Grand Bend Wind Farm

Site Investigation Draft Report

Grand Bend Wind Limited Partnership,

c/o Northland Power Inc.

NORTHLAND POWER

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August 2012

Grand Bend Wind Farm
Natural Heritage Assessment
Site Investigation Draft Report

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Prepared for:

Grand Bend Wind Limited Partnership

August 2012

File No: PIA019991

Record of Revisions

Revision	Date	Description
0	August 14, 2012	Initial Submission to the Ministry of Natural Resources (MNR), Municipalities and First Nations
0	August 27, 2012	Initial Draft Submission to Municipal and Aboriginal Communities as well as Selected Government Agencies

Executive Summary

Grand Bend Wind Limited Partnership, c/o Northland Power Inc. ("Northland") is proposing to develop, construct and operate a 100 MW wind facility located north of Grand Bend, Ontario. An application for approval is being prepared under Ontario Regulation 359/09 of the *Environmental Protection Act*. The project is classified as a Class 4 Wind facility under the Regulation. The Grand Bend Wind Farm ("the Project") is located in Huron County, spanning the lower-tier municipalities of Bluewater and South Huron. Portions of the transmission line also traverse the municipality of Huron East and municipality of West Perth in Perth County.

The basic project components will include up to 48 turbines (Siemens SWT-2.3-113 direct drive wind turbine generators with a total name plate capacity of 100 MW), turbine access roads, a 36 kV electrical collection system, substation and a new transmission line within municipal road Right-Of-Ways ("ROWs") along Rodgerville Road, Line 17 and Road 183, with connection to the provincial power grid at the 230 kV transmission line south of the Seaforth Transformer Station. During construction temporary components will include access roads and work/storage areas at the turbine locations and transmission connections.

Under O.Reg. 359/09, a Natural Heritage Assessment is a required component of a REA Application for a Class 4 Wind Facility. The Natural Heritage Assessment is to be completed in four stages as follows:

- Stage 1: Records Review;
- Stage 2: Site Investigation;
- Stage 3: Evaluation of Significance (if required); and,
- Stage 4: Environmental Impact Study (if required).

This report presents the findings of the Stage 2, Site Investigation and builds upon the previous Records Review Report (Neegan Burnside, June 2012).

The Site Investigation was undertaken between the spring of 2011 and the spring of 2012. One full year and two spring seasons of data were collected to ensure that, to the extent possible, species with more prominent and recognizable features during different times of the year were observed and recorded in their most visible time period.

The Site Investigation included:

- A general site reconnaissance;
- Vegetation surveys and Ecological Land Classification ("ELC") mapping;

- Agricultural lands mapping;
- Habitat surveys to identify candidate waterfowl stopover and staging areas (terrestrial);
- Habitat surveys to identify candidate bat hibernacula;
- Habitat surveys to identify candidate bat maternal roosting sites; and,
- Incidental wildlife and habitat observations.

Based on the results of the Site Investigation, the following features are, or may be, present within 120 m of the Project Location:

- Valleylands (unevaluated);
- Woodlands (unevaluated);
- Wetlands (Provincially Significant and unevaluated);
- Candidate Significant Wildlife Habitat (Provincially Significant and unevaluated) including:
  - Waterfowl stopover and staging areas (aquatic):
    - Turtle wintering areas;
    - Bat maternity colonies;
    - Reptile hibernaculum;
    - Colonially-nesting bird breeding habitat (ground);
    - Deer yarding areas (Provincially Significant);
    - Waterfowl nesting areas;
    - Woodland raptor nesting habitat;
    - Turtle nesting areas;
    - Seeps and springs;
    - Amphibian breeding habitat (woodland);
    - Marsh bird breeding habitat;
    - Woodland area-sensitive bird habitat;
    - Shrub/early successional bird breeding habitat;
    - Habitat for Special Concern and rare species; and,
    - Amphibian corridors.

Each of these features will be brought forward for further study in the Evaluation of Significance.

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Glossary of Terms

ABH	**Amphibian Breeding Habitat**
BMC	**Bat Maternal Colony**
CNB	**Colonial Nesting Bird Habitat**
CNH	**Common Nighthawk Habitat**
CSWH	**Candidate Significant Wildlife Habitat**
DYA	**Deer Yarding Area**
EIS	**Environmental Impact Study**
ELC	**Ecological Land Classification**
EOS	**Evaluation of Significance**
GCSWH	**Generalized Candidate Significant Wildlife Habitat**
MBBH	**Marsh Breeding Bird Habitat**
MNR	**Ministry of Natural Resources**
NHA	**Natural Heritage Assessment**
PSW	**Provincially Significant Wetland**
RH	**Reptile Hibernacula**
RWA	**Raptor Wintering Area**
SCC	**Species of Conservation Concern**
SS	**Seeps and Springs**
TNA	**Turtle Nesting Habitat**
TWA	**Turtle Wintering Area**
WASBB	**Woodland Area-sensitive Bird Breeding Habitat**
WNA	**Waterfowl Nesting Area**
WRN	**Woodland Raptor Nesting Habitat**
WSSA	**Waterfowl Stopover and Staging Area**

1.0 Introduction

The Grand Bend Wind Limited Partnership, c/o Northland Power Inc. ("Northland") is proposing to develop, construct and operate a 100 MW wind facility located north of Grand Bend, Ontario. An application for approval is being prepared under Ontario Regulation 359/09 of the *Environmental Protection Act*. The project is classified as a Class 4 Wind facility under the Regulation. The Grand Bend Wind Farm ("the Project") is located in Huron County, spanning the lower-tier municipalities of Bluewater and Huron South. Portions of the transmission line also traverse the municipality of Huron East and municipality of West Perth in Perth County. The project location and study area is provided in **Figure 1** of **Appendix A**.

The basic project components will include up to 48 turbines (Siemens SWT-2.3-113 direct drive wind turbine generators with a total name plate capacity of 100 MW), turbine access roads, a 36 kV electrical collection system, substation and a new transmission line within municipal road Right-Of-Ways ("ROWs") along Rodgerville Road, Line 17 and Road 183, with connection to the provincial power grid at the 230 kV transmission line south of the Seaforth Transformer Station. During construction temporary components will include access roads and work/storage areas at the turbine locations and transmission connections.

Under O.Reg. 359/09, a Natural Heritage Assessment is a required component of a REA Application for a Class 4 Wind Facility (Part IV, Section 26 of the REA Regulation). The Natural Heritage Assessment is to be completed in four stages as follows:

- Stage 1: Records Review;
- Stage 2: Site Investigation;
- Stage 3: Evaluation of Significance (if required); and,
- Stage 4: Environmental Impact Study (if required).

This report presents the findings of the Stage 2, Site Investigation and builds upon the previous Records Review Report (Neegan Burnside, June 2012).

The purpose of this report is to confirm the presence of any potentially significant natural features within 120 m of the Project Location. This includes areas within 120 m of the turbine blade tip as well as any areas that may be used as temporary lay-down areas, crane pads, access roads, connector, distribution and transmission lines.

In accordance with the Natural Heritage Assessment Guide for Renewable Energy Project (MNR, July 2011a), a Site Investigation includes an investigation of the air, land and water within 120 m of the project location to:

- Verify whether the analysis of the Project Location undertaken through the records review is accurate, and make any necessary corrections to the determination in the Records Review Report;
- Determine whether any additional natural features exist within 120 m of the Project Location, other than those identified in the Records Review Report;
- Determine the boundaries of any natural feature located within 120 m of the Project Location; and,
- Determine the distance from the Project Location to the boundaries of any natural features.

1.1 Project Location

The proposed Project is located in Huron County, spanning the lower-tier municipalities of Bluewater and South Huron as well as a portion of Huron East and the municipality of West Perth in Perth County. The Project Study Area, shown in **Figure 1, Appendix A** is bounded by:

- The Bluewater Highway (Highway 21) to the west;
- Main Street East/Grand Bend Line to the south;
- Blackbush and Shipka Lines with a small section of the study area in the central section of the project extending to Bronson Line and to the east;
- Staffa Road to the north; and,
- A preferred transmission line route, as described below.

Two routing options were originally studied, a northern route and a southern route, as described in the Records Review Report (Neegan Burnside, August 2012). The northern route was identified as having fewer natural heritage as well as social, aesthetic and technical constraints as was thus selected as the preferred route. This route runs from a transformer station on Lot 14, Concession 13, former Hay Township, and follows Sararas/Rodgerville Road to Line 17 and Road 183, connecting to the existing 230 kV Hydro One transmission line just south of the Seaforth Transformer Station ("TS"), as shown on **Figure 1, Appendix A**. The southern route was discarded as an option and was not studied any further.

O.Reg. 359/09 defines the Project Location as:

> "*a part of land and all or part of any building or structure in, on or over which a person is engaging in or proposes to engage in the project and any air space in which a person in engaging in or proposes to engage in the project*".

For the purposes of this Project, the Project Location includes the footprint of the facility components, plus any temporary work and storage locations. The boundary of the

Project Location is used for defining setback and site investigation distances according to O.Reg. 359/09. The buildable area, which includes the footprint of the facility components, plus any temporary work and storage locations, will be staked prior to construction. All construction and installation activities will be conducted within these designated areas; this includes construction vehicles and personnel. All installation activities related to collector lines within the municipal and provincial road allowances will be contained within the boundaries of the road allowance.

1.2 Study Area

Under O.Reg. 359/09, natural heritage features within 120 m (or 50 m in the case of Earth Science ANSIs) of the Project Location must be identified. The Site Investigation focused primarily in these areas. However, it is noted that some features span large distances and may not be immediately evident from within the 120 m area. For example, a raptor nest may be located 500 m from the Project Location but the land surrounding the nest and used for feeding and roosting may extend up to 400 m or more from the nest, thus making the habitat within 120 m of the Project. To account for these circumstances, a Study Area has been identified using an initial distance of at least 550 m from the Project Location and then extending the boundary to the nearest lot and concession (**Figure 2, Appendix A**). Due to the distance from the Project, much of the outer limits of the Study Area had to be studied using an Alternative Investigation, as described in Section 3.3 of this report. The transmission line route was also only studied using an Alternative Investigation that included observations from within the road ROWs. Additional details are provided in Section 3.3.

1.3 Ecoregion

Vegetation communities in Ontario have been classified in a hierarchical framework. Ecoregions represent the highest level (coarsest resolution) of the classification system.

The Project Location spans the boundary between Ecoregions 6E and 7E. The majority of the project is located within Ecoregion 6E, known as the Lake Simcoe-Rideau Region or the Great Lakes-St. Lawrence Forest Region, while a small portion of land at the southern end of the Study Area is within 7E, known as the Lakes Erie-Ontario Site Region, as shown in **Figure 2, Appendix A**. More specifically, the project is within Ecodistricts 6E-2 and 7E-2. These Ecoregions and Ecodistricts will serve as the basis for further vegetation classification and wildlife habitat assessments for this study.

2.0 Findings of the Records Review

The Records Review identified existing records of a number of significant or potentially significant features within 120 m of the Project Location, including:

- Provincially Significant and unevaluated wetlands;
- Woodlands;
- Candidate Significant Wildlife Habitat, including:
  - Confirmed deer yarding areas (mapped by MNR);
  - Candidate bat hibernacula (mapped karst topography/sinkholes); and,
  - Candidate habitat for area-sensitive species (woodland mapping available).

In addition, no records were identified for the following features but their presence could not be ruled out:

- Valleylands; and,
- Candidate Significant Wildlife Habitat, including:

Seasonal Concentration Areas of Animals

- Waterfowl stopover and staging areas (terrestrial and aquatic);
- Shorebird migratory stopover areas;
- Raptor wintering area;
- Bat maternity colonies;
- Bat migratory stopover areas;
- Turtle wintering areas;
- Snake hibernaculum; and,
- Colonially-nesting bird breeding habitat (banks/cliffs, trees/shrubs, ground).

Rare Vegetation Communities

- Sand Barren;
- Cliffs and talus slopes;
- Alvar;
- Old growth forest;
- Savannah;
- Tallgrass Prairie; and,
- Other Rare Vegetation.

Specialized Habitat for Wildlife

- Waterfowl nesting area;
- Bald Eagle and Osprey nesting, foraging and perching habitat;
- Woodland raptor nesting habitat;
- Turtle nesting areas;
- Seeps and springs; and,
- Amphibian breeding habitat (woodland and wetlands).

Habitat for Species of Conservation Concern

- Marsh bird breeding habitat;
- Woodland area-sensitive bird breeding habitat;
- Open country bird breeding habitat;
- Shrub/early successional bird breeding habitat;
- Terrestrial crayfish; and,
- Special concern and rare wildlife species.

Animal Movement Corridors

- Amphibian movement corridors; and,
- Deer movement corridors.

The purpose of the Site Investigation is to confirm the presence or absence of these features.

3.0 Site Investigation Framework

3.1 Guidance Documents

The Site Investigation was conducted in accordance with the following documents:

- Natural Heritage Assessment Guide for Renewable Energy Projects, First Addition (MNR, 2011a);
- Ecological Land Classification System for Southern Ontario, First Approximation (Lee et. al, 1998);
- Ontario Wetland Evaluation System for Southern Ontario, 3rd Edition (MNR, 2002);
- Significant Wildlife Habitat Technical Guide & Appendices (MNR, 2000);
- Wind Turbines and Bats: Bat Ecology Background Information and Literature Review of Impacts (MNR, 2006);
- Bats and Bat Habitats: Guidelines for Wind Power Projects (MNR, 2011b); and,
- Birds and Bird Habitat: Guidelines for Wind Power Projects (MNR, 2010).

3.2 Identification of Candidate Features of Significance

In accordance with provincial guidelines (MNR, 2011a), the Site Investigation will identify features within 120 m of the Project Location, which can be described as follows:

- Features which have previously been evaluated using provincial criteria and standards which have shown them to be provincially significant. These features will maintain their provincially significant status and will be brought directly through the Evaluation of Significance ("EOS") to the Environmental Impact Study ("EIS");
- Features which have previously been evaluated using provincial criteria and standards which have shown them to be non-provincially significant. The boundaries of these features will be confirmed but they will not be brought forward to the EOS for further consideration; and,
- Features which have the potential to be provincially significant but which have not previously been evaluated. If they meet the criteria for candidate significance (i.e., if they meet certain size and function criteria), they will be brought forward to the EOS for more detailed study in order to confirm whether or not they are, in fact, provincially significant.

With respect to wildlife habitat, provincial guidelines allow unevaluated candidate habitat to be treated in different ways, depending on its location relative to specific portions of the project (i.e., turbines vs. roads vs. transmission lines, etc.), as described in Appendix D of the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR, 2011a). Specifically, candidate habitat features can be treated in one of the following ways:

- They can be identified as candidates for provincial significance which will be brought forward for further study in the EOS report. In this case, candidate features will be given a unique identification number for reference in the EOS report;
- They can be identified as candidates for provincial significance which will be treated as significant. In this case, they will not be studied in detail in the EOS as they will simply be assumed to be significant. They will be identified as "Generalized Candidate Significant Wildlife Habitat" and will be brought directly through the EOS to the EIS where general construction mitigation will be provided in order to ensure their protection; and,
- In other instances, they may be identified as candidate habitat but a detailed investigation during the EOS is not possible due to, for example, timing restrictions on when species-specific surveys can be undertaken. In these cases, habitat features will not be studied in the EOS, but the proponent will commit to studying the feature prior to construction. Features will be treated as significant in an interim period until such time as the detailed study is carried out. During the EIS, they are assessed as significant features and mitigation measures are identified, as required. If, upon completion of detailed studies, they are found to be non-provincially significant, then the mitigation may not be enacted.

It will be noted where each of these options have been utilized throughout the various habitat types described in this report.

3.3 Investigation and Alternative Investigation

The Site Investigation was undertaken between the spring of 2011 and the spring of 2012. One full year and two spring seasons of data were collected to ensure that, to the extent possible, species with more prominent and recognizable features during different times of the year were observed and recorded in their most visible time period.

The Site Investigation included:

- A general site reconnaissance;
- Vegetation surveys and Ecological Land Classification ("ELC") mapping;
- Agricultural lands mapping;
- Habitat surveys to identify candidate waterfowl stopover and staging areas (terrestrial);
- Habitat surveys to identify candidate bat hibernacula;
- Habitat surveys to identify candidate bat maternal roosting sites; and,
- Incidental wildlife and habitat observations.

Section 4.0 describes the Site Investigation methods, timing, frequency, locations, weather conditions and specific protocols employed. Site Investigation methods are summarized in **Table 4.1**.

The Project Location is entirely within private lands and municipal road ROWs. All lands within the footprint of the project were visited during the Site Investigation. Some lands within the Study Area could not be visited because permission to enter the property could not be obtained from respective landowners.

Attempts were made to obtain permission to enter non-participating properties during fall 2011 ELC mapping surveys. Owners of properties within 120 m of the Project Location were approached and asked to sign a form allowing access or denying access. In some cases, where properties were vacant, landowners could not be identified to ask permission. In most cases, landowners declined to sign the form indicating their permission or lack thereof. A small number of landowners confirmed that they did not authorize access. During this exercise, only one non-participating landowner agreed to allow access; however, due to changes in the layout, this property is no longer within 120 m of the Project Location. As such, the Site Investigation was limited to participating properties and an Alternative Investigation was required for all non-participating properties within 120 m of the Project Location.

Similarly, the transmission line route was assessed from within each respective ROW due to land access restrictions on adjacent properties.

Lands on which an alternative investigation was undertaken are presented in **Figures 3a-h, Appendix A** and also summarized by property roll number in **Appendix B**.

4.0 Site Investigation Methods

Site Investigation methods are described below and summarized in **Table 4.1**.

4.1 General Site Reconnaissance

A general site reconnaissance was undertaken on May 4, 2011 by Neegan Burnside. Weather was approximately 8ºC and sunny with winds at 2 on the Beaufort scale. A windshield survey was used to confirm the findings of the Records Review, including the presence of wooded and open country natural and cultural features within 120 m of the turbines, underground collection lines and access roads. In addition, searches were conducted from the road for topographical features such as cliffs and valleylands.

An Alternative Investigation was used within portions of the Study Area not within 120 m of the Project Location. In these cases, features were confirmed using one of several techniques, including more rapid windshield surveys, aerial photo interpretation (2006 and 2010 data) and information collected during the Records Review.

Potential transmission line routes were subsequently identified in the late fall of 2011. Both routes were surveyed from within road ROWs to confirm Records Review findings on March 1, 2012. It is noted that weather conditions were unseasonably warm (approximately 3 to 5ºC) and the ground was nearly snow-free at the time, thus allowing for general observations to be made.

4.2 Vegetation Surveys and Ecological Land Classification Mapping

Vegetation survey and ELC were undertaken in order to identify the following candidate features and habitats:

- Woodlands;
- Wetlands;
- Candidate Significant Wildlife Habitat, including:
  - Waterfowl stopover and staging areas (terrestrial);
  - Waterfowl stopover and staging areas (aquatic);
  - Shorebird migratory stopover areas;
  - Raptor wintering areas;
  - Bat hibernacula;
  - Bat maternal colonies;
  - Turtle wintering areas;
  - Snake hibernaculum;
  - Colonially-nesting bird breeding habitat (bank and cliff);
  - Colonially-nesting bird breeding habitat (tree/shrub);

- Rare vegetation communities;
- Waterfowl nesting;
- Bald eagle and osprey nesting, foraging and perching habitat;
- Woodland raptor nesting habitat;
- Turtle nesting areas;
- Seeps and springs;
- Amphibian breeding habitat (woodland);
- Amphibian breeding habitat (wetland);
- Marsh bird breeding habitat;
- Habitat for woodland area-sensitive breeding birds;
- Open country bird breeding habitat;
- Shrub/early successional bird breeding habitat;
- Habitat for terrestrial crayfish; and,
- Habitats for Special Concern and rare species.

Vegetation communities were classified in accordance with the Ecological Land Classification ("ELC") System for Southern Ontario (Lee. et. al, 1998). Initial ELC mapping was undertaken in the late summer of 2011 (September 12 to 15, 2011) in the vicinity of the turbines. Temperatures ranged between 11ºC and 25ºC over the four-day period. Weather was also variable with some sun, rain and hail over the four-day investigation.

Follow-up ELC mapping was conducted in the spring of 2012 (May 7, 8, 10, 16, 18, 23, 24, 30, and June 1, 2012) in the vicinity of the turbines, access roads and the transmission line route. Temperatures ranged between 10ºC and 31ºC over the survey period. Weather was also variable with some sun and rain over the investigation period.

