crown land and rates the site on a scale of 0 – 4, with 4 being the best. Feeding sites classed 3 or 4 are potential/candidate significant. Where MAFA habitat is in low supply, class 2 MAFA habitat is also considered potential/candidate significant. ■ Wetlands and isolated embayments in rivers or lakes which provide an abundance of submerged aquatic vegetation such as pondweeds, water milfoil and yellow water lily are preferred sites. Adjacent stands of lowland conifer or mixed woods will provide cover and shade. **Information Sources:** ■ Field Naturalists club and landowners may know some locations. ■ MNRF values information (LIO/NRVIS) may list known locations. ■ OMNRF Districts. ■ Sustainable Forestry Licence (SFL) companies may identify additional MAFA locations through field operations. Methods for identification of Moose Aquatic Feeding Areas are outlined in OMNRF's Selected Wildlife and Habitat Features: Inventory Manual.	■ Observational studies of the moose feeding habitat observing use or track studies demonstrating use of the habitat are required for any candidate site; any candidate site with observed or demonstrated moose use is significant. ■ The area of the habitat includes the wetland area and adjacent forest stands (120m) of mixed or conifer forest, particularly those that provide thermal cover and/or travel corridors to other habitat features are considered significant. ■ Surveys should be conducted from mid-June to end of July when submergent aquatic vegetation has peaked. ■ If a SWH is determined for Aquatic Feeding Habitat then Movement Corridors are to be considered. ■ SWHMiST Index #24 provides development effects and mitigation measures.	**Yes;** Qualifying vegetation communities were identified within the Study Area.	**Confirmed;** Moose aquatic feeding areas have been identified from the MNRF within the Study Area. Locations are mapped on **Figure 1**.
Mineral Licks **Rationale:** Mineral licks are a valuable habitat component but are also very rare on the landscape.	Moose White-tailed Deer	Habitat may be found in all forested Ecosites.	■ This habitat component is found in upwelling groundwater and the soil around these seepage areas. It typically occurs in areas of sedimentary and volcanic bedrock. In areas of granitic bedrock, the site is usually overlain with calcareous glacial till. Information Sources: ■ Field Naturalists clubs and landowners may know some locations. ■ MNRF values information (LIO\NRVIS) may list known locations. ■ OMNRF Districts. ■ Sustainable Forestry Licence (SFL) companies may identify additional calving locations through field operations.	■ Studies confirming any known site will be considered significant together with a 120 m radius around the site. ■ The area of the habitat is the wetland, seep or spring containing the mineral lick and 100-200m of undisturbed contiguous forest around the site dependent on level of disturbance in the area. ■ Field investigations should be conducted in early spring prior to leaf out. Since sites will be very difficult to locate, consider using a small aircraft. ■ SWHMiST Index #29 provides development effects and mitigation measures.	**Yes;** Qualifying vegetation communities were identified within the Study Area.	**Candidate;** Although no mineral licks were identified during the 2024 field investigations, this SWH remains candidate as field investigations were conducted from roadside, and therefore mineral licks may still be present within the forest communities.

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria		
Denning Sites for Mink, Otter, Marten Fisher and Eastern Wolf **Rationale:** Species are important fur-bearing mammals and specific denning habitat is becoming increasingly scarcer due to development pressures.	Mink Otter Marten Fisher Grey Wolf **Special Concern:** Eastern Wolf	Habitat may be found in all forested Ecosites.	■ Mink prefer shorelines dominated by coniferous or mixed forests with dens usually underground. Mink will sometimes use old muskrat lodges. ■ Otters prefer undisturbed shorelines along water bodies that support productive fish populations with abundant shrubby vegetation and downed woody debris for denning. They often use old beaver lodges or log jams and crevices in rock piles. ■ Marten and fisher share the same general habitat, requiring large tracts of coniferous or mixed forests of mature or older age classes. Denning sites are often in cavities in large trees or under large downed woody debris. Information Sources: ■ Field Naturalists clubs and landowners may know some locations. ■ MNRF values information (LIO\NRVIS) may list known locations. ■ OMNRF Districts. ■ Sustainable Forestry License (SFL) companies may identify additional denning sites through field operations. ■ Local trappers may know the location of prime denning sites.	■ Any known active denning site and a 100 m radius around it with the listed species is considered to be significant. ■ A known Eastern or Grey Wolf den site and a 200m radius will be considered significant. ■ Extensive searches for denning sites are not recommended as they are very difficult to locate, protection of most suitable habitat should be considered during planning. ■ SWHMiST Index #31 provides development effects and mitigation measures.	**Yes;** Qualifying vegetation communities were identified within the Study Area.	**Candidate;** Although no denning sites were identified during the 2024 field investigations, this SWH remains candidate as field investigations were conducted from roadside, and therefore denning sites may still be present within the forest communities.
Amphibian Breeding Habitat (Woodland). **Rationale:** These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Four-toed Salamander Northern Two-lined Salamander Spring Peeper Wood Frog American Toad	All forested, ELC Ecosites; The wetland breeding ponds (including vernal pools) may be permanent, seasonal, ephemeral, large or small in size and could be located within or adjacent to the woodland.	■ Presence of a wetland or pond ■ >500m^2 (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size). The wetland, lake or pond and surrounding forest, would be the Candidate SWH. Some small wetlands may not be mapped and may be important breeding pools for amphibians. ■ Breeding ponds within the woodland or the shortest distance from forest habitat are more significant because of reduced risk to migrating amphibians and more likely to be used. ■ Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat. Information Sources: ■ Refer to the Ontario Herpetofaunal Summary for historical records. ■ Local landowners may also provide assistance as they may hear spring- time choruses of amphibians on their property. ■ OMNRF District and wetland evaluations. ■ Field Naturalist clubs. ■ Canadian Wildlife Service Amphibian Road Call Survey information. ■ Ontario Vernal Pool Association (http://www.ontariovernalpools.org/)	Studies confirm: ■ Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog 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 230m radius of woodland area. If a wetland area is adjacent to 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.	**Yes;** Forest and woodland communities located within the Study Area may provide Significant Wildlife Habitat.	**Candidate;** Although no vernal pools were identified during the 2024 field investigations, this SWH remains candidate as field investigations were conducted from roadside, and therefore vernal pools may still be present within the forest communities.

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria		
Amphibian Breeding Habitat (Wetlands) Rationale; Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Ecosites: G129-G135 G142-G152 Typically these wetland Ecosites will be isolated (>120m) from woodland Ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	■ Wetlands and pools (including vernal pools) >500m^2 (about 25m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. ■ Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. ■ Bullfrogs require permanent water bodies with abundant emergent vegetation. <u>Information Sources:</u> ■ Ontario Herpetofaunal Summary database. ■ Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. ■ OMNRF Districts and wetland evaluations. ■ EIS reports and other studies.	Studies confirm: ■ Presence of breeding population of 1 or more of the listed newt/salamander species or 3 or more of the listed 20 individuals (adults or eggs masses) or 3 or more of the listed frog/toad species with Call Level Codes of 3; Or: Wetland with confirmed breeding Bullfrogs are significant. ■ The ELC Ecosite wetland area and the shoreline are the SWH. ■ A combination of observational study and call count surveys will be required during the spring (April-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. ■ SWHMiST Index #15 provides development effects and mitigation measures.	**Yes;** Wetland communities located within the Study Area may provide Significant Wildlife Habitat.	**Yes;** Candidate habitat was identified within the Organic Rich Conifer Swamp (G129Tt), Organic Thicket Swamp (G135S), Mineral Meadow Marsh (G142N) and Organic Meadow Marsh (G144N) communities. Anuran surveys were not conducted and therefore this SWH remains candidate.
Mast Producing Areas **<u>Rationale:</u>** Mast is a very important food requirement for many wildlife species.	Black Bear White-tailed deer Wild Turkey Ruffed Grouse	ELC Ecosites: G015 G017 G019 G027-G028 G041-G043 G057 G059 G072 G090 G106 G108 G121 Central Ontario Forest Ecosites: ES14 ES17.1 ES23 ES24 ES25 ES26	■ Most important areas are mature forests >0.5 ha containing numerous large beech and red oak trees that supply the energy-rich mast that wildlife prefer. ■ Other significant tree species include hickory, basswood, black cherry, ironwood, mountain ash, pin cherry, and butternut. Significant shrub species include blueberries, wild black berry, serviceberry, raspberry, beaked hazel, choke cherry and hawthorn. ■ Sites providing long-term, relatively stable food supplies, forest openings or barrens >1 ha provide excellent sites for mast producing shrubs. Sites such as clear-cuts or burns are temporary source of food and are less significant. <u>Information Sources:</u> ■ OMNRF Districts. ■ Forest Resource Inventory (FRI) maps to locate stands with mast producing trees. ■ Sustainable Forest License (SFL) companies may know of areas through regular forest inventory work. ■ Field Naturalists clubs.	■ Any forested site with a high component (>50%) of mast producing tree species >40- 65cm dbh or; ■ An opening within a woodland/forested site with an abundance (50% ground cover) of mast producing shrubs (e.g. wild blackberry, serviceberry, raspberry, blueberry and beaked hazel) species is considered significant. ■ Area of the early successional habitat or woodland/forest stand ELC Ecosite is the SWH. ■ Surveys should be conducted from June to August when plants are actively growing to determine presence. ■ SWHMiST Index #3 provides development effects and mitigation measures	**No;** Candidate habitat is not present within the Study Area. The Study Area does not contain or is adjacent to any of the listed habitat communities.	**No;** Candidate habitat was not identified.

