



Grand Bend Wind Farm
Natural Heritage Assessment, Part I
Records Review Report

Grand Bend Wind Limited Partnership
Northland Power Inc., as agent



NEEGAN BURNSIDE

February 2013



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Records Review Report**

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Prepared for:

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Northland Power Inc., as agent

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Record of Revisions

Revision	Date	Description
0	March 14, 2012	Initial Submission to the Ministry of Natural Resources
1	May 30, 2012	Submission of Revised Report Addressing MNR Initial Comments
2	June 7, 2012	Submission of Revised Report Addressing Additional MNR Comments
3	August 14, 2012	Updated to include MNR Confirmation Letter
3	August 27, 2012	Initial Draft Submission to Municipal and Aboriginal Communities as well as Selected Government Agencies
4	January 25, 2013	Final Submission to MNR
4	February 15, 2013	Application for Renewable Energy Approval

Executive Summary

Grand Bend Wind Limited Partnership, with Northland Power Inc. (“Northland”) as agent, are 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, a parts and storage (office/maintenance) building, a new transmission line within municipal road right-of ways (“ROWS”) along Sararas Road, Rodgerville Road, 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 1 Records Review and includes a detailed compilation of available background information from a variety of sources, including:

- government agency files;
- policy documents and mapping;
- online and published resources; and,
- aerial photography.

Through a search of these sources, of a number of significant or potentially significant features within 120 m of the Project Location were identified. These include:

- Provincially Significant and unevaluated wetlands;

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- 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, a number of potentially significant features could not be ruled out as being potentially present in the study area, although no specific records or mapped locations were identified. These include:

- 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;
 - 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,

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- special concern and rare wildlife species.
- Animal Movement Corridors:
 - amphibian movement corridors; and,
 - deer movement corridors.

All of these features will be brought forward to the Site Investigation for further study and confirmation of their presence within 120 m of the Project Location.

Under Section 28 of O.Reg. 359/09, the Ministry of Natural Resources (“MNR”) must review the Records Review Report and confirm that it was completed in accordance with criteria and procedures accepted by that Ministry. This Records Review Report was reviewed and confirmation was received from the MNR on June 14, 2012.

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1.0 Introduction

1.1 Project Overview

Grand Bend Wind Limited Partnership, with Northland Power Inc. (“Northland”) as agent, are 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 project location and study area is provided in **Appendix A, Figure 1**.

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, a parts and storage (office/maintenance) building, a new transmission line within municipal road right-of ways (“ROWS”) along Sararas Road, Rodgerville Road, 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 1 Records Review and includes a detailed compilation of available background information from a variety of sources, including:

- government agency files;
- policy documents and mapping;
- online and published resources; and,
- aerial photography.

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1.2 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 Location, shown in **Appendix A, Figure 1**, is roughly 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; and,
- Staffa Road to the north.

The preferred transmission line route is along Sararas/Rodgerville Road to Road 183 and connecting to the 230 kV Hydro One transmission line just south of the Seaforth Transformer Station (“TS”). The second alternative route would follow Dashwood Road, Thames Road, Highway 23 and connect to the 230 kV Hydro One Transmission line east of Mitchell. Alternative potential transformer locations and storage building areas are indicated as well. It is of note that the study team is currently reviewing the potential to move the storage building into one of the existing urban areas.

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 is 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 on private lands. All construction and installation activities will be conducted within these designated areas; this includes construction vehicles and personnel. Similarly, all installation activities related to collector lines within the municipal road allowance will be contained within the boundaries of the road allowance.

1.3 Study Area

The Records Review focused on features within a Study Area around the Project Location. The Study Area was identified by first considering all areas within 550 m from the Project Location and then extending the boundaries to the closest lot and concession, as shown in **Appendix A, Figure 1**. Significant records which were identified through the study and which fall outside of the Study Area are also noted in this report; however the majority of the work focused on records within the Study Area.

1.4 Site 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 is in close proximity to the boundary between Ecoregions 6E and 7E. The Ministry of Natural Resources was consulted and it was confirmed that portions of the project are located within Ecoregion 6E, known as the Lake Simcoe-Rideau Region or the Great Lakes-St. Lawrence Forest Region and 7E, known as the Lakes Erie-Ontario Site Region. 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 Records Review Methodology

2.1 Scope of the Review

The Records Review was conducted in accordance with O.Reg. 359/09 and the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR, 2011).

Information was collected on all features with the potential to be identified as:

- Provincial Parks and Conservation Reserves;
- Significant Areas of Natural and Scientific Interest;
- significant wetlands;
- significant woodlands;
- significant valleylands; and,
- significant wildlife habitat.

As part of this project, Neegan Burnside also considered all aspects relating to provincially Threatened and Endangered species. However, since these species are addressed as part of the *Endangered Species Act* (2007), they have not been included in this report. These species will be addressed in full detail, including a description and results of field assessments, potential impacts, and recommended mitigation measures, as part of a separate *Approval and Permitting Requirements Document* (“APRD”) to be submitted to the MNR under a separate cover, where necessary.

2.2 Publicly Available Data Sources

A summary of information sources reviewed for records of potentially significant natural heritage features is provided in **Table 2.1**.

Table 2.1 Publicly Available Data Sources Reviewed

Data Source	Information Provided	Reference
Policy Documents		
County of Huron Official Plan	<ul style="list-style-type: none"> • Natural Heritage Features 	http://www.huroncounty.ca/plandev/officialplan.php
Municipality of Bluewater Official Plan	<ul style="list-style-type: none"> • Natural Heritage Features 	http://www.town.bluewater.on.ca/innerpage.aspx?x=Ls%2br0pdZgZIsIJ8Tz%2bz1DzNrJJrRYLtgyp9xQd167M2wO384%2bNQ8V0hUDc5Hf9XC
Municipality of South Huron Official Plan	<ul style="list-style-type: none"> • Natural Heritage Features 	http://southhuron.iwebez.com/siteengine/ActivePage.asp?PageID=242
Municipality of Huron East Official Plan	<ul style="list-style-type: none"> • Natural Heritage Features 	http://www.huroneast.com/index.php?sltb=plan