On properties where access was granted, all vegetation communities were walked in wandering transects. All species observed were recorded. Vegetation age, structure, density, dominant canopy, sub-canopy, understory and ground cover species were identified as well as other characteristics such as human disturbance, canopy gaps and vegetation health, as per the ELC process. At least two soil samples were taken within each vegetation unit using a soil auger. Conditions were very dry during fall 2011 surveys and, due to the dry, hard-packed condition of the soil, most soil auguring did not reach a depth of 1 m. To supplement the soil data, soils mapping from the Soil Survey of Ontario (Hoffman, Richards and Morwick, 1952) was reviewed. Additional soil sampling was undertaken in the spring of 2012.

During the ELC mapping process, observations were also made of any other significant or candidate significant features such as the presence of seeps and springs, vernal pools, cliffs, exposed sand or gravel, rare and Special Concern species, terrestrial crayfish burrows, or other features typically used by wildlife. In addition, binoculars were

used to scan tree canopies for signs of large stick nests. Any man-made features such as rock piles or debris piles which could be used by snakes for hibernation were also noted.

Where property access was not granted, ELC communities were approximated based on aerial photo interpretation, observations from roadsides or adjacent properties, soils mapping and other data collected during the Records Review.

Field notes are provided in **Appendix G**.

4.3 Agricultural Lands Mapping

Under certain conditions agricultural lands can provide some habitat functions. Generally, fields need to be under low intensity agricultural use for them to provide habitat. This includes mature hayfields and pasturelands that are at least five years old but does not include fields used for row cropping, intensive hay or livestock pasturing in the last five years.

Agricultural land uses were mapped in order to identify low intensity agricultural uses which could provide the following candidate habitats:

- Waterfowl stopover and staging areas (terrestrial);
- Raptor wintering areas;
- Colonially-nesting bird breeding habitat (ground); and,
- Open country bird breeding habitat.

A windshield survey was conducted in the fall of 2011 (September 12 to 15, 2011) in the vicinity of the turbines. The type of agricultural use and/or crop was noted for each relevant field. Agricultural uses along the collector and transmission line routes were surveyed on May 28, 2012 (specifically, in order to determine if there were additional hayfields).

Where property access was not granted, agricultural use was identified from the nearest vantage point or from aerial photographs where there was limited visibility.

4.4 Habitat Surveys to Identify Candidate Waterfowl Stopover and Staging Areas (Terrestrial)

Candidate terrestrial waterfowl stopover and staging areas are characterized by meadow and open thicket habitats which flood on a regular basis during the spring.

All meadow habitats identified during 2011 ELC mapping were visited during the winter and early spring of 2012 to confirm whether any had standing sheet water. Observations were made between January 19 and March 14, 2012 in conjunction with surveys for bat maternity colonies. The timing of these surveys was confirmed by MNR staff as noted in correspondence dated January 9, 2012, provided in **Appendix C**.

Any seasonally flooded meadows were noted. In addition to field assessments, aerial photographs were used to identify flooded meadow habitats based on the presence of darkened or stained soils which indicate flooded or recently flooded conditions.

In addition to the criteria noted above, for portions of the project within Ecoregion 7E, consideration must also be given to Tundra Swan, *Cygnus columbianus,* stopover and staging areas which can include seasonally-flooded agricultural fields with waste grains. In order to identify candidate habitats, a windshield survey was conducted during the January 19 to March 14, 2012 period. Agricultural fields were observed for signs of flooding as well as for agricultural conditions in which waste grains were present.

Ontario Ministry of Agriculture and Food online mapping (OMAF, July 3, 2012) was reviewed to identify fields with tile drainage. This was used as an indication of whether fields would flood on a regular basis in the spring. Field that are tile drained are unlikely to sustain standing water for long periods.

In addition to the OMAF mapping, a survey was sent to all participating landowners to confirm the presence of tile drainage, identify any regularly flooded agricultural fields as well as any Tundra Swan observations. A copy of the survey is provided in **Appendix D**.

Gwen Watson, the office/event coordinator at the Lambton Heritage Museum which tracks Tundra Swans at the Thedford Marsh Important Bird Area (“IBA”) south of Grand Bend, was also contacted for records of known Tundra Swan stopover and staging areas outside of the Thedford Marsh. None were reported. The only area where Tundra Swans were noted within the study area was at the Hensall Sewage Lagoons, where approximately 40 swans were noted on March 20 and 22, 2012. Sewage lagoons are not considered candidate Significant Wildlife Habitat so the searches were not continued at this location. Approximately 20 to 40 Tundra Swans were also noted during two visits to the Thedford Marsh IBA during the time that Tundra Swan investigations were being undertaken within the Project Location.

4.5 Surveys to Identify Candidate Bat Hibernacula

An area of karst topography was identified through the Records Review in the vicinity of the northern transmission line route. Karst topography is often associated with sinkholes and caves within which bats may hibernate.

As noted in the Records Review, there are two known sinkholes associated with this karst feature, known as the Chiselhurst Sinkhole and Ausable River Sinkhole Earth Science ANSIs, respectively. Both features are located at a distance greater than 50 m off the Project Location and thus neither was brought forward for further study.

However, it was unclear whether additional sinkholes or caves may exist. The area of karst is located along the northern transmission line route (see Records Review Report) and could only be viewed from the roadside. Observations were made from the roadside on March 1, 2012 using binoculars to identify any possible caves or sinkholes. Conditions at the time were clear and sunny within relatively little, patchy snow on the ground. Leaf-off conditions made lands away from the roadside more visible. In addition, aerial photos and topographical mapping were assessed for further evidence of cave or sinkhole features.

4.6 Surveys to Identify Candidate Bat Maternal Roosting Sites

Bat maternal roosting habitats were surveyed using the methodology provided in Bats and Bat Habitats: Guidelines for Wind Power Projects (MNR, 2011b). ELC mapping was used to identify all deciduous and mixed forest stands.

Where stands were located within a participating property and where access was granted, the following steps were taken:

- Random survey plots were marked on a map within portions of forests that were accessible on participating properties;
- Plots were mapped at a density of one plot per hectare in suitable habitat;
- Plot locations were entered into a GPS unit and each plot was visited in the field;
- At each point, a radius of 12.6 m was identified using a rangefinder and flagging tape; and,
- Within each 12.6 m radius (0.05 ha) plot, the number of snags/cavity trees over 25 cm diameter at breast height (“dbh”) was recorded. Diameters were measured using a dbh tape.

Surveys were conducted between February 15, 2012 and March 22, 2012, during the leaf-off period so that tree cavities and crevices would not be obscured by foliage.

Weather conditions were varied with temperatures ranging from -5ºC to 25ºC. The ground was snow covered in all but one of the visits. Each plot was visited only once.

The number of snags and cavity trees in each plot were divided by the size of the plot (0.05 ha) to determine the number of snags per hectare.

Due to the detailed nature of the survey, an Alternative Investigation was not possible. Where plots could not be established in woodlands within 120 m of the Project Location, woodlots were simply treated as significant and identified as Generalized Candidate Significant Wildlife Habitat. This option was discussed with, and approved by, the MNR as noted in correspondence dated, January 9, 2012 provided in **Appendix C**.

4.7 Bald Eagle and Osprey Nesting, Perching and Foraging Habitats

Searches were made for large super canopy trees and evidence of stick nests during all field investigations. During ELC mapping, binoculars were used to scan forest canopies for potential nesting sites.

In addition, reports from local landowners were used. During a Public Information Centre (held in April 2012), one landowner reported a nest along the forest edge on Lot 19, Concession East of Lake Road. This area was searched extensively; however, no nest was found.

4.8 Raptor Nesting Areas

Candidate raptor nesting sites were identified using a combination of desktop, Geographic Information System ("GIS") data analysis to identify candidate sites based on woodland size and field visits to confirm conditions. All woodlots meeting the habitat size criteria were on non-participating properties and could only be surveyed using an Alternative Investigation, including a survey with binoculars, from the nearest vantage point. Due to the uncertainty with respect to this method, all woodlands meeting the size criteria were assumed to be significant and were identified as Generalized Candidate Significant Wildlife Habitat. Additional details are provided in Section 7.1.4.

4.9 Incidental Wildlife and Habitat Observations

In addition to the species and habitat specific searches described above, any incidental observations of species and habitat were recorded during all visits to the Project Location.

Table 4.1 Summary of Site Investigation Methods

Purpose	Summary of Methods	Date(s), Time(s) (Duration)	Weather Conditions General Observations (Environment Canada's Goderich Station data)
General Site Reconnaissance			
General Site Reconnaissance: Preliminary Investigation of Natural Features within 120 m of turbines and project components.	Windshield survey of entire Study Area to compare Records Review findings with features observed in-field.	May 4, 2011 10:00-16:00 (6 hrs) March 1, 2012 10:00-12:00 and 14:30-16:00 (3.5 hrs)	(Daily Temp.: 19.2 ºC, no precip.) The ground was nearly snow-free at the time. Wind conditions varied, as did cloud cover. (Daily Temp.: 1.9 ºC, 4.0 mm total precip.)
Vegetation Characterization			
Ecological Land Classification: ELC mapping, including general identification of candidate significant features, such as: • Seeps and springs; • Vernal pools; • Stick nests; • Rock piles (reptile hibernacula); • Species of conservation concern (flora and fauna); and, • Other wildlife habitats.	**Site Investigation:** Ecological Land Classification for Southern Ontario (Lee et. al., 1998), including visual searches for habitat features, using binoculars where necessary. **Alternative Investigation:** Vegetation communities viewed from roadside or closest adjacent property boundary in combination with air photo interpretation and use of soil survey of Ontario maps.	September 12, 13, 14, 15, 2011 8:00-17:00 (32 hrs) May 7, 8, 10, 16, 18, 23, 24, 30 and June 1, 2012 8:00- 17:00 (72 hrs)	Conditions variable with some sun, rain and hail, cloud cover and wind conditions variable (Temp. range: 21.6 ºC – 6.4 ºC, 0-10.2mm precip.) Conditions variable with both sunny and rainy conditions, cloud cover and wind conditions variable (Temp. range: 20.6 ºC – 3.6 ºC, 0-7.5mm precip.)

Purpose	Summary of Methods	Date(s), Time(s) (Duration)	Weather Conditions General Observations (Environment Canada's Goderich Station data)
Agricultural Lands Mapping	**Site Investigation:** Agricultural lands were classified by crop type within 120 m of turbines and project components in the fall of 2011. Crops were identified in the field. Since crop rotation is common in this part of Ontario, fields were re-visited in 2012 to identify any additional fields of interest (i.e., hay fields and pasture).	September 12, 13, 14, 15, 2011 8:00-17:00 (32 hrs)	Conditions variable with some sun, rain and hail, cloud cover and wind conditions variable. (Temp. range: 21.6 ºC – 6.4 ºC, 0-10.2 mm precip.)
	Alternative Investigation: Agricultural fields along the transmission line routes were identified based on aerial photography and were confirmed from the roadside during spring 2012 roadside surveys.	May 7, 8, 10, 16, 18, 23, 24, 30 and June 1, 2012 8:00-17:00 (72 hrs)	Conditions variable with both sunny and rainy conditions, cloud cover and wind conditions variable (Temp. range: 28.5 ºC – 3.6 ºC, 0-7.5 mm precip.)
Habitat-Specific Observations			
Identification of Candidate Waterfowl Stopover and Staging Areas (Terrestrial)	**Site Investigation, EcoRegion 6E:** Meadow habitats surveyed to identify presence of flooded conditions.	March 22, 2012 0500-0700 (2 hrs) March 22, 2012 0850-1220 (3.5 hrs)	Clear (Temp. range: 25.0 ºC – 8.1 ºC, no precip.)
	Site Investigation, EcoRegion 7E: • Windshield survey to identify agricultural fields with waste grains; and, • Fields with waste grains surveyed to identify presence of flooded conditions.		
	Alternative Investigation: • Windshield survey only to identify flooded conditions within meadow areas as well as agricultural fields with waste grains (in EcoRegion 7E); • Aerial photo interpretation/topography assessment to identify low-lying/flat/flooded fields; and, • Review of OMAF tile drainage mapping to identify drained agricultural fields within EcoRegion 7E.		

Purpose	Summary of Methods	Date(s), Time(s) (Duration)	Weather Conditions General Observations (Environment Canada's Goderich Station data)
Identification of Candidate Bat Hibernacula	**Alternative Investigation:** • Survey topography in vicinity of karst topography from roadside using binoculars to search for caves or sinkholes; and, • Aerial photography and topographical mapping also used to identify candidate hibernation features.	March 1, 2012 10:00-12:00 (2 hrs)	The ground was nearly snow-free at the time. Wind conditions varied, as did cloud cover. (Daily Temp.: 1.9 ºC, 4.0 mm total precip.)
Identification of Candidate Bat Maternal Colonies	**Site Investigation:** ELC mapping was used to identify all deciduous and mixed forest stands. Where stands were located within a participating property where access was granted, the following steps were taken: • Random survey plots were marked on a map within portions of forests that were accessible; • Plots were mapped at a density of one plot per hectare; • Plot locations were entered into a GPS unit and each plot was visited in the field; • At each point, a radius of 12.6 m was identified using a rangefinder and flagging tape; and, • Within each 12.6 m radius (0.05 ha) plot, the number of snags/cavity trees over 25 cm diameter at breast height ("dbh") was recorded. Diameters were measured using a dbh tape.	February 15, 16, 2012 March 2, 6, 14, 22 (approximately 30 hrs)	Weather conditions varied with sites mostly snow-covered except on the March 22, 2012 visit. Cloud covered varied from clear to 100%, and wind ranged from 0-3 on Beaufort Scale. (Temp. range: 25.0 ºC – -7.0 ºC, 0-4.1 mm precip.)

Purpose	Summary of Methods	Date(s), Time(s) (Duration)	Weather Conditions General Observations (Environment Canada's Goderich Station data)
	Alternative Investigation: • No Alternative Investigation undertaken as survey plots could not be completed on properties without site access; and, • Deciduous and mixed forest within 120 m of the Project Location which could not be accessed were treated as significant. See Section 7.1.4.		
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	**Site Investigation:** • Wandering transects in, and around, forest habitats within 120 m of the project components, using binoculars to identify nests; and, • Completed during 2012 ELC surveys.	May 7, 8, 10, 16, 18, 23, 24, 30 and June 1, 2012 8:00- 17:00 (72 hrs)	Conditions variable with both sunny and rainy conditions, cloud cover and wind conditions variable (Temp. range: 20.6 ºC – 3.6 ºC, 0-7.5mm precip.)
Identification of Woodland Raptor Nesting Areas	**Alternative Investigation:** • Identification of candidate habitats based on ELC and size criteria; • Woodlands meeting the size criteria were located on non-participating properties (i.e., where permission to enter the property could not be obtained); • Survey of candidate habitats from nearest vantage point, using binoculars to identify nests; • Completed during 2012 ELC surveys as well as other field visits; and, • Full survey could not be completed so habitats were treated as significant.	January 26, February 7, February 15, March 6, 2012 (18 hrs)	Mostly overcast conditions – partly cloudy, wind ranged from 0-3 on the Beaufort Scale. (Temp. range: 9.1 ºC – -7.0 ºC, 0-4.6mm precip.)

4.10 Staff Qualifications

The Site Investigation was undertaken by various staff of Neegan Burnside (prime consultant), and North-South Environmental (sub-consultant). Staff assignments are summarized in **Table 4.2**. Curriculum vitae are presented in **Appendix E**.

Table 4.2 Staff Responsibilities

Task	Staff Member	Company
General Site Reconnaissance	Tricia Radburn, M.Sc.(Pl), MCIP, RPP Environmental Planner	Neegan Burnside
Ecological Land Classification	Tricia Radburn, M.Sc.(Pl), MCIP, RPP Environmental Planner Dominique Evans Environmental Technologist	Neegan Burnside
	Leah Lefler, M.E.S. Ecologist Sal Spitale, M.E.S. Ecologist	North-South Environmental
Agricultural Lands Mapping	Tricia Radburn, M.Sc.(Pl), MCIP, RPP Environmental Planner Dominique Evans Environmental Technologist	Neegan Burnside
Waterfowl Stopover and Staging Habitats	Sarah Mainguy, M.Sc. Senior Ecologist Leah Lefler, M.E.S. Ecologist Sarah Piett, B.Sc. (Env.) Ecologist	North-South Environmental
Raptor Wintering Areas	Sarah Mainguy, M.Sc. Senior Ecologist Leah Lefler, M.E.S. Ecologist Sal Spitale, M.E.S. Ecologist Sarah Piett, B.Sc. (Env.) Ecologist	North-South Environmental
Bat Hibernacula	Tricia Radburn, M.Sc.(Pl), MCIP, RPP Environmental Planner	Neegan Burnside

Task	Staff Member	Company
Bat Maternal Colonies	Sarah Mainguy, M.Sc. Senior Ecologist Leah Lefler, M.E.S. Ecologist Sal Spitale, M.E.S. Ecologist Sarah Piett, B.Sc. (Env.) Ecologist	North-South Environmental
Bald Eagle and Osprey Nesting, Perching and Foraging Habitat	Leah Lefler, M.E.S. Ecologist Sal Spitale, M.E.S. Ecologist	North-South Environmental
Raptor Nesting Habitat	Leah Lefler, M.E.S. Ecologist Sal Spitale, M.E.S. Ecologist	North-South Environmental
Incidental Wildlife and Habitat Observations	All	All

5.0 Preliminary Feature Identification and Numbering

The results of the ELC and Agricultural mapping were used to identify and create unique reference identification ("ID") numbers for all natural features and a small number of anthropogenic features with the potential to provide some form of habitat.

More specifically, all forested areas meeting the criteria for a forest (including treed swamps) in accordance with the ELC process and the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR, 2011a), were given a unique woodland ID number (i.e., W-001 through W-141[*]). This included all forested areas with tree cover greater than 60%.

Features identified as wetlands through the ELC process were given unique wetland ID numbers (i.e., WE-001 through WE-039[*]).

Open country features were numbered OC-001 through OC-037[*]. These features included natural and anthropogenic meadows and woodlands, as identified through ELC. This included all natural areas with tree cover less than 60%, but did not include active agricultural lands, manicured grass areas or golf courses. Abandoned agricultural fields in the process of naturalization were included.

Some low intensity agricultural lands can also provide habitat functions. This includes mature hayfields and pasturelands that are at least five years old, but does not include fields used for row cropping, intensive hay or livestock pasturing in the last five years. Agriculture dominates the landscape in the Study Area; however, production tends to be an intensive corn/soybean/wheat rotation. These type of agricultural lands are regularly ploughed and harvested and thus generally do not provide significant habitat for wildlife. Very few low intensity agricultural lands were observed. Any fields that appeared to be characterized by mature hayfields or pasturelands were given a unique agricultural ID (AG-001 through AG-021). With respect to Tundra Swans, fields with waste grains can also provide habitat. These fields were also identified with a unique agricultural ID.

It is noted that agricultural uses can vary from year to year. Agricultural uses were determined in the fall of 2011. Attempts were made to update data in 2012; however some fields may still reflect 2011 data.

[*] Note: Some numbers have been skipped as a result of changes to the Study Area and Project Location as the project developed. As the project developed, the Study Area shifted and some natural areas were no longer within the Study Area limits and thus their corresponding IDs have been omitted. Therefore, numbering is not always continuous.

All features within the Study Area and their unique identifiers are presented on **Figures 4a-h, Appendix A** and are summarized in **Appendix F**. The remainder of this report focuses on the features within 120 m of the Project Location.

6.0 Corrections, Deletions and Additions to the Records Review

6.1 Summary of Corrections to Records Review Information

As specified in the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR 2011a) the Site Investigation Report must include a summary and rationale for any corrections that were made to the records review upon performing the site investigation.

Several changes were made to data collected during the Records Review, as follows:

- The boundary of wetland WE-007 was changed. The original NRVIS data showed the wetland within an agricultural field. The wetland was actually several metres to the south within a wooded area. The boundaries of the wetland were shifted and enlarged.

- A non-treed, marsh wetland and thicket swamp were identified within a portion of the area originally identified as a woodlot on Lot 17, Concession East of Lake Road (W-037). This woodland was thus broken into three smaller units, including:
  - A thicket swamp, WE-009;
  - A marsh, WE-010; and,
  - A woodland, W-037.

- The boundary of woodland W-012 (WE-001) was revised. This woodland is adjacent to a trailer park. Portions of the woodland have recently been removed for trailer park expansion.

- Woodland (W-061) has been cleared recently and no longer meets the criteria for a woodland. It has been incorporated into the adjacent agricultural field.

Corrections are summarized in **Table 6.1**.