Table 1.3. Habitats of Species of Conservation Concern considered SWH.

Wildlife	Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria		
Marsh Bird Breeding Habitat **Rationale:** Wetlands for these bird species are very productive and rare in Central Ontario landscapes.	American Bittern Sora Red-necked Grebe Pie-billed Grebe Redhead Ring-necked Duck Lesser Scaup Ruddy Duck Common Moorhen American Coot Wilson's Phalarope Common Loon Sandhill Crane Green Heron Sedge Wren Marsh Wren Trumpeter Swan **Special Concern:** Yellow Rail Black Tern	ELC Ecosites: G138-G152 For Green Heron: Above Ecosites plus: G129-G136.	■ Nesting occurs in wetlands. ■ All wetland habitats are 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. Information Sources: ■ OMNRF District and wetland evaluations. ■ Field Naturalist clubs ■ Natural Heritage Information Center (NHIC) Records. ■ Ontario Breeding Bird Atlas.	Studies confirm: ■ Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or or 1 pair of Sandhill Cranes; or breeding by any combination of 5 or more of the listed species. ■ Note: any wetland with breeding of 1 or more Trumpeter Swans, Black Terns, 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.	**Yes;** Wetland communities located within the Study Area may provide Significant Wildlife Habitat.	**No;** Candidate habitat was identified within the Organic Rich Conifer Swamp (G129Tt), Organic Thicket Swamp (G135S), Sparse Treed Fen (G136Tt), and Open Moderately Rich Fen (G140S/N) communities. However, none of the indicator species were observed during the 2024 field investigations.
Open Country Bird Breeding Habitat **Rationale:** This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow **Special Concern:** Short-eared Owl	ELC Ecosites: G008-G009 G020-G021 G029-G031 G044-G046 G060-G062 G077-G079 G093-G095 G109-G111	■ Large grassland areas (includes natural and cultural fields and meadows >30 ha. ■ Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years). ■ Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. ■ The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species. Information Sources: ■ Agricultural land classification maps, Ministry of Agriculture. ■ Local bird clubs. ■ Ontario Breeding Bird Atlas ■ EIS reports and other studies.	Field Studies confirm: ■ Presence of nesting or breeding of 2 or more of the listed species. ■ A field with 1 or more breeding ■ Short-eared Owls is to be considered SWH. ■ The area of SWH is the contiguous ELC Ecosite field areas. ■ Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. ■ Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". ■ SWHMiST Index #32 provides development effects and mitigation measures.	**No;** Dry to Fresh, Coarse Sparse Shrub community (G046S) is present within the Study Area, but it does not meet size criteria.	**No;** Candidate habitat was not identified.
Shrub/Early Successional Bird Breeding Habitat **Rationale:** This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records	Willow Flycatcher Brown Thrasher Blue-winged Warbler Tennessee Warbler Prairie Warbler Eastern Towhee Clay-colored Sparrow Field Sparrow **Special Concern:** Golden-winged Warbler	ELC Ecosites: G009-G010 G021-G022 G031-G032 G046-G047 G062-G063 G079-G080 G095-G096 G111-G112 G134-G135 Patches of shrub Ecosites can be complexed into a larger habitat for some bird species.	■ Large field areas succeeding to shrub and thicket habitats>30 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). ■ Larger shrub thicket habitats (>30 ha) are most likely to support and sustain a diversity of these species. ■ Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or lightly grazed pasturelands. Information Sources: ■ Agricultural land classification maps, Ministry of Agriculture. ■ Local bird clubs. ■ Ontario Breeding Bird Atlas ■ EIS Reports.	Field Studies confirm: ■ Presence of nesting or breeding of 2 or more of species listed. ■ A habitat with breeding Golden- winged Warbler is to be considered as Significant Wildlife Habitat. ■ 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 Index #33 provides development effects and mitigation measures.	**No;** Dry to Fresh, Coarse Sparse Shrub community (G046S) is present within the Study Area, but it does not meet size criteria.	**No;** Candidate habitat was not identified.

Wildlife	Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria		
Special Concern and Rare Wildlife Species **Rationale:** These species are Provincially Rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available; therefore location information may lack accuracy.	■ When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or Provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites. Information Sources: ■ Natural Heritage Information Centre (NHIC) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. ■ NHIC Website "Get Information" : http://nhic.mnr.gov.on.ca ■ Ontario Breeding Bird Atlas ■ Expert advice should be sought as many of the rare species have little information available.	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. ■ Habitat form and function needs to be assessed from the assessment of vegetation types and an area of significant habitat that protects the rare or special concern species identified. The habitat needs to be easily mapped and cover an important life stage component for a species, e.g., specific nesting habitat or foraging habitat. ■ 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. ■ SWHMiST Index #37 provides development effects and mitigation measures.	**Yes;** There are records of Special Concern and rare species within or in the vicinity of the Study Area. The following species were determined to have candidate habitat within the Study Area based on the background review: • Canada Warbler • Wood Thrush • Common Nighthawk • Eastern Whip-poor-will • Evening Grosbeak • Great Black-backed Gull • Rough-legged Hawk • Beaverpond Clubtail • Harpoon Clubtail • Hoary Pinion • Plush-naped Pinion • Ski-tipped Emerald • Uhler's Sundragon • Unsated Sallow • Red Spruce • Snapping Turtle	**Candidate;** Both Canada Warbler and Wood Thrush, two species listed as Special Concern under the ESA were observed during field investigations conducted in 2024. A singing male Canada Warbler was heard singing from a Dry to Fresh, Coarse Maple Hardwood Forest (G058Tt) community. A singing male Wood Thrush was heard singing from a Moist, Fine Spruce – Fir Conifer Forest (G116Tt) community. Although these species were observed in suitable habitat during the breeding bird season, they were only observed on one occasion. Therefore, habitat for these species remains candidate. The other species in the previous column also remain candidate.