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Data Source	Information Provided	Reference
Perth County Official Plan	<ul style="list-style-type: none"> Natural Heritage Features 	http://www.perthcounty.ca/page/County_of_Perth_Official_Plan
Interactive Mapping Sites		
Ministry of Natural Resources' Renewable Energy Atlas	<ul style="list-style-type: none"> Wetlands Known bat hibernacula 	http://www.mnr.gov.on.ca/en/Business/Renewable/2ColumnSubPage/276957.html
Natural Heritage Information Center, Biodiversity Explorer	<ul style="list-style-type: none"> Natural areas Evaluated wetlands ANSIs Species at Risk records 	https://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/main.jsp
Ausable Bayfield Conservation Authority interactive mapping site	<ul style="list-style-type: none"> Natural Heritage Features 	http://www.camaps.ca/Geocortex/Essentials/Web/Viewer.aspx?Site=ABCAPubBing
County of Huron interactive mapping site	<ul style="list-style-type: none"> Natural Heritage Features 	http://gis.huroncounty.ca/imf/imf.jsp?site=Huron_County
Important Bird Areas database	<ul style="list-style-type: none"> Significant Bird Habitat 	http://www.bsc-eoc.org/iba/mapviewer.jsp
Ontario Breeding Bird Atlas	<ul style="list-style-type: none"> Species of Breeding Birds observed in the vicinity of the Study Area 	http://www.birdsontario.org/atlas/index.jsp?lang=en
Department of Fisheries and Oceans and Conservation Ontario Aquatic Species at Risk mapping	<ul style="list-style-type: none"> Potential aquatic species at risk in the vicinity of the Study Area 	http://www.conservation-ontario.on.ca/projects/DFO.html
Karst mapping	<ul style="list-style-type: none"> Karst topography Sinkholes Inferred karst 	http://www.mndm.gov.on.ca/mines/ogs_earth_e.asp
Land Information Ontario ("LIO") publicly available datasets	<ul style="list-style-type: none"> Drain classifications 	http://www.mnr.gov.on.ca/en/Business/LIO/index.html
Other Reports and Background Documents		
Ausable Bayfield Conservation Authority, South Gullies Watershed Report Card	<ul style="list-style-type: none"> Natural Heritage Features 	http://www.abca.on.ca/downloads/reportcard/South_Gullies.pdf

2.2.1 Requests for Information and Records

Letters were sent to a number of federal, provincial, municipal and other agencies and organizations in order to request additional information and records not publicly available through web searches. In addition, several phone calls and follow-up emails were completed. A copy of all correspondence with agencies is provided in **Appendix B** and is summarized in **Table 2.2**.

Table 2.2 Summary of Agencies Contacted, Records Requested and Records Received

Source and Contact Information	Records Requested	Agency Response/Records Reviewed
Source: Huron County Contact: Mike Burroughs, GIS Technician Dates Contacted: April 4, 2011	<ul style="list-style-type: none"> Aerial photography. 	<ul style="list-style-type: none"> 2006 orthorectified aerial photography. 2010 orthorectified aerial photography.
Source: Environment Canada Contact: Rob Dobos, Manager, Environmental Assessment Section Dates Contacted: Letter sent October 24, 2011	<ul style="list-style-type: none"> Federal species at risk records. Federally significant habitats. 	<ul style="list-style-type: none"> No response provided.
Source: Environment Canada-Canadian Wildlife Service Contact: John Fischer, Environmental Assessment Coordinator Dates Contacted: December 16, 2011	<ul style="list-style-type: none"> Federal species at risk records. Federally significant habitats. 	<ul style="list-style-type: none"> Email January 3, 2012 indicated that CWS does not maintain spatial database of records. Told to refer to publicly available data on NHIC, OBBA and SARA Registry for further info.
Source: Fisheries and Oceans Canada Southern Ontario District Office Contact: Rick Kiriluk, Fish Habitat Biologist Dates Contacted: December 16, 2011	<ul style="list-style-type: none"> Fish habitat information. Aquatic species at risk records. 	<ul style="list-style-type: none"> Informed that information could be provided at a later date once project details were known. Told to send watercourse crossing locations by mail to Referrals Coordinator at the Harvester Road office.

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Source and Contact Information	Records Requested	Agency Response/Records Reviewed
<p>Source: Ministry of Natural Resources Contact: Christine Bolton, Information Access Analyst Dates Contacted: August 29, 2011</p>	<ul style="list-style-type: none"> • LIO/NRVIS data layers including: <ul style="list-style-type: none"> – Wetlands; – ANSIs; – Deer wintering areas; – Provincial Parks and Conservation Reserves. 	<ul style="list-style-type: none"> • LIO data layers provided including: <ul style="list-style-type: none"> – Wetlands; – Woodlands; – Provincial Parks; – ANSIs; and, – Deer wintering areas.
<p>Source: Ministry of Northern Development, Mines and Forestry Contact: Jennifer Lillie-Paetz, Environmental Assessment Coordinator Dates Contacted: October 24, 2011</p>	<ul style="list-style-type: none"> • Karst mapping. 	<ul style="list-style-type: none"> • Letter describing approximate location of known karst and sinkholes- no mapping provided. • Written description that Project Study Area contains inferred karst- no mapping provided.
<p>Source: Huron County Contact: Claire Dodds, County Planner Dates Contacted: October 24, 2011</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. 	<ul style="list-style-type: none"> • No response provided; meeting arranged to discuss municipal concerns and interests.
<p>Source: Huron County Contact: Craig Metzger, Senior Planner Dates Contacted: October 24, 2011</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. 	<ul style="list-style-type: none"> • No records of natural heritage features provided. • Provided copy of Municipality of Bluewater's zoning bylaw for commercial scale wind turbines.
<p>Source: Municipality of South Huron Contact: Dwayne McNab, Manager of Building and Development Dates Contacted: October 24, 2011</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. 	<ul style="list-style-type: none"> • No response provided; meeting arranged to discuss municipal concerns and interests.
<p>Source: Municipality of Bluewater Contact: Arlene Parker, Planning Coordinator Dates Contacted: October 24, 2011</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. 	<ul style="list-style-type: none"> • Letter received from Lori Wolfe, CAO. Directed to contact ABCA for natural heritage data.