Table 6.1 Summary of Corrections to Information Collected Through the Records Review

Feature ID	Information Source Corrected from Records Review	Nature of Correction	Rationale for Correction
Wetland-WE-007	Feature boundary from NRVIS data layer.	Wetland shifted south and enlarged.	Original mapping showed wetland within an agricultural field. Actual wetland was several metres to the south and was larger than original mapping showed.
Woodland-W-037	Feature boundary from NRVIS data layer.	Portions of the woodland were identified as a marsh and thicket swamp. The woodland unit was split into three smaller units: a marsh unit, swamp thicket unit and a woodland unit.	The Site Investigation showed that the woodland contained a non-treed marsh unit and a swamp thicket. These areas were removed from the woodland and identified as a wetlands (WE-009 and WE-010).
Woodland-W-012	Feature boundary from NRVIS data layer.	Boundary correction on north side.	The adjacent trailer park was expanded several years ago and formerly treed areas were cleared and are now part of the developed trailer park area.
Woodland-W-061	Removed from woodland classification.	Incorporated with adjacent agricultural field.	This woodlot no longer exists. It has been cleared for agricultural use.

7.0 Site Investigation Results

7.1 Valleylands

A valleyland is defined as a natural area which occurs within a valley or other landform depression that has water flowing through or standing for some period of the year. Some valleylands are found within a distinct valley landform with a clear slope and top-of-bank. Two of these "confined channel systems" have been identified by the Ausable Bayfield Conservation Authority ("ABCA") and were documented within the Records Review Report. None were located within 120 m of the Project Location.

During the Site Investigation one additional clearly defined valleyland was identified in the vicinity of Sararas Road east of Blackbush Line. It is identified as V-001 and is shown on **Figure 5b, Appendix A**. This valleyland is approximately 1,400 m in length with an average width of 100 m. Slopes are up to 30º in the steepest locations. This feature will be brought forward for further study in the EOS.

Numerous other watercourses traverse the Study Area. With the exception of the valleyland noted above, all other watercourses have a poorly defined or "unconfined stream corridor" that is characterized by a lack of clear valley walls. These unconfined systems are defined by the flood hazard limit and meander belt, all of which have been mapped by the ABCA. A discussion of these features is provided in the Water Bodies Report (Neegan Burnside, August 2012). As such, they will not be assessed further as part of the Natural Heritage Assessment.

Table 7.1 Valleyland within 120 m of the Project Location

Feature ID	ELC Unit	ELC Community Name	Feature Characteristics	Feature Size (Ha)	Eco-Region	Carry Forward to EOS? (y/n)
V-001	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Approx. 1400m in length with average width of 100 m. Slopes up to 30º in steepest areas.	172.33	6E	Y

7.2 Wetlands

The Records Review identified the Hay Swamp Provincially Significant Wetland ("PSW"), Datars-Miller non-Provincially Significant Wetland and four unevaluated wetlands.

The significance of the Hay Swamp Wetland Complex has previously been established using the MNR's Wetland Evaluation System for Southern Ontario. According to the wetland evaluation record, the complex is comprised of fifteen individual wetlands, of which 97% are swamps and 3% are marshes. Portions of the complex provide significant ecological functions, including nesting habitat for colonial waterbirds, winter

cover for deer, fish spawning and rearing and habitat for various fur-bearers, including muskrat, raccoon, mink and beaver. Two wetlands within the complex are located within 120 m of the Project Location and will be brought forward to the EIS as a significant feature.

The Datars-Miller Swamp has also been previously evaluated and was not identified as significant. During the Site Investigation, the boundaries of this swamp were reviewed. The wetland boundaries identified through ELC mapping in 2011 and 2012 vary slightly from the boundaries shown in the original wetland evaluation. It is noted that portions of the wetland were inaccessible during ELC mapping and thus could only be viewed from the nearest roadside or adjacent property. Therefore, we do not recommend a boundary change in the official wetland evaluation record at this time. This wetland will not be brought forward for further study as it is not a provincially significant feature.

In addition to the Hay Swamp and Datars-Miller Swamp which have been previously evaluated, there are also 22 unevaluated wetlands within 120 m of the Project Location.

Table 7.1 summarizes wetlands within 120 m of the Project Location. Two wetlands within the Hay Swamp PSW Complex and 22 unevaluated wetlands will be brought forward for further study, as shown on **Figures 5a-h, Appendix A**.

Table 7.1 Wetlands within 120m of the Project Location

Feature ID	ELC Unit	ELC Community Name	Significance	Feature Attributes and Functions	Feature Size (Ha)	Eco-Region	Within 120 m of Project Location? (y/n)	Carry Forward to EOS? (y/n)	Justification
WE-001	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Unevaluated	Spicebush dominant in shrub layer; standing water present in spring	172.3	7E	Y	Y	-
WE-002	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Unevaluated	Pools and mossy hummocks ; white elm and silver maple are associates ; dead ash abundant in some locations	83.3	6E	Y	Y	-
WE-003	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Non-Provincially Significant (Datars-Miller Swamp)	Pools in spring; patches of abundant spring ephemerals; some	27.9	6E	Y	N	Previously evaluated as non-provincially significant.

Feature ID	ELC Unit	ELC Community Name	Significance	Feature Attributes and Functions	Feature Size (Ha)	Eco-Region	Within 120 m of Project Location? (y/n)	Carry Forward to EOS? (y/n)	Justification
				dead ash					
WE-008	OA	Open Water (pond surrounded by WE-010)	Unevaluated	Willow shrubs and reed canary grass along edges; small dug pond with adjacent green ash forest	0.3	6E	Y	Y	-
WE-010	MAM2-2	Reed-canary Grass Graminoid Mineral Meadow Marsh Type	Unevaluated	Reed Canary Grass dominant with diversity of wetland herbs in ground layer (Swamp Buttercup, Jewelweed, Carex)	2.1	6E	Y	Y	-
WE-011	SWT2-5	Red-osier Dogwood Mineral Deciduous Thicket Swamp Type	Unevaluated	Dense patches of Red Osier Dogwood with diversity of wetland plants in ground layer (Jewelweed, *Rumex orbiculatus*)	1.8	6E	Y	Y	-
WE-012	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Unevaluated	Green Ash dominated wooded swamp.	1.4	6E	Y	Y	-
WE-013	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Unevaluated	Green Ash, Trembling Aspen; some European Buckthorn	7.0	6E	Y	Y	-
WE-014	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Unevaluated	Green Ash with Trembling Aspen	0.4	6E	Y	Y	-
WE-015	SWT3-2	Willow Organic Thicket Swamp	Unevaluated	*Salix exigua* dominated	0.9	6E	Y	Y	-

Feature ID	ELC Unit	ELC Community Name	Significance	Feature Attributes and Functions	Feature Size (Ha)	Eco-Region	Within 120 m of Project Location? (y/n)	Carry Forward to EOS? (y/n)	Justification
WE-016	OA	Open Water	Unevaluated	Open pond area between W-039 and OC-028	0.1	6E	Y	Y	-
WE-017	SWD4-1	Willow Mineral Deciduous Swamp	Unevaluated	*Salix fragilis* with some Green Ash	1.3	6E	Y	Y	-
WE-021	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Non-Provincially Significant (Datars-Miller Swamp)	Green Ash dominated swamp. More open areas with greater shrub layer along roadside.	65.1	6E	Y	N	Previously evaluated as non-provincially significant.
WE-020	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Unevaluated	Green Ash dominated swamp.	2.2	6E	Y	Y	-
WE-022	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Unevaluated	Green Ash and Basswood dominated ; understory of Red Osier Dogwood and Round-leaved Dogwood	9.3	6E	Y	Y	-
WE-026	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Unevaluated	Green Ash with some Balsam Poplar	61.1	6E	Y	Y	-
WE-027	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Provincially Significant (Hay Swamp)	Silver Maple and Green Ash dominated ; weedy understory	10.1	6E	Y	Y	-
WE-029	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Provincially Significant (Hay Swamp)	Green Ash and Trembling Aspen	9.4	6E	Y	Y	-

Feature ID	ELC Unit	ELC Community Name	Significance	Feature Attributes and Functions	Feature Size (Ha)	Eco-Region	Within 120 m of Project Location? (y/n)	Carry Forward to EOS? (y/n)	Justification
WE-030	SWD4-1	Swamp	Willow Mineral Deciduous Swamp Type	Hybrid Crack Willow and Trembling Aspen; ground layer composed of grazed grasses	0.7	6E	Y	Y	-
WE-031	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Unevaluated	Green Ash dominated swamp.	1.8	6E	Y	Y	-
WE-032	OA	Open Water (pond, little surrounding vegetation, within disturbed site)	Unevaluated	Small island with nesting Canada Goose; dug pond.	0.9	6E	Y	Y	-
WE-033	SWD2	Swamp	Unevaluated	Small wetland area along drain.	1.0	6E	Y	Y	-
WE-034	OA	Open Water (small pond within W-102)	Unevaluated	Very small dug pond within a wooded area.	0.1	6E	Y	Y	-
WE-035	OA	Open Water (likely old aggregate pit)	Unevaluated	Open water area associated with old aggregate extraction pit.	4.8	6E	Y	Y	-
WE-037	SWD3-4	Manitoba Maple Mineral Deciduous Swamp Type	Unevaluated	Dense mid-aged swamp dominated by Green Ash and Manitoba Maple; along watercourse	1.6	6E	Y	Y	-
WE-038	SWD4-1	Willow Mineral Deciduous Swamp Type	Unevaluated	Hybrid Crack Willow, Green Ash and White Elm; Hawthorn abundant in understory	23.0	6E	Y	Y	-

7.3 Woodlands

One hundred and twenty-nine woodlands were identified within the Study Area, ranging in size from 0.39 ha to 235.16 ha. Five woodlands provided interior forest habitat (at least 200 m from an edge) and of those, two provided greater than 10 ha of interior forest habitat. No old growth forests, highly diverse forests or rare forest communities were observed. Each forest, along with its attributes and functions is described in **Table 7.2**. Of the woodlands identified in the Study Area, thirty-nine are within 120 m of the Project Location. All 39 woodlands will be brought forward to the Evaluation of Significance, as shown on **Figures 5a-h, Appendix A**.

Table 7.2 Woodlands within the Study Area

Feature ID	ELC Unit	ELC Community Name	ELC Unit Area (Ha)	Size of Contiguous Woodland (Ha)	Size of Interior Woodland Measured 100 m From Edge (Ha)	Size of Interior Woodland Measured 200 m From Edge (Ha)	Feature Attributes and Functions	Eco-Region	Within 120 m of Project Location? (y/n)	Carry Forward to EOS? (y/n)
W-004	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	4.82	35.97	-	-	Spring ephemerals abundant in FOD4-2 community	7E	Y	Y
	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	31.15				Sugar Maple dominated forest with White Ash component.			
W-012 (WE-001)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	172.33	172.33	68.65	19.94	Vernal pools; patches of Spicebush in shrub layer	7E	Y	Y
W-013	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	3.17	3.17	-	-	White Ash dominated forest.	7E	Y	Y
W-014	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	5.73	5.73	-	-	Spring ephemerals abundant; Shagbark Hickory abundant in some locations.	6E	Y	Y
W-020	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	11.18	11.18	0.54	-	Sugar Maple dominated forest with White Ash component.	6E	Y	Y
W-021	FOD5-1	Dry – Fresh Sugar Maple Deciduous Forest Type	14.77	14.77	3.75	-	Vernal pools; Sugar Maple with Red Oak in canopy; north end more disturbed	6E	Y	Y
W-023 (WE-002)	CUP3	Cultural Plantation	1.13	87.89	37.64	9.74	CUP3 approximately 50 years old; vernal pools present in the FOM6-1 and SWD2-2 communities; dead ash present in canopy	6E	Y	Y
	FOM6-1	Fresh – Moist Sugar Maple – Hemlock Mixed Forest Type	3.43							
	SWD2-2	Green Ash Mineral Deciduous Swamp Type	83.33							
W-026	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	17.76	34.06	4.35	-	Vernal pools; spring ephemerals abundant in some locations present in the FOD5-8 community	6E	Y	Y
	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	16.30							
W-029 (WE-003)	FOD6-5	Fresh – Moist Sugar Maple – Hardwood Deciduous Forest Type	1.56	31.77	6.94	-	Vernal pools present in the SWD2-2 community	6E	Y	Y
	FOM6-1	Fresh – Moist Sugar Maple – Hemlock Mixed Forest Type	2.32							
	SWD2-2	Green Ash Mineral Deciduous Swamp Type	27.89							
W-030 (WE-021)	FOD3-1	Dry – Fresh Poplar Deciduous Forest Type	19.80	84.88	40.58	12.90	Datar's-Miller Swamp and adjacent upland forest..	6E	Y	Y
	SWD2-2	Green Ash Mineral Deciduous Swamp Type	65.08							
W-031	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	8.61	8.61	0.55	-	Sugar Maple and White Ash dominated forest.	6E	Y	Y
W-032	CUP3-2	White Pine Coniferous Plantation Type	1.94	1.94	-	-	White Pine plantation.	6E	Y	Y
W-034	CUP3-2	White Pine Coniferous Plantation Type	1.38	6.90	0.11	-	Pine plantation adjacent to upland deciduous forest.	6E	Y	Y
	FOD4	Dry – Fresh Upland Deciduous Forest Ecosite	5.52							
W-035	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	0.96	0.96	-	-	Sugar Maple dominated forest with White Ash component	6E	Y	Y

Feature ID	ELC Unit	ELC Community Name	ELC Unit Area (Ha)	Size of Contiguous Woodland (Ha)	Size of Interior Woodland Measured 100 m From Edge (Ha)	Size of Interior Woodland Measured 200 m From Edge (Ha)	Feature Attributes and Functions	Eco-Region	Within 120 m of Project Location? (y/n)	Carry Forward to EOS? (y/n)
W-036	FOD3-2	Dry – Fresh White Birch Deciduous Forest Type	8.74	37.97	10.28	0.13	Vernal pools present.	6E	Y	Y
	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	29.23							
W-037 (WE-012)	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	16.56	30.35	2.69	-	Seepages noted; occasional Balsam Fir; spring ephemerals abundant in some locations	6E	Y	Y
	FOD7-2	Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type	12.42							
	SWD2-2	Green Ash Mineral Deciduous Swamp Type	1.37							
W-038 (WE-014)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	0.43	0.43	-	-	Green Ash dominated swamp.	6E	Y	Y
W-039 (WE-013, WE-017)	FOD7-2	Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type	1.37	13.19	0.01	-	Green Ash forest with some White Elm and Trembling Aspen; Green Ash Swamp with Trembling Aspen; European Buckthorn in understory	6E	Y	Y
	FOD7-2	Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type	3.49							
	SWD2-2	Green Ash Mineral Deciduous Swamp Type	7.01							
	SWD4-1	Willow Mineral Deciduous Swamp	1.32							
W-041	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	2.57	2.57	-	-	Vernal pools present.	6E	Y	Y
W-042	CUP3-2	White Pine Coniferous Plantation Type	2.42	52.69	7.62	0.09	Garlic Mustard present in some locations in FOD4-2 community.	6E	Y	Y
	FO	Forest	1.69							
	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	31.71							
	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	1.86							
	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	6.30							
	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	5.16							
	FOD7-2	Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type	3.55							
W-053	FOD3-1	Dry – Fresh Poplar Deciduous Forest Type	10.36	10.36	1.30	-	Young poplar dominated forest.	6E	Y	Y
W-067	FOD5-1	Dry-Fresh Sugar Maple Deciduous Forest Type	3.75	3.75	-	-	Spring ephemerals present; vernal pooling	6E	Y	Y
W-079 (WE-020)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	2.20	2.20	-	-	Green Ash dominated swamp.	6E	Y	Y
W-081 (WE-022)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	9.30	9.30	0.10	-	Green Ash dominated swamp.	6E	Y	Y
W-086 (WE-026)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	61.11	61.11	5.65	-	Green Ash dominated swamp.	6E	Y	Y
W-087	FOD5-8	Dry-Fresh Sugar Maple – White Ash Deciduous Forest Type	1.69	1.69	-	-	Mature forest dominated by Sugar Maple and White Ash	6E	Y	Y
W-088 (WE-027)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	10.15	10.15		-	Green Ash dominated swamp.	6E	Y	Y
W-093	FOD6	Fresh – Moist Sugar Maple Deciduous Forest Ecosite	6.54	6.54	0.22	-	Sugar Maple dominated forest.	6E	Y	Y
W-094 (WE-029)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	9.36	9.36	0.33	-	Green Ash dominated swamp	6E	Y	Y

Feature ID	ELC Unit	ELC Community Name	ELC Unit Area (Ha)	Size of Contiguous Woodland (Ha)	Size of Interior Woodland Measured 100 m From Edge (Ha)	Size of Interior Woodland Measured 200 m From Edge (Ha)	Feature Attributes and Functions	Eco-Region	Within 120 m of Project Location? (y/n)	Carry Forward to EOS? (y/n)
W-099	FO	Forest	18.48	18.48	0.38	-	Forested area setback from the road.	6E	Y	Y
W-102 (WE-031, WE-033)	FO	Forest	1.23	17.03	-	-	Patches of mature deciduous forest dominated by Sugar Maple, White Elm and White Ash; lowland portions dominated by Green Ash Swamp; portions of coniferous plantation	6E	Y	Y
	FOD6	Fresh – Moist Sugar Maple Deciduous Forest Ecosite	0.85							
	FOD6	Fresh – Moist Sugar Maple Deciduous Forest Ecosite	1.27							
	FOD6	Fresh – Moist Sugar Maple Deciduous Forest Ecosite	1.74							
	FOD6	Fresh – Moist Sugar Maple Deciduous Forest Ecosite	0.61							
	FOD6	Fresh – Moist Sugar Maple Deciduous Forest Ecosite	6.61							
	FOD6/ CUP3		1.96							
	SWD2-2	Green Ash Mineral Deciduous Swamp Type	1.78							
	SWD2	Ash Mineral Deciduous Swamp Ecosite	0.98							
W-103 (WE-030)	SWD	Deciduous Swamp	0.69	0.69	-	-	Small wetland area along roadside.	6E	Y	Y
W-104	FO	Forest	2.40	2.40	-	-	Forested area setback from the road.	6E	Y	Y
W-110	FO	Forest	0.48	0.48	-	-	Forested area setback from the road.	6E	Y	Y
W-118	FOD5-2	Dry – Fresh Sugar Maple – Beech Deciduous Forest Type	12.40	12.40	1.89	-	Mature Sugar Maple and American Beech forest with some White Ash	6E	Y	Y
W-120 (WE-037)	SWD3-4	Manitoba Maple Mineral Deciduous Swamp Type	1.63	1.65	-	-	Small wetland area along drain.	6E	Y	Y
W-123	FOD4-2	Dry – Fresh White Ash Deciduous Forest Type	4.68	4.68	0.04	-	White Ash dominated with some Sugar Maple; mid-aged	6E	Y	Y
W-127	FOD6	Fresh – Moist Sugar Maple Deciduous Forest Ecosite	7.21	7.21	-	-	Forested area setback from the road.	6E	Y	Y
W-128 (WE-038)	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	0.52	23.54	1.01	-	Willow swamp; White Ash and Sugar Maple forest	6E	Y	Y
	SWD4-1	Willow Mineral Deciduous Swamp Type	23.02							

7.4 Candidate Significant Wildlife Habitat

According to the Significant Wildlife Habitat Technical Guide (MNR, 2000), there are four main categories of Significant Wildlife Habitat:

- Seasonal Concentration Areas;
- Rare Vegetation Communities or Specialized Habitat for Wildlife;
- Habitat for Species of Conservation Concern (not including Endangered or Threatened Species); and,
- Animal Movement Corridors.

Each of these categories has been subdivided into more specific habitat types, as described in the following sections.

7.4.1 Seasonal Concentration Areas

Waterfowl Stopover and Staging Areas (Terrestrial)
Waterfowl use flooded cultural meadows and thickets for stopover and staging during the spring migration. Eleven cultural meadow and thicket vegetation communities were observed within 120 m of the Project Location. None of these fields exhibited evidence of annual spring flooding during field investigations.

In Ecoregion 7E, candidate habitats also include flooded agricultural fields with waste grains which can be important stopover areas for Tundra Swans. Although fields with waste grains were observed, none exhibited sheet water or flooded conditions (small, localized areas of flooding less than 100 m^2 in area were rarely noted). It was noted by several landowners that most agricultural lands in the area have been systematically tile drained and spring flooding is rare. In addition, soils in the area tend to have a high sand content and drain relatively quickly. Thus, the presence of standing water is unusual.

All agricultural fields with waste grains located within Ecoregion 7E are tile drained with the exception of one. The landowner was contacted and confirmed that this field does not flood regularly. No flooding conditions were observed in any of the fields during 2012 surveys.

Surveys were sent to participating landowners to identify whether they had observed flocks of Tundra swans in their fields during spring migration periods. Most respondents did not identify any Tundra swan stopovers on their properties while two respondents indicated that a small number of the birds (no more than 10 to 20 individuals at most) had been observed from time to time, but not on a regular basis.

Copies of surveys are not included in this report as they also contain sensitive information related to sightings of species at risk. Copies can be provided upon request.