Table 1.4 Animal Movement Corridors

Habitat	SPECIES	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Present within the Study Area
		ELC Eco-sites	Habitat Criteria and Information Sources	Defining Criteria		
Amphibian Movement Corridors **Rationale:** Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog American Toad	Corridors may be found in all Ecosites associated with water. Corridors will be determined based on identifying the significant breeding habitat for these species.	■ Movement corridors between breeding habitat and summer habitat ■ Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH (**Amphibian Breeding Habitat –Wetland)** of this Schedule. Information Sources: ■ MNRF District Office. ■ Natural Heritage Information Center (NHIC). ■ EIS Reports and other information. ■ Field Naturalist Clubs.	■ Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. ■ Corridors should consist of native vegetation with several layers of vegetation. ■ Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. ■ Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m. ■ Shorter corridors are more significant than longer corridors; however amphibians must be able to get to and from their summer and breeding habitat. ■ SWHMiST Index #40 provides development effects and mitigation measures.	**Yes;** Candidate habitat is present within forest communities adjacent to wetlands and open aquatic ecosystems.	**Yes;** Anuran surveys were not conducted during the 2024 field investigations and therefore this SWH remains candidate.
Cervid Movement Corridors **Rationale:** 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.	White-tailed Deer Moose	Corridors may be found in all forested Ecosites.	■ Movement corridor must be determined when **Deer Wintering Habitat** is confirmed as SWH and **Moose Aquatic Feeding Area and Mineral Lick Habitat** of this schedule. ■ A deer wintering habitat identified by the OMNRF as SWH will have corridors that the deer use during fall migration and spring dispersion. ■ Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges). ■ Corridors will be multi- functional i.e. these will function for any smaller mammal species as well. Information Sources: ■ MNRF District Office. ■ Natural Heritage Information Center (NHIC). ■ EIS Reports and other information. ■ Field Naturalist Clubs.	■ Studies must be conducted at the time of year when deer or moose are migrating or moving to and from yard, mineral lick or feeding areas. ■ Corridors that lead to a deer wintering yard should be unbroken by roads and residential areas. ■ Corridors that lead moose to MAFA's, and mineral licks should remain intact. ■ Corridors should be at least 200m wide with gaps ■ <20m and if following riparian area with a minimum of 15m of vegetation cover on both sides of the waterway. Shorter corridors are more significant than longer corridors; however, cervids must be able to get to and from their habitat. ■ SWHMiST Index #39 provides development effects and mitigation measures	**Yes;** Qualifying vegetation communities were identified within the Study Area.	**Confirmed;** Cervid movement corridors are present within vicinity to the moose aquatic feeding areas identified on Figure 1.
Furbearer Movement Corridor **Rationale:** The identification of denning sites is rare. Corridors to and from the habitat must be maintained as this habitat is extremely important for local populations	Mink Otter	All Forested Ecosite Codes adjacent to or within shoreline habitats.	■ Mink and Otter den sites are typically found within a riparian area of a lake, river, stream or wetland. The den site will potentially have a movement corridor associated with it. ■ All Mink or Otter den sites identified of this schedule under the habitat of **Denning Sites for Mink, Otter, Marten Fisher and Eastern Wolf** are to be considered for an animal movement corridor. Information Sources: ■ MNRF District Office. ■ Natural Heritage Information Center (NHIC). ■ Reports and other information available from Conservation Authorities. ■ Local trappers may know the location of prime denning sites and movement corridors.	■ Studies to confirm: ■ Studies must be conducted at the time of year when mink or otter are using the denning sites. Studies can be based on observation or from scat and track surveys. ■ SWHMiST Index #31 provides development effects and mitigation measures.	**Yes;** Candidate habitat is present within forest communities adjacent to wetlands and open aquatic ecosystems.	**Candidate;** Although no denning sites were identified during the 2024 field investigations, this SWH remains candidate as field investigations were conducted from roadside, and therefore denning sites may still be present within the forest communities.

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Appendix G

Species at Risk Screening

Appendix G. Species at Risk Habitat Screening

Taxonomy	Species	ESA Status	SARA Status	COSEWIC Status	S-Rank	Preferred Habitat[1, 2]	Associated ELC Communities	Known Species Range[1, 2]	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Species/Habitat Observed During Field Investigations	Conclusions/ Recommendations
Birds	Bank Swallow *Riparia riparia*	THR	THR Schedule 1	THR	S4	Bank Swallows nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. Many nests are on banks of rivers and lakes, but they are also found in active sand and gravel pits or former ones where the banks remain suitable. The birds breed in colonies ranging from several to a few thousand pairs. The Bank Swallow breeds in a wide variety of natural and artificial sites with vertical banks, including riverbanks, lake and ocean bluffs, aggregate pits, road cuts, and stock piles of soil. Sand-silt substrates are preferred for excavating nest burrows. Breeding sites tend to be somewhat ephemeral due to the dynamic nature of bank erosion. Breeding sites are often situated near open terrestrial habitat used for aerial foraging (e.g., grasslands, meadows, pastures, and agricultural cropland). Large wetlands are used as communal nocturnal roost sites during post-breeding, migration, and wintering periods.		The Bank Swallow is found all across southern Ontario, with sparser populations scattered across northern Ontario. The largest populations are found along the Lake Erie and Lake Ontario shorelines, and the Saugeen River (which flows into Lake Huron). In North America, it breeds widely across the northern two-thirds of the U.S., north to the treeline. It breeds in all Canadian provinces and territories, except perhaps Nunavut.	OBBA	**Medium Probability** Suitable banks at the edges of bodies of water potentially present within the Study Area.	**Low** Species not observed. The lake adjacent to open marsh and fen located 3 km south of Woodys Road may provide suitable habitat however this is not located within the Study Area.	Slope reduction measures should be applied during the breeding bird season (Mid-April to late August).
Birds	Barn Swallow *Hirundo rustica*	SC	THR Schedule 1	SC	S4B	Barn Swallows often live in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges, and in culverts. The species is attracted to open structures that include ledges where they can build their nests, which are often re-used from year to year. They prefer unpainted, rough-cut wood, since the mud does not adhere as well to smooth surfaces. Before European colonization, Barn Swallows nested mostly in caves, holes, crevices, and ledges in cliff faces. Following European settlement, they shifted largely to nesting in and on artificial structures, including barns and other outbuildings, garages, houses, bridges, and road culverts. Barn Swallows prefer various types of open habitats for foraging, including grassy fields, pastures, various kinds of agricultural crops, lake and river shorelines, cleared rights-of-way, cottage areas and farmyards, islands, wetlands, and subarctic tundra.	**TPO, CUM1, MAM, MAS, OAO, SAS1, SAM1, SAF1**; containing or adjacent structures that are suitable for nesting.	The Barn Swallow may be found throughout southern Ontario and can range as far north as Hudson Bay, wherever suitable locations for nests exist. The Barn Swallow has become closely associated with human rural settlements. It breeds across much of North America south of the treeline, south to central Mexico. In Canada, it is known to breed in all provinces and territories.	OBBA, MNR, eBird, iNat, NHIC	**Medium Probability** Suitable anthropogenic structures potentially present within the southern portion of the Study Area adjacent to Stewart Hemmel.	**Low** Species not observed and no anthropogenic structures adjacent to open habitat observed.	Vegetation removal should be scheduled to occur outside of the breeding bird season of (Mid-April to late August).
Birds	Black Tern *Chlidonias niger*	SC	No Status	Not at Risk	S3B,S4M	Black Terns build floating nests in loose colonies in shallow marshes, especially in cattails.	**MAS2-1** and **OAO**. These two communities must be present immediately adjacent each other and with sufficient water to provide suitable nesting habitat.	The Black Tern breeds in the temperate regions of Europe, and in North America where it ranges from northern British Columbia and Alberta south to Arizona and Kansas and east to New Brunswick. In Ontario, Black Terns are found scattered throughout the province, but breed mainly in the marshes along the edges of the Great Lakes.	OBBA	**Medium Probability** Suitable marsh habitat adjacent to open water may be present in the Study Area.	**Medium** Species not observed, but mineral meadow marsh communities adjacent to open water occur throughout the Study Area, and may provide suitable habitat.	Vegetation removal should be scheduled to occur outside of the breeding bird season of (Mid-April to late August).
Birds	Bobolink *Dolichonyx oryzivorus*	THR	THR Schedule 1	THR	S4B	Historically, Bobolinks lived in North American tallgrass prairie and other open meadows. With the clearing of native prairies, Bobolinks moved to living in hayfields. Bobolinks often build their small nests on the ground in dense grasses. Both parents usually tend to their young, sometimes with a third Bobolink helping. Most of this prairie was converted to agricultural land over a century ago, and at the same time the forests of eastern North America were cleared to hayfields and meadows that provided habitat for the birds. Since the conversion of the prairie to cropland and the clearing of the eastern forests, the Bobolink has nested in forage crops (e.g., hayfields and pastures dominated by a variety of species, such as clover, Timothy, Kentucky Bluegrass, and broadleaved plants).	**TPO, TPS, CUM1** and **MAM2**.	The Bobolink breeds across North America. In Ontario, it is widely distributed throughout most of the province south of the boreal forest, although it may be found in the north where suitable habitat exists. The breeding range of the Bobolink in North America includes the southern part of all Canadian provinces from British Columbia to Newfoundland and Labrador and south to the northwestern, north-central and northeastern U.S.	OBBA	**Medium Probability** Suitable wet meadows and peatlands potentially present in Study Area.	**Low** No suitably large (>10 ha) open habitat occur in the Study Area.	Vegetation removal should be scheduled to occur outside of the breeding bird season of (Mid-April to late August).
Birds	Canada Warbler *Cardellina canadensis*	SC	THR Schedule 1	THR	S5	The Canada Warbler breeds in a range of deciduous and coniferous, usually wet forest types, all with a well-developed, dense shrub layer. Dense shrub and understory vegetation help conceal Canada Warbler nests that are usually located on or near the ground on mossy logs or roots, along stream banks or on hummocks. It is also found in riparian shrub forests on slopes and in ravines and in old-growth forests with canopy openings and a high density of shrubs, as well as in stands regenerating after natural disturbances, such as forest fires, or anthropogenic disturbances, such as logging. Canada Warbler habitat is believed to be in decline, especially in South America, where the Canada Warbler overwinters. Habitat loss has also been observed in the eastern part of its breeding range, where wet forests have been drained for urban development or farming.	**FOC3, FOC4, FOM6, FOM7, FOM8, FOD6, FOD7, FOD8, FOD9, SWC, SWM** and **SWD** with a well-developed shrub layer.	The Canada Warbler only breeds in North America and 80% of its known breeding range is in Canada. Its primary breeding range is in the Boreal Shield, extending north into the Hudson Plains and south into the Mixedwood Plains. Although the Canada Warbler breeds at low densities across its range, in Ontario it is most abundant along the Southern Shield. The Canada Warbler breeds primarily across much of southeastern Canada, the northeastern United States, the Great Lakes region. In Canada, it breeds in all provinces and territories except Nunavut and Newfoundland and Labrador.	OBBA, MNR, AECOM (2024)	**Medium Probability** Suitable wet forest with dense shrub layer potentially present within the Study Area.	**Confirmed** Species observed within a coniferous swamp community located west of Hwy 11, near the intersection with Woodys Road.	Vegetation removal should be scheduled to occur outside of the breeding bird season of (Mid-April to late August).
Birds	Chimney Swift *Chaetura pelagica*	THR	THR Schedule 1	THR	S3	Before European settlement, Chimney Swifts mainly nested on cave walls and in hollow trees or tree cavities in old growth forests. However, due to the land clearing associated with colonization, hollow trees became increasingly rare, which led Chimney Swifts to move into house chimneys. Today, they are more likely to be found in and around urban settlements where they nest and roost (rest or sleep) in chimneys and other manmade structures. It is likely that a small portion of the population continues to use hollow trees. They also tend to stay close to water as this is where the flying insects they eat congregate. The Chimney Swift spends the major part of the day in flight feeding on insects. In the northern part of the breeding range, the Chimney Swift favours sites where the ambient temperature is relatively stable.	**TPO, CUM1, MAM, MAS, OAO, SAS1, SAM1, SAF1** containing or adjacent structures with suitable nesting habitat (i.e. chimneys).	The Chimney Swift breeds in eastern North America, possibly as far north as southern Newfoundland. In Ontario, it is most widely distributed in the Carolinian zone in the south and southwest of the province, but has been detected throughout most of the province south of the 49th parallel. The Chimney Swift breeds mainly in eastern North America, from southern Canada down to Texas and Florida. The species breeds in east central Saskatchewan, southern Manitoba, southern Ontario, southern Quebec, New Brunswick, Nova Scotia, and possibly in Prince Edward Island and southwestern Newfoundland.	MNR, AECOM (2024)	**Medium Probability** Suitable hollow trees potentially present within forested areas within the Study Area.	**Confirmed** Species observed within a deciduous forest community located west of Hwy 11, approximately 1 km north of Sand Dam Road.	Vegetation removal should be scheduled to occur outside of the breeding bird season of (Mid-April to late August).