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Source and Contact Information	Records Requested	Agency Response/Records Reviewed
<p>Source: Ausable Bayfield Conservation Authority Contact: Geoff Cade, Supervisor of Water and Planning; Tracy Boitsen, GIS Technician Dates Contacted: April 19, 2011; October 24, 2011; November 24, 2011; December 15, 2011; February 22, 2012</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. • Regulation Limit and valleyland mapping; • Aquatic habitat mapping; • Aquatic species at risk records. 	<ul style="list-style-type: none"> • Regulation Limit; • Significant Valleylands; • Environmentally Significant Areas; • Records of species at risk.
<p>Source: Upper Thames River Conservation Authority Contact: Karen Winfield, Land Use Regulations Officer; Phil Simm, GIS Technician Dates Contacted: February 7, 2012</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. • Regulation Limit and valleyland mapping; • Drain Classifications; • Aquatic habitat mapping; • Aquatic species at risk records. 	<ul style="list-style-type: none"> • Regulation Limit mapping; • Natural heritage features mapping; • Drinking water source protection features (highly vulnerable aquifers and groundwater recharge areas).
<p>Source: Huron Fringe Field Naturalists Contact: Catherine Hogg, President Dates Contacted: October 24, 2011</p>	<ul style="list-style-type: none"> • Records of significant bird species • Known habitats of significance. 	<ul style="list-style-type: none"> • No response received.
<p>Source: York University Contact: Dr. Laurence Parker, Professor Dates Contacted: December 16, 2011</p>	<ul style="list-style-type: none"> • Records of rare species in Project Study Area. 	<ul style="list-style-type: none"> • Indicated that surveys had not been undertaken in Study Area and recommended surveys as part of Site Investigation.
<p>Source: Aamjiwnaang First Nation Contact: Chief Christopher Plain Dates Contacted: February 21, 2012</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. • Aboriginal Traditional Knowledge. 	<ul style="list-style-type: none"> • No response received.
<p>Source: Bkejwanong Territory (Walpole Island First Nation) Contact: Chief Joseph Gilbert Dates Contacted: February 21, 2012</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. • Aboriginal Traditional Knowledge. 	<ul style="list-style-type: none"> • No response received.

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Source and Contact Information	Records Requested	Agency Response/Records Reviewed
<p>Source: Chippewas of Kettle & Stony Point Contact: Chief Elizabeth Cloud Dates Contacted: February 21, 2012</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. • Aboriginal Traditional Knowledge. 	<ul style="list-style-type: none"> • No response received.
<p>Source: Delaware Nation, Moravian of the Thames Contact: Chief Gregory Peters Dates Contacted: February 21, 2012</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. • Aboriginal Traditional Knowledge. 	<ul style="list-style-type: none"> • No response received.
<p>Source: Chippewas of the Thames First Nation Contact: Chief Richard Miskokomon Dates Contacted: February 21, 2012</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. • Aboriginal Traditional Knowledge. 	<ul style="list-style-type: none"> • No response received.
<p>Source: Caldwell First Nation Contact: Chief Louise Hillier Dates Contacted: February 21, 2012</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. • Aboriginal Traditional Knowledge. 	<ul style="list-style-type: none"> • No response received.
<p>Source: Muncee-Delaware First Nation Contact: Dan Miskokomon, Band Manager Dates Contacted: February 21, 2012</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. • Aboriginal Traditional Knowledge. 	<ul style="list-style-type: none"> • No response received.
<p>Source: Six Nations of the Grand Territory Contact: Chief William Montour Dates Contacted: February 21, 2012</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. • Aboriginal Traditional Knowledge. 	<ul style="list-style-type: none"> • No response received.
<p>Source: Grand River Community Metis Council Contact: Cora Bunn, President Dates Contacted: February 21, 2012</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. • Aboriginal Traditional Knowledge. 	<ul style="list-style-type: none"> • No response received.
<p>Source: Windsor-Essex-Kent Metis Council Contact: Robert Leboeuf, President Dates Contacted: February 21, 2012</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. • Aboriginal Traditional Knowledge. 	<ul style="list-style-type: none"> • No response received.

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Source and Contact Information	Records Requested	Agency Response/Records Reviewed
<p>Source: Metis Nation of Ontario Contact: Melanie Paradis, Director Dates Contacted: February 21, 2012</p>	<ul style="list-style-type: none"> • General records of known natural heritage features. • Aboriginal Traditional Knowledge. 	<ul style="list-style-type: none"> • No response received.

2.2.2 Agency Meetings

In-person meetings were held with a number of agencies to obtain additional information, records and to review areas of concern requiring additional study during the Site Investigation. Meetings are summarized in **Table 2.3**.

Table 2.3 Summary of Agency Meetings

Agency	Date	Location	Topic of Discussion
Ministry of Natural Resources, Renewable Energy Provincial Field Program Staff	August 16, 2011	Conference Call	<ul style="list-style-type: none"> • Review of NHA process and field work requirements.
Ministry of Natural Resources, Renewable Energy Provincial Field Program Staff	August 25, 2011	Neegan Burnside Guelph Office	<ul style="list-style-type: none"> • Review results of MNR's records review; • Discussion regarding significant features and species; • Review of protocols for surveying and identifying features of significance.
Ausable Bayfield Conservation Authority	March 1, 2012	ABCA Office	<ul style="list-style-type: none"> • Discussion of hazard land features, including valleylands.
Perth County, West Perth, Huron East, South Huron	February 13, 2012	West Perth Office in Mitchell	<ul style="list-style-type: none"> • Discussion of municipal concerns; • Request made for natural heritage feature data.
Huron County, South Huron	February 27, 2012	South Huron Office in Exeter	<ul style="list-style-type: none"> • Discussion of municipal concerns; • Request made for natural heritage feature data.
Huron County	March 2, 2012	Huron County Office in Goderich	<ul style="list-style-type: none"> • Discussion of municipal concerns; • Request made for natural heritage feature data.

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Agency	Date	Location	Topic of Discussion
Municipality of Bluewater	March 15, 2012	Municipal Office in Zurich	<ul style="list-style-type: none">• Discussion of municipal concerns;• Request made for natural heritage feature data.

3.0 Records Review Results

Based on our review of existing information, agency records and in-person meetings with agency staff, a number of natural heritage features are present, or may be present within 120 m of the Project Location. A detailed description of these features is presented in the following sections and summarized in **Appendix C**. Feature locations are shown on **Figures 2 and 3 a-m** in **Appendix A**.

3.1 Habitat of Endangered and Threatened Species

Species designated as Endangered and Threatened under the *Ontario Endangered Species Act* may be present in the Study Area. In accordance with MNR guidelines and policies, species names and locations are being kept confidential. Detailed reporting will be provided to the MNR under separate cover.

3.2 Provincial Parks and Conservation Reserve

There are no Provincial Parks or Conservation Reserves in, or within 120 m of, the project location. The Pinery Provincial Park is located approximately 4.9 km to the south of the project location. No further study of Provincial Parks or Conservation Reserves will be undertaken.

3.3 Natural Features in Specified Provincial Plan Areas

The Project is not located within the Niagara Escarpment Plan Area, the Oak Ridges Moraine Conservation Plan Area or the Greenbelt Plan's Protected Countryside Area.

3.4 Wetlands

Northern Wetlands

There are no northern wetlands located in the vicinity of the project location. Therefore this type of natural feature will not be carried forward to site investigation.

