

# **Ernestown Wind Park**

## *Natural Heritage Environmental Impact Study Report*

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# 1 INTRODUCTION

This Ernestown Wind Park *Environmental Impact Study Report* identifies and assesses the potential negative environmental effects associated with construction of project infrastructure within 120 m of significant natural heritage features as defined by the Renewable Energy Approval (REA) process. Specifically, the report identifies and assesses any negative impacts to the natural features that are confirmed or considered significant, as well as to provincial parks or conservation reserves. This report also proposes mitigation measures to reduce these impacts and describes the monitoring protocols necessary to ensure that the mitigation measures undertaken are adequate and effective. This plan addresses the requirements outlined in Section 38 (2) of *Ontario Regulation 359/09 - Renewable Energy Approvals* under the *Green Energy and Green Economy Act*.

References to the *Environmental Effects Monitoring Plan* (EEMP) from the *Design & Operations Report* are made where required. This EEMP is relevant to all employees and contractors of Ernestown Wind Park who are working on the operation and maintenance phases of the project. It also provides guidance to Ernestown Wind Park contractors and subcontractors on environmentally safe standards for project activities during operation and environmental monitoring of the project. This report will outline how the EEMP addresses any negative environmental effects, including the performance objectives and corresponding mitigation measures that will be undertaken to ensure that negative environmental impacts are monitored and addressed throughout the life of the project. A description of the full contingency plan to be implemented should any mitigation measures fail is also outlined.

The *Construction Plan Report* is also described within this report and addresses any negative environmental impacts that may result from construction or installation activities on the features that are found within 120 m of the Project Location, as well as appropriate mitigation measures that will be undertaken. For a complete description of project infrastructure and descriptions of the natural heritage features found on site please refer to the *Natural Heritage Records Review Report* (AET, 2012), *Natural Heritage Site Investigation Report* (M.K. Ince and Associates Ltd., 2012), and *Natural Heritage Evaluation of Significance Report* (M.K. Ince and Associates Ltd., 2012). Mitigation and monitoring measures described in this report are also outlined in the *Environmental Effects Monitoring Plan* within the *Design and Operations Report*.

Based on a search of all sources listed in the REA rules required to be consulted in the Natural Heritage Records Review, and on the findings of the Site Investigation and Evaluation of Significance, 41 natural heritage features located within or near 120 m of the Project Location were either assessed to be significant or treated as significant. Potential impacts to these natural heritage features arising from construction and/or operation of the project will be fully mitigated (**Table 1-1**). As specified in Appendix D to the NHAG (MNR, 2011), habitats which are not required to be identified for a particular project component, but may exist within 120 m of that component based on landscape and geography, must be assumed to be existing (see Table 1 of Appendix D of the NHAG for specific details). These features are then classified as generalized candidate significant wildlife habitat (GcSWH), treated as significant, and construction mitigation methods are provided within the *Environmental Impact Study Report*.

A summary provided in **Section 3.2** highlights the natural features determined to be significant throughout the natural heritage assessment process to the *Natural Heritage Environmental Impact Study Report*. Additionally, the locations of all significant features are shown in **Figure 1-2** through **1-5**. Details of the evaluation criteria used and rationale for significance designations can be found in the *Natural Heritage Evaluation of Significance Report* (M.K. Ince and Associates Ltd., 2012).

The following significant features were found to exist within 120 m of the Project Location:

- eleven wetlands
- eight woodlands
- twelve seasonal concentration areas of animals:
  - two raptor wintering areas
  - four bat maternities roosts (four cavity trees identified)
  - two migratory butterfly stopover areas
  - four landbird migratory stopover areas
- seven rare vegetation communities or specialized habitat for wildlife:
  - two waterfowl nesting areas
  - one seepage area (comprised of two seeps/springs)
  - four amphibian breeding habitats (one wetland and three woodland)
- two habitat for species of conservation concern:
  - one marsh bird breeding habitat
  - one shrub/early successional bird breeding habitat
- generalized candidate significant wildlife habitat

The following features were found to not exist within 120 m of the Project Location:

- Provincially significant coastal wetlands
- Provincial parks
- Conservation reserves

Impacts to the natural features of the Ernestown Wind Park and their form and function will be assessed within this *Environmental Impact Study Report*. Mitigation measures will be applied with the goal of fully mitigating any of the identified environmental impacts. Monitoring procedures have been established within this report to ensure that mitigation measures are effective and should they fail, contingency measures exist to efficiently and effectively respond. **Section 3** includes a summary of significant natural features identified within 120 m of the Project Location. **Section 4** describes the potential environmental impacts and proposed mitigation, monitoring, and contingency measures for each feature.

Natural heritage feature-specific mitigation measures can be seen in **Table 4-1** of this report. Mitigation and associated monitoring measures with respect to negative effects on the significant natural features can be seen in **Section 5**. The monitoring proposed in **Section 5** serves to verify that mitigation measures function to meet performance objectives. If performance objectives are not being met, contingency measures will be undertaken to ensure that remedial action is taken to meet identified performance objectives. Contingency measures are also described in **Sections 5** and **6.1** and discussed within the EEMP.

**Table 1-1:** Summary of the Significant Natural Features within the Ernestown Wind Park Project Area

Feature Type	Feature IDs	Total Carried Forward to Evaluation of Significance	Carried Forward to Environmental Impact Study
<b>ANSIs (earth science and life science)</b>	0	0	0
<b>Valleylands</b>	0	0	0
<b>Wetland</b>		11	11
<b>Woodland</b>		8	8
<b>Habitats of Seasonal Concentration Areas of Animals</b>			
Raptor Wintering areas	RWA01, RWA02	2	2 (all treated as significant)
Bat Maternity Roosts	BMR01, BMR02, BMR03, BMR04	4	4 (all treated as significant)
Migratory Butterfly Stopover Areas	BMSA01, BMSA02	2	2 (all treated as significant)
Landbird Migratory Stopover Areas	LMSA01, LMSA02, LMSA03, LMSA04	4	4 (all treated as significant)
<b>Rare Vegetation Communities or Specialized Habitat for Wildlife</b>			
Alvar	ALV01	1	0
Waterfowl Nesting Areas	WNA01, WNA02	2	2 (all treated as significant)
Turtle Nesting Area	TNA01	1	0
Seeps and Springs	SP01, SP02	2	1 (combined as SP01-SP02)
Amphibian Breeding Habitat	ABH01, ABH02, ABH03, ABH04	4	4 (three treated as significant)
<b>Habitat for Species of Conservation Concern</b>			
Marsh Breeding Bird Habitat	MBBA02	1	1 (treated as significant)
Woodland Area-Sensitive Bird Breeding Habitat	ASH01, ASH02	2	0
Shrub/Early Successional Bird Breeding Habitat	ESBR01	1	1

A copy of the Ministry of Natural Resources' checklist for Environmental Impact Study reports under the REA process is completed and included below in **Table 1-2** to identify the location of the required information within this document.

**Table 1-2: MNR's Checklist for Environmental Impact Study**

<b>Content Requirements</b>	<b>Included</b> <input checked="" type="checkbox"/>	<b>Location &amp; Details</b>
Identifies and assesses any negative environmental effects on the natural feature, provincial park or conservation reserve	<input checked="" type="checkbox"/>	<b>Section 4 and Table 4-1</b>
Identifies mitigation measures in respect of any negative environmental effects	<input checked="" type="checkbox"/>	<b>Section 4.1 and Table 4-1</b>
Describes how the ENVIRONMENTAL EFFECTS MONITORING PLAN (part of the design and operations report) addresses any negative environmental effects, including a description of:		
i. performance objectives in respect of the negative environmental effects,	<input checked="" type="checkbox"/>	<b>Table 4-1, Section 6</b>
ii. mitigation measures to assist in achieving the performance objectives,	<input checked="" type="checkbox"/>	<b>Table 4-1, Section 6</b>
iii. a program for monitoring negative environmental effects for the duration of the time that the project is engaged in, including a contingency plan to be implemented if any mitigation measures fail.	<input checked="" type="checkbox"/>	<b>Table 4-1, Section 6</b>
Describes how the CONSTRUCTION PLAN REPORT addresses any negative environmental effects, including a description of:		
i. any negative environmental effects that may result from construction or installation activities on the feature,	<input checked="" type="checkbox"/>	<b>Section 4.1, Table 4-1 and Section 6</b>
ii. mitigation measures in respect of any negative environmental effects.	<input checked="" type="checkbox"/>	<b>Section 4.1, Table 4-1 and Section 6</b>