Appendix G. Species at Risk Habitat Screening

Taxonomy	Species	ESA Status	SARA Status	COSEWIC Status	S-Rank	Preferred Habitat[1, 2]	Associated ELC Communities	Known Species Range[1, 2]	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Species/Habitat Observed During Field Investigations	Conclusions/ Recommendations
Birds	Common Nighthawk *Chordeiles minor*	SC	THR Schedule 1	SC	S4	Traditional Common Nighthawk habitat consists of open areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings, rock barrens, peat bogs, lakeshores, and mine tailings. Although the species also nests in cultivated fields, orchards, urban parks, mine tailings, and along gravel roads and railways, they tend to occupy natural sites. The Common Nighthawk nests in a wide range of open, vegetation-free habitats, including dunes, beaches, recently harvested forests, rocky outcrops, grasslands, pastures, marshes, and river banks. This species also inhabits mixed and coniferous forests. The Common Nighthawk probably benefited from the newly-opened habitats created by the massive deforestation associated with the arrival of European settlers in eastern Canada and United States. The appearance of gravel roofs contributed to the expansion of the Common Nighthawk's habitat in North America.	**SD, BB, RB, CUM, BO, FOM, FOC** and **FOD** with openings with little vegetation.	The range of the Common Nighthawk spans most of North and Central America. In Canada, the species is found in all provinces and territories except Nunavut. In Ontario, the Common Nighthawk occurs throughout the province except for the coastal regions of James Bay and Hudson Bay.	MNR	**Medium Probability** Suitable clearings potentially present within wetlands, road shoulders, and forest within the Study Area.	**Low** Neither species nor suitably dry and open habitat lacking in ground vegetation observed in the Study Area.	There are no further considerations or requirements for this species.
Birds	Eastern Meadowlark *Sturnella magna*	THR	THR Schedule 1	THR	S4B,S3N	Eastern Meadowlarks breed primarily in moderately tall grasslands, such as pastures and hayfields, but are also found in alfalfa fields, weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields, or other open areas. Small trees, shrubs, or fence posts are used as elevated song perches. Eastern Meadowlarks prefer grassland habitats, including native prairies and savannahs, as well as non-native pastures, hayfields, weedy meadows, herbaceous fencerows, and airfields.	**TPO, TPS, CUM1, CUS**, and **MAM2** with elevated song perches.	In Ontario, the Eastern Meadowlark is primarily found south of the Canadian Shield but it also inhabits the Lake Nipissing, Timiskaming, and Lake of the Woods areas. Including all subspecies, the Eastern Meadowlark's global breeding range extends from central and eastern North America, south through parts of South America. However, there is only one subspecies in Canada and the neighbouring northeastern U.S. In Canada, the bulk of the population breeds in southern Ontario.	OBBA	**Low Probability** Lack of suitable grassland habitat.	**Low** Neither species nor suitable grassland habitat observed in the Study Area.	There are no further considerations or requirements for this species.
Birds	Eastern Whip-poor-will *Antrostomus vociferus*	SC	THR Schedule 1	SC	S4	The Eastern Whip-poor-will is usually found in areas with a mix of open and forested areas, such as savannahs, open woodlands, or openings in more mature deciduous, coniferous, and mixed forests. It forages in these open areas and uses forested areas for roosting (resting and sleeping) and nesting. It lays its eggs directly on the forest floor, where its colouring means it will easily remain undetected by visual predators. Whip-poor-will breeding habitat is not dependent upon species composition, but rather on forest structure, although common tree associations in both summer and winter are pine and oak. The species shuns both wide-open spaces and dense forest. It prefers to nest in semi-open forests or patchy forests with clearings, such as barrens or forests that are regenerating following major disturbances. Other necessary breeding habitat elements are thought to involve ground-level vegetation and woodland size. Individuals will often feed in nearby shrubby pastures or wetlands	**TPS, TPW, CUW, FOD, FOC** and **FOM** where open areas are present.	The Eastern Whip-poor-will's breeding range includes two widely separate areas. It breeds throughout much of eastern North America, reaching as far north as southern Canada. In Ontario they breed as far north as the shore of Lake Superior. Although Eastern Whip-poor-wills were once widespread throughout the central Great Lakes region of Ontario, their distribution in this area is now fragmented.	MNR	**Medium Probability** Suitable clearings potentially present within wetlands, road shoulders, and forest within the Study Area.	**Medium** Species not observed, but forested communities adjacent to open meadow marsh and fen communities within the Study Area may provide suitable habitat.	Vegetation removal should be scheduled to occur outside of the breeding bird season of (Mid-April to late August).
Birds	Eastern Wood-pewee *Contopus virens*	SC	SC Schedule 1	SC	S4B	The Eastern Wood-pewee lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in intermediate-age mature forest stands with little understory vegetation. During migration, a variety of habitats are used, including forest edges and early successional clearings.	**FOC, FOM, FOD, SWD, SWM** and **CUW**.	The Eastern Wood-pewee is found across most of southern and central Ontario, and in northern Ontario as far north as Red Lake, Lake Nipigon, and Timmins. The breeding range of the Eastern Wood-pewee covers much of south-central and eastern North America.	OBBA	**Medium Probability** Suitable mature forests potentially within the Study Area.	**Medium** Species not observed, but conferous, deciduous, and mixed forest communities occur throughout the Study Area and may provide suitable habitat. .	Vegetation removal should be scheduled to occur outside of the breeding bird season of (Mid-April to late August).
Birds	Evening Grosbeak *Coccothraustes vespertinus*	SC	SC Schedule 1	SC	S4	During the breeding season, the Evening Grosbeak is generally found in open, mature mixed-wood forests dominated by fir species, White Spruce, and/or Trembling Aspen. Its abundance is strongly linked to the cycle of its primary prey, the Spruce Budworm. Outside the breeding season, the species depends mostly on seed crops from tree species in the boreal forest, such as firs and spruces. It is also attracted to ornamental trees that have seeds or fruit, and may visit bird feeders.	**FOC** and **FOM**	The Evening Grosbeak is found in all Canadian provinces and territories except Nunavut. In Ontario, it breeds in coniferous forests across northern Ontario, as far south as southern Georgian Bay. Evening Grosbeak breeds in Canada, the United States, and Mexico. In winter, it is nomadic and can range widely, depending on the quantity of seeds produced in the boreal forest. Historically, this species was restricted to western North America, but expanded eastward in the late 19th and early 20th centuries	OBBA, MNR	**Medium Probability** Suitable mixed or coniferous forest potentially present within the Study Area.	**Medium** Species not observed, but coniferous and mixed forest communities with abundant White Spruce, Trembling Aspen and firs occur throughout the Study Area and may provide suitable habitat. .	Vegetation removal should be scheduled to occur outside of the breeding bird season of (Mid-April to late August).
Birds	Golden Eagle *Aquila chrysaetos*	END	No Status	Not At Risk	S1B,S4N	Golden Eagles nest in remote, undisturbed areas, usually building their nests on ledges on a steep cliff or riverbank, but they will also use large trees if needed. Most hunting is done near open areas such as large bogs or tundra. During migration they could be encountered anywhere, but are most frequently seen migrating west along the shores of Lake Ontario and Erie in November. Small numbers also winter in the southern half of Ontario, most often near large deer wintering areas where carcasses might be found.		In Ontario, breeding Golden Eagles are presently known only from the Hudson Bay Lowland, although there is some evidence suggesting they once nested much further south.	eBird	**Low Probability** Study Area is outside of known breeding range.	**Low** Species not observed and the Study Area is outside of known Golden Eagle breeding range.	There are no further considerations or requirements for this species.
Birds	Golden-winged Warbler *Vermivora chrysoptera*	SC	THR Schedule 1	THR	S3	Golden-winged Warblers prefer to nest in areas with young shrubs surrounded by mature forest – locations that have recently been disturbed, such as field edges, hydro or utility right-of-ways, or logged areas. In their breeding areas, Golden-winged Warblers seem to be fond of regeneration zones where young shrubs grow, surrounded by mature forest, and characterized by plant succession of 10 to 30 years. The warblers frequent clusters of herbaceous plants and low bushes (where they place their nests, which are built on the ground). They favour environments where the trees are spread out, as well as the forest edge, and use this setting for perching, singing, and looking for food		The Golden-winged Warbler is found in southern Saskatchewan, Manitoba, Ontario, and Quebec, as well as the north-eastern United States. In Ontario, these birds breed in central-eastern Ontario, as far south as Lake Ontario and the St. Lawrence River, and as far north as the northern edge of Georgian Bay. Golden-winged Warblers have also been found in the Lake of the Woods area near the Manitoba border, and around Long Point on Lake Erie	OBBA	**Medium Probability** Suitable clearings potentially present within wetlands, road shoulders, and forest within the Study Area.	**Medium** Species not observed, but mature forest communities adjacent to road shoulders and wetlands occur throughout the Study Area and may provide suitable habitat. .	Vegetation removal should be scheduled to occur outside of the breeding bird season of (Mid-April to late August).