Coastal Wetlands

There are no coastal wetlands located in the vicinity of the project location. Therefore this type of natural feature will not be carried forward to site investigation.

Southern Provincially Significant Wetlands

The Hay Swamp Provincially Significant Wetland is bisected by Sararas/Rodgerville Road and Dashwood Road. Transmission line options A and B run within the right-of-ways of these two roads, respectively, and thus both options will be within 120 m of the wetland. At this time, the northern route is the preferred option. It is noted that the northern route crosses a smaller portion of the wetland than the southern route.

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The Hay Swamp Complex consists of fifteen extensively forested individual wetlands, situated along the upper drainage of the Ausable River and its tributary, Black Creek. Hay Swamp is situated at the northern limit of the Carolinian Biotic Province and is categorized as consisting of 98% swamp and 2% marshland. Hay Swamp is an important regional habitat for bird, fish and wildlife populations as well as several species at risk. The swamp also has an important water quantity, flood control and water quality function. Due to its proximity to the project, the Hay Swamp will be brought forward for further investigation.

Evaluated Southern Non-Provincially Significant Wetlands

The Datars-Miller Swamp is located within 120 m of the Project Location. It was evaluated by the Ausable Bayfield Conservation Authority using the Ministry of Natural Resources' Wetland Evaluation System. According to the wetland evaluation record, the wetland scored a total of 386 points with 55 points for Special Features. For a wetland to be considered Provincially Significant it must score a total of 600 points or score at least 200 points for Special Features. The Datars-Miller Swamp was therefore classified as non-Provincially Significant. This wetland feature will be carried forward to site investigation and the boundary of the wetland will be verified in the field.

Keller Swamp has been evaluated in accordance with the MNR Wetland Evaluation System and was found to be non-provincially significant. The swamp is located greater than 120 m from the Project Location. As such, this feature will not be brought forward for further study as part of the Site Investigation.

Unevaluated Southern Wetlands

Fourteen unevaluated wetlands were identified within the Study Area. Of those, four were located within 120 m of the Project Location and ranged in size from 2.8 ha to 18.6 ha. The four unevaluated wetlands will be brought forward for further investigation to determine their significance. In addition, field studies will be undertaken to confirm whether any additional undocumented wetlands exist in the area.

3.5 Provincially Significant ANSI (Life Science)

There are no Provincially Significant Life Science Areas of Natural and Scientific Interest ("ANSI") within the vicinity of the project location.

The Hay Swamp Regional Life Science ANSI is located directly adjacent to both road right-of-ways ("ROWS") within which the northern and southern transmission line options are located. As this ANSI has previously been evaluated as being non-provincially significant, no further study will be undertaken.

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Bayfield South Regional ANSI and Khiva Conservation Forests Regional ANSI are both located over 120 km from the Project Location. Neither will be brought forward for further investigation.

3.6 Provincially Significant ANSI (Earth Science)

The Dashwood Regional ANSI is located south of the proposed transmission line routes. It is over 50 m from any component of the project and will not be studied in further detail during the Site Investigation.

The St. Joseph Till Regional Earth Science ANSI is located along the Lake Huron shoreline over 50 m from the Project Location and will thus not be brought forward for further study.

Two sinkholes, known as the Chiselhurst Sinkhole and Ausable River Sinkhole Earth Science ANSIs are located within the karst formations in the vicinity of the proposed transmission line routes. Neither sinkhole is provincially significant nor is either within 50 m of the Project Location. No further study will be undertaken.

Four provincially significant Earth Science ANSIs are present within the vicinity of the project as follows:

- Staffa Kame Complex;
- Staffa-Dublin Moraine;
- North Thames River; and,
- Fullarton Moraine.

None of these ANSIs are located within 50 m of the Project Location. As such, there will be no further study of Earth Science ANSIs as part of the Natural Heritage Assessment.

3.7 Significant Valleylands

According to the Ausable Bayfield Conservation Authority (February 21, 2012), there are two Significant Valleylands in the vicinity of the Project Location. One, known as the Pergel Gully, runs from approximately Lots 12 and 13 LRE Conc. in the former Township of Hay to the outlet at Lake Huron. The other is located along the Ausable River valley and is in the vicinity of the proposed transmission line routes.

Neither of these valleylands is within 120 m of the Project Location and neither will be brought forward for further study.

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Field studies will be undertaken to confirm whether any additional undocumented valleylands exist in or within 120 m of the Project Location.

3.8 Significant Woodlands

There are 217 woodlands in the Study Area of which 52 are within 120 m of the Project Location. Woodlands vary in size between 0.2 ha to 261 ha.

Significant Woodlands have not been mapped by Huron County. According to the Municipality of South Huron Official Plan, significant woodlands in the municipality are considered to be any woodland greater than 2 ha in size.

The Municipality of Bayfield Official Plan does not directly identify significant woodlands. There is an indirect reference that any development adjacent to woodlots that are greater than 4 ha in size should be reviewed for ecological impacts. Craig Metzger, Huron County Planner for the Municipality of Bluewater indicated that the municipality relies on the Ausable Bayfield Conservation Authority (“ABCA”) to identify significant woodlands on a case by case basis (personal correspondence, May 5, 2001).

As significance has not formally been confirmed for any of the woodlands, all will be brought forward for further study during the Site Investigation. Field studies will be undertaken to confirm whether any additional undocumented woodlands exist in or within 120 m of the Project Location.

3.9 Significant Wildlife Habitat

According to the Draft Significant Wildlife Habitat Ecoregion 6E Criterion Schedule (MNR, 2012), Significant Wildlife Habitat includes:

- seasonal concentration areas of animals;
- rare vegetation communities or specialized habitat for wildlife;
- habitats for species of conservation concern; and,
- animal movement corridors.

Each of these types of habitats is discussed in detail below.

3.9.1 Seasonal Concentration Areas

Seasonal concentration areas are areas where animals occur in relatively high densities for the species at specific periods in their life cycles and/or in particular seasons.

Seasonal concentration areas tend to be localized and relatively small in relation to the area of habitat used at other times of the year.

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Waterfowl Stopover and Staging Areas (Terrestrial and Aquatic)

There are two types of waterfowl stopover and staging habitat to consider: 1) terrestrial and 2) aquatic. Terrestrial habitat consists of fields with sheet water during spring (mid-March to May). This includes seasonally flooded agricultural fields with waste grains for Tundra Swans in areas within Ecoregion 7E.

The aquatic habitat consists of ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration that have an abundance of food supply (mostly aquatic invertebrates and vegetation in shallow water).