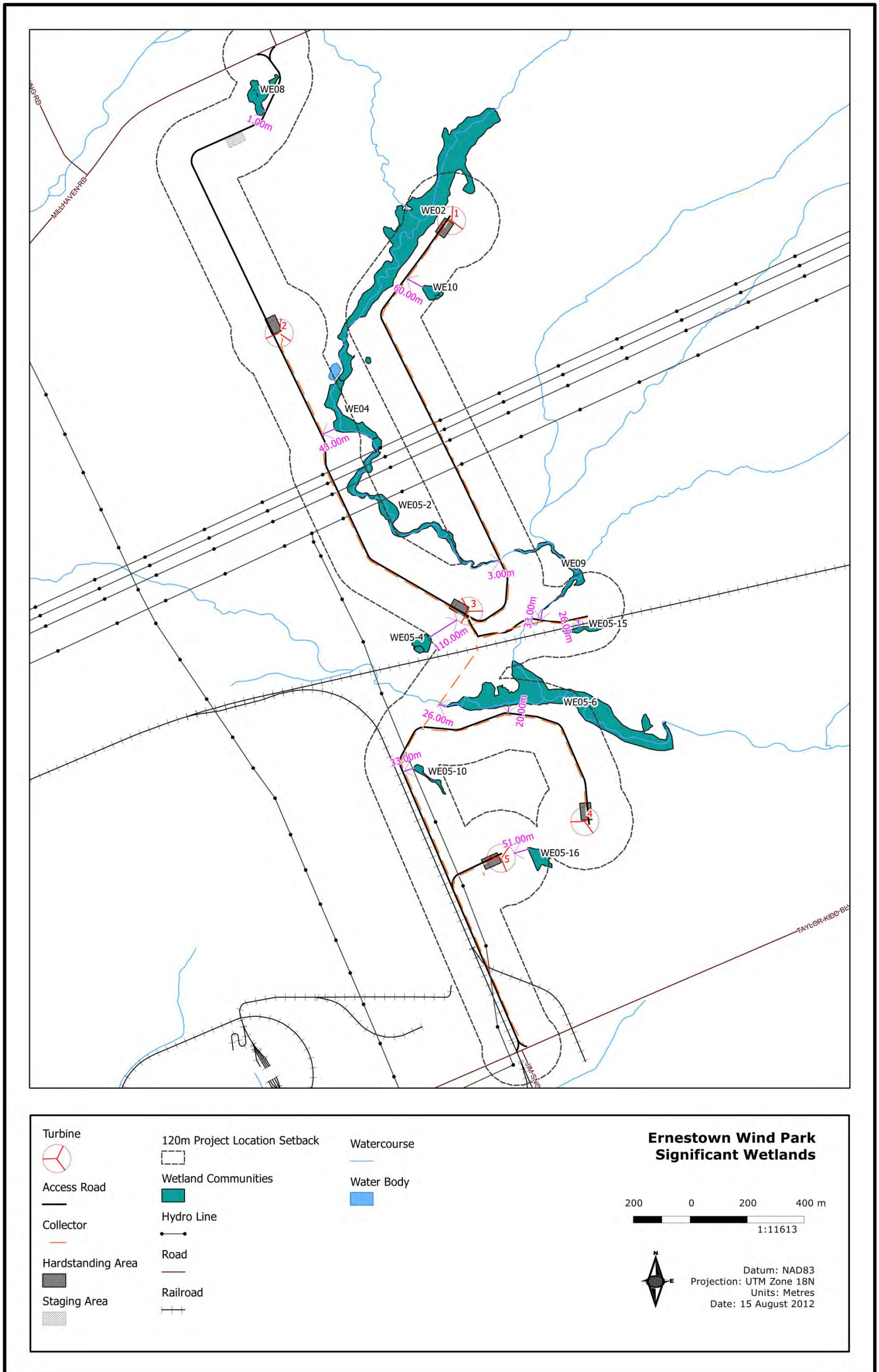


Figure 1-1: Significant Wetlands



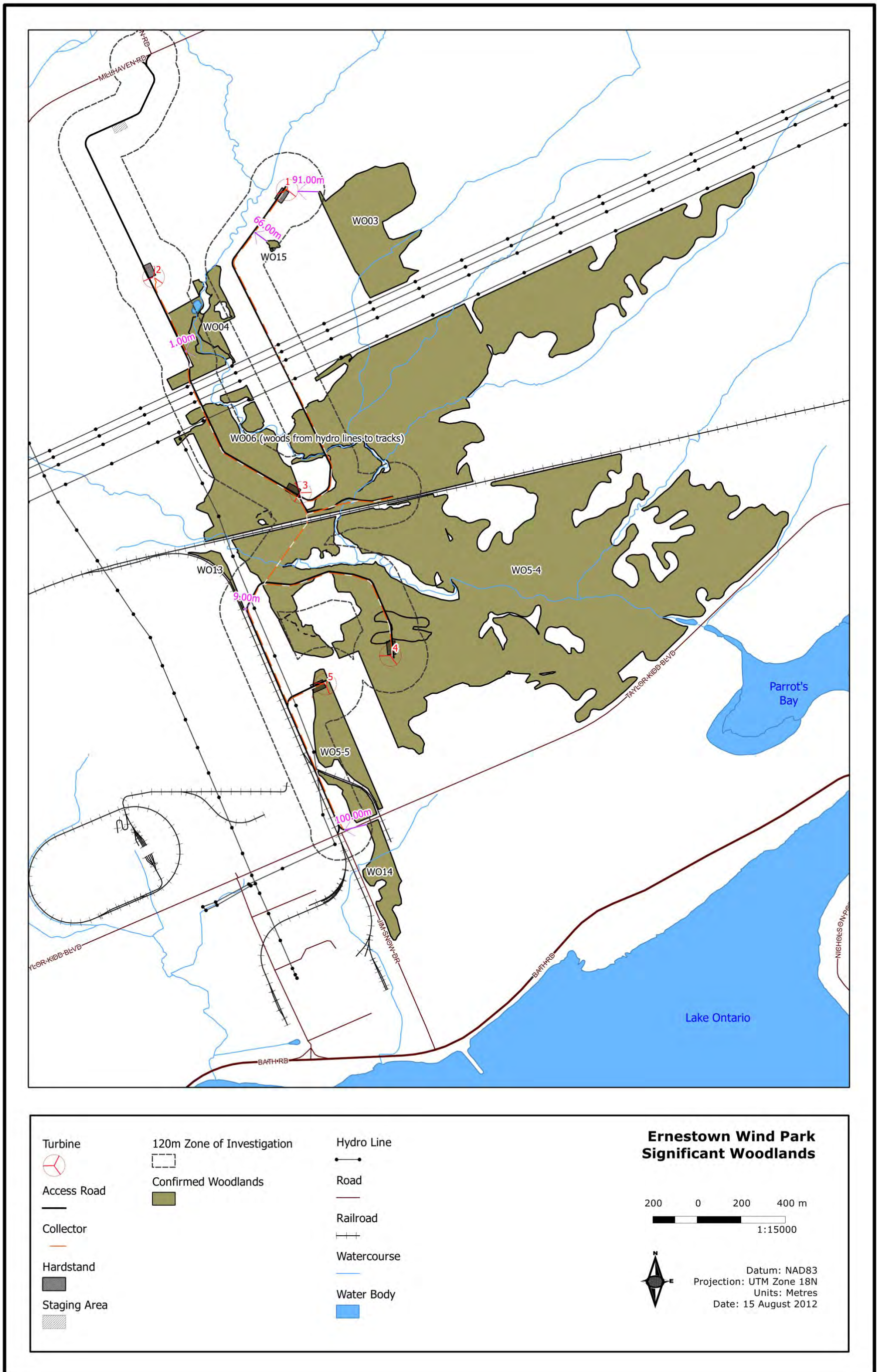


Figure 1-2: Significant Woodlands



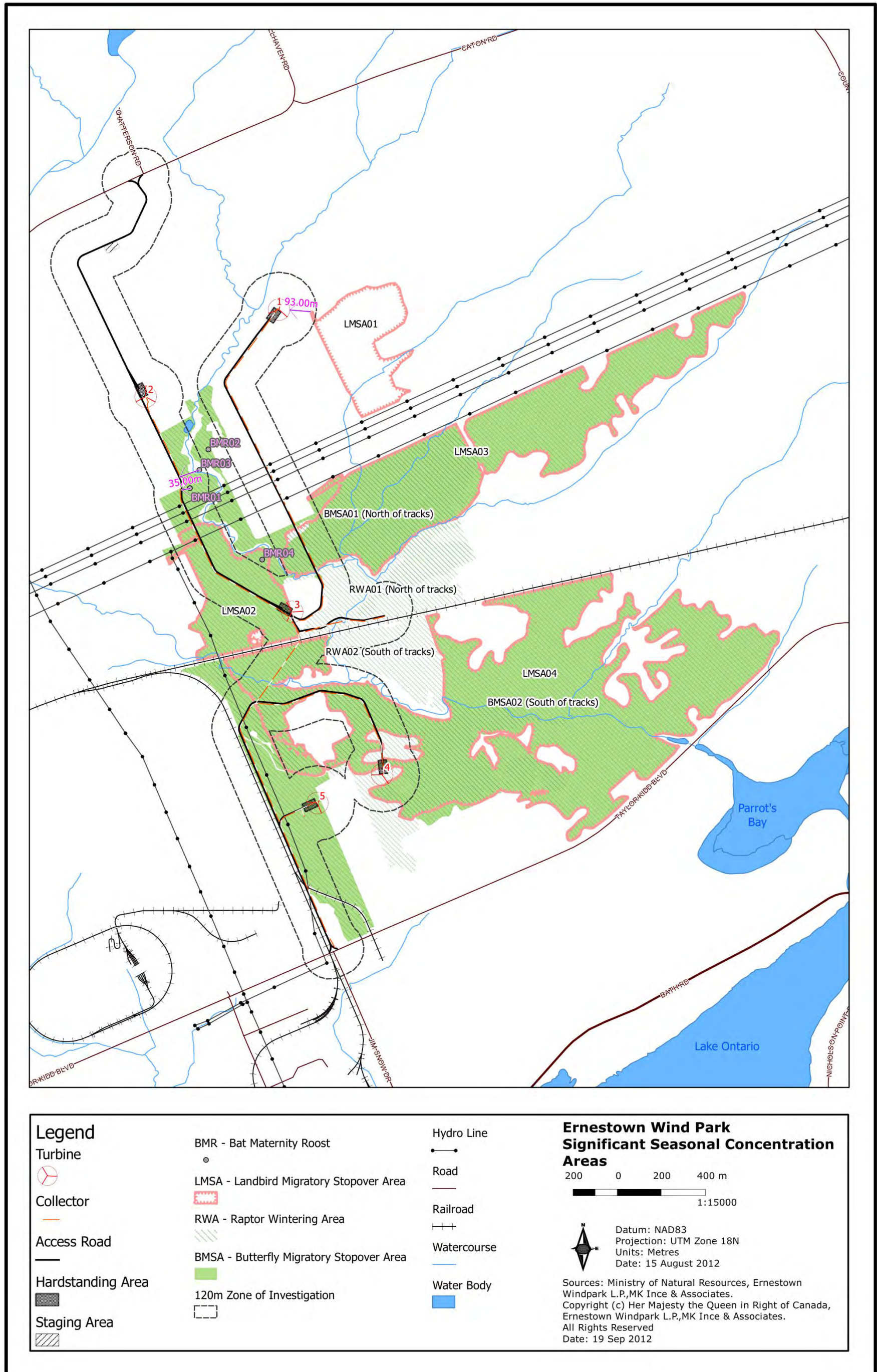


Figure 1-3: Significant Seasonal Concentration Areas of Animals



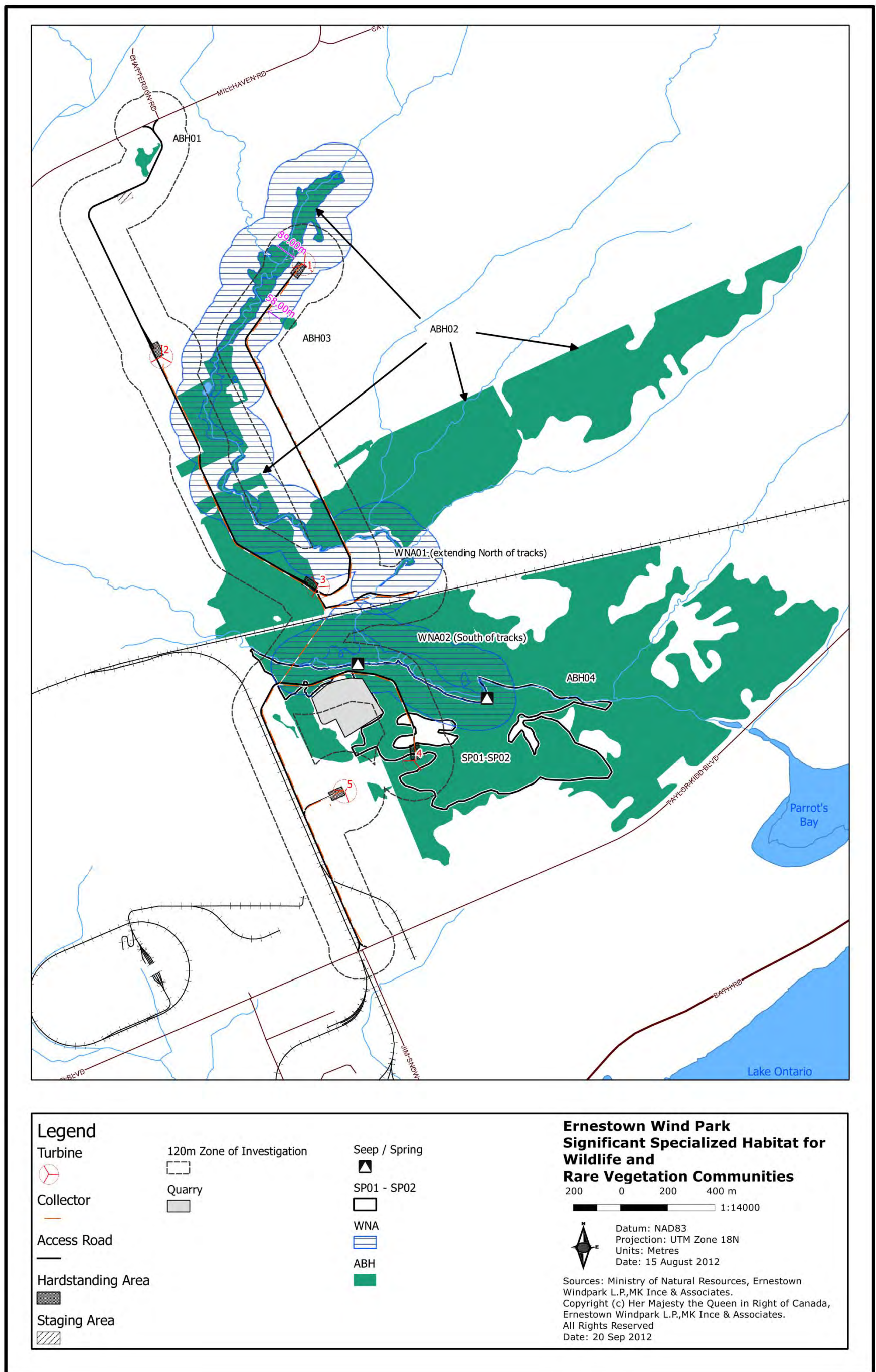


Figure 1-4: Significant Rare Vegetation Communities or Specialized Habitat for Wildlife