Appendix G. Species at Risk Habitat Screening

Taxonomy	Species	ESA Status	SARA Status	COSEWIC Status	S-Rank	Preferred Habitat[1, 2]	Associated ELC Communities	Known Species Range[1, 2]	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Species/Habitat Observed During Field Investigations	Conclusions/ Recommendations
Birds	Grasshopper Sparrow *Ammodramus savannarum* Grasshopper Sparrow (pratensis subspecies; Eastern Grasshopper Sparrow) *Ammodramus savannarum pratensis*	SC	SC Schedule 1	SC	S4B	It lives in open grassland areas with well-drained, sandy soil. It will also nest in hayfields and pasture, as well as alvars, prairies, and occasionally grain crops such as barley. It prefers areas that are sparsely vegetated. Its nests are well-hidden in the field and woven from grasses in a small cup-like shape. The Grasshopper Sparrow is a short-distance migrant and leaves Ontario in the fall to migrate to the southestern United States and Central America for the winter. In Canada, the Eastern Grasshopper Sparrow typically breeds in large human-created grasslands (5 ha or greater), such as pastures and hayfields, and natural prairies, such as alvars, characterized by well-drained, often poor soil dominated by relatively low, sparse perennial herbaceous vegetation.		The Grasshopper Sparrow can be found throughout southern Ontario, but only occasionally on the Canadian Shield. It is most common where grasslands, hay, or pasture dominate the landscape. In Canada, the breeding range of the Eastern Grasshopper Sparrow includes extreme southern Québec and southern Ontario, with the vast majority of birds occurring in Ontario.	OBBA	**Low Probability** Suitably well-drained grassland habitat absent from Study Area.	**Low** Suitably well-drained grassland habitat absent from Study Area.	There are no further considerations or requirements for this species.
Birds	Least Bittern *Ixobrychus exilis*	THR	THR Schedule 1	THR	S4B	In Ontario, the Least Bittern is found in a variety of wetland habitats, but strongly prefers cattail marshes with a mix of open pools and channels. This bird builds its nest above the marsh water in stands of dense vegetation, hidden among the cattails. The nests are almost always built near open water, which is needed for foraging. This species eats mostly frogs, small fish, and aquatic insects. The Least Bittern breeds strictly in marshes dominated by emergent vegetation surrounded by areas of open water. Most breeding grounds in Canada are dominated by cattails, but breeding	**MAS2-1, MAS3-1, SA** and **OAO**.	In Ontario, the Least Bittern is mostly found south of the Canadian Shield, especially in the central and eastern part of the province. Small numbers also breed occasionally in northwest Ontario. This species has disappeared from much of its former range, especially in southwestern Ontario, where wetland loss has been most severe. The Least Bittern breeds from southern Canada to South	eBird, OBBA	**Low** This species is not anticipated to be affected as the Study Area is outside its breeding range.	**Low** This species is not anticipated to be affected as the Study Area is outside its breeding range.	There are no further considerations or requirements for this species.
Birds	Purple Martin *Progne subis*				S3	"Towns, farms, semi-open country near water; in west, also mountain forest, saguaro desert. In the east, breeds in any kind of semi-open area where nest sites are provided, especially near a pond or river. More local in the west, with isolated colonies breeding around woodland edges, clearings in mountain forest, and lowland desert with giant saguaro cactus."5		Commonly breeds in Ontario up to Ecoregion 5E as well as closely along the shores of the Great Lakes north west to Manitoba. "Usually nests in colonies, especially in east, where almost all are in multiple-roomed nest boxes put up for them. Western martins may nest in looser colonies or as isolated pairs. Male will sometimes have more than one mate. Nest: Natural sites are in cavities, mostly old woodpecker holes, in trees (or in giant cactus in southwest). In the east, most martins now use nest boxes. Sometimes nests in holes in buildings or cliffs."5	OBBA	**Low Probability** Suitable large open habitat including urban areas, meadows, dunes, and fields likely not present within the Study Area.		
Birds	Olive-sided Flycatcher *Contopus cooperi*	SC	THR Schedule 1	SC	S4	The Olive-sided Flycatcher is most often found along natural forest edges and openings. It will use forests that have been logged or burned if there are ample tall snags and trees to use for foraging perches. Olive-sided Flycatchers' breeding habitat usually consists of coniferous or mixed forest adjacent to rivers or wetlands. In Ontario, Olive-sided Flycatchers commonly nest in conifers such as White and Black Spruce, Jack Pine, and Balsam Fir. The Olive-sided Flycatcher is most often associated with open areas containing tall live trees or snags for perching. These vantage points are required for foraging. This species generally forages from a high, prominent perch from which it sallies forth to intercept flying insects and then returns to the same perch. Open areas may be forest clearings, forest edges located near natural openings (such as rivers or swamps) or human-made openings (such as logged areas), burned forest, or openings within old-growth forest stands; these forests are characterized by mature trees and large numbers of dead trees. There is evidence that the breeding success of	**CUW, FOC,** and **FOM** that contain White Spruce, Black Spruce, Jack Pine, or Balsam Fir and are adjacent open areas, rivers, or wetlands.	The Olive-sided Flycatcher has a broad breeding range across Canada and the western and northeastern United States. Just over half the range is found in Canada, where it breeds in every province and territory except Nunavut. In Ontario, it is widely distributed throughout the central and northern areas of the province.	OBBA	**Medium Probability** Suitable clearings potentially present within wetlands, road shoulders, and forest within the Study Area.	**Medium** Species not observed, but mature forest communities adjacent to road shoulders and wetlands occur throughout the Study Area and may provide suitable habitat.	Vegetation removal should be scheduled to occur outside of the breeding bird season of (Mid-April to late August).
Birds	Peregrine Falcon *Falco peregrinus*	SC	SC Schedule 1	Not At Risk	S4	Peregrine Falcons usually nest on tall, steep cliff ledges close to large bodies of water. Although most people associate Peregrine Falcons with rugged wilderness, some of these birds have adapted well to city life. Urban peregrines raise their young on ledges of tall buildings, even in busy downtown areas. Cities offer peregrines a good year-round supply of pigeons and starlings to feed on. The Peregrine Falcon is found in various types of habitats, from Arctic tundra to coastal areas and from prairies to urban centres. It usually nests alone on cliff ledges or crevices, preferably 50 to 200 m in height, but sometimes on the ledges of tall buildings or bridges, always near good foraging areas. Suitable nesting sites are usually dispersed, but can be common locally in some areas. The natural nesting habitat has not changed significantly since the population crash and is still largely available. In addition, structures built by humans in both rural and urban areas provide the Peregrine Falcon with other potential nesting sites. And though urbanization and other land uses have had a significant impact on some areas where they feed, Peregrine Falcons can usually modify their diet based on the prey species present in a given area.	**CLO**	The historic North American distribution of the eastern subspecies is east of the Rocky Mountains and south of the tree line. Although Peregrine Falcons now nest in and around Toronto and several other southern Ontario cities, the majority of Ontario's breeding population is found around Lake Superior in northwestern Ontario. The anatum Peregrine Falcon breeds in the interior of Alaska and throughout northern Canada up to southern Greenland, and across continental North America up to northern Mexico. In Canada it is found in all territories and provinces except Prince Edward Island, Nunavut, and the Island of Newfoundland. The tundrius Peregrine Falcon breeds in Alaska and throughout northern Canada up to Greenland. In Canada, it breeds from northern Yukon, the low Arctic islands, northern Northwest Territories, and northern Nunavut up to Baffin Island, Hudson Bay, Ungava, and northern Labrador.	OBBA	**Low Probability** Suitable steep cliffs absent in the Study Area.	**Low** Species not observed, and suitable steep cliffs absent in the Study Area.	There are no further considerations or requirements for this species.