The Thedford Flats Important Bird Area (“IBA”) is located approximately 5.6 km southwest of the Project and is designated as a Globally Significant area for congregatory species. This designation is due to significant populations of migrating Tundra Swans that congregate during spring migration. In 1994, 16,356 birds congregated at the Thedford Flat site during late March. The site is also designated as Nationally Significant due to its use by large concentrations of waterfowl.

The Thedford Flats IBA is a significant distance from the Project Location and is separated from it by extensive developed areas within the Town of Grand Bend. No further study of the site will be undertaken.

It is unclear whether additional waterfowl stopover and staging areas are present. Further study during the Site Investigation will confirm the presence or absence of this type of habitat.

Shorebird Migratory Stopover Areas

Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded shorelines can provide migratory stopover areas for shorebirds. The Project Location is within close proximity to several small watercourses and the Lake Huron shoreline. As such, the potential presence of this type of habitat will be assessed further during the Site Investigation.

Raptor Wintering Area

A review of the Ontario Breeding Bird Atlas indicated that a number of raptor species have been observed in the vicinity of the project. Observations were during the spring breeding period and thus it is unclear whether winter habitat is present. Wintering habitat typically includes a combination of fields and woodlands >20 ha in size (with a minimum 15 ha consisting of upland habitat). This type of habitat will be brought forward for further investigation during the Site Investigation.

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Bat Hibernacula

A review of the Renewable Energy Atlas did not identify any known or documented significant bat habitat, such as roosts, maternity sites or caves in the study area.

Caves, karst topography, sinkholes and abandoned mines can provide hibernation habitat for bats. Two areas of karst topography and two sinkholes have been identified by the Ministry of Northern Development, Mines and Forestry. All formations are in the vicinity of the proposed transmission line routes; however, only the southern-most feature is within 120 m of the Project Location, as shown in **Appendix A, Figure 2**.

The potential presence of bat hibernacula within the karst formation will be brought forward for further investigation during the Site Investigation.

Bat Maternity Colonies

Maternal colonies are found in tree cavities within deciduous and mixed mature forest areas. A review of the Renewable Energy Atlas did not identify any known or documented significant bat habitat, such as roosts, maternity sites or caves in the study area. It is unknown whether suitable habitat is present within 120 m of the project location. This habitat type will be studied further during the Site Investigation.

Turtle Wintering Areas

Swamps, marshes, open water, shallow water, fens and bogs along with deeper rivers or streams and lakes with current provide habitat for a variety of turtle species and the wintering areas are in the same general area as their core habitat. Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate dissolved oxygen that are deep enough not freeze with soft substrates. No known turtle wintering areas were identified during records review and it is unknown whether suitable habitat is present within 120 m of the project location. This habitat type will be studied further during the Site Investigation.

Snake Hibernacula

Hibernation takes place in sites located below frost line 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. Other features such as old wells, rock and log piles, old building foundations, retaining walls, ground hog burrows and crayfish burrows are examples of hibernation sites. There are no records of hibernation sites; however, there is some potential for them to occur. This feature will be brought forward for further study in the Site Investigation.

Colonially- Nesting Bird Breeding Habitat (Bank/Cliff, Tree/Shrub and Ground)

There are three types of colonial bird nesting habitat that need to be considered: 1) bank and cliff, 2) trees and shrubs, and 3) ground. These types of habitats provide nesting

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sites for species that nest in large colonies, including swallows, herons, terns and gulls. For the bank and cliff habitat type, habitat includes exposed soil banks which have been undisturbed or left to naturally erode. For the trees and shrub habitat type, the habitat consists of swamps and treed fens where nests may be found in live or dead standing trees. For the ground habitat type, habitat consists of any rocky island or peninsula (natural or artificial) within a lake or large river; Brewer's Blackbird habitat consists of habitat with low bushes in close proximity to streams and irrigation ditches within farmlands. It is unknown whether this type of habitat is present and, as such, it will be brought forward for further consideration in the Site Investigation.

Migratory Butterfly Stopover Areas

Significant habitats are only present within 5 km of the Lake Erie and Lake Ontario shorelines. This type of habitat is therefore not present within the vicinity of the Project and will not be carried forward for further investigation.

Landbird Migratory Stopover Areas

Significant habitats are only present within 5 km of the Lake Erie and Lake Ontario shorelines. This type of habitat is therefore not present within the vicinity of the Project and will not be carried forward for further investigation.

Deer Yarding Areas

Deer yarding areas are areas deer move to in response to the onset of winter snow and cold. Deer yarding areas have been mapped by the Ministry of Natural Resources, as shown on **Appendix A, Figure 2**. A winter deer yard has been identified in association with the Hay Swamp Regional Life Science ANSI. The deer yard has been identified as Stratum 2 deer wintering habitat by the MNR. The deer yarding area is considered significant wildlife habitat and will be carried forward.

Deer Winter Congregation Areas

Deer movement during winter is not constrained by snow depth in the southern areas of Ecoregion 6E, however deer will annually congregate in large numbers in suitable woodlands (>100 ha) to reduce or avoid the impacts of winter conditions. During the records review no deer winter congregation areas were identified by the MNR and therefore, this will not be carried forward for further investigation.

3.9.2 Rare Vegetation Communities

Rare vegetation communities often contain rare species, particularly plants and small invertebrates, which depend on such habitats for their survival and cannot readily move to or find alternative habitats. These communities include areas that contain a provincially rare vegetation community and areas that contain a vegetation community that is rare within the planning area, these communities in Ontario include the following:

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Cliffs and Talus Slopes

A cliff is a vertical to near vertical bedrock >3 m in height. A talus slope is rock rubble at the base of a cliff made up of coarse rocky debris. Most cliffs and talus slopes occur along the Niagara Escarpment. It is unknown whether this type of habitat is present and, as such, it will be brought forward for further consideration in the Site Investigation.

Sand Barren

Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little or no soil and the underlying rock protrudes through the surface. Sand barrens are usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%. It is unknown whether this type of habitat is present and, as such, it will be brought forward for further consideration in the Site Investigation.

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 of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover. It is unknown whether this type of habitat is present and, as such, it will be brought forward for further consideration in the Site Investigation.

Old Growth Forest

Old-growth forests tend to be relatively undisturbed, structurally complex and contain a wide variety of trees and shrubs in various age classes. These habitats usually support a high diversity of wildlife species. It is unknown whether this type of habitat is present and, as such, it will be brought forward for further consideration in the Site Investigation.