Lambton Heritage Museum staff were questioned regarding any local knowledge of stopover sites in the area outside of the Thedford Marsh. None were identified.

As such, no candidate waterfowl stopover and staging areas (terrestrial) were found as a result of the Site Investigation. This type of habitat will not be brought forward for further study.

The characteristics of each candidate waterfowl stopover and staging area within 120m of the Project Location are presented in **Table 7.3**. 19 habitats were assessed.

Table 7.3 Candidate Waterfowl Stopover and Staging Habitats (Terrestrial)

Feature ID	ELC Unit	ELC Community Name/Crop Type	Feature Size (Ha)	Field Tile Drained? (y/n)	Flooded Conditions Observed in Spring 2012? (y/n)	Eco-Region	Carry Forward to EOS? (y/n)	Justification
AG-002	AG	Corn	74.96	Y	N	7E	N	Suitable sheet water/ flooded fields not present.
AG-003	AG	Corn	33.35	Y	N	7E	N	Suitable sheet water/ flooded fields not present.
AG-004	AG	Corn	5.80	Y	N	7E	N	Suitable sheet water/ flooded fields not present.
AG-006	AG	Corn	8.11	Y	N	7E	N	Suitable sheet water/ flooded fields not present.
AG-008	AG	Soybean	27.17	Y	N	7E	N	Suitable sheet water/ flooded fields not present.
AG-010	AG	Soybean	4.83	N	N	7E	N	Suitable sheet water/ flooded fields not present.
AG-011	AG	Soybean	55.46	Y	N	7E	N	Suitable sheet water/ flooded fields not present.
AG-012	AG	Corn	26.90	Y	N	7E	N	Suitable sheet water/ flooded fields not present.

Feature ID	ELC Unit	ELC Community Name/Crop Type	Feature Size (Ha)	Field Tile Drained? (y/n)	Flooded Conditions Observed in Spring 2012? (y/n)	Eco-Region	Carry Forward to EOS? (y/n)	Justification
OC-009	CUM1-1	Dry - Moist Old Field Meadow Type	4.61	N	N	7E	N	Suitable sheet water/ flooded fields not present.
OC-017	CUM1-1	Dry - Moist Old Field Meadow Type	8.49	N	N	6E	N	Suitable sheet water/ flooded fields not present.
OC-021	CUM1-1	Dry - Moist Old Field Meadow Type	4.48	N	N	6E	N	Suitable sheet water/ flooded fields not present.
OC-022	CUM1-1	Dry - Moist Old Field Meadow Type	3.76	N	N	6E	N	Suitable sheet water/ flooded fields not present.
OC-023	CUM1-1	Dry - Moist Old Field Meadow Type	1.49	N	N	6E	N	Suitable sheet water/ flooded fields not present.
OC-024	CUM1-1	Dry - Moist Old Field Meadow Type	5.48	N	N	6E	N	Suitable sheet water/ flooded fields not present.
OC-025	CUM1-1	Dry - Moist Old Field Meadow Type	33.30	N	N	6E	N	Suitable sheet water/ flooded fields not present.
OC-027	CUM	Mineral Cultural Meadow Ecosite	3.66	N	N	6E	N	Suitable sheet water/ flooded fields not present.
OC-028	CUT1	Mineral Cultural Thicket Ecosite	8.61	N	N	6E	N	Suitable sheet water/ flooded fields not present.
OC-035	CUT	Cultural Thicket	0.81	N	N	6E	N	Suitable sheet water/ flooded fields not present.
OC-036	CUM	Mineral Cultural Meadow Ecosite	0.28	N	N	6E	N	Suitable sheet water/ flooded fields not present.

Waterfowl Stopover and Staging Areas (Aquatic)

These are areas of importance for local and migrant waterfowl and include ponds, marshes, lakes, bays, coastal inlets and watercourses used during migration. Important

habitats have an abundant food supply of aquatic invertebrates and vegetation in shallow water.

Twenty-four wetlands within 120 m of the Project Location were assessed to determine if candidate habitat is present. Most did not contain sufficient standing or open water areas to provide suitable aquatic conditions for migrating waterfowl. The Wetland Evaluation Records for the Datars-Miller Swamp and Hay Swamp confirm that there is no waterfowl staging habitat present in those areas.

One wetland along the transmission line (WE-035) was identified as candidate habitat. This area contains nearly 5 ha of open water that appears to be the result of old aggregate extraction activities. Surrounding lands are disturbed but are in the process of naturalizing. This wetland is not within 120 m of a turbine, access road or transformer station and will thus be treated as Generalized Candidate Significant Wildlife Habitat (GCSWH-WSSA), as shown on **Figures 7a-h, Appendix A**.

The characteristics of each wetland assessed as candidate waterfowl stopover and staging areas (aquatic) within 120 m of the Project Location are presented in **Table 7.4**.

Table 7.4 Characteristics of Candidate Waterfowl Stopover and Staging Areas (Aquatic)

Feature ID	ELC Unit	ELC Community Name	Feature Characteristics	Feature Size (Ha)	Eco-Region	Carry Forward to EOS? (y/n)	Justification	CSWH ID*
WE-001	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Vernal pools present but not of sufficient size to provide suitable habitat.	172.33	7E	N	Suitable habitat not present.	-
WE-002	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Vernal pools present but not of sufficient size to provide suitable habitat.	83.33	6E	N	Suitable habitat not present.	-
WE-003	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Part of Datars-Miller Swamp. Vernal pools present but not of sufficient size to provide suitable habitat.	27.89	6E	N	Suitable habitat not present.	-
WE-008	OA	Open Water	Open water area surrounded by WE-010 marsh.	0.31	6E	N	Insufficient size to provide habitat for significant numbers of waterfowl.	-

Feature ID	ELC Unit	ELC Community Name	Feature Characteristics	Feature Size (Ha)	Eco-Region	Carry Forward to EOS? (y/n)	Justification	CSWH ID*
WE-010	MAM2-2	Reed-canary Grass Graminoid Mineral Meadow Marsh Type	Marsh area associated with open water WE-008.	2.10	6E	N	Insufficient size to provide habitat for significant numbers of waterfowl.	-
WE-012	SWD2-2	Green Ash Mineral Deciduous Swamp Type	No standing water present.	1.37	6E	N	Suitable habitat not present.	-
WE-013	SWD2-2	Green Ash Mineral Deciduous Swamp Type	No standing water present.	7.01	6E	N	Suitable habitat not present.	-
WE-014	SWD2-2	Green Ash Mineral Deciduous Swamp Type	No standing water present.	0.43	6E	N	Suitable habitat not present.	-
WE-016	OA	Open Water	Small pond adjacent to small woodland and cultural meadow area.	0.07	6E	N	Size of pond is too small to provide sufficient habitat for large numbers of waterfowl.	-
WE-017	SWD4-1	Willow Mineral Deciduous Swamp Type	No standing water present.	1.32	6E	N	Suitable habitat not present.	-
WE-020	SWD2-2	Green Ash Mineral Deciduous Swamp Type	No standing water present.	2.20	6E	N	Suitable habitat not present.	-
WE-021	SWD2-2	Green Ash Mineral Deciduous Swamp Type	No standing water present.	65.08	6E	N	Suitable habitat not present.	-
WE-022	SWD2-2	Green Ash Mineral Deciduous Swamp Type	No standing water present.	9.30	6E	N	Suitable habitat not present.	-
WE-026	SWD2-2	Green Ash Mineral Deciduous Swamp Type	No standing water present.	61.11	6E	N	Suitable habitat not present.	-
WE-027	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Part of Hay Swamp PSW. No standing water present.	10.15	6E	N	Suitable habitat not present.	-
WE-029	SWD2-2	Green Ash Mineral Deciduous Swamp Type	Part of Hay Swamp PSW. No standing water present.	9.36	6E	N	Suitable habitat not present.	-
WE-030	SWD	Deciduous Swamp	No standing water present.	0.69	6E	N	Suitable habitat not present.	-
WE-031	SWD2-2	Green Ash Mineral Deciduous Swamp Type	No standing water present.	1.78	6E	N	Suitable habitat not present.	-

Feature ID	ELC Unit	ELC Community Name	Feature Characteristics	Feature Size (Ha)	Eco-Region	Carry Forward to EOS? (y/n)	Justification	CSWH ID*
WE-032	OA	Open Water	Open water, little surrounding vegetation, within a disturbed site.	0.87	6E	N	Size of pond is not sufficient to provide habitat for large numbers of waterfowl.	-
WE-033	SWD2	Ash Mineral Deciduous Swamp Ecosite	No standing water present.	0.98	6E	N	Suitable habitat not present.	-
WE-034	OA	Open Water	Small pond within a small woodlot.	0.07	6E	N	Size of pond is not sufficient to provide habitat for large numbers of waterfowl.	-
WE-035	OA	Open Water	Pit from previous aggregate extraction. Disturbed but naturalizing vegetation present surrounding the pond.	4.84	6E	Y	Not within 120m of a turbine or access road.	GCS WH-WSSA
WE-037	SWD3-4	Manitoba Maple Mineral Deciduous Swamp Type	No standing water present.	1.63	6E	N	Suitable habitat not present.	-
WE-038	SWD2	Ash Mineral Deciduous Swamp Ecosite	No standing water present.	23.02	6E	N	Suitable habitat not present.	-

*CSWH ID= Candidate Significant Wildlife Habitat ID for reference in the Evaluation of Significance.

Shorebird Migratory Stopover Areas

This type of habitat is comprised of shorelines of lakes, rivers and wetlands, including beach areas 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.

One potential marsh area was identified within 120 m of the Project Location, as noted in **Table 7.5**. However, this wetland did not included un-vegetated or muddy flats. No substantial rock groynes or armour rock features were noted along the Lake Huron beach or on air photos of the beach area. The shoreline is 0.5 to 1.5 km from the Project Location.

Given the lack of suitable habitat in the Study Area, this type of habitat will not be brought forward for further study.

Table 7.5 Characteristics of Candidate Shorebird Stopover and Staging Areas

Feature ID	ELC Unit	ELC Community Name	Feature Size (Ha)	Feature Characteristics	Carry Forward to EOS? (y/n)	Justification
WE-010	MAM2-2	Reed-canary Grass Graminoid Mineral Meadow Marsh Type	2.10	Densely grassed area surrounding small open water pond (WE-008). No ungrassed, mud flats present.	N	Suitable habitat not present.

Raptor Wintering Area

Wintering roosting habitat for raptors typically includes a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. Sites need to be at least 20 ha in size with at least 15 ha of meadow or idle/fallow or lightly grazed fields.

There was only one cultural meadow community (OC-025) greater than 15 ha in size. However, there is no adjacent woodland and the community was converted to livestock pasturing in 2012 and no longer provides suitable habitat.

Through surveys for this habitat, it was found that there were very few hayfields or cultural habitats adjacent to forests that would be candidate sites. There was evidence from aerial photography and from the field reconnaissance that these hayfields were cropped several times a year, so there was very little thatch.

Five sites were identified that included a combination of large hay fields and adjacent woodlands. Hay fields were originally identified in the fall of 2011. In the spring of 2012, one of the hayfields (AG-013) had been planted in wheat, a more intensive agricultural crop which does not meet the requirement for “idle, fallow or lightly grazed fields” as needed for this type of habitat.

Two other fields (AG-016 and AG-021) were tilled in the spring of 2012 and therefore also do not meet the characteristic of low intensity agriculture.

One hayfield (AG-022) was observed in the spring of 2012. Cut hay was observed in the field towards the end of the 2012 spring field survey season (i.e., late June/early July), indicating that the field is likely harvested several times a season and is therefore not suitable habitat. Construction equipment was also observed in this field on several occasions and it is not clear if some future development is planned. This site is therefore not considered to provide suitable habitat.

One final site was considered (combination of AG-026 and W-134) along the transmission line route. Although the field was planted in hay it, as with most other fields, appeared to be cut several times a season so very little thatch was present. A

review of aerial photography indicated that the field was in cash crop production in the recent future and is not a mature hayfield.

As such, Raptor Wintering Areas are not present within 120 m of the Project Location and this type of habitat was not brought forward for further study.

Each of the areas assessed as possible candidate habitat are summarized in **Table 7.6** below.

Table 7.6 Species Observed at Candidate Raptor Winter Feeding Areas

Feature ID	ELC Unit	ELC Community Name/ Crop Type	Size of ELC Unit (Ha)	Combined Size (Ha)	Feature Characteristics	Carry Forward to EOS? (y/n)	Justification
Combin-ation of AG-013 & W-014	AG	Hay (2011) Wheat (2012)	38.09	43.82	Appeared as though may be a hay field in 2011; however was in more intensive wheat production in 2012	N	Agricultural production too intensive
	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	5.73				
Combin-ation of AG-015 & W-021	AG	Hay (2011) Tilled (2012)	36.09	50.86	Large hayfield. Tilled in the spring of 2012, indicating conversion to cash crop rotation or more intensive agricultural production.	N	Agricultural production too intensive
	FOD5-1	Dry – Fresh Sugar Maple Deciduous Forest Type	14.77				
Combin-ation of AG-021 & WE-026	AG	Hay (2011) Tilled (2012)	67.40	128.51	Large hayfield. Tilled in the spring of 2012, indicating conversion to cash crop rotation or more intensive agricultural production.	N	Agricultural production too intensive
	SWD2-2	Green Ash Mineral Deciduous Swamp Type	61.11				
Combin-ation of AG-022 & W-053	AG	Hay	29.15	39.49	Cut hay observed in the field; construction equipment present at various times throughout spring 2012 survey period. Hay appears to be frequently cut and disturbance present due to construction equipment.	N	Agricultural production too intensive
	FOD3-1	Dry-Fresh Poplar Deciduous Forest Type	10.36				

Feature ID	ELC Unit	ELC Community Name/ Crop Type	Size of ELC Unit (Ha)	Combined Size (Ha)	Feature Characteristics	Carry Forward to EOS? (y/n)	Justification
Combin-ation of AG-026 & W-134	AG	Hay	39.09	120.58	Hay present in 2012; however, aerial photography indicates that field was in cash crop production in recent past.	N	Agricultural production too intensive
	FO	Forest	81.49				

Bat Hibernacula

Although karst topography is present within 120 m of the Project Location, no caves or sinkholes were observed during the Site Investigation. The closest known sinkhole is greater than 1.3 km away. No other candidate bat hibernacula were identified.

This feature is, therefore, not present and will not be brought forward for further study in the EOS.

Bat Maternal Colonies

Maternal colonies are found in snags and tree cavities within mature forest areas. Twenty-six possible forest habitats were identified based on ELC mapping. Of those, only 11 were accessible, on properties where permission to enter had been given. Tree snag and cavity surveys were conducted in the eleven accessible woodlands in accordance with the methodology described in Section 4.0. Each candidate forest was surveyed to identify the density of snags and cavity trees and thus the potential for bat maternity colonies to be present.

The density of cavity trees in each candidate forest is summarized in **Table 7.7**, 25 habitat features have been identified. In accordance with MNR guidelines (MNR, 2010) only forests with a density of cavity trees greater than 10 snags and cavity trees per hectare are considered to be Candidate Bat Maternity Colonies. Of the 11 woodlands surveyed, seven were found to have a snag and cavity tree density greater than 10 per hectare and were thus identified as candidate habitat (BMC-001 through BMC-007), as shown on **Figures 6a-h, Appendix A**.

In addition to the 11 woodlands surveyed, three other woodlands were located within 120 m of a turbine but were on inaccessible properties and could not be surveyed. Based on correspondence from the MNR (**Appendix C**), these forests will be treated as significant. These are habitats BMC-008, BMC-009 and BMC-010. These will be brought forward into the EIS for further assessment as an EOS is not possible.

According to MNR (2011a), woodlands which are not within 120 m of the turbine can be treated as significant and identified as Generalized Candidate Significant Wildlife

Habitat. As such, 14 generalized candidate significant habitats were identified (GCSWH-BMC), as shown on **Figures 7a-h, Appendix A**. These will also be brought forward to the EIS.

Table 7.7 Summary of Bat Maternity Colony Surveys

Feature ID	ELC Unit	ELC Community Name	Total Number of 0.5 ha Plots	Total # of Snags and Cavity Trees	Size of Surveyed Area (Ha) (#plots x 0.05ha)	Density of Cavity Trees (cavity trees and snags/ha)	Survey Methods	Within 120 m of a Turbine? (y/n)	Carried Forward to EOS? (Y/N)	Justification	CSWH ID
W-004	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	2	0	1.6	0.0	Woodland plots in accordance with MNR (2011).	Y	N	Density of cavity trees is <10	-
	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	-	-	-	-	Not Surveyed. Property inaccessible.	N	N	Contiguous with FOD4-2 community, but not within 120 of any portion of the Project.	-
W-012 (WE-001)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	18	21	0.9	23.3	Woodland plots in accordance with MNR (2011) in participating portion of woodland only.	N	Y	Density of cavity trees is <10 but not within 120m of a turbine. To be treated as significant.	GCSWH-BMC
W-013	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	-	-	-	-	Not Surveyed. Property inaccessible.	Y	Y	Inaccessible but within 120m of a turbine. To be treated as significant.	BMC-008

Feature ID	ELC Unit	ELC Community Name	Total Number of 0.5 ha Plots	Total # of Snags and Cavity Trees	Size of Surveyed Area (Ha) (#plots x 0.05ha)	Density of Cavity Trees (cavity trees and snags/ha)	Survey Methods	Within 120 m of a Turbine? (y/n)	Carried Forward to EOS? (Y/N)	Justification	CSWH ID
W-014	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	6	9	0.3	30.0	Woodland plots in accordance with MNR (2011).	Y	Y	-	BMC-001
W-021	FOD5-1	Dry – Fresh Sugar Maple Deciduous Forest Type	17	39	0.85	45.9	Woodland plots in accordance with MNR (2011).	Y	Y	-	BMC-002
W-023 (WE-002)	CUP3	Cultural Plantation	32	47	1.6	35.6	Woodland plots in accordance with MNR (2011).	Y	Y	-	BMC-003
	FOM6-1	Fresh – Moist Sugar Maple – Hemlock Mixed Forest Type									
	SWD2-2	Green Ash Mineral Deciduous Swamp Type									
W-026	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	-	-	-	-	Not Surveyed. Property inaccessible.	Y	Y	Inaccessible but within 120m of a turbine. To be treated as significant.	BMC-009
	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	2	0	0.1	0.0	Woodland plots in accordance with MNR (2011).	Y	N	Density of cavity trees is <10	-

Feature ID	ELC Unit	ELC Community Name	Total Number of 0.5 ha Plots	Total # of Snags and Cavity Trees	Size of Surveyed Area (Ha) (#plots x 0.05ha)	Density of Cavity Trees (cavity trees and snags/ha)	Survey Methods	Within 120 m of a Turbine? (y/n)	Carried Forward to EOS? (Y/N)	Justification	CSWH ID
W-029 (WE-003)	FOD6-5	Fresh – Moist Sugar Maple – Hardwood Deciduous Forest Type	26	21	1.3	16.2	Woodland plots in accordance with MNR (2011).	Y	Y	-	BMC-004
	FOM6-1	Fresh – Moist Sugar Maple – Hemlock Mixed Forest Type									
	SWD2-2	Green Ash Mineral Deciduous Swamp Type									
W-030 (WE-021)	FOD3-1	Dry – Fresh Poplar Deciduous Forest Type	-	-	-	-	Not Surveyed. Property inaccessible.	N	Y	To be treated as significant.	GCSWH-BMC
	SWD2-2	Green Ash Mineral Deciduous Swamp Type									
W-034	CUP3-2	White Pine Coniferous Plantation Type	-	-	-	-	Not Surveyed. Property inaccessible	N	Y	To be treated as significant.	GCSWH-BMC

Feature ID	ELC Unit	ELC Community Name	Total Number of 0.5 ha Plots	Total # of Snags and Cavity Trees	Size of Surveyed Area (Ha) (#plots x 0.05ha)	Density of Cavity Trees (cavity trees and snags/ha)	Survey Methods	Within 120 m of a Turbine? (y/n)	Carried Forward to EOS? (Y/N)	Justification	CSWH ID
	FOD4	Dry – Fresh Upland Deciduous Forest Ecosite									
W-036	FOD3-2	Dry – Fresh White Birch Deciduous Forest Type	23	16	1.15	13.9	Woodland plots in accordance with MNR (2011).	Y	Y	-	BMC-005
	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type									
W-037 (WE-012)	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	19	22	0.95	23.2	Woodland plots in accordance with MNR (2011).	Y	Y	-	BMC-006
	FOD7-2	Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type									
	SWD2-2	Green Ash Mineral Deciduous Swamp Type									