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Birds	Rusty Blackbird *Euphagus carolinus*	SC	SC Schedule 1	SC	S3	During the winter, it is found in wet woodlands, swamps, and pond edges and often forages in agricultural lands. The breeding range of the Rusty Blackbird in Canada is almost entirely within the boreal forest. Breeding habitat there is characterized by coniferous-dominated forests adjacent to wetlands, such as slow-moving streams, peat bogs, sedge meadows, marshes, swamps, and beaver ponds. On migration, the Rusty Blackbird is primarily associated with wooded wetlands. In winter, it occurs primarily in lowland forested wetlands, cultivated fields, and pecan groves. Suitable habitat for the species appears to be decreasing on its breeding range and wintering grounds, due mainly to the loss and degradation of wetlands by human activities.		The Rusty Blackbird is only found in North America. It breeds in every province and territory in Canada and migrates to most of the central and eastern United States for winter. In Ontario, the breeding range is found in the Hudson Bay Lowlands and northern Boreal Shield ecozones. The Rusty Blackbird has a wide distribution across boreal regions of Canada. The winter range includes most of the central and eastern United States, although it also winters irregularly in extreme southern Canada.	OBBA	**Medium Probability** Suitable forest and wetland habitat potentially present within the Study Area.	**Medium** Species not observed, but coniferous forest communities adjacent to marshes, fens and swamps occur throughout the Study Area and may provide suitable habitat. .	Vegetation removal should be scheduled to occur outside of the breeding bird season of (Mid-April to late August).
Birds	Short-eared Owl *Asio flammeus*	THR	SC Schedule 1	THR	S4?B,S2S3N	The Short-eared Owl makes use of a wide variety of open habitats, including arctic tundra, grasslands, peat bogs, marshes, sand-sage concentrations, and old pastures. It also occasionally breeds in agricultural fields. Preferred nesting sites are dense grasslands, as well as tundra with areas of small willows. While the Short-eared Owl has a marked preference for open spaces, the main factor influencing the choice of its local habitat is believed to be the abundance of food, in both summer and winter. It nests on the ground and hunts for small mammals, especially voles. Suitable breeding, migration, and wintering habitat has declined significantly throughout the 20th century, resulting in a reduction in the number of owls. In North America, it breeds sporadically in arctic areas, coastal marshes, and interior grasslands, where voles and other small rodents proliferate.		The Short-eared Owl's North American range extends from the tundra south to the central United States. In Ontario, the species has a scattered distribution, found along the James Bay and Hudson Bay coastlines, along the Ottawa River in eastern Ontario, in the far west of the Rainy River District, and elsewhere in southern Ontario, at places such as Wolfe and Amherst Islands near Kingston. Most northern populations are migratory, moving southward in the winter. The Short-eared Owl breeds in all of Canada's provinces and territories. It generally heads southward in the winter and is found in open habitats along the extreme southern coast of British Columbia and in southern Ontario.	OBBA	**Low** This species is not anticipated to be affected as the Study Area is outside its breeding range.	**Low** This species is not anticipated to be affected as the Study Area is outside its breeding range.	There are no further considerations or requirements for this species.
Birds	Wood Thrush *Hylocichla mustelina*	SC	THR Schedule 1	THR	S4B	The Wood Thrush lives in mature deciduous and mixed (conifer-deciduous) forests. They seek moist stands of trees with well-developed undergrowth and tall trees for singing perches. These birds prefer large forests, but will also use smaller stands of trees. They build their nests in living saplings, trees, or shrubs, usually in Sugar Maple or American Beech. In Canada, the Wood Thrush nests mainly in second-growth and mature deciduous and mixed forests, with saplings and well-developed understory layers. This species prefers large forest mosaics, but may also nest in small forest fragments.	**FOD** and **FOM** that are greater than 1 ha in size.	The Wood Thrush is found all across southern Ontario. It is also found, but less common, along the north shore of Lake Huron, as far west as the southeastern tip of Lake Superior. There is a very small population near Lake of the Woods in northwestern Ontario, and there have been scattered sightings in the mixed forest of northern Ontario. The Wood Thrush breeds in southeastern Canada from southern Ontario east to Nova Scotia.	OBBA, AECOM (2024)	**Medium Probability** Suitable forested habitat present within the Study Area.	**Confirmed** Species observed within a coniferous swamp community located west of Hwy 11, near the intersection with Woodys Road.	Vegetation removal should be scheduled to occur outside of the breeding bird season of (Mid-April to late August).
Mammals	Eastern Small-footed Myotis (Eastern Small-footed Bat) *Myotis leibii*	END	N/A	N/A	S2	In the spring and summer, Eastern Small-footed Bats will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. These bats often change their roosting locations every day. At night, they hunt for insects to eat, including beetles, mosquitos, moths, and flies. In the winter, these bats hibernate, most often in caves and abandoned mines. They seem to choose colder and drier sites than similar bats and will return to the same spot each year.		The Eastern Small-footed Bat has been found from south of Georgian Bay to Lake Erie and east to the Pembroke area. There are also records from the Bruce Peninsula, the Espanola area, and Lake Superior Provincial Park. Most documented sightings are of bats in their winter hibernation sites.	BCI	**Low Probability** The Study Area is located more north than then typical range for Eastern Small-footed Myotis. There were not many records of this species identified during the background review. Suitable rock features were not prevalent in the Study Area.	**Low** The Study Area is located more north than then typical range for Eastern Small-footed Myotis. There were not many records of this species identified during the background review. Suitable rock features were not prevalent in the Study Area.	There are no further considerations or requirements for this species.