Savannah

A savannah is a tallgrass prairie habitat that has tree cover between 25 to 60%. Tallgrass prairie and savannah were historically common in the near shore areas of the Great Lakes. In Ecoregion 7E known tallgrass prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario). It is unknown whether this type of habitat is present and, as such, it will be brought forward for further consideration in the Site Investigation.

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Tallgrass Prairies

A tallgrass prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has <25% tree cover. Tallgrass prairie and savannah were historically common in the near shore areas of the Great Lakes. In Ecoregions 7E and 6E known tallgrass prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario). It is unknown whether this type of habitat is present and therefore, it will be brought forward for further consideration in the Site Investigation.

Other Rare Vegetation Communities

Rare vegetation communities may include beaches, fens, forest, marsh, barrens, dunes and swamps. According to the MNR, Forest Resource Inventory ("FRI") mapping from 1978 indicates the presence of rare forest communities. Due to the historic nature of the mapping, rare communities may no longer be present. The Site Investigation will confirm the presence of this type of habitat along with the other rare vegetation communities listed above.

3.9.3 Specialized Habitat for Wildlife

Specialized wildlife habitat includes areas that support wildlife species that have highly specific habitat requirements, areas with exceptionally high species diversity or community diversity and areas that provide habitat that greatly enhances species' survival.

Waterfowl Nesting Area

For nesting, waterfowl typically require wetlands greater than 0.5 ha in size with adjacent upland areas that are at least 120 m wide to provide protection from predators such as raccoons, skunks and foxes. In addition, species such as hooded merganser and wood duck nest in cavities of large diameter trees (>40 cm dbh). It is unknown whether suitable habitat is present within 120 m of the project location. This habitat type will be studied further during the Site Investigation.

Bald Eagle and Osprey Nesting, Foraging and Perching Habitat

Bald eagle nests are typically in the super canopy trees in a notch within the tree's canopy. Osprey nests are generally found directly adjacent to riparian areas, rivers, lakes, ponds and wetlands. Nests are usually at the top of large, often dead trees. Given the close proximity of the project to the Lake Huron shoreline, this feature will be brought forward for further investigation.

Woodland Raptor Nesting Habitat

Raptors typically nest in intermediate-aged to mature conifer, deciduous, or mixed woodlands within tops or crotches of trees. All natural or conifer plantation

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woodland/forest stands >30 ha with >10 ha of interior habitat (interior habitat determined with a 200 m buffer) could provide this habitat type. The presence or absence of this type of habitat will be confirmed during the Site Investigation.

Turtle Nesting Areas

Best nesting habitat must be close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. For an area to function as a turtle-nesting area, it must provide sand and/or gravel that turtles are able to dig in and must be close to water. These sites are often south to south west facing and have maximum exposure to sunlight. Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. The presence or absence of this type of habitat will be confirmed during the Site Investigation.

Seeps and Springs

Seeps and springs are areas where ground water comes to the surface and are often found within headwater areas within forested habitats. It is unknown whether seeps and springs are present in or within the Project Location. Confirmation will be provided during the Site Investigation.

Amphibian Breeding Habitat (Woodland and Wetland)

Wetlands and pools within or adjacent to wooded areas are important for many amphibian species. Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.

Wetlands and pools isolated from woodlands, supporting high species diversity are significant and the presence of shrubs and logs increase significance of pond for some species due to the available structure for calling, foraging, escape and concealment from predators. Bullfrogs require permanent water bodies with abundant emergent vegetation.

It is unknown whether these habitats exist in or within the Project Location so further studies will be undertaken during the Site Investigation.

3.9.4 Habitat for Species of Conservation Concern

Habitats for Species of Conservation Concern include wildlife species that are listed as Special Concern or rare, that are declining or are featured species in the province but does not include those species listed as Threatened or Endangered.

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Marsh Breeding Bird Habitat

Marsh breeding habitat for birds may be present where there are wetlands with shallow standing water and emergent aquatic vegetation. It is unknown whether suitable habitat is present within 120 m of the project location. This habitat type will be studied further during the Site Investigation.

Woodland Area-Sensitive Breeding Bird Habitat

Woodland area-sensitive species require large mature (>60 years old) forest stands or woodlots >30 ha, 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 (interior forest habitat is at least 200 m from forest edge habitat) are considered to provide significant habitat for woodland area-sensitive bird species. Based on existing woodlands mapping (NRVIS), there are several large woodlands within 120 m of the Project Location which likely meet the size criteria. The actual size, woodland boundaries, forest maturity and natural vs. plantation status will be confirmed during the Site Investigation.

A review of the Ontario Breeding Bird Atlas (Bird Studies Canada, n.d. b) identified a number of area-sensitive bird species in the vicinity of the project. A list of area-sensitive forest species observed from within three 10 km x 10 km squares that cover the Project Location and its broader vicinity is provided in **Table 3.1**. The Site Investigation will confirm if this habitat is present in or within the 120 m Project Location.

Table 3.1 Forest Area-Sensitive Species in the Vicinity of the Project

Common Name	Scientific Name
Broad-winged Hawk	<i>Buteo platypterus</i>
Pileated Woodpecker	<i>Dryocopus pileatus</i>
Hairy Woodpecker	<i>Picoides villosus</i>
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>
Least Flycatcher	<i>Empidonax minimus</i>
Red-breasted Nuthatch	<i>Sitta Canadensis</i>
White-breasted Nuthatch	<i>Sitta carolinensis</i>
Winter Wren	<i>Troglodytes troglodytes</i>
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>
Veery	<i>Catharus fuscescens</i>
Pine Warbler	<i>Dendroica pinus</i>
Ovenbird	<i>Seiurus aurocapillus</i>
American Redstart	<i>Setophaga ruticilla</i>
Sharp-shinned Hawk	<i>Accipiter striatus</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Red-shouldered Hawk	<i>Buteo lineatus</i>

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Common Name	Scientific Name
Yellow-throated Vireo	<i>Vireo flavifrons</i>
Scarlet Tanager	<i>Piranga olivacea</i>
Brown Creeper	<i>Certhia Americana</i>
Magnolia Warbler	<i>Dendroica magnolia</i>
Black-throated Green Warbler	<i>Dendroica virens</i>
Canada Warbler	<i>Wilsonia Canadensis</i>

Open Country Bird Breeding Habitat

This type of habitat is characterized by large open grassland areas greater than 30 ha in size. It is unlikely that there are large natural grasslands present; however, the region is used extensively for farming and it is unclear whether abandoned fields, mature hayfields or pasturelands are present. Grasslands not class 1 or 2 agricultural lands, and not being actively used for farming (i.e., no row cropping or intensive hay or livestock pasturing in the last 5 years, will be considered candidate habitat for open country breeding birds. Further study will be undertaken during the Site Investigation.