Feature ID	ELC Unit	ELC Community Name	Total Number of 0.5 ha Plots	Total # of Snags and Cavity Trees	Size of Surveyed Area (Ha) (#plots x 0.05ha)	Density of Cavity Trees (cavity trees and snags/ha)	Survey Methods	Within 120 m of a Turbine? (y/n)	Carried Forward to EOS? (Y/N)	Justification	CSWH ID
W-039 (WE-013, WE-017)	FOD7-2	Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type	-	-	-	-	Not Surveyed	N	N	Not within 120m of a turbine. To be treated as significant.	GCSWH-BMC
	FOD7-2	Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type									
	SWD2-2	Green Ash Mineral Deciduous Swamp Type									
	SWD4-1	Willow Mineral Deciduous Swam									
W-042	CUP3-2	White Pine Coniferous Plantation Type	-	-	-	-	Not Surveyed. Property inaccessible.	Y	Y	Inaccessible but within 120 m of a turbine. To be treated as significant.	BMC-010
	FO	Forest									
	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type									
	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type									
	FOD7-2	Fresh – Moist Green Ash - Hardwood Lowland									

Feature ID	ELC Unit	ELC Community Name	Total Number of 0.5 ha Plots	Total # of Snags and Cavity Trees	Size of Surveyed Area (Ha) (#plots x 0.05ha)	Density of Cavity Trees (cavity trees and snags/ha)	Survey Methods	Within 120 m of a Turbine? (y/n)	Carried Forward to EOS? (Y/N)	Justification	CSWH ID
		Deciduous Forest Type									
	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	-	-	-	-	Not Surveyed. Property inaccessible.	N	N	Not within 120m of the Project Location.	-
	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	2	0	0.1	0.0	Woodland plots in accordance with MNR (2011).	Y	N	Density of cavity trees is <10	-
W-053	FOD3-1	Dry – Fresh Poplar Deciduous Forest Type	-	-	-	-	Not Surveyed. Property inaccessible.	N	Y	Not within 120m of a turbine. To be treated as significant.	GCSWH-BMC
W-067	FOD5-1	Forest	4	16	0.2	80.0	Woodland plots in accordance with MNR (2011).	Y	Y	-	BMC-007
W-085	FO	Forest	-	-	-	-	Not Surveyed. Property inaccessible.	N	Y	Not within 120m of a turbine. To be treated as significant.	GCSWH-BMC
W-086 (WE-026)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	-	-	-	-	Not Surveyed. Property inaccessible.	N	Y	Not within 120m of a turbine. To be treated as significant.	GCSWH-BMC
W-088 (WE-027)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	-	-	-	-	Not Surveyed. Property inaccessible.	N	Y	Not within 120m of a turbine. To be treated as significant.	GCSWH-BMC

Feature ID	ELC Unit	ELC Community Name	Total Number of 0.5 ha Plots	Total # of Snags and Cavity Trees	Size of Surveyed Area (Ha) (#plots x 0.05ha)	Density of Cavity Trees (cavity trees and snags/ha)	Survey Methods	Within 120 m of a Turbine? (y/n)	Carried Forward to EOS? (Y/N)	Justification	CSWH ID
W-094 (WE-029)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	-	-	-	-	Not Surveyed. Property inaccessible.	N	Y	Not within 120m of a turbine. To be treated as significant.	GCSWH-BMC
W-102 (WE-031, WE-033)	FO	Forest	-	-	-	-	Not Surveyed. Property inaccessible.	N	Y	Not within 120 m of a turbine. To be treated as significant.	GCSWH-BMC
	FOD6	Fresh – Moist Sugar Maple Deciduous Forest Ecosite									
	FOD6	Fresh – Moist Sugar Maple Deciduous Forest Ecosite									
	FOD6	Fresh – Moist Sugar Maple Deciduous Forest Ecosite									
	FOD6	Fresh – Moist Sugar Maple Deciduous Forest Ecosite									
	FOD6	Fresh – Moist Sugar Maple Deciduous Forest Ecosite									
	FOD6/ CUP3	Fresh – Moist Sugar Maple Deciduous Forest Ecosite/ Coniferous Plantaion									
	SWD2-2	Green Ash Mineral Deciduous									

Feature ID	ELC Unit	ELC Community Name	Total Number of 0.5 ha Plots	Total # of Snags and Cavity Trees	Size of Surveyed Area (Ha) (#plots x 0.05ha)	Density of Cavity Trees (cavity trees and snags/ha)	Survey Methods	Within 120 m of a Turbine? (y/n)	Carried Forward to EOS? (Y/N)	Justification	CSWH ID
		Swamp Type									
	SWD2	Ash Mineral Deciduous Swamp Ecosite									
W-118	FOD5	Dry – Fresh Sugar Maple Deciduous Forest Ecosite	-	-	-	-	Not Surveyed. Property inaccessible.	N	Y	Not within 120m of a turbine. To be treated as significant.	GCSWH-BMC
W-123	FOD6	Fresh – Moist Sugar Maple Deciduous Forest Ecosite	-	-	-	-	Not Surveyed. Property inaccessible.	N	Y	Not within 120m of a turbine. To be treated as significant.	GCSWH-BMC
W-127	FOD6	Fresh – Moist Sugar Maple Deciduous Forest Ecosite	-	-	-	-	Not Surveyed. Property inaccessible.	N	Y	Not within 120m of a turbine. To be treated as significant.	GCSWH-BMC
W-128 (WE-038)	FOD6	Fresh – Moist Sugar Maple Deciduous Forest Ecosite	-	-	-	-	Not Surveyed. Property inaccessible.	N	Y	Not within 120m of a turbine. To be treated as significant.	GCSWH-BMC
	SWD2	Ash Mineral Deciduous Swamp Ecosite									

Bat Migratory Stopover Areas

In Ecoregion 7E, bat migratory stopover areas may be significant. To date, Long Point on Lake Ontario is the only location in Ontario which has been identified as significant. Criteria for confirming bat migratory stopover areas in other parts of the Ecoregion are not currently defined in the Significant Wildlife Habitat Technical Guide (MNR, 2000). In the absence of criteria, this type of habitat cannot currently be evaluated. This type of habitat will not be considered any further in this investigation.

Turtle Wintering Areas

For an area to function as a turtle overwintering habitat, it must provide water that is deep enough not to freeze in the winter and have soft mud substrates. Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate dissolved oxygen.

Twenty-seven wetlands within 120 m of the Project Location were assessed as possible candidate turtle wintering sites as well as one watercourse (Hay Drain 'H') near Turnbull's road. There is a small dam at Turnbull's road which causes water to back up and pool slightly on the east side of the road. Only three of the wetlands and the pooled water area along Hay 'H' drain contained sufficient water depth and a suitable natural condition to provide possible habitat, as summarized in **Table 7.8**.

WE-008 and W-041, as well as the site along the Hay 'H' drain will be brought forward to the EOS for further study as a Candidate Turtle Wintering Area (TWA-001, TWA-002 TWA-003), as shown on **Figures 6a-h, Appendix A**. WE-035 is located along the transmission line route and is not within 120 m of a turbine, access road or transformer station. As such it will be treated as significant and characterized as Generalized Candidate Significant Wildlife Habitat (GCSWH-TWA), as shown on **Figures 7a-h, Appendix A.**

Table 7.8 Candidate Turtle Wintering Areas

Feature ID	ELC Unit	ELC Community Name	Size of Feature (Ha)	Feature Characteristics	Carry Forward to EOS? (y/n)	Justification	CSWH ID
WE-001	SWD2-2	Green Ash Mineral Deciduous Swamp Type	172.33	Vernal pools present but not deep enough to remain unfrozen during winter.	N	No suitable habitat present.	-
WE-002	SWD2-2	Green Ash Mineral Deciduous Swamp Type	83.33	Vernal pools present but not deep enough to remain unfrozen during winter.	N	No suitable habitat present.	-
WE-003	SWD2-2	Green Ash Mineral Deciduous Swamp Type	27.89	Datars-Miller Swamp. Vernal pools present but not deep enough to remain unfrozen during winter.	N	No suitable habitat present.	-

Feature ID	ELC Unit	ELC Community Name	Size of Feature (Ha)	Feature Characteristics	Carry Forward to EOS? (y/n)	Justification	CSWH ID
WE-008	OA	Open Water	0.31	Pond within WE-010 marsh.	Y	-	TWA-001
WE-010	MAM2-2	Reed-canary Grass Graminoid Mineral Meadow Marsh Type	2.10	No standing water present.	N	No suitable habitat present.	-
WE-011	SWT2-5	Red-osier Dogwood Mineral Deciduous Thicket Swamp Type	1.83	No standing water present.	N	No suitable habitat present.	-
WE-012	SWD2-2	Green Ash Mineral Deciduous Swamp Type	1.37	No standing water present.	N	No suitable habitat present.	-
WE-013	SWD2-2	Green Ash Mineral Deciduous Swamp Type	7.01	No standing water present.	N	No suitable habitat present.	-
WE-014	SWD2-2	Green Ash Mineral Deciduous Swamp Type	0.43	No standing water present.	N	No suitable habitat present.	-
WE-015	SWT3-2	Willow Organic Thicket Swamp	0.90	No standing water present.	N	No suitable habitat present.	-
WE-016	OA	Open Water	0.07	Small pond within small wooded area.	N	Water body not large enough to remain unfrozen during winter.	-
WE-017	SWD4-1	Willow Mineral Deciduous Swamp	1.32	No standing water present.	N	No suitable habitat present.	-
WE-020	SWD2-2	Green Ash Mineral Deciduous Swamp Type	2.20	No standing water present.	N	No suitable habitat present.	-
WE-021	SWD2-2	Green Ash Mineral Deciduous Swamp Type	65.08	No standing water present.	N	No suitable habitat present.	-
WE-022	SWD2-2	Green Ash Mineral Deciduous Swamp Type	9.30	No standing water present.	N	No suitable habitat present.	-
WE-026	SWD2-2	Green Ash Mineral Deciduous Swamp Type	61.11	No standing water present.	N	No suitable habitat present.	-
WE-027	SWD2-2	Green Ash Mineral Deciduous Swamp Type	10.15	Hay Swamp PSW. No standing water present.	N	No suitable habitat present.	-

Feature ID	ELC Unit	ELC Community Name	Size of Feature (Ha)	Feature Characteristics	Carry Forward to EOS? (y/n)	Justification	CSWH ID
WE-029	SWD2-2	Green Ash Mineral Deciduous Swamp Type	9.36	Hay Swamp PSW. No standing water present.	N	No suitable habitat present.	-
WE-030	SWD	Deciduous Swamp	0.69	No standing water present.	N	No suitable habitat present.	-
WE-031	SWD2-2	Green Ash Mineral Deciduous Swamp Type	1.78	No standing water present.	N	No suitable habitat present.	-
WE-032	OA	Open Water	0.87	Open water area with little adjacent riparian vegetation. Surrounded by disturbed lands. Not connected to watercourse or other water body which would attract turtles to the site.	N	No suitable habitat present.	-
WE-033	SWD2	Ash Mineral Deciduous Swamp Ecosite	0.98	No standing water present.	N	No suitable habitat present.	-
WE-034	OA	Open Water	0.07	Water body not large enough to remain unfrozen during winter.	N	No suitable habitat present.	-
WE-035	OA	Open Water	4.84	Open water area associated with previous aggregate extraction. In close proximity to a watercourse.	Y	Not within 120m of a turbine, access road or transformer station.	GCSWH-TWA
WE-037	SWD3-4	Manitoba Maple Mineral Deciduous Swamp Type	1.63	No standing water present.	N	No suitable habitat present.	-
WE-038	SWD2	Ash Mineral Deciduous Swamp Ecosite	23.02	No standing water present.	N	No suitable habitat present.	-
W-041	FOD4-2	Dry-Fresh White Ash-Hardwood Deciduous Forest Type	2.57	Large vernal pool present with basking area.	Y		TWA-002
Water-course	OA	Unknown Hay H drain	<0.5	Small area of Unknown Hay H Drain that had backed up along roadway.	Y		TWA-003

Reptile Hibernacula

For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural locations. Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. A review

of geological mapping for the area and the results of soils survey conducted during ELC mapping did not identify any areas of bedrock near the ground surface.

In addition to natural rock features, man-made rock piles, stone fences and crumbling foundations may also provide suitable habitat if they extend below the frost line.

Six rock and debris piles were observed within 120 m of the Project Location which could potentially provide suitable conditions for reptile hibernation. All were characterized by rock and debris piles along the edges of woodlands and agricultural fields. Due to the size and configuration of each pile, it was difficult to determine if they extended below the ground. As such, each pile that was located within 120 m of the Project Location was brought forward as candidate habitats for further review during the EOS. Candidate habitats (RH-001 to RH-006) are presented on **Figures 6a-h, Appendix A**.

The characteristics of each candidate reptile hibernacula are summarized in **Table 7.9.**

Table 7.9 Candidate Reptile Hibernacula Sites

Feature ID	Characteristics	Within 120 m of Project Location? (y/n)	Carry Forward to EOS? (y/n)	CSWH ID
Rock/debris pile within W-023	Unable to determine feature depth below frost line due to configuration.	Y	Y	RH-001
Rock/debris pile within WE-011	Unable to determine feature depth below frost line due to configuration.	Y	Y	RH-002
Rock/debris pile within WE-011	Unable to determine feature depth below frost line due to configuration.	Y	Y	RH-003
Rock/debris pile within W-041	Unable to determine feature depth below frost line due to configuration.	Y	Y	RH-004
Rock/debris pile within W-041	Unable to determine feature depth below frost line due to configuration.	Y	Y	RH-005
Rock/debris pile within W-020	Unable to determine feature depth below frost line due to configuration.	Y	Y	RH-006

Colonially-Nesting Bird Breeding Habitat (Bank and Cliff)

This type of habitat is characterized by eroding banks, sandy hills, borrow pits, steep slopes and sand piles. Any site or area with exposed soil banks that is undisturbed or naturally eroding is considered to be candidate habitat. Man-made structures such as berms, embankments or aggregate operations and stockpiles are not included.

Thirty-five open areas (CUM or CUT) were observed within 120 m of the Project Location, but none included exposed soils or cliff habitats. All were flat with no banks or

hills. No exposed soils were present. As such, this feature will not be brought forward for further study.

Colonially-Nesting Bird Breeding Habitat (Trees/Shrubs)
This type of habitat is characterized by groups of nests in live or dead standing trees in wetlands, lakes, islands and peninsulas. Stick nests are typically large and associated with species such as herons and egrets.

All mixed and deciduous swamps were considered. No nests were identified within any of the swamps within proximity of the turbines and access roads. Swamps along the transmission line route were observed from the road using binoculars. No nests were identified. The Wetland Evaluation Record for the Hay Swamp indicates that the area did provide habitat for colonial waterbirds in 1987 when the evaluation was completed. Habitat may exist in the larger wetland pockets of the Hay Swamp which are located to the south of the transmission line and east of the turbine area. These larger wetlands have significant areas of standing and open water. The pockets along the proposed transmission line route are small, isolated and lacking any substantial open water.

As such, no suitable habitat is present within 120 m of the Project Location. This feature will not be brought forward for further study.

Eighteen areas have been assessed as candidate habitat and are summarized in **Table 7.10**.

Table 7.10 Candidate Colonially-Nesting Bird Breeding Habitat (Trees/Shrubs)

Feature ID	ELC Unit	ELC Community Name	Feature Size (Ha)	Feature Characteristics	Carry Forward to EOS? (y/n)	Justification
WE-001	SWD2-2	Green Ash Mineral Deciduous Swamp Type	172.33	No colonially-nesting bird nests present.	N	No suitable habitat present.
WE-002	SWD2-2	Green Ash Mineral Deciduous Swamp Type	83.33	No colonially-nesting bird nests present.	N	No suitable habitat present.
WE-003	SWD2-2	Green Ash Mineral Deciduous Swamp Type	27.89	Datars-Miller Swamp. No colonially-nesting bird nests present.	N	No suitable habitat present.
WE-012	SWD2-2	Green Ash Mineral Deciduous Swamp Type	1.37	No colonially-nesting bird nests present.	N	No suitable habitat present.
WE-013	SWD2-2	Green Ash Mineral Deciduous Swamp Type	7.01	No colonially-nesting bird nests present.	N	No suitable habitat present.

Feature ID	ELC Unit	ELC Community Name	Feature Size (Ha)	Feature Characteristics	Carry Forward to EOS? (y/n)	Justification
WE-014	SWD2-2	Green Ash Mineral Deciduous Swamp Type	0.43	No colonially-nesting bird nests present.	N	No suitable habitat present.
WE-017	SWD4-1	Willow Mineral Deciduous Swamp	1.32	No colonially-nesting bird nests present.	N	No suitable habitat present.
WE-020	SWD2-2	Green Ash Mineral Deciduous Swamp Type	2.20	No nests visible from road. Feature small and not associated with open water.	N	No suitable habitat present.
WE-022	SWD2-2	Green Ash Mineral Deciduous Swamp Type	9.30	No nests visible from road. Feature not associated with open water.	N	No suitable habitat present.
WE-026	SWD2-2	Green Ash Mineral Deciduous Swamp Type	61.11	Long narrow feature, along a small drain. No large open water body present.	N	No suitable habitat present.
WE-027	SWD2-2	Green Ash Mineral Deciduous Swamp Type	10.15	Long narrow feature, along a small drain. No large open water body present.	N	No suitable habitat present.
WE-029	SWD2-2	Green Ash Mineral Deciduous Swamp Type	9.36	No nests visible from road. Feature small and not associated with open water.	N	No suitable habitat present.
WE-030	SWD	Deciduous Swamp	0.69	No nests visible from road. Feature small and not associated with open water.	N	No suitable habitat present.
WE-031	SWD2-2	Green Ash Mineral Deciduous Swamp Type	1.78	No nests visible from road. Feature small and not associated with open water.	N	No suitable habitat present.
WE-033	SWD2	Deciduous Swamp	0.98	No nests visible from road. Feature small and not associated with open water.	N	No suitable habitat present.
WE-035	OA	Open Water	4.84	Open water (old aggregate extraction pit) surrounded by naturalizing vegetation and small wooded area. No live or dead trees within open water. Surrounding wooded areas are upland communities and form narrow band around pond.	N	No suitable habitat present.
WE-037	SWD3-4	Manitoba Maple Mineral Deciduous Swamp Type	1.63	No nests visible from road. Feature small and not associated with open water.	N	No suitable habitat present.
WE-038	SWD2	Deciduous Swamp	23.02	No nests visible from road. No open water present.	N	No suitable habitat present.

Colonially-Nesting Bird Breeding Habitat (Ground)

Ground nesting habitats for colonially-nesting birds are typically found on rocky islands or peninsulas within a large lake or river and are associated with species such as gulls and terns. No such habitats were identified within the Study Area.

Brewer's blackbirds, (*Euphagus cyanocephalus*), are also colonial ground nesters. Suitable habitat for this species includes open fields or pastures with scattered trees or shrubs and close proximity to watercourses. Nests are often found loosely on the ground or in low bushes in areas with nearby streams and irrigation ditches within farmlands. Three watercourses with successional habitat in close proximity were brought forward for EOS (CNB-001 through CNB-003) and are shown on **Figures 6a-h, Appendix A**.

Three habitats have been assessed and are summarized in **Table 7.11**.

Table 7.11 Candidate Colonially-Nesting Bird Breeding Habitat (Ground)

Feature ID	ELC Unit	Feature Size	Feature Description	Carried Forward to EOS? (y/n)	CSWH ID
OC-007	CUW1	5.58	This community was bound by two agricultural fields along the Maple Grove Brook.	Y	CNB-001
OC-026	CUW1	5.00	Scattered trees and shrubs lined the Pepper Drain.	Y	CNB-002
W-037	FOD5-8	16.56	Suitable habitat is located along the Charette Drain only. This area contained scattered trees and shrubs.	Y	CNB-003

Deer Yarding Areas

In winter, deer congregate in "yards" to survive winter conditions. Yards are composed of two areas, referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard and is usually a mixed or deciduous forest with plenty of browse available for food. Deer move to these areas in early winter and move to more dense conifer forests (Stratum I) later in the winter as snow depths increase.

Deer yards have been mapped by the MNR. A winter deer yard "complex" was identified through the Records Review and is associated with the Hay Swamp Regional Life Science ANSI and PSW. The deer yard has been identified as Stratum II deer wintering habitat by the MNR and has been previously evaluated as significant. Two pockets of this feature are located within 120 m of the Project Location and will be brought forward for further study and assessment in the EOS. They are shown as DYA-001 and DYA-002 on **Figures 6a-h, Appendix A**.

Two Significant Deer Yarding Areas have been assessed and are presented in **Table 7.12**.