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Mammals	Little Brown Myotis (Little Brown Bat) *Myotis lucifugus*	END	END Schedule 1	END	S3	Bats are nocturnal. During the day they roost in trees and buildings. They often select attics, abandoned buildings, and barns for summer colonies where they can raise their young. Bats can squeeze through very tiny spaces (as small as six millimetres across) and this is how they access many roosting areas. Little Brown Bats hibernate from October or November to March or April, most often in caves or abandoned mines that are humid and remain above freezing. Their specific physiological requirements limit the number of suitable sites for overwintering. In the east, large numbers (i.e., >3000 bats) of several species typically overwinter in relatively few hibernacula. In the west, there are fewer known hibernacula, and numbers appear lower per site. Females establish summer maternity colonies, often in buildings or large-diameter trees. Foraging occurs over water, along waterways, and forest edges. Large open fields or clearcuts generally are avoided. In autumn, bats return to hibernacula, which may be hundreds of kilometres from their summering areas, swarm near the entrance, mate, and then enter that hibernaculum, or travel to different hibernacula to overwinter.		The Little Brown Bat is widespread in southern Ontario and found as far north as Moose Factory and Favourable Lake. In Canada, *Myotis lucifugus* occurs from Newfoundland to British Columbia, and northward to near the treeline in Labrador, Northwest Territories and Yukon.	BCI	**Medium Probability** Suitable forested habitat with cavities present within the Study Area.	**Medium** Species not observed; however, acoustic monitoring surveys were not performed and mature forest communities within the Study Area may provide suitable habitat.	Tree removal should be scheduled to occur outside of the bat active season of April 1 to September 30.
Mammals	Northern Myotis (Northern Long-eared Bat) *Myotis septentrionalis*	END	END Schedule 1	END	S3	Northern Long-eared Bats are associated with boreal forests, choosing to roost under loose bark and in the cavities of trees. These bats hibernate from October or November to March or April. The Northern Long-eared Bat overwinters in cold and humid hibernacula (caves/mines). Their specific physiological requirements limit the number of suitable sites for overwintering. In the east, large numbers (i.e., >3000 bats) of several species typically overwinter in relatively few hibernacula. In the west, there are fewer known hibernacula, and numbers appear lower per site. Females establish summer maternity colonies in buildings or large-diameter trees. Foraging occurs along waterways, forest edges, and in gaps in the forest. Large open fields or clearcuts generally are avoided. In autumn, bats return to hibernacula, which may be hundreds of kilometres from their summering areas, swarm near the entrance, mate, and then enter that hibernaculum, or travel to different hibernacula to overwinter.	**FOC, FOM, FOD, SWC, SWM,** and **SWD** where suitable roosting (i.e. cavity trees and trees with loose bark) habitat is available.	The Northern Long-eared Bat is found throughout forested areas in southern Ontario, to the north shore of Lake Superior and occasionally as far north as Moosonee, and west to Lake Nipigon. In Canada, *Myotis septentrionalis* occurs from Newfoundland to British Columbia, and northward to near the treeline in Labrador, Northwest Territories, and Yukon.	BCI	**Medium Probability** Suitable forested habitat with cavities may be present within the Study Area.	**Medium** Species not observed; however, acoustic monitoring surveys were not performed and mature forest communities within the Study Area may provide suitable habitat.	Tree removal should be scheduled to occur outside of the bat active season of April 1 to September 30.
Mammals	Eastern Red Bat *Lasiurus borealis*	END	-	END	S3	Eastern Red Bats typically roost among the foliage of trees and occasionally shrubs (Hutchinson and Lacki 2000; Mager and Nelson 2001; Elmore et al. 2004; Limpert et al. 2007; Perry et al. 2007; Klug et al. 2012). Thus, the availability of suitable trees is important for protection from predators and as sites for raising offspring (Cryan and Veilleux 2007). Eastern Red Bats roost alone, or with their pups. Their solitary roosting behaviour and well-camouflaged fur results in roosts being highly cryptic. Roost sites that have overhead foliage for cover and open flight space below are selected (Mager and Nelson 2001). Roosting appears to occur near the edge of the crown and at sufficient heights to prevent access by mammalian predators (that is, >5 m). Eastern Red Bats use both deciduous and coniferous forests, of any age class (O'Keefe et al. 2009). In some parts of their range, Eastern Red Bats avoid conifer species when suitable deciduous species are present (Elmore et al. 2004; Perry et al. 2007). Trees used as maternity roosts by Eastern Red Bats tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy (Mager and Nelson 2001; Elmore et al. 2004; Kalcounis-Ruppell et al. 2005; Willis and Brigham 2005; Limpert et al. 2007; Perry and Thill 2007; Klug et al. 2012). Male Eastern Red Bats in particular have been observed to use saplings as roosts, which is rarely reported for reproductive females (Perry et al. 2007).	-	Eastern Red Bat has been found in all Canadian provinces except Prince Edward Island (Figure 2) but appears to be uncommon across most of British Columbia and the Atlantic provinces, and its distribution is mostly unknown in northern Canada (Jung et al. 2014; Slough et al. 2022), including all three territories.	BCI	**Medium Probability** Suitable forested habitat with cavities may be present within the Study Area.	**Medium** Species not observed; however, acoustic monitoring surveys were not performed and mature forest communities within the Study Area may provide suitable habitat.	Tree removal should be scheduled to occur outside of the bat active season of April 1 to September 30.
Mammals	Northern Hoary Bat *Lasiurus cinereus*	END	-	END	S3	Hoary Bats typically roost among the foliage of trees and occasionally shrubs (Hutchinson and Lacki 2000; Mager and Nelson 2001; Elmore et al. 2004; Limpert et al. 2007; Perry et al. 2007; Klug et al. 2012). Thus, the availability of suitable trees is important for protection from predators and as sites for raising offspring (Cryan and Veilleux 2007). Hoary Bats roost alone, or with their pups. Their solitary roosting behaviour and well-camouflaged fur results in roosts being highly cryptic. Roost sites that have overhead foliage for cover and open flight space below are selected (Mager and Nelson 2001). Roosting appears to occur near the edge of the crown and at sufficient heights to prevent access by mammalian predators (that is, >5 m). Hoary Bats use both deciduous and coniferous forests, of any age class (O'Keefe et al. 2009). In some parts of their range. Trees used as maternity roosts by Hoary Bats tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy (Mager and Nelson 2001; Elmore et al. 2004; Kalcounis-Ruppell et al. 2005; Willis and Brigham 2005; Limpert et al. 2007; Perry and Thill 2007; Klug et al. 2012).	-	Hoary Bat is widespread in Canada during the summer months and recorded in all provinces and territories (Figure 1). The species has been reported near Arviat and Coral Harbour (Southampton Island) in Nunavut (Hitchcock 1943; Anand-Wheeler 2002), but it is unlikely the bats occur regularly there. In the Northwest Territories, Hoary Bats have been identified acoustically near Great Slave Lake, Wood Buffalo National Park, and Nahanni National Park Reserve (Lausen et al. 2014; Wilson et al. 2014; Hansen et al. 2018) and there is a visual record from near Fort Resolution (Soper 1942). The species has also been detected acoustically in southern Yukon (Slough et al. 2014), Quebec (Faure-Lacroix et al. 2020) and visual and acoustic records occur in southeastern Alaska and elsewhere in northern British Columbia (Parker et al. 1997; Blejwas et al. 2014; Lausen et al. 2022). In Ontario, they appear to have among the most northern distribution of the three species (Layng et al. 2019) and have been found near James Bay during migration (Nagorsen and Nash 1984).	BCI	**Medium Probability** Suitable forested habitat with cavities may be present within the Study Area.	**Medium** Species not observed; however, acoustic monitoring surveys were not performed and mature forest communities within the Study Area may provide suitable habitat.	Tree removal should be scheduled to occur outside of the bat active season of April 1 to September 30.