A review of the Ontario Breeding Bird Atlas identified a number of grassland bird species requiring large grassland habitats in the vicinity of the project. A list of species observed from within three 10 km x 10 km squares that cover the Project Location and its broader vicinity is provided in **Table 3.2**. Studies will be undertaken during the Evaluation of Significance to confirm the presence of these species if suitable habitat is found within 120 m of the Project.

Table 3.2 Grassland Bird Species in the Vicinity of the Project Location

Common Name	Scientific Name
Grasshopper Sparrow	<i>Ammodramus savannarum</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Upland Sandpiper	<i>Bartramia longicauda</i>
Northern Harrier*	<i>Circus cyaneus</i>
Short-eared Owl*	<i>Asio flammeus</i>

*species identified by MNR as possibly in the vicinity of the project location

Shrub/Early Successional Bird Breeding Habitat

This type of habitat is characterized by large old field areas >10 ha that are succeeding to shrub and thicket lands. The habitat type does not include Class 1 or 2 agricultural lands or lands that are actively used for farming (i.e. row cropping, haying or livestock pasturing in the last 5 years). Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. No records of shrub/early succession birds were identified through the Ontario Breeding Bird Atlas data; however, MNR records indicated the potential presence of yellow-breasted chat, *Icteria virens*,

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It is unknown whether suitable habitat is present within 120 m of the project location. This habitat type will be studied further during the Site Investigation.

Terrestrial Crayfish Habitat

Meadow and edges of shallow marshes identified should be surveyed for terrestrial crayfish. Chimney Crayfish (*Fallicambarus fodiens*) are known to occur in the vicinity of the Project Location. This feature will be brought forward for further investigation.

Special Concern and Rare Wildlife Species

Based on a review of the Ontario Breeding Bird Atlas, Natural Heritage Information Centre Biodiversity Explorer and records provided by the MNR, the species listed in **Table 3.3** have the potential to be located in the vicinity of the Project. The presence of suitable habitat will be confirmed during the Site Investigation.

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Table 3.3 Species of Conservation Concern

Taxonomy	Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat
Mammals	Little Brown bat	<i>Myotis lucifugus</i>	END (COSEWIC)	S5	This species will be carried forward to the Site Investigation Report and considered under Bat Hibernacula and Bat Maternity Colony.
	Northern Long-eared Bat	<i>Myotis septentrionalis</i>	END (COSEWIC)	S3?	This species will be carried forward to the Site Investigation Report and considered under Bat Hibernacula and Bat Maternity Colony.
	Tri-colored Bat	<i>Perimyotis subflavus</i>	END (COSEWIC)	S3?	This species will be carried forward to the Site Investigation Report and considered under Bat Hibernacula and Bat Maternity Colony.
Birds	Common Nighthawk	<i>Chordeiles minor</i>	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). This species will be carried forward to the Site Investigation Report and considered separately from all other habitat types.
	Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	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. This species will be carried forward to the Site Investigation Report and considered separately from all other habitat types.
	Short-eared Owl	<i>Asio flammeus</i>	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. This species will be considered in the site investigation report under Raptor Winter Feeding and Roosting Areas and Open Country Breeding Birds.
	Yellow-breasted Chat	<i>Icteria virens</i>	SC	S2B	Generally prefer dense thickets around wood edges, riparian areas, and in overgrown clearings. This species will be considered in the Site Investigation Report under Shrub/Early Successional Bird Breeding Habitat.
	Bald Eagle	<i>Haliaeetus leucocephalus</i>	SC	S1S2N,S 4B	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. This species will be considered in the Site Investigation report under Bald Eagle and Osprey Nesting, Perching and Feeding Habitat.

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Taxonomy	Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat
Amphibians/ Reptiles	Snapping Turtle	<i>Chelydra serpentina</i>	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. This species will be considered in the site investigation report under Turtle Nesting Areas and Turtle Wintering Area Habitat.
	Milksnake	<i>Lampropeltis triangulum</i>	SC	S3	This species lives in a wide range of habitats, including old fields and farm buildings where rodents are common. This species will be considered in the Site Investigation Report under Snake Hibernacula.
	Eastern Ribbonsnake	<i>Thamnophis sauritus</i>	SC	S3	Eastern Ribbonsnake's 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. This species will be considered in the Site Investigation Report under Snake Hibernacula.
Flora	Tuberous Indian-plantain	<i>Arnoglossum plantagineum</i>	SC	S3	These plants prefer open sunny areas in wet, calcareous meadows or shoreline fens (floating mats).
	Hill's Pond Weed	<i>Potamogeton hillii</i>	SC	S2	This species grows in clear, cold ponds and slow- moving streams where the water is alkaline.
	Green Dragon	<i>Arisaema dracontium</i>	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.
	Harbinger-of-spring	<i>Erigenia bulbosa</i>	-	S3	rich, moist deciduous woods, open, wooded river floodplains and bottomlands; stream banks and limestone shingle shores
	Burning Bush	<i>Euonymus atropurpureus</i>	-	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.
	Large Round-leaved Orchid	<i>Platanthera macrophylla</i>	-	S2	This species is found in moist or dry woodlands, typically deciduous as they prefer little ground cover and some leaf litter.
	Hairy Wood Mint	<i>Blephilia hirsuta</i>	-	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.
	Autumn Coral-	<i>Corallorhiza</i>	-	S2	Autumn Coral-root can be found in a variety of forested upland habitats, although sites are typically mesic.