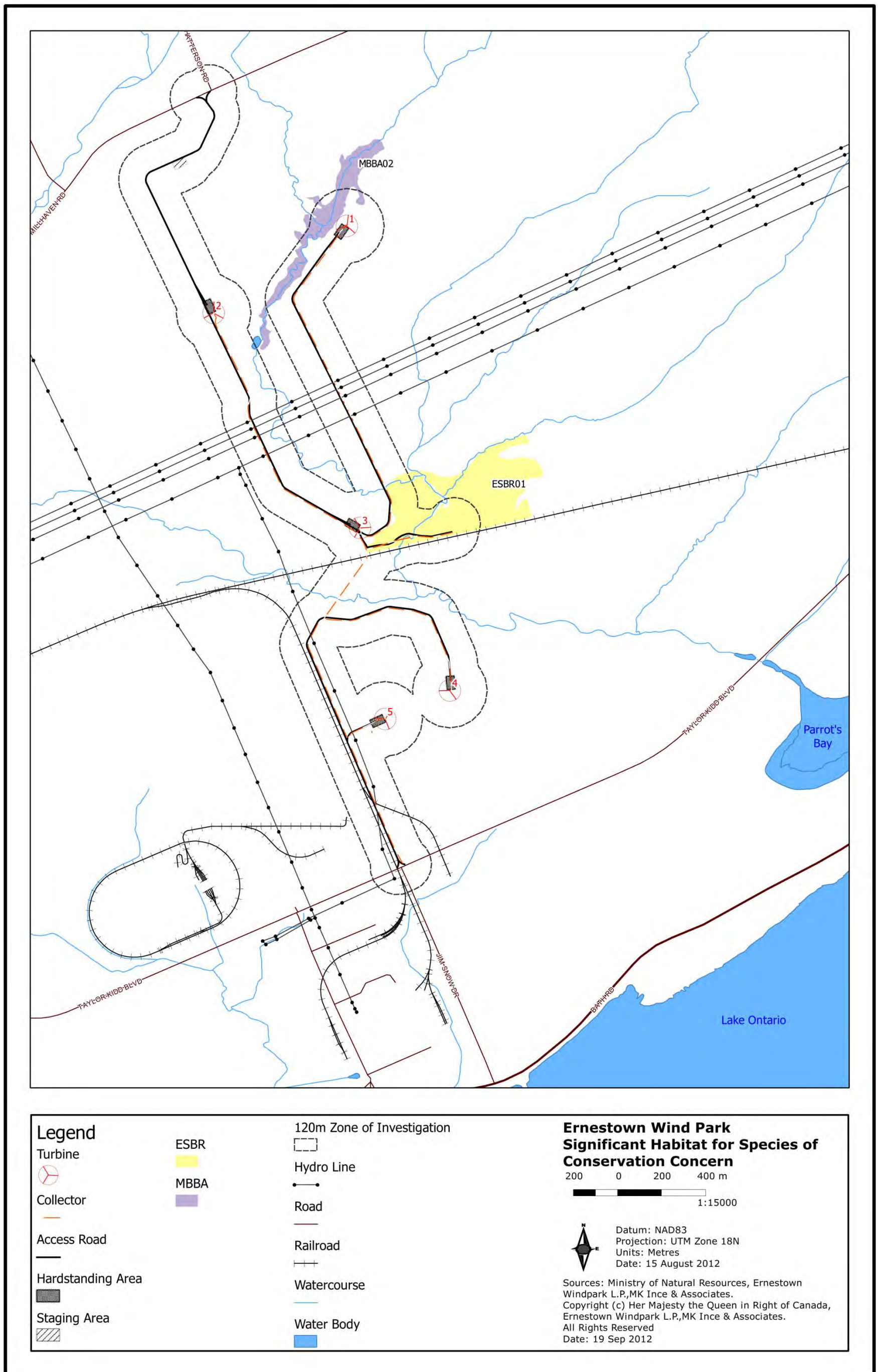


Figure 1-5: Significant Specialized Habitat for Wildlife



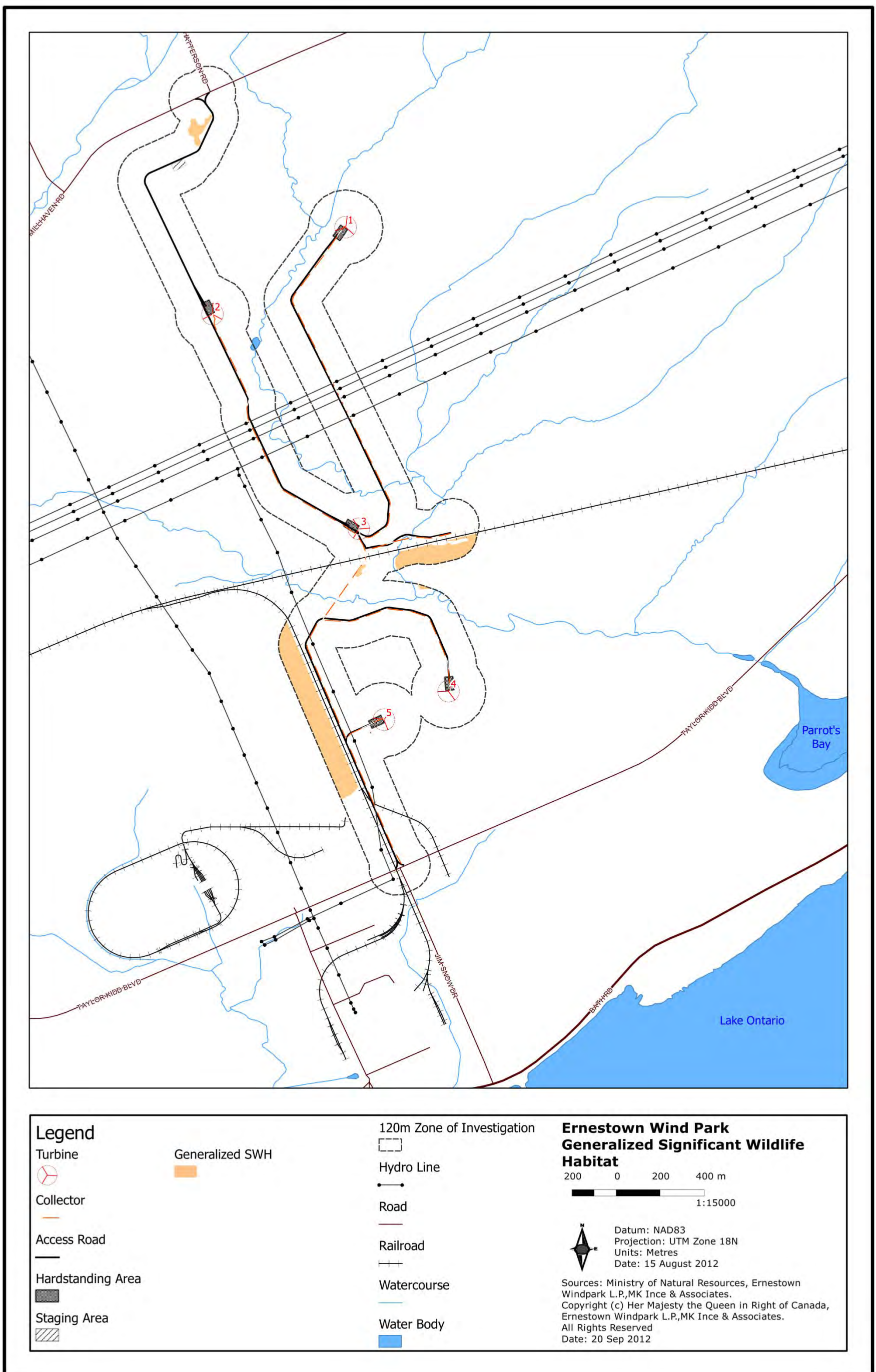


Figure 1-6: Generalized Significant Wildlife Habitat

## 2 DESCRIPTION OF PROJECT ACTIVITIES

A summary of activities for all construction of the Ernestown Wind Park is presented below in **Table 2-1**. Potential impacts to natural features within 120 m of proposed infrastructure and proposed mitigation measures are provided in **Table 4-1**. Complete details on these activities can be found in the *Construction Plan Report*.

**Table 2-1:** Description of Construction Activities and Approximate Timing

Activity	Timing	Seasonality Restrictions	Description of Activity
Site set up	1 week	No restrictions	Site facilities including temporary offices, sanitary equipment, etc., will be delivered and set up prior to the commencement of other construction works.
Access road construction/modification/use	5 weeks	Outside of winter	<p>The area required for the construction of any project related infrastructure will be cleared, graded and prepared for construction. Trees will be felled and vegetation cleared using standard forestry and construction techniques, including fellers and bulldozers.</p> <p>Approximately 5 km of non-paved roads will be constructed to allow access to each individual wind turbine site. Roads will be 5.5 m wide (wider at curves and turning areas). These roads will be designed and constructed to support a minimum 12.5 tonne load. The process of constructing roads will include the excavation of topsoil, and the use of aggregate, gravel, sand and geotextile to construct the road. The new roads will remain private and be maintained for ongoing turbine monitoring and maintenance throughout the life of the project. Roads will follow existing pathways, where possible, and be located to minimize the impact on current land use. A new entrance will be built at the northern access point.</p> <p>The construction of some portions of the access roads may require blasting due to its location in the vicinity of a quarry site; the MOE blasting guideline (NPR-119) will be followed. Blasting requirements will be confirmed by the construction contractor prior to construction.</p> <p>Three permanent stream crossings will be required to allow road access to project components. Crossings will be constructed using reinforced concrete culverts for turbine construction access roads and corrugated steel pipe culverts for service roads.</p>
Pole and cable installation	2 weeks	No restrictions	<p>An above ground and underground collector line will deliver electricity at 34.5kV from each turbine to a new substation at Taylor Kidd Boulevard, where the power will be transformed from 34.5kV to 44kV. This line will require the installation of new wooden electrical poles of standard size and spacing. The installation of the poles will require one crane truck or backhoe and an auger which will create a hole 1-2 m deep. All substrate removed from the holes will be used as backfill and compacted in the</p>



Activity	Timing	Seasonality Restrictions	Description of Activity
			holes in order to stabilize the poles following insertion. The collector lines will follow the new access roads.
Crane pad, staging area and laydown area construction	8 weeks	Outside of winter	<p>Crane pads will be installed along the side of the access road for each turbine, adjacent to the turbine foundations, access road and within the laydown areas. They will be constructed at the same time as the access roads. This area will form the location where the crane will sit during turbine erection. These pads will be approximately 25 m x 50 m; they will consist of gravel on a compacted sand base. The crane pads will be maintained during site operations in order to facilitate periodic maintenance activities where a crane is required, such as gearbox or blade replacement.</p> <p>Turbine components will be delivered directly to a laydown area located at each individual turbine location using the newly constructed access roads. Each laydown area will run adjacent to the access road and connect to the crane pads, as shown in Figure 1 and will have a 100m radius.</p> <p>The laydown areas will be cleared and covered with gravel and remain throughout the wind projects lifecycle for operation and maintenance activities at the site. The crane pads and laydown areas will be constructed at the same time as the access roads and using the same material and construction equipment as the access roads. Additionally the excavation process will be identical.</p>
Foundation construction	10 weeks	Excavation outside of winter No restrictions for construction	<p>Topsoil will be removed and stockpiled before excavating fill for the construction of the turbine foundations. The fill will be used to backfill the foundation after construction and excess fill will be transported off site.</p> <p>A concrete mud-slab base will be poured. On top of this base wood and steel formwork, a steel rebar cage, cable conduit and a grounding ring will be assembled. Mounting hardware for the turbine tower will be attached. Concrete will be brought in from off-site using standard concrete trucks and poured. The foundations will be left to cure for one month before tower erection. Heating of the concrete and rain or snow cover may be necessary during this time.</p> <p>Each foundation will be comprised of concrete and reinforcing steel and will require 363 m<sup>3</sup> of concrete and 43.5 tonnes of steel each. Only a circular base plate, extended 1m from the tower will be visible when the construction is complete.</p> <p>Blasting may be required at turbine locations in order to facilitate excavation for foundation installation. The need to blast, and the required permits, blasting report and approvals will be confirmed and obtained by the construction contractor prior to the commencement of construction following detailed geotechnical work. Preliminary field studies indicate excavations will not extend below the groundwater table. It is not anticipated that any dewatering will be required for turbine foundation excavations.</p>
Tower and turbine assembly and	10 weeks	No restrictions	The delivery of turbine components will occur following the construction of turbine foundations. Each of the turbines comprising the Project will require delivery and

Activity	Timing	Seasonality Restrictions	Description of Activity
installation			<p>assembly of a 100m tower in five (5) sections each section measuring approximately 20m, three 49m blades, a nacelle and rotor hub. The turbine components will be delivered just prior to their assembly and placed on the laydown areas. The nacelle will arrive completely assembled; however the blades will be attached to the hub on-site. Two cranes will be required for assembly of these components. A large lattice crane will be used to lift the components and a smaller crane will be used to stabilize the components as they are being lifted.</p> <p>In cases where the transformer is pad mounted at the base of the turbine, the transformers will come preassembled, so no onsite assembly will be required prior to connection. Each transformer will be mounted to a concrete pad. The clearing and excavations for these pads will be done within the footprint of the turbine foundation, using the same materials. Please refer to section 3.1.3 for further information on that process.</p>
Substation Construction	10 weeks	Outside of winter	<p>The electrical collector lines will connect into a substation located west of turbine 5. Electrical current routed through the station will exit the station and travel south towards Taylor Kidd Boulevard in order to connect to the HONI distribution system. The substation incorporates disconnect and protection equipment, providing the ability to isolate the Project from the HONI distribution system. This will allow for manual disconnection for services and will automatically trip for over or under voltage situations. In addition, the substation will transform the power from 34.5kV to 44kV. The substation yard will consist of a 12m x 24m area enclosed by a chain link fence, and a small driveway. Construction of this Yard will require clearing the area of vegetation with a backhoe or excavator. The area will be graded to ensure that it is level. An excavator, grader, and pole digging machine will be required for the installation of the yard. Additionally, concrete trucks will access the site to pour the foundation.</p> <p>All substrate removed and cleared from the area will be stored at specifically designated places on site for reuse during final grading at the end of the construction phase.</p>
Commissioning Testing	2 weeks	No restrictions	<p>Following erection and prior to commissioning, a series of tests will be performed to confirm the grid connection compatibility. These tests will be commenced after each wind turbine installation and will lead to the connection with the on-site electrical cables. Interconnection with the Hydro One grid will be undertaken as a final test.</p>
Remove site facilities	1 week	No restrictions	<p>Site facilities including temporary offices, sanitary equipment, etc., that were delivered prior to construction will be removed from site, and the pad on which they sit will be restored to its previous state.</p>

A description of Operational and Decommissioning Activities is presented in **Table 2-2**, below. These activities are described in greater detail in the *Design and Operations Report* and the *Decommissioning Plan Report*. The operational activities will continue throughout the 20-year lifespan of the project contract, and the decommissioning activities will commence following the completion of the FIT contract. The impacts and mitigations in this report are fully consistent with those in the *Environmental Effects Monitoring Plan* contained in the *Design and Operations Report*.