Appendix G. Species at Risk Habitat Screening

Taxonomy	Species	ESA Status	SARA Status	COSEWIC Status	S-Rank	Preferred Habitat[1, 2]	Associated ELC Communities	Known Species Range[1, 2]	Source Identifying Species Record	Suitable Habitat Identified During Background Review	Species/Habitat Observed During Field Investigations	Conclusions/ Recommendations
Mammals	Silver-haired Bat *Lasionycteris noctivagans*	END	-	END	S3	Roosting by Silver-haired Bats occurs primarily under bark and in the cavities of trees, making them reliant on habitats where large, decaying trees are available. Silver-haired Bats roost in a variety of large diameter coniferous and deciduous trees (Bohn 2017). Reproductive females generally roost in small groups within tree cavities or under bark (Parsons et al. 1986; Mattson et al. 1996; Betts 1998a,b; Crampton and Barclay 1998; Vonhof and Gwilliam 2007). When taken as a whole, the data indicate that the species does select specific attributes of trees to roost in. However, these attributes are not specific to particular tree species or type (deciduous or coniferous specifically) across the species range. Roost-tree species and type differ depending on the region but tree size, height, roost aspect, and cavity temperature are important characteristics (Kalcounis-Ruppell et al. 2005). Deciduous species (especially Populus spp.) often have decay characteristics that make them ideal as roost sites, particularly in older forests where these features are more likely to occur (Campbell et al. 1996; Crampton and Barclay 1998; Jung et al. 1999). Heart-rot infections at the site of limb breakages often result in large well-protected inner chambers (Parsons et al. 2003), and large sheets of exfoliating bark are ideal for roosting. In other parts of their range, coniferous species are used (Campbell et al. 1996; Mattson et al. 1996; Vonhof and Barclay 1996). Several studies report the frequent use of old woodpecker cavities (Parsons et al. 1986; Mattson et al. 1996; Vonhof and Barclay 1996).	-	Silver-haired Bat is regularly encountered across most provinces, with a range extending from Nova Scotia (Lucas and Hebda 2011) to Haida Gwaii, British Columbia (Nagorsen and Brigham 1993; Figure 3). Its distribution extends to the southern Northwest Territories (Wilson et al. 2014) and Yukon (Slough and Jung 2008; Slough et al. 2022).	BCI	**Medium Probability** Suitable forested habitat with cavities may be present within the Study Area.	**Medium** Species not observed; however, acoustic monitoring surveys were not performed and mature forest communities within the Study Area may provide suitable habitat.	Tree removal should be scheduled to occur outside of the bat active season of April 1 to September 30.
Plants	Black Ash *Fraxinus nigra*	END	Not on Schedule 1 (under consideration for addition)	THR	S4	Black Ash is predominantly a wetland species of swamps, floodplains and fens. It has an intermediate light requirement and a tendency toward greater abundance in more alkaline sites. Most sites in which it is dominant are flood prone, where its high tolerance of seasonal flooding appears to offer a competitive advantage. Black Ash also occurs widely in moist upland forests, but generally at lower densities than in wet areas.[8]		"Within Canada, Black Ash occurs from western Newfoundland in the east to southeastern Manitoba in the west (Figure 3). Though uncommon and sparsely scattered near the margins of its range, its distribution is relatively continuous within the Atlantic and Great Lakes Plains National Ecological Areas and into the Boreal National Ecological Area. Its northern limits are not precisely documented throughout the boreal forest, but it is known to occur north to approximately 50.2ºN in Quebec and 53ºN in Ontario"8	AECOM (2024)	**Medium Probability** Suitable forested wetland habitat potentially present within Study Area.	**Confirmed** Species observed within coniferous, mixed and deciduous forest communities throughout the Study Area.	The Study Area occurs outside the geographical range of ESA assessment. There are no further considerations or requirements for this species.
Reptiles	Blanding's Turtle (Great Lakes / St. Lawrence population) *Emydoidea blandingii*	THR	THR Schedule 1	END	S3	Blanding's Turtles live in shallow water, usually in large wetlands and shallow lakes with lots of water plants. It is not unusual, though, to find them hundreds of metres from the nearest water body, especially while they are searching for a mate or traveling to a nesting site. Blanding's Turtles hibernate in the mud at the bottom of permanent water bodies from late October until the end of April. In the Great Lakes/St. Lawrence population, Blanding's Turtles are often observed using clear water, eutrophic wetlands. Blanding's Turtles have strong site fidelity but may use several connected water bodies throughout the active season. Females nest in a variety of substrates including sand, organic soil, gravel, cobblestone, and soil-filled crevices of rock outcrops. Adults and juveniles overwinter in a variety of water bodies that maintain pools averaging about 1 m in depth; however, hatchling turtles have been observed hibernating terrestrially during their first winter. Reported mean home ranges generally fall between 10-60 ha (maximum 382 ha) or 1000-2500 m (maximum 7000 m); however, most studies likely underestimate Blanding's Turtle home range size because few have utilized GPS loggers to track daily movements throughout one or more entire active seasons.	**SWT2, SWT3, SWD, SWM, MAS2, SAS1, SAM1**, where open water is present.	The Blanding's Turtle is found in and around the Great Lakes Basin, with isolated populations elsewhere in the United States and Canada. In Canada, the Blanding's Turtle is separated into the Great Lakes-St. Lawrence population and the Nova Scotia population. Blanding's Turtles can be found throughout southern, central, and eastern Ontario. In its Canadian range, the Great Lakes/St. Lawrence population of the Blanding's Turtle occurs primarily in southern Ontario (with isolated reports as far north as Timmins) and southern Québec (with isolated reports occurring as far north as the Abitibi-Témiscamingue region and as far east as the Capitale-Nationale region in Québec). Across the North American range, Blanding's Turtles mainly occur in small, isolated subpopulations that maintain a few dozen to approximately 100 turtles.	NHIC, MNR	**High Probability** Suitable wetland habitat is present within the Study Area. MNRF has stated that Blanding's Turtle has been observed directly adjacent to the Study Area.	**High** Recent studies identified species (MNRF, pers. com.) adjacent to the Study Area. The species was not observed during 2024 field investigations, but thicket swamp, deciduous swamp, and mineral marsh adjacent to open water are confirmed to occur throughout the Study Area.	It is highly recommended that the MTO reach out to the Ministry of Environment, Conservation and Parks (MECP) Species at Risk Branch (SARB) to have a formal review conducted under the Endangered Species Act (ESA) to ensure there are no contraventions.
Reptiles	Snapping Turtle *Chelydra serpentina*	SC	SC Schedule 1	SC	S4	Snapping Turtles spend most of their lives in water. They prefer shallow waters so they can hide under the soft mud and leaf litter, with only their noses exposed to the surface to breathe. During the nesting season, from early to mid summer, females travel overland in search of a suitable nesting site, usually gravelly or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams, and aggregate pits. Although Snapping Turtles have been observed in shallow water in almost every kind of freshwater habitat, the preferred habitat of the species is characterized by slow-moving water with a soft mud bottom and dense aquatic vegetation. Established populations are most often located in ponds, sloughs, shallow bays or river edges, and slow streams, or areas combining	**OAO, SA** near gravelly or sandy areas.	The Snapping Turtle's range extends from Ecuador to Canada. The Snapping Turtle's range is contracting. In Canada, the species is widespread from Nova Scotia to southeastern Saskatchewan, though it is absent from northwestern Ontario, where summers are likely too cool for Snapping Turtle embryos to complete development successfully. The Snapping Turtle is therefore present in mainland Nova Scotia, southern New Brunswick, southern and central Quebec, southern and central Ontario, southern Manitoba, and southeastern Saskatchewan	MNR	**Medium Probability** Suitable wetland habitat potentially present within Study Area.	**Medium** Species not observed, but marshes, fens and small waterbodies occur throughout the Study Area and may provide suitable habitat. .	Any potential impacts to this species will be addressed through a Species at Risk and Wildlife Observation and Handling Protocol.

Glossary

EXP	ESA - Extripated - a species that no longer exists in the wild in Ontario but still occurs elsewhere. SARA - Extripated - a wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
END	ESA - Endangered - a species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's Endangered Species Act. SARA - Endangered - a wildlife species that is facing imminent extirpation or extinction.
THR	ESA - Threatened - a species that is at risk of becoming endangered in Ontario if limiting factors are not reversed. SARA - Threatened - a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
SC	ESA - Special Concern (formerly Vulnerable) - a species with characteristics that make it sensitive to human activities or natural events. SARA - Special Concern - a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
OMNR	Ontario Ministry of Natural Resources
ESA	Endangered Species Act
SARA	Species at Risk Act (Federal)
Schedule 1	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.
COSEWIC	Committee on the Stauts of Endangerd Wildlife in Canada - a committee of experts that assesses and designates which wild species are in some danger of disappearing from Canada.

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