Table 7.12 Significant Deer Yarding Areas

Feature ID	ELC Unit	ELC Community Name	Feature Size (Ha)	Significance	Carry Forward to EOS? (y/n)	SWH ID
WE-027	SWD2-2	Green Ash Mineral Deciduous Swamp Type	10.15	Previously evaluated as Stratum II Provincially Significant Deer Yard	Y	DYA-001
WE-029	SWD2-2	Green Ash Mineral Deciduous Swamp Type	9.36	Previously evaluated as Stratum II Provincially Significant Deer Yard	Y	DYA-002

7.4.2 Rare Vegetation Communities

Cliffs and Talus Slopes
Cliffs are features with vertical or near vertical bedrock greater than 3 m in height while talus slopes are defined as rock rubble at the base of a cliff made up on coarse rocky debris. The following ELC communities are considered to be candidate sites:

- TAO;
- TAS;
- TAT;
- CLO;
- CLS; and,
- CLT.

No cliffs, talus slopes or corresponding ELC communities were observed within the Study Area. Topography was relatively flat with gentle slopes. This type of rare vegetation community is not present and will not be brought forward for further investigation.

Sand Barren
Sand barrens are exposed soil, 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. Sand barrens are usually located within other types of natural habitat such as forest or savannah.

They are associated with the following ELC communities:

- SBO1;
- SBS1; and,
- SBT.

No sand barrens were observed within the Study Area. Beach communities are found along the Lake Huron shoreline. These types of exposed sand communities are not considered to be sand barrens and are described as a separate beach type of vegetation. Sand Barrens will not be brought forward for further study.

Alvar
An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer or soil. They are associated with the following ELC communities:

- ALO1;
- ALS1;
- FOC1;
- FOC2;
- CUM2;
- CUS2;
- CUT2-1; and,
- CUW2.

No associated ELC communities were observed within the Study Area. Geological and soils mapping of the Study Area (Hoffman, Richards and Morwick, 1952) did not identify any area with bedrock close to the surface or areas with thin, shallow soils. Alvars will, therefore, not be carried forward for further study.

Old Growth Forest
Old Growth Forests are characterized by heavy mortality or turnover of overstory 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 in size with at least 10 ha of interior habitat (assuming a 100 m buffer from the forest edge), with an age of at least 140 years are considered to be significant in Ecoregion 6E. For portions of the project in Ecoregion 7E, there is no minimum size criteria for significance (i.e., any stand older than 140 years is significant). In all locations, the stand should not have experienced any recognizable harvesting activities. Six candidate sites are described in **Table 7.13**.

Table 7.13 Candidate Old Growth Forests

Feature ID	ELC Unit	ELC Community Name	Feature Size (Ha)	Size of Interior Woodland Measured 100m from Edge (Ha)	Age Class	Eco-Region	Carry Forward to EOS? (y/n)	Justification
W-004	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	34.77	N/A	Mature forest; trees predominantly >50 cm dbh; fallen branches/logs present in places; windthrow and some populations of invasive species (e.g., Garlic Mustard); tracks and trails present in northern portion.	7E	N	Does not meet old growth age criteria.
	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type						
W-009	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	3.94	N/A	Young forest; limited cavity trees; and population of invasive species.	7E	N	Does not meet old growth age criteria.
W-013	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	3.17	N/A	Mid-aged forest; fallen branches/logs present; dumping, tracks and trails present.	7E	N	Does not meet old growth age criteria.
W-012 (WE-001)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	179.12	68.65	Mid-aged Green Ash Swamp; evidence of flooding in spring; trees predominantly between 20-50 cm dbh; fallen branches/logs present; few tracks and trails present; bordered by drainage ditch along western edge.	7E	N	Does not meet old growth age criteria.
W-023 (WE-002)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	87.08	37.64	Mid-aged Green Ash Swamp; evidence of flooding in spring; trees predominantly between 20-50 cm dbh; fallen branches/logs present; abundant dead ash present in canopy in some locations.	6E	N	Does not meet old growth age criteria.
W-030 (WE-021)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	80.21	40.58	Mid-aged forest connected to the Datar's Miller Swamp; fallen branches/logs present.	6E	N	Does not meet old growth age criteria.
	FOD3-1	Dry – Fresh Poplar Deciduous Forest Type						

Savannah

A savannah is a tallgrass prairie habitat that has tree cover between 25 to 60% and is associated with the following ELC communities:

- TPS1;
- TPS2;
- TPW1;
- TPW2; and,
- CUS2.

No savannah communities were observed within the Study Area. This type of habitat will not be considered any further in this investigation.

Tallgrass Prairie

A tallgrass prairie has groundcover dominated by prairie grasses and <25% tree cover as characterized by the following ELC communities:

- TPO1; and,
- TPO2.

No tallgrass prairies were observed within the Study Area. Several small meadow communities were present; however, these were typically old fields in the process of early succession from past agricultural use or previous manicured lawns. Most were dominated by non-native species. Prairie indicator species were rare.

As such, tallgrass prairies will not be brought forward for further study.

Other Rare Vegetation Communities

Rare vegetation communities are those that are listed as S1, S2 and S3 in Appendix M of the Significant Wildlife Habitat Technical Guide (MNR, 2000) and may include beaches, fens, forests, marshes, barrens, dunes and swamps. No rare communities were identified within 120 m of the Project Location. Some rare communities may be present in a narrow strip of beach and dune habitat between the Lake Huron shoreline and adjacent residential and cottage development. These communities are very narrow and could not be identified to the Ecosite level due to access restrictions; an alternative investigation was used in these areas. Due to the distance between the shoreline and the Project Location, they will not be brought forward for further investigation.
Table 7.14 lists 33 ELC communities observed within 120 m of the Project Location and their respective S-Ranks.

Table 7.14 Vegetation Communities within 120 of the Project Location

ELC Code	Description	S-Rank*
CUM	Cultural Meadow	N/A
CUM1-1	Dry - Moist Old Field Meadow Type	N/A
CUP	Cultural Plantation	N/A
CUP3	Coniferous Plantations	N/A
CUP3-2	White Pine Coniferous Plantation Type	SNR
CUT	Cultural Thicket	N/A
CUT1	Mineral Cultural Thicket Ecosite	N/A
CUW	Cultural Woodland	N/A
CUW1	Mineral Cultural Woodland Ecosite	N/A
FO	Forest	N/A
FOD3-1	Dry - Fresh Poplar Deciduous Forest Type	S5
FOD3-2	Dry - Fresh White Birch Deciduous Forest Type	S5
FOD4	Dry - Fresh Upland Deciduous Forest Ecosite	N/A
FOD4-2	Dry - Fresh White Ash Deciduous Forest Type	S5
FOD5	Dry - Fresh Sugar Maple Deciduous Forest Ecosite	SNR
FOD5-1	Dry - Fresh Sugar Maple Deciduous Forest Type	N/A
FOD5-8	Dry - Fresh Sugar Maple - White Ash Deciduous Forest Type	N/A
FOD6	Fresh - Moist Sugar Maple Deciduous Forest Ecosite	N/A
FOD6-5	Fresh - Moist Sugar Maple - Hardwood Deciduous Forest Type	N/A
FOD7-2	Fresh - Moist Green Ash - Hardwood Lowland Deciduous Forest Type	N/A
FOM	Mixed Forest	N/A
FOM6-1	Fresh - Moist Sugar Maple - Hemlock Mixed Forest Type	N/A
MA	Marsh	N/A
MAM2-2	Reed-canary Grass Graminoid Mineral Meadow Marsh Type	N/A
OA	Open Water	N/A
SW	Swamp	N/A
SWD	Deciduous Swamp	N/A
SWD2	Ash Mineral Deciduous Swamp Ecosite	S5
SWD2-2	Green Ash Mineral Deciduous Swamp Type	S5
SWD3-4	Manitoba Maple Mineral Deciduous Swamp Type	S5
SWD4-1	Willow Mineral Deciduous Swamp Type	S5
SWT2-5	Red-osier Dogwood Mineral Thicket Swamp Type	S5
SWT3-2	Willow Organic Thicket Swamp Type	S5

*S1- Critically Imperiled;
S2- Imperiled;
S3- Vulnerable;
S4- Apparently Secure;
S5- Secure; and,
SNR- Unranked.

7.4.3 Specialized Habitats for Wildlife

Waterfowl Nesting Sites
Waterfowl nest in open upland areas adjacent to marshes, swamps and submerged shallow aquatic wetlands. Candidate habitats are those with upland communities that extend at least 120 m from a wetland so that predators such as racoons, skunks and foxes have difficulty finding nests. Most waterfowl use grassland areas for nesting; however, wood ducks and hooded mergansers utilize large diameter trees (>40 cm dbh) in woodlands for cavity nest sites.

Based on our assessment, three candidate habitats were identified. Two are located more than 120 m from a turbine and, in accordance with MNR (2011a) will be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat ("GCSWH-WNA"), as shown on **Figures 7a-h, Appendix A**.

The third is within 120 m of the turbine and will be brought forward for further study in the Evaluation of Significance. It is identified as WNA-001 and is shown on **Figures 6a-h, Appendix A**.

Nineteen habitats areas have been assessed and are summarized in **Table 7.15**.

Table 7.15 Characteristics of Candidate Waterfowl Nesting Sites

Wetland				Adjacent Upland							
Wetland ID	**Wetland ELC Unit**	**Wetland Size (Ha)**	**Presence Open/ Standing Water (y/n)**	**Adjacent Upland ID**	**Upland ELC Unit**	**Adjacent Upland Greater than 120 m in width? (y/n)**	**Eco-Region**	**Within 120 m of a Turbine? (y/n)**	**Carry Forward to EOS? (y/n)**	**Justification**	**CSWH ID**
WE-001	SWD2-2	172.33	Vernal pools present but not large or deep enough to support waterfowl.	OC-013	CUM1-1	Y	7E	N	N	No suitable habitat present.	-
WE-002	SWD2-2	83.33	Vernal pools present but not large or deep enough to support waterfowl.	W-023	FOM6-1/ CUP3	Y	6E	N	N	No suitable habitat present.	-
WE-003	SWD2-2	27.89	Vernal pools present but not large or deep enough to support waterfowl.	W-029	FOM6-1/ FOD6-5	Y	6E	N	N	No suitable habitat present.	-
WE-021	SWD2-2	65.08	No open water present.	W-030	FOD3-1	Y	6E	N	N	No suitable habitat present.	-
WE-006 WE-007	MA OA	3.57 0.44	Small area of open water and marsh present.	W-034	FOD4-1/ CUP3-2	Y	6E	N	Y	To be treated as significant.	GCSWH-WNA
WE-008 WE-009 WE-010 WE-011 WE-012	OA SWT2-5 MAM2-2 SWT2-5 SWD2-2	0.31 1.17 2.10 1.83 1.37	Small pond surrounded by marsh and swamp habitats.	W-037	FOD5-8/ FOD7-2	Y	6E	Y	Y	-	WNA-001
WE-013	SWD2-2	7.01	No open water present.	W-039	FOD7-2	Y	6E	Y	N	No suitable habitat present.	-
WE-016	OA	0.07	Very small pond surrounded by disturbed, naturalizing cultural thicket.	OC-028	CUT1	Y	6E	N	N	Open water area too small to attract significant numbers of waterfowl.	-

Wetland				Adjacent Upland							
Wetland ID	**Wetland ELC Unit**	**Wetland Size (Ha)**	**Presence Open/ Standing Water (y/n)**	**Adjacent Upland ID**	**Upland ELC Unit**	**Adjacent Upland Greater than 120 m in width? (y/n)**	**Eco-Region**	**Within 120 m of a Turbine? (y/n)**	**Carry Forward to EOS? (y/n)**	**Justification**	**CSWH ID**
WE-026	SWD2-2	61.11	No open water present.	None present	N/A	N/A	6E	Y	N	No suitable upland habitat present.	-
WE-022	SWD2-2	9.30	No open water present.	None present	N/A	N/A	6E	Y	N	No suitable upland habitat present.	-
WE-027	SWD2-2	10.15	No open water present.	None present	N/A	N/A	6E	Y	N	No adjacent upland habitat present.	-
WE-029	SWD2-2	9.36	No open water present.	None present	N/A	N/A	6E	Y	N	No adjacent upland habitat present.	-
WE-030	SWD	0.69	No open water present.	None present	N/A	N/A	6E	Y	N	No adjacent upland habitat present.	-
WE-031	SWD2-2	1.78	No open water present.	W-102	FOD6	Y	6E	Y	N	No open water to attract waterfowl.	-
WE-032	OA	0.87	Small pond area.	None present	N/A	N/A	6E	Y	N	No adjacent upland habitat present.	-
WE-033	SWD2	0.98	No open water present.	W-102 W-099	FOD6/CUP3 FO	Y	6E	Y	N	No open water to attract waterfowl.	-
WE-035	OA	4.84	Ponded area is man-made (old gravel pit).	OC-037	CUW1/CUT1	Y	6E	Y	Y	-	GCSWH-WNA
WE-037	SWD3-4	1.63	No open water present.	None present	N/A	N/A	6E	Y	N	No suitable upland habitat present.	-
WE-038	SWD2	23.02	No open water present.	W-128	FOD6	Y	6E	Y	N	No open water to attract waterfowl.	-

Bald Eagle and Osprey Nesting, Foraging and Perching Habitat

Nests are typically associated with lakes, ponds, rivers or wetlands along forested shorelines, islands or on structures over water. Osprey nests are usually at the top of a tree, whereas Bald eagle nests are typically in super canopy trees in a notch within the tree's canopy.

No osprey nests were found during any visits to the site as part of the Site Investigation. The Project Location is approximately 0.5 to 1.5 km from the Lake Huron shoreline and is separated from the water by extensive cottage development. One Osprey was observed flying overhead on April 21, 2011. However, no evidence of nesting was found.

One Bald Eagle was noted flying overhead on April 22, 2011 in the vicinity of Lot 22, concession 15 and Lot 8, E. of Lake Road. The individual was flying at a height of approximately 60 m. A second Bald Eagle was observed on April 5, 2011 flying in a southward direction at a height of approximately 50 to 75 m in the vicinity of Lot 27, Concession 15. No woodlots are present in the vicinity of either of these sightings and no nesting sites were identified.

During the public consultation process, a local landowner reported a Bald Eagle nest at edge of woodlot located between Lot 19 and 20, Conc. E. of Lake Road. This area was searched extensively during spring 2012 ELC mapping and breeding bird surveys. No evidence of a nest could be found.

Woodland Raptor Nesting Habitat

Raptors typically nest in intermediate-aged to mature conifer, deciduous, or mixed woodlands within tops or crotches of trees. Significant nesting habitats are typically within natural deciduous and coniferous forests as well as coniferous plantations.

In Ecoregion 6E, all natural or conifer plantation woodland/forest stands >30 ha in size with at least 10 ha of interior forest habitat (measured 200 m from an edge) are considered to be candidate sites. In Ecoregion 7E only 4 ha of interior forest is required for candidate significance.

In the Study Area, three woodlands meet these criteria. Of these, only two are located within 120 m of the Project Location. During the Site Investigation portions of both woodlands were surveyed for the presence of raptor nests. None were identified; however, it is noted that only a small portion of each woodland could be surveyed due to property access restrictions. As such, it could not be confirmed whether potential nesting sites were present. Therefore, both areas will be treated as significant and will be brought forward for further investigation as Generalized Candidate Significant Wildlife Habitat (GCSWH-WRN), as shown on **Figures 7a-h, Appendix A**.

Three woodland raptor nesting sites have been assessed and are summarized in **Table 7.16**.

Table 7.16 Characteristics of Candidate Woodland Raptor Nesting Habitats

Feature ID	ELC Unit	ELC Community Name	Size of Contiguous Woodland (Ha)	Size of Interior Woodland Measured 200 m from Edge (Ha)	Raptor Nests Present? (y/n)	Eco-Region	Within 120m of Project Location? (y/n)	Carry Forward to EOS? (y/n)	Justification	CSWH ID
W-002	FO	Forest	51.39	5.62	Unknown- no access permitted	7E	N	N	Woodland is not within 120m of the Project Location.	-
W-012 (WE-001)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	172.33	19.94	None identified within portion of woodlot surveyed. Unknown in inaccessible portions.	7E	Y	Y	The presence of nests is unknown due to site access constraints.	GCSWH-WRN
W-030 (WE-021)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	84.88	12.90	None identified from the road. Unknown in inaccessible portions.	6E	Y	Y	The presence of nests is unknown due to site access constraints.	GCSWH-WRN
	FOD3-1	Dry – Fresh Poplar Deciduous Forest Type								

Turtle Nesting Areas

Turtles nest in sand and gravel areas within 100 m of open water bogs, fens, marshes or other shallow aquatic habitats. Best nesting habitats are close to water and away from roads and sites that are 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 an area located in open, sunny areas. Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes and rivers are most frequently used.

Three candidate habitats were present within 120 m of the Project Location. In accordance with MNR (2011a), two of the sites were located within 120 m of a road and will be brought forward for further study in the Evaluation of Significance. These features are shown on **Figures 6a-h, Appendix A**. The third is associated with lands adjacent to an open water area remaining from historical aggregate extraction activities. This area will be identified as Generalized Candidate Significant Wildlife Habitat (GCSWH-TNA) and treated as significant. It is present on **Figures 7a-h, Appendix A**.

Table 7.17 Candidate Turtle Nesting Areas

Feature ID	ELC Unit	ELC Community Name	Feature Size (Ha)	Feature Characteristics	Eco-Region	Carry Forward to EOS? (y/n)	CSWH ID
WE-010	MAM2-2	Reed-canary Grass Graminoid Mineral Meadow Marsh Type	2.10	The south facing slope was steep with mostly sandy patches and very little gravel.	6E	Y	TNA-001
W-020	FOD5-8	Dry-Fresh Sugar Maple – White Ash Deciduous Forest Type	11.18	This area was located along Unknown Hay H Drain. The area to the east of the bridge was poorly drained.	6E	Y	TNA-002
WE-035	OA	Open Water	4.84	Open water area associated with previous aggregate extraction. In close proximity to a watercourse.	6E	Y	GCSWH-TNA

Seeps and Springs

Seeps and springs are areas where groundwater 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 or springs.

Seeps and springs are typically present at the base or along a slope and are characterized by vegetation such as jewelweed, skunk cabbage and watercress. Iron staining of the soils around a seep is often an indicator of the presence of groundwater.

According to base mapping for the area, watercourses generally originate to the east of the turbines and access areas and not within any of the woodlands immediately adjacent to the project.

A small area of seeps was observed in W-037. Portions of this woodland slope down to wetlands WE-010 and WE-011. Seeps were observed along this slope. According to MNR (2011a), seeps and springs within 120 m of any project component can be identified as Generalized Candidate Significant Wildlife Habitat. This woodlot will therefore be identified as GCSWH-SS, as shown on **Figures 7a-h, Appendix A**.

No evidence of seeps or springs, such as the indicators noted above, was observed in any other forested communities within 120 m of the Project Location.

Amphibian Breeding Habitat (Woodland)

Wetlands and forests with vernal pools provide habitat for amphibian breeding. Permanent ponds or those which contain water in most years until mid-July are more likely to be used as breeding habitat.

All wooded wetlands, ponds and marshes within 120 m of a woodland, and woodlands with vernal pools were considered to be candidate habitats.

In accordance with Appendix D of MNR (2011a), Amphibian Woodland Breeding Habitat that is not within 120 m of a proposed access road can be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat (GCSWH-ABH). Fifteen candidate habitats met this criterion and will be treated as significant. All are shown on **Figures 7a-h, Appendix A**.

Nine candidate sites were located in close proximity to access roads and therefore will be brought forward for further study in the EOS. They are identified as ABH-001 through ABH-009 and are shown on **Figures 6a-h, Appendix A**.