**Table 2-2: Operational and Decommissioning Project Activities**

Project Phase	Activity	Timing	Seasonality Restrictions	Activity Description
Operation	Turbine Operation	Throughout duration of project	No restrictions	The project will be monitored remotely 24 hours a day through the SCADA system which will monitor wind speed and direction, voltage, vibration, status of the internal gearbox, generator and bearing temperatures. This system will also control when the wind turbines operate and shut down based on internal or weather conditions. Sensors on the turbine Nacelle will measure wind speed, direction and temperature. As a minimum, one site visit will occur weekly, during this site visit the operator will visually inspect the turbines for any damage and make note of any unusual or excessive noise. An inspection log will be kept which will record dates and times of the inspections. Site inspections will be used in conjunction with the prescribed timing of routine maintenance activities to initiate repairs as needed. In the event a turbine or component is found to be operating outside the range specified by the equipment supplier repairs will be initiated as recommended by the manufacturer.
Operation	Scheduled Maintenance	Throughout duration of project	No restrictions	Scheduled maintenance will include a detailed inspection of the nacelle, blades, rotor, tower, and other components related to the project including the switching station. A crane will only be required for major repairs. In addition to annual maintenance, between years 7 and 10 a major overhaul of some turbine components is anticipated.
Operation	Scheduled Maintenance	Possible periodically through duration of project	No restrictions	As inspections and scheduled maintenance recommend replacement of components repair crews will be dispatched to the site. Maintenance can include minor components such as small electronic parts or major components like the gear box. Some large components may require mobilization of a crane to the site.
Decommissioning	Probable future site use	After 20 years	No restrictions	The project has been awarded a 20 year power purchase agreement under the FIT program by the Ontario Power Authority (OPA). After the 20 year FIT Contract expires the project may apply to the FIT program to have the Project re-powered which includes upgrading or replacing the turbines and other

Project Phase	Activity	Timing	Seasonality Restrictions	Activity Description
				components with a newer technology to allow continued operation of the wind facility. This process would require additional permitting and approvals. Should re-powering not be an available or viable option, the project will be decommissioned and the proponent will cease operation and the project location would return to agricultural use.
Decommissioning	Abandonment of project	Similar to construction	No restrictions	While it is very unlikely that the Project would require decommissioning or be abandoned during the construction phase, due to the large amount of investment required by the FIT Program, the project could be decommissioned at any point in the construction process without incurring additional environmental impacts as described under the row below. Additionally, landowner commitments as defined in pre-existing legal agreements will be honored.
Decommissioning	Decommissioning After Ceasing Operations	Similar to construction	No restrictions	Should decommissioning become necessary the site will be restored by the proponent to a level similar to the pre development condition. Any decommissioning activities will commence within one year of the FIT Contract expiration date and involve removal of above-ground and below-ground structures to a depth of at least 1.0 metre and restoration of topsoil and vegetation cover at the site. Above-ground structures include turbines, transformers, associated laydown areas, access roads, above ground electrical connection lines and the Substation. Below-ground structures include turbine foundations, a concrete slab for the substation and all underground electrical and communications lines.

### 3 IDENTIFICATION AND ASSESSMENT OF POTENTIAL NEGATIVE ENVIRONMENTAL EFFECTS

#### 3.1.1 Ecoregion 6E

The Ernestown Wind Park Project Location lies within the Lake Simcoe-Rideau Ecoregion 6E, as defined by the MNR Land Classification Primer. Generally, this Ecoregion extends southward connecting Lake Huron in the west to the Ottawa River in the east (MNR Ecological Land Classification Primer, 2007). Currently, 57% of the Ecoregion exists as agricultural land, with deciduous and mixed forests covering a majority of the remaining natural landscape under bedrock of dolostone and limestone (MNR Ecological Land Classification Primer, 2007). It has been noted that wetlands and waterbodies comprise 5% and 4% of the Ecoregion area, respectively (MNR Ecological Land Classification Primer, 2007).

#### 3.1.2 Terrain Setting

The Ernestown Wind Park Project Location lies within the Great Lakes – St. Lawrence Lowlands physiographic region, in southern Ontario. Topography in the vicinity is generally a flat agricultural zone composed of limestone bedrock. The site is 1.2 km north of Lake Ontario, west of the city of Kingston and bordered by Millhaven Road to the north and Taylor-Kidd Boulevard to the south.

Much of the northern portion of the project consists of meadow and annual row crops some woodlands (both deciduous and coniferous) and wetlands throughout. The southern portion of the project, located south of the railway tracks is predominately meadow and coniferous forest, also with some shrub/thicket communities, row crops and deciduous forest. Multiple water bodies are within 120 m and are crossed by access roads and collector lines.

Geological Survey of Canada maps identify bedrock geology in the project area as from the Ordovician geological time period. Bedrock in this area is made up of sedimentary rocks, primarily coarse-grained limestone.

#### 3.1.3 Biological Resources

The Ernestown Wind Park Project Location contains 46 significant natural features of a variety of types including: wetlands, woodlands, and numerous significant wildlife habitats.

All of the significant natural features described within this section are further elaborated within **Table 3-1**. This table provide valuable information summarized from the *Natural Heritage Site Investigation Report* and *Evaluation of Significance Report* (M.K. Ince and Associates Ltd., 2012) necessary for understanding the potential negative effects of developmental activities.



### 3.2 Significant Natural Features

An evaluation of significance was completed for the Ernestown Wind Park area on:

- eleven wetlands
- eight woodlands
- twelve seasonal concentration areas of animals:
  - two raptor wintering areas
  - four bat maternities roosts (four cavity trees identified)
  - two migratory butterfly stopover areas
  - four landbird migratory stopover areas
- seven rare vegetation communities or specialized habitat for wildlife:
  - two waterfowl nesting areas
  - one seepage area (comprised of two seeps/springs)
  - four amphibian breeding habitats (one wetland and three woodland)
- two habitat for species of conservation concern:
  - one marsh bird breeding habitat
  - one shrub/early successional bird breeding habitat
- generalized candidate significant wildlife habitat

Features evaluated as significant were determined to be so following evaluation criteria outlined in the *Natural Heritage Assessment Guide* (OMNR, 2011c) and the *Significant Wildlife Habitat Ecoregion 6E Criterion Schedule* (OMNR, 2012). These features are further described below in **Table 3-1**, which highlight the attributes, composition and function of each feature. The location of these natural features in relation to project infrastructure is also presented within **Table 3-1** and in **Figures 1-1** through **1-5**. For a full description of the criteria used to evaluate each feature and the characteristics of each, see the *Evaluation of Significance Report* (M.K. Ince and Associates Ltd., 2012).

Some of the significant wildlife habitats identified within 120 m of the Project Location are currently unevaluated and being treated as significant and require additional habitat-use surveys to determine significance. Under Appendix D of the NHAG (OMNR, 2011), an applicant treats a habitat as significant and commits to undertake studies prior to construction within 120 m of the feature. Features treated as significant are identified within **Table 3-1**. Detailed methodology for pre-construction surveys to evaluate the significance of each feature treated as significant is provided in **Appendix A**.

As specified in Appendix D to the NHAG (MNR, 2011), habitats which are not required to be identified for a particular project component, but may exist within 120 m of that component based on landscape and geography, must be assumed to be existing (see Table 1 of Appendix D of the NHAG for specific details). These features are then classified as generalized candidate significant wildlife habitat (GcSWH), treated as significant, and construction mitigation methods are provided within this *Environmental Impact Study Report*. A map showing the GcSWH within 120 m of the Project Location is provided in **Figure 1-6**.

**Table 3-1:** Description of the Natural Features Identified within the Ernestown Wind Park Project Location

Feature		Attributes		Composition	Function	Associated Wildlife Habitat	Project Components within 120 m
ID	Description	Size (ha)	Connected Features				
WE02	Wetland	7.5	WO11	MAMM1-3 and SWDM2-2 (ELC IDs: 22 & 23 respectively)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005) absorbing of spring runoff from the agricultural fields.	ABH03; MBBA02; WNA01	Hardstand (21 m); Access Road (22 m); Collector (22 m); Bladeswept area (5m)
WE04	Wetland	1.3	WO04	SWDM2-1, OAO, and MASM1-1 (ELC IDs: 32, 33 & 36 respectively)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005). Open aquatic community is poor quality (surface covered with algae).	ABH04; WNA01	Collector (43 m); Access Road (45 m)
WE05-2	Wetland	1.8	WO06	MAMM1-3 (ELC IDs: 38,44 & 50)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005).	ABH03; MBBA03; WNA01	Access Road (3 m); Collector (11 m); Bladeswept area (110m)
WE05-4	Wetland	0.32	WO06	SWDM2-2, and OAO (ELC IDs: 60 & 61 respectively)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005). High flood retention and attenuation for surrounding wetlands.	ABH03; LMSA02	Hardstand (106 m); Bladeswept area (110m)
WE05-6	Wetland	5.4	WO05-4	MASM1-1 (ELC ID: 65)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005).	ABH04; WNA02; SPO1-SPO2	Access Road (20 m); Collector (26 m)
WE05-10	Wetland	0.17	WO05-4	MASM1-1 (ELC ID: 70)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005). High flood retention and attenuation for surrounding wetlands.	ABH04; WNA02	Collector (33 m); Access Road (35 m)

Feature		Attributes		Composition	Function	Associated Wildlife Habitat	Project Components within 120 m
ID	Description	Size (ha)	Connected Features				
WE08	Wetland	0.60	N/A	SAS1 and MAMM1-3 (ELC IDs: 10 & 11 respectively)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005). High flood retention and attenuation for surrounding wetlands.	ABH01	Access Road (1 m); Staging Area (84 m)
WE09	Wetland	0.56	WO06	MAMM1-3 (ELC ID: 55)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005).	ABH03; MBBA04; WNA01	Access Road (23 m); Collector (31 m)
WE10	Wetland	0.28	N/A	SWDO1-2, MASO1-1 and MASO1-4 (ELC IDs: 28,29 & 30, respectively)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005).	ABH02; WNA01	Collector (60 m); Access Road (62 m)
WE05-15	Wetland	0.22	WO05-4	MASM1-1 (ELC ID: 59)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005).	ABH04; WNA02	Collector (26 m); Access Road (26 m)
WE05-16	Wetland	0.39	WO05-4	MASM1-1 (ELC ID: 77)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005).	ABH04	Access Road (100 m); Collector (100 m); Hardstand (105m); Bladeswept area (51m)
WO03	Woodland	16	WE02, WE04, WE05-2, WE05-4; WO06	FODM6-4 (ELC ID: 26)	Functions in water protection, proximity to other significant woodlands and habitats and provides woodland native diversity dominant species.	LMSA01	Bladeswept area (91m)
WO04	Woodland	7.8	WE02, WE04, WE05-2, WE05-4; WO06	FODM7-6 (ELC ID: 35); SWDM2-1 (ELC ID: 36); FODM6-1 (ELC ID: 37)	Functions in water protection, proximity to other significant woodlands and habitats and provides woodland native diversity	RWA01; WNA01; ABH02; BMR01; BMR02; BMR03	Access Road (0 m); Collector (0 m)