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Taxonomy	Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat
	root	<i>odontorhiza</i>			
	Chinese Hemlock Parsley	<i>Conioselinum chinense</i>	-	S2	Calcareous cedar swamps; wet borders of streams and rivers; seepage slopes in wet coniferous woods, swampy thickets, moist clearings and damp roadsides – in northern Ontario in <i>Salix-Alnus</i> thickets; moist <i>Populus</i> stands, moist sandy shorelines
	Crowned Beggarticks	<i>Bidens trichosperma</i>	-	S2	<i>B. trichosperma</i> is found in moist, sandy meadows, marshes, stream banks and gravelly shores. This species was previously referred to as <i>B. coronata</i> .
	Eastern Green-violet	<i>Hybanthus concolor</i>	-	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.
	Fogg's Goosefoot	<i>Chenopodium foggii</i>	-	S2	Found in sandy areas on limestone under oak or pine-oak forests.
	Rattlesnake Hawkweed	<i>Hieracium venosum</i>	-	S2	Common habitat includes open, dry sandy woods.
	Slender Knotweed	<i>Polygonum tenue</i>	-	S2	Species common in dry, sandy, open areas in deciduous (often oak woods), prairie meadows; and at the edges of sand pits.
	Slender Vulpia	<i>Vulpia octoflora</i>	-	S2	<i>V. octoflora</i> are found in dry, sandy meadows; canopy openings in dry sandy forests; and open, stabilized dunes.
	Slim-flowered Muhly	<i>Muhlenbergia tenuiflora</i>	-	S2	This species is commonly found in rich deciduous forest, often on rocky or sandy soils.
	Slim-spiked Three-awned Grass	<i>Aristida longespica</i> var. <i>longespica</i>	-	S2	Commonly located in dry to moist sandy fields and sandy openings in prairies.
	Stiff Gentian	<i>Gentianella quinquefolia</i>	-	S2	Located in moist soils, along roadsides, stream banks and edges of woods and prairies.
	Hairy Valerian	<i>Valeriana edulis</i>	-	S1	Habitats include swampy river flats and meadows; wet prairies; as well as wooded, rocky riverbanks.
	Woodland Pinedrops	<i>Pterospora andromedea</i>	-	S2	Commonly found in conifer woods, under pine trees.
	Yellow Ladies'-	<i>Spiranthes</i>	-	S2	Sandy meadows, prairies and roadsides are the common sites you

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Taxonomy	Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat
	tresses	<i>ochroleuca</i>			will locate this species.
	Giant Ironweed	<i>Vernonia gigantea</i>	-	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.
	American Gromwell	<i>Lithospermum latifolium</i>	-	S3	Can be located in river floodplains, woods and open areas near edges of woods.
	Carolina Whitlow-grass	<i>Draba reptans</i>	-	S3	Species habitats include dry sandy areas, dry open flats, and limestone pavements.
	Pillose Evening Primrose	<i>Oenothera pilosella</i>	-	S2	This species is located in the moist edges of woods and prairies.
	Hairy Bedstraw	<i>Galium pilosum</i>	-	S3	Hairy bedstraw inhabits dry, sandy woods and thickets; and is occasionally in dry sandy fields.
	False Tomentose Balsam Grounel	<i>Packera paupercula</i> var. <i>pseudotomentosa</i>	-	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.
	Scarlet Beebalm	<i>Monarda didyma</i>	-	S3	Located in moist woods, swampy thickets and roadsides.
	Lizard's Tail	<i>Saururus cernuus</i>	-	S3	Habitat is restricted to shores and shallow water.
	Pawpaw	<i>Asimina triloba</i>	-	S3	This species is located in moist woods and along stream banks.
	Round-leaved Hawthorn	<i>Crataegus lumaria</i>	-	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.
Butterflies/ Dragonflies	Monarch Butterfly	<i>Danaus plexippus</i>	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. The habitat must provide an abundance of nectar producing plants, specifically milkweed. This species will be carried forward to Site Investigation and considered separately from other habitat types.
	West Virginia	<i>Pieris</i>	SC	S3	This species is typically found in moist deciduous forests. This

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Taxonomy	Common Name	Scientific Name	ESA Status*	S-RANK*	Habitat
	White	<i>virginiensis</i>			species will be carried forward to Site Investigation and considered separately from other habitat types.
	Tawny Emperor	<i>Asterocampa clyton</i>	-	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. This species will be carried forward to Site Investigation and considered separately from other habitat types.
	Azure Bluet	<i>Enallagma aspersum</i>	-	S3	This dragonfly species can be found in shallow ponds, lakes, and bogs, which are usually fishless. This species will be carried forward to Site Investigation and considered separately from other habitat types.

*ESA Status- Species status under the Ontario Endangered Species Act

** S-Rank- a general classification indicating species rarity. Species with S-Ranks between S1 and S3 are considered to be rare in the province.

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3.9.5 Animal Movement Corridors

Animal Movement Corridors are elongated areas used by wildlife to move from one habitat to another. They are important to ensure genetic diversity in populations, to allow seasonal migration of animals and to allow animals to move throughout their home range from feeding areas to cover areas.

Amphibian Movement Corridors

Amphibian corridors allow movement between breeding habitat and summer habitat. It is unknown whether amphibian corridors are present. Additional study will be undertaken during the Site Investigation.

Deer Movement Corridors

Corridors allow movement between summer and winter range. Corridors typically follow riparian areas, woodlots, and/or areas of physical geography (ravines or ridges). Stratum 2 deer wintering habitat has been identified by the MNR within the portion of the Project Location which is located within Ecoregion 6E. No MNR records or mapping identifying deer movement corridors in the area were located. This feature will be carried forward to site investigation to confirm whether any corridors are present.

3.9.6 Exceptions for Ecoregion 6E

Mast Producing Areas

This feature applies only to Ecodistrict 6E-14 within Ecoregion 6E. The project is located within 6E-2, thus this feature is not applicable and will not be carried forward for further study.

Sharp-tailed Grouse Leks

This feature applies only to Ecodistrict 6E-17 within Ecoregion 6E. The project is located within 6E-2, thus this feature is not applicable and will not be carried forward for further study.

4.0 Additional Records

The Port Franks Wetlands and Forests Important Bird Area is well known for providing habitat for a variety of rare bird species. According to Bird Studies Canada (n.d. a), “the area supports an exceptional concentration of provincially and nationally threatened vegetation communities, flora, and fauna.” Species at risk will be address under separate cover; however, it is also noted that the area supports a variety of Special Concern and provincially rare species, including red-headed woodpecker, *Melanerpes erythrocephalus*, Louisiana waterthrush, *Parkesia motacila* and others. The Important Bird Area is located over 5 km from the Project Location and will not be brought forward for further study.

5.0 Summary of Natural Features Carried Forward to Site Investigation

5.1 Records Identified

The Records Review identified existing records of a number of significant or potentially significant features within 120 m of the Project Location which will be brought forward for further study in the Site Investigation. These include:

- 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).

Significant natural heritage features which are present, or may be present within 120 m of the Project Location and will be brought forward for further study in the Site Investigation are summarized in **Table C-1** in **Appendix C**.

5.2 Features Assumed Potentially Present

Although no specific records or mapped locations were identified, a number of potentially significant features could not be ruled out as being potentially present in the study area. These features will also be brought forward for further investigation. These include

- 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;
 - 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;

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- 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.

These types of habitats are summarized in **Table C-1** in **Appendix C**.

6.0 Conclusions

The Grand Bend Wind Farm may be located within 120 m of a number of significant or potentially significant natural features. A Site Investigation will be undertaken in accordance with O.Reg. 359/09 to confirm the presence or absence of features identified in this report.

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