Twenty-four habitats have been assessed. The characteristics of each candidate habitat are summarized in **Table 7.18.**

Table 7.18 Candidate Amphibian Breeding Habitat (Woodland)

Feature ID	ELC Unit	ELC Community Name	Feature Size (Ha)	Vernal Pools Present? (y/n)	Carry Forward to EOS? (y/n)	Within 120m of a Turbine or Road? (y/n)	CSWH ID
WE-001	SWD2-2	Green Ash Mineral Deciduous Swamp Type	172.33	Y	Y	Y	ABH-001
W-021	FOD5-1	Dry – Fresh Sugar Maple Deciduous Forest Type	14.77	Y	Y	Y	ABH-002

Feature ID	ELC Unit	ELC Community Name	Feature Size (Ha)	Vernal Pools Present? (y/n)	Carry Forward to EOS? (y/n)	Within 120m of a Turbine or Road? (y/n)	CSWH ID
WE-002/ W-023	SWD2-2	Green Ash Mineral Deciduous Swamp Type	83.33	Y	Y	Y	ABH-003
	FOM6-1	Fresh – Moist Sugar Maple – Hemlock Mixed Forest Type	3.43				
W-026	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	16.30	Y	Y	Y	ABH-004
WE-003	SWD2-2	Green Ash Mineral Deciduous Swamp Type	27.89	Y	Y	Y	ABH-005
W-036	FOD3-2	Dry – Fresh White Birch Deciduous Forest Type	8.74	Y	Y	Y	ABH-006
	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	29.23				
WE-009 WE-010 WE-011	SWT2-5	Red-osier Dogwood Mineral Deciduous Thicket Swamp Type	1.83	N	Y	Y	ABH-007
	MAM2-2	Reed-canary Grass Graminoid Mineral Meadow Marsh Type	2.1				
	SWT2-5	Red-osier Dogwood Mineral Deciduous Thicket Swamp Type	1.8				
W-041	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	2.57	Y	Y	N	ABH-008
W-067	FOD5-1	Dry-Fresh Sugar Maple Deciduous Forest Type	3.75	Y	Y	Y	ABH-009
WE-012	SWD2-2	Green Ash Mineral Deciduous Swamp Type	1.37	N	Y	N	GCSWH-ABH
WE-014	SWD2-2	Green Ash Mineral Deciduous Swamp Type	0.43	N	Y	N	GCSWH-ABH
WE-013	SWD2-2	Green Ash Mineral Deciduous Swamp Type	7.01	N	Y	N	GCSWH-ABH
WE-015	SWT3-2	Willow Organic Thicket Swamp	0.90	N	Y	N	GCSWH-ABH
WE-017	SWD4-1	Willow Mineral Deciduous Swamp	1.32	N	Y	N	GCSWH-ABH
WE-020	SWD2-2	Green Ash Mineral Deciduous Swamp Type	2.20	N	Y	N	GCSWH-ABH
WE-022	SWD2-2	Green Ash Mineral Deciduous Swamp Type	9.30	N	Y	N	GCSWH-ABH
WE-026	SWD2-2	Green Ash Mineral Deciduous Swamp Type	61.11	N	Y	N	GCSWH-ABH

Feature ID	ELC Unit	ELC Community Name	Feature Size (Ha)	Vernal Pools Present? (y/n)	Carry Forward to EOS? (y/n)	Within 120m of a Turbine or Road? (y/n)	CSWH ID
WE-027	SWD2-2	Green Ash Mineral Deciduous Swamp Type	10.15	N	Y	N	GCSWH-ABH
WE-029	SWD2-2	Green Ash Mineral Deciduous Swamp Type	9.36	N	Y	N	GCSWH-ABH
WE-031	SWD2-2	Green Ash Mineral Deciduous Swamp Type	1.78	N	Y	N	GCSWH-ABH
WE-033	SWD2	Ash Mineral Deciduous Swamp Ecosite	0.98	N	Y	N	GCSWH-ABH
WE-030	SWD	Deciduous Swamp	0.69	N	Y	N	GCSWH-ABH
WE-037	SWD3-4	Manitoba Maple Mineral Deciduous Swamp Type	1.63	N	Y	N	GCSWH-ABH
WE-038	SWD2	Ash Mineral Deciduous Swamp Ecosite	23.02	N	Y	N	GCSWH-ABH

Amphibian Breeding Habitat (Wetlands)

This type of habitat includes wetlands and vernal and permanent pools which are greater than 500 m^2 with an approximately diameter of 25 m. These habitats differ from woodland habitats as they are often isolated and greater than 120 m from a woodland.

All wetlands in the Study Area were within 120 m of a woodland and therefore have been assessed as Candidate Amphibian Breeding Habitat (Woodland).

This type of habitat is not present and will not be carried forward for further study.

7.4.4 Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)

Marsh Bird Breeding Habitat

Marsh birds typically require marsh bog or submerged shallow aquatic wetland habitats. Any wetland may provide habitat as long as it contains shallow water with emergent aquatic vegetation. Only one marsh habitats is present within 120 m of the Project Location, a shown on **Figures 6a-h, Appendix A**. This will be brought forward to the EOS for further consideration.

In addition, Green Herons may nest near the edge of ponds and marshes in areas sheltered by shrubs and trees. They can also occasionally be found in upland shrub or forest areas at a distance from water. As such, all wetlands and open/shrubby or forested upland areas were considered during the site investigation. No Green Heron

nests were identified. Therefore, Green Heron nesting sites will not be considered further.

Marsh bird breeding habitat is summarized in **Table 7.19.**

Table 7.19 Characteristics of Candidate Marsh Bird Breeding Habitat

Feature ID	ELC Unit	ELC Community Name	Feature Size (Ha)	Feature Description	Carry Forward to EOS? (y/n)	Justification	CSWH ID
WE-010	MAM2-2	Reed-canary Grass Graminoid Mineral Meadow Marsh Type	2.10	Small grassed marsh area around a pond, surrounded by shrubs and trees. No nests identified during initial Site Investigation	Y	-	MBBH-001
Various	All SW, MA, CUM1	Swamp, Marsh and Cultural meadow	N/A	No Green Heron nests identified	N	No suitable nesting habitat present.	-

Woodland Area Sensitive Breeding Bird Habitat

Woodland area-sensitive species require large habitat tracts, providing interior habitat away from an edge where they may be more vulnerable to predation. Mature natural (non-plantation) forests that are greater than 30 ha in size and having at least 4 ha of interior habitat (at least 200 m from an edge) are considered to provide significant habitat for area-sensitive bird species. Three woodlands meeting these size criteria were identified within 120 m of the Project Location.

In accordance with MNR (2011), these types of habitats can be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat. As such, each habitat is identified as a general habitat (GCSWH-WASBB) and is shown on **Figures 7a-h, Appendix A**.

These features will be brought forward to the EOS and EIS for further assessment.

A summary of the size and characteristics of three candidate habitats for area-sensitive species is provided in **Table 7.20**.

Table 7.20 Species Observed in Candidate Woodland Area Sensitive Bird Breeding Habitat

Feature ID	ELC Unit	ELC Community Name	Size of Contiguous Woodland (Ha)	Size of Interior Woodland Measured 200 m from Edge (Ha)	Eco-Region	Carry Forward to EOS? (y/n)	CSWH ID
W-012 (WE-001)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	172.33	19.94	7E	Y	GCSWH -WASBB
W-023 (WE-002)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	87.89	9.74	6E	Y	GCSWH -WASBB
W-030 (WE-021)	SWD2-2	Green Ash Mineral Deciduous Swamp Type	84.88	12.90	6E	Y	GCSWH -WASBB
	FOD3-1	Dry – Fresh Poplar Deciduous Forest Type					

Open Country Breeding Bird Habitat

Open country birds require large tracts of grassland habitat. Areas greater than 30 ha in size with natural or successional grasslands and meadows can provide significant habitats. Some agricultural lands that are in low intensity use, such as abandoned fields, mature hayfields and pasturelands that are at least five years old may also be considered. In general candidate habitats are grasslands which are not being actively used for farming (i.e., no row cropping or intensive hay or livestock pasturing within the last five years).

Several open country and agricultural lands were assessed. Most open country habitats (cultural meadows) were too small to meet the size criteria, with the exception of one, OC-025. This area was identified as a cultural meadow in 2011. However, in 2012, the owner began pasturing livestock on the site. There are indications that the owner plans to continue to use this area for livestock pasturing purposes. As such, OC-025 is now considered to be in agricultural use and does not provide candidate habitat for open country bird species.

Several large hayfields are present within 120 m of the Project Location. As noted under the assessment of Raptor Wintering Areas, there was evidence from aerial photography and from the field reconnaissance that these hayfields were cropped several times a year, so that there was very little thatch. Agricultural use appears to be too active to provide suitable conditions for open country breeding birds. A number of fields identified as having hay in the fall of 2011 were tilled in the spring of 2012, making them unsuitable as candidates for this type of habitat.

Therefore, this type of habitat is not present within 120 m of the Project Location and will not be studied further.

A summary of the nineteen lands assessed as possible candidate open country breeding bird habitat is provided in **Table 7.21**.

Table 7.21 Characteristics of Candidate Open Country Breeding Bird Habitat

Feature ID	ELC Unit	ELC Community Name/Crop type	Feature Description	Feature Size (Ha)	Carry Forward to EOS? (y/n)	Justification
OC-009	CUM1-1	Dry - Moist Old Field Meadow Type	Narrow band of cultural meadow along a drain.	4.61	N	Insufficient size to meet candidate habitat requirements.
OC-021	CUM1-1	Dry - Moist Old Field Meadow Type	Small naturalizing old field within active agricultural lands.	4.48	N	Insufficient size to meet candidate habitat requirements.
OC-022	CUM1-1	Dry - Moist Old Field Meadow Type	Abandoned old field.	3.76	N	Insufficient size to meet candidate habitat requirements.
OC-023	CUM1-1	Dry - Moist Old Field Meadow Type	Abandoned old field.	1.49	N	Insufficient size to meet candidate habitat requirements.
OC-024	CUM1-1	Dry - Moist Old Field Meadow Type	Abandoned old field.	5.48	N	Insufficient size to meet candidate habitat requirements.
OC-025	CUM1-1	Dry - Moist Old Field Meadow Type	Was old field meadow. In 2012 began use for active livestock pasturing.	33.30	N	Due to active livestock pasturing it is not considered to provide habitat.
OC-027	CUM	Cultural Meadow	Disturbed area in process of naturalization.	3.66	N	Insufficient size to meet candidate habitat requirements.
AG-005	Hay	N/A	Appears to be harvesting several times per year. Very little thatch present.	50.85	N	Agricultural use is too intensive to provide suitable habitat.
AG-013	Hay (2011) Wheat (2012)	N/A	Hay was present in 2011 but was planted in wheat in 2012.	38.09	N	Agricultural use is too intensive to provide suitable habitat.
AG-015	Hay	N/A	Appears to be harvesting several times per year. Very little thatch present. Tilled in 2012.	36.09	N	Agricultural use is too intensive to provide suitable habitat.
AG-020	Hay	N/A	Appears to be harvesting several times per year. Very little thatch present. Tilled in 2012.	23.35	N	Agricultural use is too intensive to provide suitable habitat.
OC-036	CUM	Cultural Meadow	Very small cultural meadow area.	0.28	N	Insufficient size to meet candidate habitat requirements.
AG-021	Hay	N/A	Appears to be harvesting several times per year. Very little thatch present. Majority of this field was tilled in 2012.	67.40	N	Agricultural use is too intensive to provide suitable habitat.
AG-022	Hay	N/A	Appears to be harvesting several times per year. Very little thatch present.	29.15	N	Agricultural use is too intensive to provide suitable habitat.

Feature ID	ELC Unit	ELC Community Name/Crop type	Feature Description	Feature Size (Ha)	Carry Forward to EOS? (y/n)	Justification
AG-023	Hay	N/A	Small hayfield	1.81	N	Insufficient size to meet candidate habitat requirements.
AG-024	Hay	N/A	Small hayfield	2.82	N	Insufficient size to meet candidate habitat requirements.
AG-026	Hay	N/A	Appears to be harvesting several times per year. Very little thatch present.	39.09	N	Agricultural use is too intensive to provide suitable habitat.
AG-027	Hay	N/A	Small hayfield	4.48	N	Insufficient size to meet candidate habitat requirements.
AG-028	Hay	N/A	Small hayfield	5.48	N	Insufficient size to meet candidate habitat requirements.

Shrub/Early Successional Bird Breeding Habitat

Shrub and early successional bird breeding habitat consists of large field areas undergoing succession to shrub and thicket habitats. Areas should be at least 10 ha in size or larger and not actively used for farming. Shrub and thicket habitats sites should have a history of longevity and have been abandoned from agricultural use and pasturelands for at least five years.

Several (8) shrublands and abandoned fields were reviewed as part of this assessment. Most were too small to meet the required size criteria. A cultural meadow (OC-025) was considered as a Yellow-breasted Chat, *Icteria virens*, was possibly observed in this field during the 2012 breeding season. Although some shrub cover is present, the field is considered to be a meadow rather than thicket. The field is also now being used for active livestock pasturing and is no longer considered to provide suitable breeding habitat.

One candidate area was identified along the transmission line in the vicinity of an abandoned aggregate extraction operation. This area is in early succession from previous aggregate-related disturbances and may provide suitable shrub habitat.

This feature will be treated as significant and carried forward as Generalized Candidate Significant Wildlife Habitat (GCSWH-SESBB), as shown on **Figures 7a-h, Appendix A**.

Table 7.22 Candidate Shrub/Early Successional Bird Breeding Habitat

Feature ID	ELC Unit	ELC Community Name	Feature Description	Feature Size (Ha)	Carry Forward to EOS? (y/n)	Justification	CSWH ID
OC-002	CUW1	Mineral Cultural Woodland Ecosite	Small open woodland at corner of a field.	1.55	N	Insufficient size to meet candidate habitat requirements.	-

Feature ID	ELC Unit	ELC Community Name	Feature Description	Feature Size (Ha)	Carry Forward to EOS? (y/n)	Justification	CSWH ID
OC-006	CUW	Cultural Woodland	Small open woodland area along a drain.	1.37	N	Insufficient size to meet candidate habitat requirements.	-
OC-007	CUW1	Mineral Cultural Woodland Ecosite	Narrow band of open woodland along a drain.	5.58	N	Insufficient size to meet candidate habitat requirements.	-
OC-025	CUM1-1	Dry - Moist Old Field Meadow Type	Cultural meadow now being used for livestock pasturing. Possible breeding of yellow-breasted chat was noted in this field in the spring of 2012.	33.30	N	Although a shrub/early successional species was noted, suitable habitat conditions are not present.	-
OC-026	CUW1	Mineral Cultural Woodland Ecosite	Narrow band of open woodland along a drain.	5.00	N	Insufficient size to meet candidate habitat requirements.	-
OC-028	CUT1	Mineral Cultural Thicket Ecosite	Disturbed site in early succession.	8.61	N	Insufficient size to meet candidate habitat requirements.	-
OC-035	CUT	Cultural Thicket	Small area of disturbed site in early succession.	0.81	N	Insufficient size to meet candidate habitat requirements.	-
OC-037	CUW1/ CUT1	Cultural Woodland/ Cultural Thicket	Disturbed area surrounding old aggregate extraction site, undergoing succession.	13.50	Y		GCSWH-SESBB

Terrestrial Crayfish

Terrestrial crayfish inhabit the edges of shallow marshes, mudflats and meadows. They are semi-terrestrial burrowers, spending most of their life within underground burrows consisting of a network of tunnels. Typically soils are not too moist and have some clay content so the tunnel is well-formed. Habitats are recognizable by “chimneys” which are formed from the mud excavated by the crayfish as it burrows into the ground.

One meadow marsh community was identified within the Study Area. The area was searched during the ELC mapping exercise and no evidence of burrows or “chimneys” were observed.

This habitat is, therefore not present and will not be considered further.

Table 7.23 Characteristics of Candidate Terrestrial Crayfish Habitat

Feature ID	ELC Unit	ELC Community Name	Feature Size (Ha)	Feature Characteristics	Eco-Region	Carry Forward to EOS? (y/n)	Justification
WE-010	MAM2-2	Reed-canary Grass Graminoid Mineral Meadow Marsh Type	2.10	No crayfish burrows ("chimneys") identified.	6E	N	No evidence of habitat observed.

Special Concern and Rare Wildlife Species

Several Special Concern and provincially rare species are known to inhabit lands in the vicinity of the Project Location. A summary of the species potentially present and their habitats needs is presented in **Table 7.2**.

Species with Habitat Requirements Previously Studied

In many cases significant habitat for these species corresponds with other habitat types previously described. In these cases, habitat for these species will be brought forward to the EOS and addressed under the corresponding habitat type. **Table 7.24** notes if a species has a corresponding habitat which has previously been reviewed and indicates where candidate significant wildlife habitat has been identified.

Species with Unique Habitat Requirements

For species, other than plants, which have unique habitat requirements not meeting the habitat types described previously, the MNR has the discretion to determine whether habitats can be treated as significant or if they should be evaluated with a specific species survey.

The MNR was consulted throughout the Site Investigation process. It was determined that Common Nighthawk habitat should be brought forward to the EOS and specifically surveyed. Common Nighthawk habitat generally consists of woodlands with openings from logged or burnt over areas, rocky outcrops or other activities or features which would create an opening. The woodlands within 120 m of the Project Location generally have a closed canopy with few gaps. However, three large woodlots are present (W-012, W-023, W-030). These woodlots could not be fully surveyed due to access restrictions, but it is likely that due to their size, some gaps are present. As such, they were identified as Candidate Common Nighthawk Habitat and are identified as CNH-001, CNH-002, CNH-003 and CNH-004 on **Figures 6a-h, Appendix A**. These will be brought forward to the EOS for further study.

Table 7.24 Special Concern and Rare Species Potentially Present in the Study Area

Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat	ELC Community	Habitat Present?	Habitat Carried Forward to EOS?	Justification	Corresponding CSWH	CSWH ID
Birds										
Common Nighthawk	*Chordeiles minor*	SC	S4B	Generally prefer open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops)	CUM, TPO, SBO1, SBS, BOO, SDO1, BBO1	Yes	Yes		No associated significant wildlife habitat.	CNH-001 CNH-002 CNH-003 CNH-004
Red-headed Woodpecker	*Melanerpes erythrocephalus*	SC	S4B	Generally prefer open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks.	FOD1, FOD2, FOD4-1, CUM, TPO, CUW1-2, CUM, BOO1, BOS1	Yes. Substantial forest edge habitat is present.	Yes, treat all habitats as significant and ID as Generalized Significant Wildlife Habitat	Substantial habitat is present. Forest habitat will not be directly impacted.	No associated significant wildlife habitat.	GCSWH-SCC
Short-eared Owl	*Asio flammeus*	SC	S2N, S4B	Generally prefers a wide variety of large (<100 ha) open habitats, including grasslands, peat bogs, marshes, sand-sage concentrations, old pastures and hay fields.	MAS, SAS, SAM, SAF, BOO1, BOS, MAM2, CUM, TPO	Yes, pastures and hay fields present.	Yes, to be considered in association with Raptor Wintering Areas.		Raptor Wintering Areas	RWA-001 RWA-002 RWA-003 RWA-004
Yellow-breasted Chat	*Icteria virens*	SC	S2B	Generally prefer dense thickets around wood edges, riparian areas, and in overgrown clearings.	CUT ALS SWT	One candidate shrub land present along transmission line.	Yes, to be considered in association with Shrub/Early Successional Bird breeding Habitat		Shrub/Early Successional Bird Breeding Habitat	GCSWH-SESBB
Bald Eagle	*Haliaeetus leucocephalus*	SC	S1S2N,S4B	Prefers deciduous and mixed-deciduous forest; and habitat close to water bodies such as lakes and rivers; They roost in super canopy trees such as Pine.	FOM FOD + evidence of stick nest	No. Suitable nest trees present (e.g., large poplars) but no nests found.	No	No nesting habitat identified.	Bald Eagle and Osprey Nesting, Perching and Feeding Areas	
Amphibians/ Reptiles										
Snapping Turtle	*Chelydra serpentina*	SC	S3	Commonly found in shallow ponds, shallow lakes, or streams with muddy bottoms. They are known to bask on fallen logs in early spring. In shallow waters, They are known to travel overland to reach new habitat or to lay eggs in sandy soil, often some distance from the water.	SWC, SWM, SWD, SWT, MAS, SAS, SAM, SAF, OAO (including riparian areas along shorelines)	Yes. Potentially within two candidate turtle nesting and over-wintering habitats.	Yes, to be considered in association with turtle nesting and overwintering sites.		Turtle Wintering Areas Turtle Nesting Areas	TWA-001 TWA-002 TWA-003 GCSWH-TWA TNA-001 TNA-002 GCSWH-TNA
Milksnake	*Lampropeltis triangulum*	SC	S3	This species lives in a wide range of habitats, including old fields and farm buildings where rodents are common.	SWC, SWM, SWD, SWT, MAS, CUM, TPO, FOC1, FOD2, FOD3, FOD5, FOD6, BOT (including riparian areas along shorelines)	Yes. Potentially within five candidate reptile hibernacula	Yes, to be considered in association with reptile hibernacula.		Reptile Hibernacula	RH-001 RH-002 RH-003 RH-004 RH-005

Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat	ELC Community	Habitat Present?	Habitat Carried Forward to EOS?	Justification	Corresponding CSWH	CSWH ID
Eastern Ribbon-snake	*Thamnophis sauritus*	SC	S3	Eastern Ribbonsnakes are usually found in wetlands and near the edges of ponds and streams. They are adaptable to being both in and out of water environments.	SWC, SWM, SWD, SWT, MAS, SAS, SAM, SAF, CUM, TPO, OAO (including riparian areas along shorelines)	Yes. Potentially within five candidate reptile hibernacula	Yes, to be considered in association with reptile hibernacula.		Reptile Hibernacula	RH-001 RH-002 RH-003 RH-004 RH-005
Mammals										
Little Brown Bat	*Myotis lucifugus*	END (COSEWIC)	S5	This species uses caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics and barns; feeds primarily in wetlands, forest edges.	FOM FOD + snag/cavity tree density > 10 snags per ha of trees > 25 cm dbh	No candidate bat hibernacula present. Several Candidate Bat Maternal Colonies present.	Yes, to be considered in association with bat maternity colonies.		Bat Maternal Colonies	BMC-001 BMC-002 BMC-003 BMC-004 BMC-005 BMC-006 BMC-007 GCSWH-BMC
Northern Long-eared Bat	*Myotis septentrionalis*	END (COSEWIC)	S3?	This bat hibernates during winter in mines or caves; during summer males roost alone and females form maternity colonies of up to 60 adults; roosts in houses, manmade structures but prefers hollow trees or under loose bark. The species hunts within forests, below the canopy.	FOM FOD + snag/cavity tree density >10 snags per ha of trees > 25 cm dbh	No candidate bat hibernacula present. Several Candidate Bat Maternal Colonies present.	Yes, to be considered in association with bat maternity colonies.		Bat Maternal Colonies	BMC-001 BMC-002 BMC-003 BMC-004 BMC-005 BMC-006 BMC-007 GCSWH-BMC
Tri-colored Bat	*Perimyotis subflavus*	END (COSEWIC)	S3?	Habitat includes open woods near water; roosts in trees, cliff crevices, buildings or caves. The species hibernates in damp, draft-free, warm caves, mines or rock crevices.	FOM FOD + snag/cavity tree density > 10 snags per ha of trees > 25 cm dbh	No candidate bat hibernacula present. Several Candidate Bat Maternal Colonies present.	Yes, to be considered in association with bat maternity colonies.		Bat Maternal Colonies	BMC-001 BMC-002 BMC-003 BMC-004 BMC-005 BMC-006 BMC-007 GCSWH-BMC
Flora										
Tuberous Indian-plantain	*Arnoglossum plantagineum*	SC	S3	These plants prefer open sunny areas in wet, calcareous meadows or shoreline fens (floating mats).	ALO FEO FES BOO MAM	No suitable habitat present. No calcareous meadows or fens.	No	No suitable habitat present.		
Hill's Pond Weed	*Potamogeton hillii*	SC	S2	This species grows in clear, cold ponds and slow- moving streams where the water is alkaline.	OAO FE BO MAM MAS SAS SAM SAF	No suitable habitat present. No ponds deep enough to provide cold, clear water.	No	No suitable habitat present.		

Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat	ELC Community	Habitat Present?	Habitat Carried Forward to EOS?	Justification	Corresponding CSWH	CSWH ID
Green Dragon	*Arisaema dracontium*	SC	S3	The Green Dragon plant grows in wet forests along streams, and prefers Maple forest and forest dominated by Red Ash and White Elm.	FOM6 FOM7 FOM8 FOD6 FOD7 FOD8 FOD9 SWC SWD SWM Riparian	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC
Harbinger-of-spring	*Erigenia bulbosa*	-	S3	Rich, moist deciduous woods, open, wooded river floodplains and bottomlands; stream banks and limestone shingle shores	FOM6 FOM7 FOM8 FOD6 FOD7 FOD8 FOD9 Riparian	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC
Burning Bush	*Euonymus atropurpureus*	-	S3	Burning Bush grows in low meadows, open slopes, open woodland, stream banks and prairies, in moist soils, and is partial to thickets, valleys, and forest edges.	FOD FOM Forest edge	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC
Large Round-leaved Orchid	*Platanthera macrophylla*	-	S2	This species is found in moist or dry woodlands, typically deciduous as they prefer little ground cover and some leaf litter.	FOM6 FOM7 FOM8	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC
Hairy Wood Mint	*Blephilia hirsuta*	-	S1	Habitats include mesic deciduous woodlands, areas along woodland paths, woodland borders, and thickets. Minor disturbance is desirable if it removes excessive shade from the overhead canopy.	FOD FOC FOM Riparian	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC
Autumn Coral-root	*Corallorhiza odontorhiza*	-	S2	This species is found in open, oak-pine woods or occasionally in open, red pine or white pine plantations in sandy areas	FOM1 FOM2 CUP3-1 CUP3-2	No, no open oak-pine woods or open pine plantations in sandy soils	No	No suitable habitat present.		
Chinese Hemlock Parsley	*Conioselinum chinense*	-	S2	Calcareous cedar swamps; wet borders of streams and rivers; seepage slopes in wet coniferous woods, swampy thickets, moist clearings and damp roadsides.	SWC SWM FOM7 SWT	Yes, possible in small swamp thicket communities associated with WE-011 and WE-015.	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC

Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat	ELC Community	Habitat Present?	Habitat Carried Forward to EOS?	Justification	Corresponding CSWH	CSWH ID
Crowned Beggar-ticks	*Bidens trichosperma*	-	S2	B. trichosperma is found in moist, sandy meadows, marshes, stream banks and gravelly shores . This species was previously referred to as B. coronata.	MAM MAS	Yes, only in one marsh area.	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC
Eastern Green-violet	*Hybanthus concolor*	-	S2	It is found in moist, shady sites in ravines and on rocky slopes, also on floodplains, in rich, calcareous soils. Most of the Canadian populations are located along the Niagara Escarpment, as it is an area of prime habitat for the green-violet.	FOC3 FOC4 FOM6 FOM7 FOM8 FOD6 FOD7 FOD8 FOD9 SWC SWM SWD	No, rocky ravine and slope topography not present. Rich floodplains not present. Floodplains associated with small drains only.	No	No suitable habitat present.		
Fogg's Goosefoot	*Chenopodium foggii*	-	S2	Found in sandy areas on limestone under oak or pine-oak forests.	TPS1 TPS2 TPW1 TPW2 FOC1 FOM1 FOD1 FOD2	No suitable habitat present. No limestone oak or pine-oak forests present.	No	No suitable habitat present.		
Rattle-snake Hawkweed	*Hieracium venosum*	-	S2	Common habitat includes open, dry sandy woods.	TPS TPW FOC1 FOM1 FOM2 FOM3 FOM4 FOM5 FOD1 FOD2 FOD3 FOD4 FOD5	No open, dry sandy woods present.	No	No suitable habitat present.		
Slender Knotweed	*Polygonum tenue*	-	S2	Species common in dry, sandy, open areas in deciduous (often oak woods), prairie meadows; and at the edges of sand pits.	TPO TPS TPW FOD1 FOD2	No open sandy woodlands, prairies or sand pits present.	No	No suitable habitat present.		

Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat	ELC Community	Habitat Present?	Habitat Carried Forward to EOS?	Justification	Corresponding CSWH	CSWH ID
Slender Vulpia	*Vulpia octoflora*	-	S2	V. octoflora are found in dry, sandy meadows; canopy openings in dry sandy forests; and open, stabilized dunes.	SDO SDS SDT FOC1 FOC2 FOM1 FOM2 FOM3 FOM4 FOM5 FOD1 FOD2 FOD3 FOD4 FOD5	No open sandy woodlands.	No	No suitable habitat present.		
Slim-flowered Muhly	*Muhlenbergia tenuiflora*	-	S2	This species is commonly found in rich deciduous forests, often on rocky or sandy soils.	FOC1 FOC2 FOM1 FOM2 FOM3 FOM4 FOM5 FOD1 FOD2 FOD3 FOD4 FOD5 Riparian	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC
Slim-spiked Three-awned Grass	*Aristida longespica var. longespica*	-	S2	Commonly located in dry to moist sandy fields and sandy openings in prairies.	TPO	No, no prairie habitat present.	No	No suitable habitat present.		
Stiff Gentian	*Gentianella quinquefolia*	-	S2	Located in moist soils, along roadsides, stream banks and edges of woods and prairies.	TPO Riparian Woodland edge	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC
Hairy Valerian	*Valeriana edulis*	-	S1	Habitats include swampy river flats and meadows; wet prairies; as well as wooded, rocky riverbanks.	CUM TPO2 SWT FEO FES FET BOO BOS BOT MAM MAS SWC SWM	No, no large rivers present to provide river flat or rocky bank habitat. No wet prairies present.	No	No suitable habitat present.		

Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat	ELC Community	Habitat Present?	Habitat Carried Forward to EOS?	Justification	Corresponding CSWH	CSWH ID
					SWD					
Woodland Pinedrops	*Pterospora andromedea*	-	S2	Commonly found in conifer woods, under pine trees.	FOC1 FOM1	No, no conifer woods present. One small (3.4 ha) mixed forest of Sugar Maple and Hemlock but no pine.	No.	No suitable habitat present.		
Yellow Ladies'-tresses	*Spiranthes ochroleuca*	-	S2	Sandy meadows, prairies and roadsides are the common sites you will locate this species.	CUM TPO TPS	No. No sandy areas.	No	No suitable habitat present.		
Giant Ironweed	*Vernonia gigantea*	-	S1?	It is an adaptable plant and occurs in a wide variety of habitats. Often, it is found in mesic prairies, thickets, moist woods, roadsides and grassy meadows.	CUM CUT TPO2 TPW2 FOD6 FOD7 FOD8 FOD9	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.			GCSWH-SCC
American Gromwell	*Lithospermum latifolium*	-	S3	Can be located in river floodplains, woods and open areas near edges of woods.	FOC FOM FOD Riparian Woodland edge	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC
Carolina Whitlow-grass	*Draba reptans*	-	S3	Species habitats include dry sandy areas, dry open flats, and limestone pavements.	SDO SDS SDT ALO ALS ALT Shorelines	No	No	No suitable habitat present.		
Pilose Evening Primrose	*Oenothera pilosella*	-	S2	This species is located in the moist edges of woods and prairies.	TPO FOC3 FOC4 FOM6 FOM7 FOM8 FOD6 FOD7 FOD8 FOD9 Woodland edge	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC

Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat	ELC Community	Habitat Present?	Habitat Carried Forward to EOS?	Justification	Corresponding CSWH	CSWH ID
Hairy Bedstraw	*Galium pilosum*	-	S3	Hairy bedstraw inhabits dry, sandy woods and thickets; and is occasionally in dry sandy fields.	TPO TPS TPW FCO1 FCO2 FOM1 FOM2 FOM3 FOM4 FOM5 FOD1 FOD2 FOD3 FOD4 FOD5	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC
False Tomentose Balsam Grounsel	*Packera paupercula var. pseudotomentosa*	-	S2S3	Commonly located in moist sandy or gravelly (limestone) shores, fens, cedar swamps, thin soil over limestone (alvar); and also in dry aspen, and oak savannah (especially in moist areas); meadows and marshy ground.	ALO ALS ALT TPS TPW MAM MAS	No suitable habitat present. Limestone soils or bedrock not present. No alvars or dry aspen/oak savannah present.	No	No suitable habitat present.		
Scarlet Beebalm	*Monarda didyma*	-	S3	Located in moist woods, swampy thickets and roadsides.	CUM CUT FOC4 FOC5 FOM6 FOM7 FOM8 FOD6 FOD7 FOD8 FOD9 SWC SWM SWD SWT	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC
Lizard's Tail	*Saururus cernuus*	-	S3	Habitat is restricted to shores and shallow water.	FEO BOO MAS SAS OAO	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC
Pawpaw	*Asimina triloba*	-	S3	This species is located in moist woods and along stream banks.	FOD6 FOD7 FOD8 FOD9 Riparian	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC

Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat	ELC Community	Habitat Present?	Habitat Carried Forward to EOS?	Justification	Corresponding CSWH	CSWH ID
Round-leaved Hawthorn	*Crataegus lumaria*	-	S3	The MNR consulted NatureServe and they list the habitat as "old fields, pastures, roadsides". It has a floristic coefficient of conservatism of 2, so it tends to favor disturbed habitats, which matches the habitats described above.	CUM CUT Old fields, pastures.	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC
Butterflies/ Dragonflies										
Monarch Butterfly	*Danaus plexippus*	SC	S2N,S4B	The Monarch can be found in a wide range of habitats such as fields, meadows, prairie remnants, urban and suburban parks, gardens, and roadsides.	CUM TPO TPS + large quantities of milkweed and wildflowers.	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC
West Virginia White	*Pieris virginiensis*	SC	S3	This species is typically found in moist deciduous forests.	FOD6 FOD7 FOD8 FOD9	Yes	Yes, habitat to be treated as significant and identified as Generalized Candidate Significant Wildlife Habitat.		N/A	GCSWH-SCC
Tawny Emperor	*Asterocampa clyton*	-	S2S3	The Tawny Emperor butterfly may be seen flying near houses, gravel driveways, near water, muddy places, gardens, and woodlands. This species only host plant is hackberry trees.	CUM FO	Grand Bend is at the northern extent of hackberry range. No significant quantities of hackberry were observed.	No	No suitable habitat present.		
Azure Bluet	*Enallagma aspersum*	-	S3	This dragonfly species can be found in shallow ponds, lakes, and bogs, which are usually fishless.	OAO BOO MAM MAS SAS	All ponds in the study area contained fish. No habitat present.	No	No suitable habitat present.		

Plants

With respect to rare plants, only candidate habitats within 120 m of a proposed access road must be evaluated for significance with specific surveys rather than being identified as generalized habitat. Although vegetation was surveyed during ELC mapping exercises, certain rare plants may not have been readily identifiable as they may bloom during different times of the year. The habitats needs of various rare plant species which may be present in the area are listed in **Table 7.25**. There are thirteen candidate habitats within 120 m of an access road which could meet the habitat needs of one or more plant species. These areas are identified as Candidate Habitats for Species of Conservation Concern (SCC-001 through SCC-013 as shown on **Figures 6a-h, Appendix A**) and will be brought forward to the EOS for further study.

Table 7.25 Summary of Candidate Habitats for Rare Plants

Feature ID	ELC Unit	ELC Community Name	Feature Size (Ha)	Species Which May be Present	Carry Forward to EOS? (y/n)	CSWH ID
W-004	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	4.82	• Burning Bush • Hairy Wood Mint • Slim-flowered Muhly • American Gromwell • Hairy Bedstraw.	Y	SCC-001
	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	31.15			
W-014	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	5.73	• Burning Bush • Hairy Wood Mint • Slim-flowered Muhly • American Gromwell • Hairy Bedstraw.	Y	SCC-002
WE-001	SWD2-2	Green Ash Mineral Deciduous Swamp Type	172.33	• Green Dragon • Scarlet Beebalm.	Y	SCC-003
W-020	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	11.18	• Burning Bush • Hairy Wood Mint • Slim-flowered Muhly • American Gromwell • Hairy Bedstraw.	Y	SCC-004
W-021	FOD5-1	Dry – Fresh Sugar Maple Deciduous Forest Type	14.77	• Burning Bush • Hairy Wood Mint • Slim-flowered Muhly • American Gromwell • Hairy Bedstraw.	Y	SCC-005
WE-002	SWD2-2	Green Ash Mineral Deciduous Swamp Type	83.33	• Green Dragon • Scarlet Beebalm.	Y	SCC-006

Feature ID	ELC Unit	ELC Community Name	Feature Size (Ha)	Species Which May be Present	Carry Forward to EOS? (y/n)	CSWH ID
W-026	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	17.77	• Burning Bush • Hairy Wood Mint • Slim-flowered Muhly • American Gromwell • Hairy Bedstraw.	Y	SCC-007
	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	16.30			
WE-003	SWD2-2	Green Ash Mineral Deciduous Swamp Type	27.89	• Green Dragon • Scarlet Beebalm.	Y	SCC-008
W-036	FOD3-2	Dry – Fresh White Birch Deciduous Forest Type	8.74	• Burning Bush • Hairy Wood Mint • Slim-flowered Muhly • American Gromwell • Hairy Bedstraw.	Y	SCC-009
	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	29.23			
WE-010 WE-011 W-037	MAM2-2	Reed-canary Grass Graminoid Mineral Meadow Marsh Type	2.10	• Burning Bush • Hairy Wood Mint • Chinese Hemlock Parsley • Crowned Beggar-ticks • Slim-flowered Muhly • American Gromwell • Hairy Bedstraw • Scarlet Beeblam.	Y	SCC-010
	SWT2-5	Red-osier Dogwood Mineral Deciduous Thicket Swamp Type	1.83			
	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	16.56			
	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	16.56			
W-042	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	1.86	• Burning Bush • Hairy Wood Mint • Slim-flowered Muhly • American Gromwell • Hairy Bedstraw.	Y	SCC-011
	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	6.30			
W-041	FOD4-2	Dry - Fresh White Ash - Hardwood Deciduous Forest Type	2.57	• Burning Bush • Hairy Wood Mint • Slim-flowered Muhly • American Gromwell • Hairy Bedstraw.	Y	SCC-012

Feature ID	ELC Unit	ELC Community Name	Feature Size (Ha)	Species Which May be Present	Carry Forward to EOS? (y/n)	CSWH ID
W-053	FOD3-1	Dry – Fresh Poplar Deciduous Forest Type	10.36	• Burning Bush • Hairy Wood Mint • Slim-flowered Muhly • American Gromwell • Hairy Bedstraw.	Y	SCC-013

Other suitable habitats for plants are present, but are more than 120 m from a new access road. In accordance with MNR (2011a), these habitats can be identified as Generalized Candidate Significant Wildlife Habitat. As shown in **Table 7.25**, the rare plant species which may be present generally require the following habitat types:

- Deciduous forest and forest edge;
- Deciduous swamps;
- Marshes; and,
- Cultural meadows.

Therefore, all woodlands, wetlands and open country areas located within 120 m of the Project Location are considered to provide candidate habitat for rare plant species and are identified as Generalized Candidate Significant Wildlife Habitat (GCSWH-SCC).

Remaining Species
The MNR was consulted regarding the remaining Species of Conservation Concern as listed in **Table 7.25**. These species are:

- Red-headed Woodpecker;
- Monarch; and,
- West Virginia White.

The MNR confirmed that the habitat for these species can be identified as Generalized Candidate Significant Wildlife Habitat. Habitats for these species include forests and cultural meadows and are covered under the habitats identified as GCSWH-SCC, as described above.

7.4.5 Animal Movement Corridors

Amphibian Movement Corridors
The presence of amphibian corridors will be confirmed during the EOS once it is determined whether significant amphibian breeding habitat exists. The location and significance of corridors between significant breeding areas, summer habitats and hibernation sites will be studied, as required, based on the findings of the EOS.

Deer Movement Corridors

Deer movement corridors are used by deer when migrating to and from winter concentration areas. Two Stratum II Deer Yarding Areas have been identified spanning the proposed transmission line route in the vicinity of Rodgerville Road and Parr Line. Corridors are considered to be candidates for significance if they are unbroken by roads and residential areas and are at least 200 m wide with gaps less than 20 m. If they follow a watercourse, there must be at least 15 m of vegetation from both banks.

The Deer Yarding Areas were observed during the Site Investigation. No corridors that would link the winter habitat to other habitats were identified. There are significant gaps between each patch associated with the complex of deer yards in the area and habitat is broken by Rodgerville Road. The transmission line will be located within the road ROW and thus the presence of the road eliminates the potential for deer movement corridors to be present in the area. This feature will not be brought forward for further study.

8.0 Site Investigation Results Summary

8.1 Summary of Site Investigation Findings

Based on the results of the Site Investigation, the following features are, or may be, present within 120 m of the Project Location and will be brought forward for further analysis in the EOS:

- Valleylands (unevaluated);
- Woodlands (unevaluated);
- Wetlands (Provincially Significant and unevaluated);
- Candidate Significant Wildlife Habitat (Provincially Significant and unevaluated) including:
  - Waterfowl stopover and staging areas (aquatic):
    - Turtle wintering areas;
    - Bat maternity colonies;
    - Reptile hibernaculum;
    - Colonially-nesting bird breeding habitat (ground);
    - Deer yarding areas (Provincially Significant);
    - Waterfowl nesting areas;
    - Woodland raptor nesting habitat;
    - Turtle nesting areas;
    - Seeps and springs;
    - Amphibian breeding habitat (woodland);
    - Marsh bird breeding habitat;
    - Woodland area-sensitive bird habitat;
    - Shrub/early successional bird breeding habitat;
    - Habitat for Special Concern and rare species; and,
    - Amphibian corridors.

9.0 Confirmation from Ministry of Natural Resources

Under Section 28 of O. Reg. 359/09, the Ministry of Natural Resources ("MNR") must review the Site Investigation and confirm that it was completed in accordance with criteria and procedures accepted by that Ministry. This Site Investigation Report is currently under review and is awaiting confirmation. A copy of the MNR confirmation will be provided in **Appendix H** upon receipt.

10.0 Conclusions

As a result of the Site Investigation, a number of previously evaluated features of known provincial significance and unevaluated candidate features of significance were identified.

Features known to be of provincial significance and those to be treated as significant will be brought forward to the EIS. Other candidate significant features will be evaluated using provincial criteria and methods in the EOS.

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