Feature		Attributes		Composition	Function	Associated Wildlife Habitat	Project Components within 120 m
ID	Description	Size (ha)	Connected Features				
					dominant species.		
WO05-4	Woodland	147	WE05-6, WE05-10, WE05-15 and WE05-16	FOCM1-2 (ELC ID: 63); FOCM2-1 (ELC IDs: 64, 71, 72); FODM7-1 (ELC IDs: 68, 84); FODM7-2 (ELC IDs: 66, 74, 82); WOCM1-1 (ELC IDs: 62, 73, 75, 79)	Functions in providing large total woodland area, interior habitat, proximity to other significant woodlands and habitats, linkages, water protection, provides woodland native diversity dominant species and the presence of uncommon characteristics criteria.	RWA02; LMSA04; ABH04; WNA02; SP01; SP02; AHS02	Access Road (0 m); Collector (0 m); Hardstand (0 m); Turbine 4 (0 m)
WO05-5	Woodland	8.8	n/a	FODM7-1 (ELC id 84 & 89); FODM7-2 (ELC ID 82)	Functions in proximity to other significant woodlands and habitats and provides linkages.	BMSA02, RWA02	Access Road (0 m); Collector (0 m); Hardstand (0 m); Turbine (0 m)
WO06	Woodland	105	WE02, WE04, WE05-2, WE05-4, WE05-9; WO03 and WO04	FODM9-4 (ELC IDs: 41, 47, 57); SWDM2-2 (ELC ID: 60); WOCM1-1 (ELC IDs: 46, 54, 56); FODM2-3 (ELC ID: 39)	Functions in providing large total woodland area, proximity to other significant woodlands and habitats, linkages, water protection and provides woodland native diversity dominant species.	RWA01; BMR04; LMSA02; LMSA03; WNA01; ABH02; ASH01; ESBR01	Access Road (0 m); Collector (0 m); Hardstand (0 m); Turbine (0 m)
WO13	Woodland	0.87	n/a	FODM7-2 (ELC ID: 66)	Functions in providing proximity to other significant woodlands and habitats.	RWA02; BMSA02	Access Road (9 m); Collector (9 m)
WO14	Woodland	4.3	WE10	FODM7-1 (ELC ID: 89)	Functions in water protection.	n/a	Access Road (100 m); Collector (100 m)
WO15	Woodland	0.17	n/a	SWDO1-2 (ELC ID: 28)	Functions in providing proximity to other significant woodlands and habitats.	ABH03	Access Road (66 m); Collector (66 m)
RWA01	Raptor Wintering Areas <b><u>TREATED AS SIGNIFICANT</u></b>	119	Woodland (WO04, WO06)	Deciduous woodland communities - FODM7-6 (ELC ID: 35); FODM2-3 (ELC ID: 39); FODM9-4 (ELC ID: 41, 47, 57); SWDM2-1 (ELC ID: 36); and FODM6-1 (ELC ID: 37).	Open field hunting/foraging grounds for wintering raptors, together with woodlands which serve as roosting/perching habitat.	BMR01; LMSA02; LMSA03; WNA01; ABH02; ASH01; ESBR01; BMR01;	Access Road (0m) Collector (0m) Hardstand (0m) Turbine (0m)

Feature		Attributes		Composition	Function	Associated Wildlife Habitat	Project Components within 120 m
ID	Description	Size (ha)	Connected Features				
				Upland cultural meadow, thicket and woodland communities - MEMM3 (ELC IDs: 40, 42, 43, 45, 48, 49, 51, 52, 53), WOCM1-1 (ELC IDs: 46, 54, 56) and THDM2-4 (ELC ID: 34).		BMR02; BMR03	
RWA02	Raptor Wintering Areas <b><u>TREATED AS SIGNIFICANT</u></b>	158	Woodland (WO05-4, WO13)	Deciduous and coniferous woodland communities - FODM7-1 (ELC ID: 68, 84), FODM7-2 (ELC IDs: 66, 74, 82), FOCM1-2 (ELC ID: 63) and FOCM2-1 (ELC IDs: 64, 71, 72). Upland cultural meadow, thicket and woodland communities: MEMM3 (ELC ID: 67), THDM2-4 (ELC IDs: 76, 78) and WOCM1-1 (ELC IDs: 62, 73, 75, 79).		LMSA04; ABH04; WNA02; SP01; SP02; AHS02	Access Road (0m) Collector (0m) Hardstand (0m) Turbine (0m)
BMR01	Bat Maternity Roost <b><u>TREATED AS SIGNIFICANT</u></b>	4.0	Woodland (WO04)	Associated with FODM6-1 (ELC ID: 37); cavity identified in White Ash tree	Individual tree cavities may provide suitable maternity colonies.	RWA01; WNA01; BMR02; BMR03	Access Road (35m) Collector (40m)
BMR02	Bat Maternity Roost <b><u>TREATED AS SIGNIFICANT</u></b>	2.8	Woodland (WO04)	Associated with FODM7-6 (ELC ID: 35); cavity identified in Shagbark Hickory tree		RWA01; WNA01; BMR01; BMR03	N/A
BMR03	Bat Maternity Roost <b><u>TREATED AS SIGNIFICANT</u></b>	1.1	Woodland (WO04)	Associated with SWDM2-1 (ELC ID: 36); cavity identified in White Oak tree		RWA01; WNA01; BMR01; BMR02	Access Road (93m) Collector (91m)
BMR04	Bat Maternity Roost <b><u>TREATED AS SIGNIFICANT</u></b>	19	Woodland (WO06)	Associated with FODM9-4 (ELC ID: 57); cavity identified in Trembling Apen tree		RWA01; BMR04; LMSA02; LMSA03; WNA01; ASH01; ESBR01	N/A



Feature		Attributes		Composition	Function	Associated Wildlife Habitat	Project Components within 120 m
ID	Description	Size (ha)	Connected Features				
BMSA01	Migratory Butterfly Stopover Areas <b><u>TREATED AS SIGNIFICANT</u></b>	98	Woodland (WO04, WO06)	Woodland communities - FODM7-6 (ELC ID: 35); FODM2-3 (ELC ID: 39); FODM9-4 (ELC ID: 41, 47, 57); SWDM2-1 (ELC ID: 36); and FODM6-1 (ELC ID: 37). Upland communities - MEMM3 (ELC IDs: 40, 42, 43, 45, 48, 49, 51, 52, 53) and THDM2-4 (ELC ID: 34).	The habitat, a minimum of 10 ha in size with a combination of field and forest habitat present, and located within 5 km of Lake Ontario, provides butterflies with a location to rest prior to their long migration south.	RWA01; BMR01; LMSA02; LMSA03; WNA01; ABH02; ASH01; ESBR01; BMR01; BMR02; BMR03	Access Road (0m) Collector (0m) Hardstand (0m) Turbine (0m)
BMSA02	Migratory Butterfly Stopover Areas <b><u>TREATED AS SIGNIFICANT</u></b>	136	Woodland (WO05-4, WO13)	Deciduous and coniferous woodland communities - FODM7-1 (ELC ID: 68, 84), FODM7-2 (ELC IDs: 66, 74, 82), FOCM1-2 (ELC ID: 63) and FOCM2-1 (ELC IDs: 64, 71, 72). Upland communities - MEMM3 (ELC ID: 67) and THDM2-4 (ELC IDs: 76, 78).		RWA02; LMSA04; ABH04; WNA02; SP01; SP02; AHS02	Access Road (0m) Collector (0m) Hardstand (0m) Turbine (0m)
LMSA01	Landbird Migratory Stopover Areas <b><u>TREATED AS SIGNIFICANT</u></b>	16	Woodland (WO03)	FODM6-4 (ELC ID: 26)	Woodland is > 10 ha and within 2 km of Lake Ontario. This woodland is also found in close proximity to wetland and meadow communities.	N/A	Bladeswept area (93m)
LMSA02	Landbird Migratory Stopover Areas <b><u>TREATED AS SIGNIFICANT</u></b>	20	Woodland (WOO6)	FODM9-4 (57) and SWDM2-2 (ELC ID: 60)		RWA01; BMR01; LMSA03; WNA01; ABH02; ASH01; ESBR01	Access Road (0m) Collector (0m) Hardstand (0m) Turbine (0m)
LMSA03	Landbird Migratory Stopover Areas <b><u>TREATED AS SIGNIFICANT</u></b>	64	Woodland (WOO6)	FODM2-3 (ELC ID: 39)		RWA01; BMR01; LMSA02; WNA01; ABH02; ASH01; ESBR01	Access Road (0m) Collector (0m) Turbine (107m)
LMSA04	Landbird	126	Woodland	FOCM1-2 (ELC ID: 63), FOCM2-1 (ELC IDs:		RWA02; ABH04;	Access Road (0m)

Feature		Attributes		Composition	Function	Associated Wildlife Habitat	Project Components within 120 m
ID	Description	Size (ha)	Connected Features				
	Migratory Stopover Areas <b><u>TREATED AS SIGNIFICANT</u></b>		(WO05-4)	64, 71, 72), FODM7-1 (ELC ID: 68) and FODM7-2 (ELC ID: 74)		WNA02; SP01; SP02; AHS02	Collector (0m) Hardstand (0m) Turbine (0m)
WNA01	Waterfowl Nesting Areas <b><u>TREATED AS SIGNIFICANT</u></b>	45	Wetlands (WE02, WE04, WE05-2, WE09, WE10) Woodlands (WO04, WO06)	Wetland Communities: <u>WE02</u> ( SAS1, MAMM1-3 and SWDM2-2; ELC IDs: 12, 22 and 23, respectively), <u>WE04</u> (MASM1-1, OAO and SWDM2-1 (ELC IDs: 32, 33 and 36, respectively), <u>WE05-2</u> (MAMM1-3; ELC IDs: 38, 44,50), <u>WE09</u> (MAMM1-3; ELC ID: 55) and <u>WE10</u> (SWD01-2, MAS01-4 and MASO1-1; ELC IDs: 28, 29 and 30, respectively). Upland Communities: <u>WO04</u> (FODM7-6, FODM6-1; ELC IDs: 35, 37), <u>WO06</u> (FODM9-4; ELC IDs: 41, 47, 57; FODM2-3; ELC ID: 39 and WOCM1-1; ELC IDs: 46, 54, 56), FODM7-2 (ELC ID:18), THDM2-4 (ELC ID: 34) MEMM3 (ELC IDs: 21, 25, 42, 43, 45, 48, 49, 51-53).	Potential nesting habitat for waterfowl, including Wood Ducks and Hooded Mergansers. Meadow and woodland communities present within 120 m of a wetland.	ABH02; BMR01; LMSA02; LMSA03; ASH01; ESBR01; MBBA02; MBBA03; MBBA04; BMR01; BMR02; BMR03; BMR04	Access Road (0m) Collector (0m) Hardstand (6m) Bladeswept area (0m)
WNA02	Waterfowl Nesting Areas <b><u>TREATED AS SIGNIFICANT</u></b>	42	Wetlands (WE05-6) Woodland (WO05-4)	Wetland Communities: <u>WE05-6</u> (MASM1-1; ELC ID: 65) Upland Communities: <u>WO05-4</u> (WOCM1-1; ELC ID: 62, 73; FOCM1-2; ELC ID: 63; FOCM2-1; ELC ID: 64, 72; FODM7-1; ELC ID: 68), MEMM3 (ELC ID: 67).	Potential nesting habitat for waterfowl, including Wood Ducks and Hooded Mergansers. Meadow and woodland communities present within 120 m of a wetland.	ABH04; ASH02; RWA02; SP01 & SP02	Access Road (0m) Collector (0m)
SP01-SP02	Seeps and Springs	n/a - point feature	Woodland (WO05-4)	FOCM2-1 (ELC ID: 72)	Seeps and springs function as important feeding and drinking areas for a variety of animal species, as well as specialized habitat for some plant species. These sites are particularly valuable for wildlife during winter (OMNR, 2012).	LMSA04; ABH03; WNA02; SP01-SP02; AHS02	Access Road (29m) Collector (29m)

Feature		Attributes		Composition	Function	Associated Wildlife Habitat	Project Components within 120 m
ID	Description	Size (ha)	Connected Features				
ABH02	Amphibian Breeding Habitat – Woodlands	103	Wetland (WE02, WE04, WE05, WE05-4) Woodland (WO06 and WO04)	<u>WE02</u> (MAMM1-3 and SWDM2-2; ELC IDs: 22 & 23 respectively), <u>WE04</u> (SWDM2-1, OAO, and MASM1-1; ELC IDs: 32, 33 & 36 respectively), <u>WE05</u> (MAMM1-3; ELC IDs: 38,44 & 50), <u>WE09</u> (MAMM1-3; ELC ID: 55), <u>WE05-4</u> (SWDM2-2, and OAO; ELC IDs: 60 & 61 respectively) <u>WO06</u> [FODM9-4 (ELC IDs: 41, 47, 57); SWDM2-2 (ELC ID: 60); WOCM1-1 (ELC IDs: 46, 54, 56); FODM2-3 (ELC ID: 39)], <u>WO04</u> [FODM7-6 (ELC ID: 35); SWDM2-1 (ELC ID: 36); FODM6-1 (ELC ID: 37)]	Wetland, lake or pond within or adjacent to (within 120 m) to a woodland that provide amphibian breeding habitat. Woodlands with permanent ponds or those containing water in most years until mid-July are most likely to be used as breeding habitat.	N/A	Access Road (62m) Collector (60m)
ABH03	Amphibian Breeding Habitat – Woodlands <b><u>TREATED AS SIGNIFICANT</u></b>	0.28	Wetland (WE10) Woodland (WO15)	<u>WE10</u> (SWDO1-2, MASO1-1 and MASO1-4; ELC IDs: 28,29 & 30, respectively) <u>WO15</u> (SWD01-2; ELC ID: 28)		WNA01	Access Road (0m) Collector (0m) Hardstand (0m) Turbine (0m)
ABH04	Amphibian Breeding Habitat – Woodlands <b><u>TREATED AS SIGNIFICANT</u></b>	154	Wetland (WE05-6, WE05-10, WE05-15, WE05-16) Woodland (WO5-4)	<u>WE05-6</u> (MASM1-1; ELC ID: 65), <u>WE05-10</u> (MASM1-1; ELC ID: 70), <u>WE05-15</u> (MASM1-1; ELC ID: 59), <u>WE05-16</u> (MASM1-1; ELC ID: 77) <u>WO05-4</u> [FOCM1-2 (ELC ID: 63); FOCM2-1 (ELC IDs: 64, 71, 72); FODM7-1 (ELC IDs: 68, 84); FODM7-2 (ELC IDs: 66, 74, 82); WOCM1-1 (ELC IDs: 62, 73, 75, 79)]		WNA02; RWA02; LMSA04; BMSA02	Access Road (0m) Collector (0m) Hardstand (0m) Turbine (0m)
ABH01	Amphibian Breeding Habitat – Wetlands <b><u>TREATED AS SIGNIFICANT</u></b>	0.60	Wetland (WE08)	SAS1 and MAMM1-3 (ELC IDs: 10 and 11, respectively).		Isolated wetland that is > 120 m from a woodland. Permanent standing water and evidence of amphibians present within the wetland.	Access Road (1m) Staging Area (84m)

Feature		Attributes		Composition	Function	Associated Wildlife Habitat	Project Components within 120 m
ID	Description	Size (ha)	Connected Features				
MBBA02	Marsh Bird Breeding Areas <b><u>TREATED AS SIGNIFICANT</u></b>	7.2	Wetland (WE02)	SAS1 and MAMM1-3 (ELC IDs: 12 and 22, respectively); MEMM3 (ELC IDs: 21, 25)	Provides nesting habitat in wetlands for marsh birds. Wetlands contain shallow water and emergent vegetation.	ABH03; WNA01	Access Road (15m) Collector (23m) Hardstand (20m) Bladeswept area (0m)
ESBR01	Shrub/Early Successional Bird Breeding Habitat	20	Woodland (WO06)	WOCM1-1 (ELC ID: 56)	Large field areas succeeding to shrub and thickets habitats greater than 10 ha in size. Woodlands dominated by shrubs support and sustain a diversity of avian species.	RWA01; BMR04; LMSA02; LMSA03; WNA01; ASH01	Access Road (0m) Collector (0m) Hardstand (70m) Bladeswept area (25m)

## 4 POTENTIAL NEGATIVE ENVIRONMENTAL EFFECTS

An assessment of all potential negative environmental effects on natural features within the Ernestown Wind Park location is provided in **Table 4-1**. The table describes the spatial, temporal, magnitude, frequency and duration of the effects, as well as, any effect on size, diversity, health, connectivity and functionality of significant features. Mitigation measures were developed to prevent negative environmental effects and to maintain the form and function of all features. Given the numerous significant natural heritage features within 120 m of the project location, many mitigation measures were necessary to curtail negative environmental effects.

Construction will occur within 16 significant features: WO04, WOO05-4, WO05-5, WO06, BMSA01, BMSA02, LMSA02, LMSA03, LMSA04, RWA01, RWA02, WNA01, WNA02, ABH03, ABH04 and ESBR01. Many of these features, however, have been treated as significant and require pre-construction surveys to evaluate significance (please see **Section 5**). Regardless of the outcome of future evaluations, all features treated as significant have been mitigated for negative impacts as seen in **Table 4-1** below.

The mitigation for the Ernestown Wind Park emphasises the preservation of natural vegetation within natural features, installation of silt fencing along the perimeters of features, minimizing disturbance to non-construction areas, as well as, avoidance of critical periods for wildlife using significant natural features. The installation of silt fences around construction areas or features will prevent encroachment, siltation and or erosion within natural features and will provide an obvious border to areas that should be avoided by workers. It is anticipated that the mitigation measures proposed within **Table 4-1** will fully mitigate for most negative environmental effects. Furthermore, following the restoration of natural features, at the end of the project (after decommissioning and re-vegetation), no negative impacts are anticipated.

**Table 4-1:** Summary of Potential Negative Environmental Effects and Mitigation Measures for Significant Natural Features

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
<b>WETLANDS – see Figure 1-1</b>						
WE02	Hardstand (21 m); Access Road (22 m); Collector (22 m); Bladeswept area (5m)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005) absorbing of spring runoff from the agricultural fields.	<u>Construction/ Decommissioning of access road, hardstand, overhead collector line:</u> No encroachment onto feature. Potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized. Minimal risk of contamination to soils from spills and leaks anticipated. Dust generation from construction activities will be short-term and highly localized.	Localized displacement of wildlife inhabiting WE02 due to construction noise.	Maintain form and function of wetland. Ensure minimal disturbance to wildlife using habitat.	WE02 is 21 m away from any construction activity and only a portion of the habitat comes within the 120 m mandated setback buffer in the northern part of the project. No negative environmental effects are anticipated. The only residual effect may be disturbance to wildlife using the wetland. Construction activities will be limited to designated construction area. Areas for construction will be demarcated. All workers will be notified of wetland significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area). Silt barriers (e.g. fencing) will be erected along the edge of the wetland boundary. Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established. Area subject to dust generation will be watered when required. Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance and operation of Turbine 1:</u> Use of road salt during winter months may increase salinity of WE02.	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		
WE04	Collector (43 m); Access Road (45 m)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005). Open aquatic community is poor quality (surface covered with algae).	<u>Construction/ decommissioning of access road and overhead collector line:</u> The >30 m buffer between this feature and any construction/ decommissioning activities will ensure that no environmental impacts occur. No risk of contamination to soils from spills and leaks anticipated.	Localized displacement of wildlife inhabiting WE04 due to construction noise.	Maintain form and function of wetland. Ensure minimal disturbance to wildlife using habitat during construction.	WE04 is 43 m away from any construction activity and only a portion of the habitat comes within the 120 m mandated setback buffer in the northern part of the project. No negative environmental effects are anticipated. There is no residual disturbance effect to wildlife using the wetland given the distance between the habitat and any operation activities. Construction activities will be limited to designated construction area. Areas for construction will be demarcated. All workers will be notified of wetland significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area). Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance:</u> The >30 m buffer between this feature and any operation activities will ensure that no environmental impacts occur.	No impacts anticipated.		

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
WE05-2	Access Road (3 m); Collector (11 m); Bladeswept area (110m)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005).	<u>Construction/ decommissioning of access road and overhead collector line:</u> No encroachment onto feature. Potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized. Minimal risk of contamination to soils from spills and leaks anticipated. Dust generation from construction activities will be short-term and highly localized.	Localized displacement of wildlife inhabiting WE05-2 due to construction noise.	Maintain form and function of wetland. Ensure minimal disturbance to wildlife using habitat.	WE05-2 is 3 m away from any construction activity and only a portion of the habitat comes within the 120 m mandated setback buffer in the northern part of the project. No negative environmental effects are anticipated. The only residual effect may be disturbance to wildlife using the wetland. Construction activities will be limited to designated construction area. Areas for construction will be demarcated. All workers will be notified of wetland significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area). Silt barriers (e.g. fencing) will be erected along the edge of the wetland boundary. Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established. Area subject to dust generation will be watered when required. Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance; operation of Turbine 3:</u> Use of road salt during winter months may increase salinity of WE05-2.	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		
WE05-4	Hardstand (106 m); Bladeswept area (110m)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005). High flood retention and attenuation for surrounding wetlands.	<u>Construction/ Decommissioning of hardstand:</u> No encroachment onto feature. Potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized. Minimal risk of contamination to soils from spills and leaks anticipated. Dust generation from construction activities will be short-term and highly localized.	Localized displacement of wildlife inhabiting WE05-4 due to construction noise.	Maintain form and function of wetland. Ensure minimal disturbance to wildlife using habitat during construction.	WE05-4 is 106 m away from any construction activity and only a portion of the habitat comes within the 120 m mandated setback buffer in the northern part of the project. No negative environmental effects are anticipated. There is no residual disturbance effect to wildlife using the wetland given the distance between the habitat and any operation activities. Construction activities will be limited to designated construction area. Areas for construction will be demarcated. All workers will be notified of wetland significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area). Silt barriers (e.g. fencing) will be erected along the edge of the wetland boundary. Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established. Area subject to dust generation will be watered when required. Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Operation of Turbine 3:</u> The >30 m buffer between this feature and any operation activities will ensure that no environmental impacts occur.	No impacts anticipated.		

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
WE05-6	Access Road (20 m); Collector (26 m)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005).	<u>Construction/ decommissioning of access road and overhead collector line:</u> No encroachment onto feature. Potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized. Minimal risk of contamination to soils from spills and leaks anticipated. Dust generation from construction activities will be short-term and highly localized.	Localized displacement of wildlife inhabiting WE05-6 due to construction noise.	Maintain form and function of wetland. Ensure minimal disturbance to wildlife using habitat.	WE05-6 is 20 m away from any construction activity and only a portion of the habitat comes within the 120 m mandated setback buffer in the northern part of the project. No negative environmental effects are anticipated. The only residual effect may be disturbance to wildlife using the wetland. Construction activities will be limited to designated construction area. Areas for construction will be demarcated. All workers will be notified of wetland significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area). Silt barriers (e.g. fencing) will be erected along the edge of the wetland boundary. Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established. Area subject to dust generation will be watered when required. Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance:</u> Use of road salt during winter months may increase salinity of WE05-6.	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		
WE05-10	Collector (33 m); Access Road (35 m)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005). High flood retention and attenuation for surrounding wetlands.	<u>Construction/ Decommissioning of access road and overhead collector line:</u> No encroachment onto feature. Potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized. Minimal risk of contamination to soils from spills and leaks anticipated. Dust generation from construction activities will be short-term and highly localized.	Localized displacement of wildlife inhabiting WE05-10 due to construction noise.	Maintain form and function of wetland. Ensure minimal disturbance to wildlife using habitat during construction.	WE05-10 is 33 m away from any construction activity and only a portion of the habitat comes within the 120 m mandated setback buffer in the northern part of the project. No negative environmental effects are anticipated. There is no residual disturbance effect to wildlife using the wetland given the distance between the habitat and any operation activities. Construction activities will be limited to designated construction area. Areas for construction will be demarcated. All workers will be notified of wetland significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area). Silt barriers (e.g. fencing) will be erected along the edge of the wetland boundary. Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established. Area subject to dust generation will be watered when required. Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance:</u> The >30 m buffer between this feature and any operation activities will ensure that no environmental impacts occur.	No impacts anticipated.		



Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
WE08	Access Road (1 m); Staging Area (84 m)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005). High flood retention and attenuation for surrounding wetlands.	<u>Construction/ Decommissioning of access road and staging area:</u> No encroachment onto feature. Potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized. Minimal risk of contamination to soils from spills and leaks anticipated. Dust generation from construction activities will be short-term and highly localized.	Localized displacement of wildlife inhabiting WE08 due to construction noise.	Maintain form and function of wetland. Ensure minimal disturbance to wildlife using habitat.	WE08 is 1 m away from any construction activity and entirely within the 120 m mandated setback buffer in the northern part of the project. No negative environmental effects are anticipated. The only residual effect may be disturbance to wildlife using the wetland. Construction activities will be limited to designated construction area. Areas for construction will be demarcated. All workers will be notified of wetland significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area). Staging area (outside wetland) will be re-vegetated with native species following the completion of any construction/decommissioning activities. Silt barriers (e.g. fencing) will be erected along the edge of the wetland boundary. Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established. Area subject to dust generation will be watered when required. Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance:</u> Use of road salt during winter months may increase salinity of WE05-6.	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		
WE09	Access Road (23 m); Collector (31 m)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005).	<u>Construction/ Decommissioning of access road and overhead collector line:</u> No encroachment onto feature. Potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized. Minimal risk of contamination to soils from spills and leaks anticipated. Dust generation from construction activities will be short-term and highly localized.	Localized displacement of wildlife inhabiting WE09 due to construction noise.	Maintain form and function of wetland. Ensure minimal disturbance to wildlife using habitat.	WE09 is 23 m away from any construction activity and only a portion of the habitat comes within the 120 m mandated setback buffer in the northern part of the project. No negative environmental effects are anticipated. The only residual effect may be disturbance to wildlife using the wetland. Construction activities will be limited to designated construction area. Areas for construction will be demarcated. All workers will be notified of wetland significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area). Silt barriers (e.g. fencing) will be erected along the edge of the wetland boundary. Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established. Area subject to dust generation will be watered when required. Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance:</u> Use of road salt during winter months may increase salinity of WE09.	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
WE10	Collector (60 m); Access Road (62 m)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005).	<u>Construction/ Decommissioning of access road and overhead collector line:</u> The >30 m buffer between this feature and any construction/ decommissioning activities will ensure that no environmental impacts occur.  No risk of contamination to soils from spills and leaks anticipated.	Localized displacement of wildlife inhabiting WE10 due to construction noise.	Maintain form and function of wetland.  Ensure minimal disturbance to wildlife using habitat during construction.	WE10 is 60 m away from any construction activity and the majority of the habitat comes within the 120 m mandated setback buffer in the northern part of the project. No negative environmental effects are anticipated. There is no residual disturbance effect to wildlife using the wetland given the distance between the habitat and any operation activities. Construction activities will be limited to designated construction area.  Areas for construction will be demarcated. All workers will be notified of wetland significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).  Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance:</u> The >30 m buffer between this feature and any operation activities will ensure that no environmental impacts occur.	No impacts anticipated.		
WE05-15	Collector (26 m); Access Road (26 m)	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling (OMNR, 2005).	<u>Construction/ Decommissioning of access road and overhead collector line:</u> No encroachment onto feature.  Potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized.  Minimal risk of contamination to soils from spills and leaks anticipated.  Dust generation from construction activities will be short-term and highly localized.	Localized displacement of wildlife inhabiting WE05-15 due to construction noise.	Maintain form and function of wetland.  Ensure minimal disturbance to wildlife using habitat.	WE05-15 is 26 m away from any construction activity and is entirely within the 120 m mandated setback buffer in the southern part of the project. No negative environmental effects are anticipated. The only residual effect may be disturbance to wildlife using the wetland. Construction activities will be limited to designated construction area.  Areas for construction will be demarcated. All workers will be notified of wetland significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).  Silt barriers (e.g. fencing) will be erected along the edge of the wetland boundary. Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established.  Area subject to dust generation will be watered when required.  Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance:</u> Use of road salt during winter months may increase salinity of WE05-15.	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		
WE05-16	Access Road (100 m); Collector (100 m); Hardstand (105m);	Functions as wildlife habitat, storage of carbon, cleaning air, hydrological cycling, nutrient cycling	<u>Construction/ Decommissioning of access road, overhead collector line and hardstand:</u> The >30 m buffer between this feature and any construction/	Localized displacement of wildlife inhabiting WE5-16 due to construction noise.	Maintain form and function of wetland.  Ensure minimal disturbance to wildlife using habitat during	WE05-16 is 100 m away from any construction activity and the majority of the habitat comes within the 120 m mandated setback buffer in the southern part of the project. No negative environmental effects are anticipated. There is no residual disturbance effect to wildlife using the wetland given the distance between the habitat and any operation activities. Construction activities will be limited to designated construction area.  Areas for construction will be demarcated. All workers will be notified of wetland significance. Daily visual

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
	Bladeswept area (51m)	(OMNR, 2005).	decommissioning activities will ensure that no environmental impacts occur.  No risk of contamination to soils from spills and leaks anticipated.		construction.	monitoring of work area to ensure compliance (construction only occurring within demarcated area).  Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance, operation of Turbine 5:</u>  The >30 m buffer between this feature and any operation activities will ensure that no environmental impacts occur.	No impacts anticipated.		None required.
<b>WOODLANDS – see Figure 1-2</b>						
WO03	Bladeswept area (91m)	Functions in water protection, proximity to other significant woodlands and habitats and provides woodland native diversity dominant species.	<u>Operation of Turbine 1:</u>  The >30 m buffer between this feature and any operation activities will ensure that no environmental impacts occur.	No impacts anticipated.	Maintain form and function of woodland.	Only a very small portion of this woodland comes within the 120 m mandated setback buffer in the southern part of the project.  There is no residual disturbance effect to wildlife using the wetland given the distance between the habitat and any operation activities.
WO04	Access Road (0 m); Collector (0 m)	Functions in water protection, proximity to other significant woodlands and habitats and provides woodland native diversity dominant species.	<u>Construction/ Decommissioning of access road, overhead collector line:</u>  Encroachment onto feature due to road and collector line construction/ decommissioning will be kept to a minimum (total area removed is 0.06 ha); destruction of wildlife habitat will be minimal (99% of feature remains)  Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature  Given distance between water body associated with WO04 and construction activity, no impacts on water protection are anticipated.  Potential for erosion and/or sedimentation from construction activities (to associated wetlands	Displacement of wildlife inhabiting W004 due to construction noise (temporary) and encroachment onto feature.	Maintain function of woodland.  Minimize changes to form of woodland (i.e. minimal encroachment). Ensure that woodland significance is maintained (no change in significance expected).  After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.  Ensure minimal residual disturbance to wildlife using habitat.	Areas for construction will be demarcated. All workers will be notified of woodland significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).  Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.  Silt barriers (e.g. fencing) will be erected along the edge of the woodland boundary (closest locations to wetlands and water bodies). Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established.  Area subject to dust generation will be watered when required.  Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
			<p>and water bodies), but these impacts will be short term and highly localized.</p> <p>Minimal risk of contamination to soils from spills and leaks anticipated.</p> <p>Dust generation from construction activities will be short-term and highly localized.</p>			
			<p><u>Use of access road for maintenance:</u></p> <p>Use of road salt during winter months may increase salinity of WE09.</p>	<p>Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.</p>		<p>Use of access road will be restricted for maintenance vehicles only when required.</p> <p>Minimize use of road salt; use of licensed contractor for winter road clearing and maintenance.</p>
WO05-4	Access Road (0 m); Collector (0 m); Hardstand (0 m); Turbine (0 m)	Functions in providing large total woodland area, interior habitat, proximity to other significant woodlands and habitats, linkages, water protection, provides woodland native diversity dominant species and the presence of uncommon characteristics criteria.	<p><u>Construction/ Decommissioning of access road, overhead collector line, hardstand and Turbine 4:</u></p> <p>Encroachment onto feature due to road, collector line, hardstand and turbine construction/ decommissioning will be kept to a minimum (total area removed is 1.26 ha); destruction of wildlife habitat will be minimal (99% of feature remains)</p> <p>Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature</p> <p>Given distance between water body associated with WO05-4 and majority of construction activity, no impacts on water protection are anticipated (impacts associated with crossing addressed in the <i>Water Bodies Impact Assessment Report</i>, however, no residual impacts are anticipated)</p> <p>Potential for erosion and/or sedimentation from construction activities (to associated wetlands and water bodies), but these impacts will be short term and highly localized.</p> <p>Minimal risk of contamination to</p>	<p>Displacement of wildlife inhabiting W005-4 due to construction noise (temporary) and encroachment onto feature.</p>	<p>Maintain function of woodland.</p> <p>Minimize changes to form of woodland (i.e. minimal encroachment). Ensure that woodland significant is maintained (no change in significance expected).</p> <p>After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p>	<p>Areas for construction will be demarcated. All workers will be notified of woodland significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</p> <p>Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.</p> <p>Silt barriers (e.g. fencing) will be erected along the edge of the woodland boundary (closest locations to wetlands and water bodies). Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established.</p> <p>Area subject to dust generation will be watered when required.</p> <p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p>

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
			soils from spills and leaks anticipated. Dust generation from construction activities will be short-term and highly localized.			
			<u>Use of access road for maintenance and operation of Turbine 4:</u> Use of road salt during winter months may increase salinity of waterbodies, wetlands and soil associated with WO05-4.	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		Use of access road will be restricted for maintenance vehicles only when required. Minimize use of road salt; use of licensed contractor for winter road clearing and maintenance.
WO05-5	Access Road (0 m); Collector (0 m); Hardstand (0 m); Turbine (0 m)	Functions in proximity to other significant woodlands and habitats and provides linkages.	<u>Construction/ Decommissioning of access road, overhead collector line, hardstand and Turbine 5:</u> Encroachment onto feature due to road, collector line, hardstand and turbine construction/ decommissioning will be kept to a minimum (total area removed is 0.43 ha); destruction of wildlife habitat will be minimal (95% of feature remains) Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature Given distance between water body associated with WO05-5 and construction activity, no impacts on water protection are anticipated. Potential for erosion and/or sedimentation from construction activities (to associated wetlands and water bodies), but these impacts will be short term and highly localized. Minimal risk of contamination to soils from spills and leaks anticipated. Dust generation from construction activities will be short-term and highly localized.	Displacement of wildlife inhabiting WO05-5 due to construction noise (temporary) and encroachment onto feature.	Maintain function of woodland. Minimize changes to form of woodland (i.e. minimal encroachment). Ensure that woodland significant is maintained (no change in significance expected). After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects. Ensure minimal residual disturbance to wildlife using habitat.	Areas for construction will be demarcated. All workers will be notified of woodland significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area). Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner. Silt barriers (e.g. fencing) will be erected along the edge of the woodland boundary (closest locations to wetlands). Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established. Area subject to dust generation will be watered when required. Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
			<p><u>Use of access road for maintenance and operation of Turbine 5:</u></p> <p>Use of road salt during winter months may increase salinity of wetlands and soil associated with WO05-5.</p>	<p>Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.</p>		<p>Use of access road will be restricted for maintenance vehicles only when required.</p> <p>Minimize use of road salt; use of licensed contractor for winter road clearing and maintenance.</p>
WO06	Access Road (0 m); Collector (0 m); Hardstand (0 m); Turbine (0 m)	Functions in providing large total woodland area, proximity to other significant woodlands and habitats, linkages, water protection and provides woodland native diversity dominant species.	<p><u>Construction/ Decommissioning of access road, overhead collector line, hardstand and Turbine 6:</u></p> <p>Encroachment onto feature due to road, collector line, hardstand and turbine construction/ decommissioning will be kept to a minimum (total area removed is 0.71 ha); destruction of wildlife habitat will be minimal (99% of feature remains)</p> <p>Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature</p> <p>Given distance between water body associated with WO06 and majority of construction activity, no impacts on water protection are anticipated (impacts associated with crossing addressed in the <i>Water Bodies Impact Assessment Report</i>, however, no residual impacts are anticipated)</p> <p>Potential for erosion and/or sedimentation from construction activities (to associated wetlands and water bodies), but these impacts will be short term and highly localized.</p> <p>Minimal risk of contamination to soils from spills and leaks anticipated.</p> <p>Dust generation from construction activities will be short-term and highly localized.</p>	<p>Displacement of wildlife inhabiting W006 due to construction noise (temporary) and encroachment onto feature.</p>	<p>Maintain function of woodland.</p> <p>Minimize changes to form of woodland (i.e. minimal encroachment). Ensure that woodland significant is maintained (no change in significance expected).</p> <p>After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p>	<p>Areas for construction will be demarcated. All workers will be notified of woodland significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</p> <p>Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.</p> <p>Silt barriers (e.g. fencing) will be erected along the edge of the woodland boundary (closest locations to wetlands and water bodies). Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established.</p> <p>Area subject to dust generation will be watered when required.</p> <p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p>

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
			<p><u>Use of access road for maintenance and operation of Turbine 6:</u></p> <p>Use of road salt during winter months may increase salinity of water bodies, wetlands and soil associated with WO06.</p>	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		<p>Use of access road will be restricted for maintenance vehicles only when required.</p> <p>Minimize use of road salt; use of licensed contractor for winter road clearing and maintenance.</p>
WO13	Access Road (9 m); Collector (9 m)	Functions in providing proximity to other significant woodlands and habitats.	<p><u>Construction/ Decommissioning of access road, overhead collector line:</u></p> <p>Minimal risk of contamination to soils from spills and leaks anticipated.</p> <p>Dust generation from construction activities will be short-term and highly localized.</p>	Disturbance to wildlife inhabiting WO13 due to construction noise (temporary).	<p>Maintain form and function of woodland.</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p>	<p>Area subject to dust generation will be watered when required.</p> <p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p>
			<p><u>Use of access road for maintenance:</u></p> <p>Use of road salt during winter months may increase salinity of water bodies, wetlands and soil associated with WO13.</p>	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		
WO14	Access Road (100 m); Collector (100 m);	Functions in water protection.	<p><u>Construction/ Decommissioning of access road, overhead collector line:</u></p> <p>The &gt;30 m buffer between this feature and any construction/ decommissioning activities will ensure that no environmental impacts occur.</p> <p>No risk of contamination to soils from spills and leaks anticipated.</p> <p>Given distance between water body associated with WO14 and construction activity, no impacts on water protection are anticipated.</p>	Disturbance to wildlife inhabiting WO14 due to construction noise (temporary).	<p>Maintain form and function of woodland.</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p>	<p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p>
			<p><u>Use of access road for maintenance:</u></p> <p>The &gt;30 m buffer between this feature and any operation activities will ensure that no environmental impacts occur.</p>	No impacts anticipated.		

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
WO15	Access Road (66 m); Collector (66 m);	Functions in providing proximity to other significant woodlands and habitats.	<u>Construction/ Decommissioning of access road, overhead collector line:</u> The >30 m buffer between this feature and any construction/ decommissioning activities will ensure that no environmental impacts occur.  No risk of contamination to soils from spills and leaks anticipated.	Disturbance to wildlife inhabiting WO15 due to construction noise (temporary).	Maintain form and function of woodland.  Ensure minimal residual disturbance to wildlife using habitat.	Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance:</u> The >30 m buffer between this feature and any operation activities will ensure that no environmental impacts occur.	No impacts anticipated.		
<b>SEASONAL CONCENTRATION AREAS OF ANIMALS – see Figure 1-3</b>						
RWA01: Access Road (0m); Collector (0m); Hardstand (0m); Turbine (0m)  RWA02: Access Road (0m); Collector (0m); Hardstand (0m); Turbine (0m)	Open field hunting/foraging grounds for wintering raptors, together with woodlands which serve as roosting/ perching habitat.	<u>Construction/ Decommissioning of access road, overhead collector line, hardstand and Turbine 3 (RWA01) and Turbines 4 and 5 (RWA02):</u> Encroachment onto feature due to road, collector line, hardstand and turbine construction/ decommissioning will be kept to a minimum (total area removed is 1.75 ha in RWA01 and 2.58 ha in RWA02); destruction of wildlife habitat will be minimal (99% and 98% of features remain)  Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature  Minimal risk of contamination to soils from spills and leaks anticipated.	Displacement of wildlife using habitat due to construction noise (temporary) and encroachment onto feature.	Maintain function of habitat.  Minimize changes to form of habitat (i.e. minimal encroachment). Ensure that habitat significance is maintained (no change in significance expected).  Ensure minimal residual disturbance to wildlife using habitat.  After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.	<i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur. Please refer to Appendix D in the NHAG (OMNR, 2011) for reference to this approach to identifying and addressing SWH as well as Appendix A of this report for pre-construction monitoring protocols.</i>  Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).  Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.  Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.	



Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
			<u>Use of access road for maintenance and operation of Turbine 3 (RWA01) and Turbines 4 and 5 (RWA02):</u> No direct effects anticipated.	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		Use of access road will be restricted for maintenance vehicles only when required. Post-construction habitat use monitoring to ensure ongoing use of habitat by birds during migration.
BMR01: Access Road (35m); Collector (40m)  BMR02:N/A  BMR03: Access Road (93m); Collector (91m)  BMR04: N/A		Individual tree cavities may provide suitable maternity colonies.	<u>Construction/ Decommissioning of access road and overhead collector line:</u> The >30 m buffer between this feature and any construction/ decommissioning activities will ensure that no environmental impacts occur	Localized displacement of bats using habitat.  Direct effects from construction (i.e. noise, vehicle movement) could temporarily disturb wildlife using this habitat; however any disturbance is anticipated to be short-term.	Maintain form and function of habitat.  Ensure minimal residual disturbance to wildlife using habitat.	<i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur. Please refer to Appendix D in the NHAG (OMNR, 2011) for reference to this approach to identifying and addressing SWH as well as Appendix A of this report for pre-construction monitoring protocols.</i>  Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).  Construction within 120 m of significant habitat will not occur during the month of June.
			<u>Use of access road for maintenance:</u> No direct effects anticipated.	Indirect effects from operation (i.e. noise) could temporarily disturb wildlife living in this habitat.		Use of access road will be restricted for maintenance vehicles only when required. Post-construction habitat use monitoring to ensure ongoing use of habitat by bats.
BMSA01: Access Road (0m); Collector (0m); Hardstand (0m); Turbine (0m)  BMSA02: Access Road (0m); Collector (0m); Hardstand (0m); Turbine (0m)		The habitat, a minimum of 10 ha in size with a combination of field and forest habitat present, and located within 5 km of Lake Ontario, provides butterflies with a location to rest prior to their long migration south.	<u>Construction/ Decommissioning of access road, overhead collector line, hardstand and Turbine 3 (BMSA01) and Turbine 4 and 5 (BMSA02):</u> Encroachment onto feature due to road, collector line, hardstand and turbine construction/ decommissioning will be kept to a minimum (total area removed is 1.34 ha in BMSA01 and 2.16 ha in BMSA02); destruction of wildlife habitat will be minimal (99% and 98% of features remain)  Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature  Minimal risk of contamination to habitat from spills and leaks anticipated.	Displacement of wildlife inhabiting feature due to construction noise (temporary) and encroachment onto feature.	Maintain function of habitat.  Minimize changes to form of habitat (i.e. minimal encroachment). Ensure that habitat significance is maintained (no change in significance expected).  Ensure minimal residual disturbance to wildlife using habitat.  After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.	<i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur. Please refer to Appendix D in the NHAG (OMNR, 2011) for reference to this approach to identifying and addressing SWH as well as Appendix A of this report for pre-construction monitoring protocols.</i>  Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).  Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.  Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for</u>	Indirect effects from		Post-construction habitat use monitoring to ensure ongoing use of habitat by butterflies during migration.

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
			<u>maintenance:</u> No direct effects anticipated.	operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		Use of access road will be restricted for maintenance vehicles only when required.
LMSA01	Bladeswept area (93m)	Woodland is > 10 ha and within 2 km of Lake Ontario. This woodland is also found in close proximity to wetland and meadow communities.	<u>Operation of Turbine 1:</u> No direct effects anticipated.	Indirect effects from operation (i.e. noise) could temporarily disturb wildlife living in this habitat.	Maintain form and function of habitat.  Ensure minimal residual disturbance to wildlife using habitat.	<i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur. Please refer to Appendix D in the NHAG (OMNR, 2011) for reference to this approach to identifying and addressing SWH as well as Appendix A of this report for pre-construction monitoring protocols.</i>  Use of access road will be restricted for maintenance vehicles only when required.  Post-construction habitat use monitoring to ensure ongoing use of habitat by birds during migration.
LMSA02	Access Road (0m); Collector (0m); Hardstand (0m); Turbine (0m)	Woodland is > 10 ha and within 2 km of Lake Ontario. This woodland is also found in close proximity to wetland and meadow communities.	<u>Construction/ Decommissioning of access road, overhead collector line, hardstand and Turbine 3:</u>  Encroachment onto feature due to road, collector line, hardstand and turbine construction/ decommissioning will be kept to a minimum (total area removed is 0.92 ha); destruction of wildlife habitat will be minimal (95% of feature remains)  Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature  Minimal risk of contamination to soils from spills and leaks anticipated.	Displacement of wildlife using habitat due to construction noise (temporary) and encroachment onto feature.	Maintain function of habitat.  Minimize changes to form of habitat (i.e. minimal encroachment). Ensure that habitat significance is maintained (no change in significance expected).  Ensure minimal residual disturbance to wildlife using habitat.  After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.	<i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur. Please refer to Appendix D in the NHAG (OMNR, 2011) for reference to this approach to identifying and addressing SWH as well as Appendix A of this report for pre-construction monitoring protocols.</i>  Construction will not occur within SWH during peak migration period (April-May and August-October).  Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).  Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.  Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance and operation of Turbine 3:</u>  No direct effects anticipated.	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		Use of access road will be restricted for maintenance vehicles only when required.  Post-construction habitat use monitoring to ensure ongoing use of habitat by birds during migration.
LMSA03	Access Road (0m); Collector (0m); Bladeswept area (107m)	Woodland is > 10 ha and within 2 km of Lake Ontario. This woodland is also found in close proximity to wetland and meadow communities.	<u>Construction/ Decommissioning of access road and overhead collector line:</u>  Encroachment onto feature due to road and collector line construction/ decommissioning will be kept to a minimum (total area removed is 0.22 ha); destruction of wildlife habitat will be minimal (99.99% of feature	Displacement of wildlife using habitat due to construction noise (temporary) and encroachment onto feature.	Maintain function of habitat.  Minimize changes to form of habitat (i.e. minimal encroachment). Ensure that habitat significance is maintained (no change in significance expected).	<i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur. Please refer to Appendix D in the NHAG (OMNR, 2011) for reference to this approach to identifying and addressing SWH as well as Appendix A of this report for pre-construction monitoring protocols.</i>  Construction will not occur within SWH during peak migration period (April-May and August-October).  Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).  Entire disturbed area will be re-vegetated with native species following the completion of any

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
			remains) Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature Minimal risk of contamination to soils from spills and leaks anticipated.		Ensure minimal residual disturbance to wildlife using habitat.  After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.	construction/decommissioning activities, at the discretion of the landowner.  Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance and operation of Turbine 3:</u> No direct effects anticipated.	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		Use of access road will be restricted for maintenance vehicles only when required.  Post-construction habitat use monitoring to ensure ongoing use of habitat by birds during migration.
LMSA04	Access Road (0m); Collector (0m); Hardstand (0m); Turbine (0m)	Woodland is > 10 ha and within 2 km of Lake Ontario. This woodland is also found in close proximity to wetland and meadow communities.	<u>Construction/ Decommissioning of access road, overhead collector line, hardstand and Turbines 4 and 5:</u> Encroachment onto feature due to road, collector line, hardstand and turbine construction/ decommissioning will be kept to a minimum (total area removed is 0.96 ha); destruction of wildlife habitat will be minimal (99% of feature remains) Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature Minimal risk of contamination to soils from spills and leaks anticipated.	Displacement of wildlife using habitat due to construction noise (temporary) and encroachment onto feature.	Maintain function of habitat.  Minimize changes to form of habitat (i.e. minimal encroachment).  Ensure that habitat significance is maintained (no change in significance expected).  Ensure minimal residual disturbance to wildlife using habitat.  After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.	<i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur. Please refer to Appendix D in the NHAG (OMNR, 2011) for reference to this approach to identifying and addressing SWH as well as Appendix A of this report for pre-construction monitoring protocols.</i>  Construction will not occur within SWH during peak migration period (April-May and August-October).  Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).  Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.  Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance and operation of Turbines 4 and 5:</u> No direct effects anticipated.	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		Use of access road will be restricted for maintenance vehicles only when required.  Post-construction habitat use monitoring to ensure ongoing use of habitat by birds during migration.

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
<b>RARE VEGETATION COMMUNITIES OR SPECIALIZED HABITAT FOR WILDLIFE – see Figure 1-4</b>						
WNA01	Access Road (0m); Collector (0m); Hardstand (6m); Bladeswept area (0m)	Potential nesting habitat for waterfowl, including Wood Ducks and Hooded Mergansers. Meadow and woodland communities present within 120 m of a wetland.	<u>Construction/ Decommissioning of access road, overhead collector line, hardstand:</u>  Encroachment onto feature due to road, collector line and hardstand construction/ decommissioning will be kept to a minimum (total area removed is 1.3 ha); destruction of wildlife habitat will be minimal (97% of feature remains)  Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature  Minimal risk of contamination to soils from spills and leaks anticipated.	Displacement of wildlife using habitat due to construction noise (temporary) and encroachment onto feature.	Maintain function of habitat.  Minimize changes to form of habitat (i.e. minimal encroachment).  Ensure that habitat significance is maintained (no change in significance expected).  Ensure minimal residual disturbance to wildlife using habitat.  After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.	<i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur. Please refer to Appendix D in the NHAG (OMNR, 2011) for reference to this approach to identifying and addressing SWH as well as Appendix A of this report for pre-construction monitoring protocols.</i>  Construction will not occur within SWH during nesting season (April-June).  Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).  Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.  Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance and operation of Turbine 1:</u>  No direct effects anticipated.	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		
WNA02	Access Road (0m); Collector (0m)	Potential nesting habitat for waterfowl, including Wood Ducks and Hooded Mergansers. Meadow and woodland communities present within 120 m of a wetland.	<u>Construction/ Decommissioning of access road and overhead collector line:</u>  Encroachment onto feature due to road, collector line and hardstand construction/ decommissioning will be kept to a minimum (total area removed is 0.75 ha); destruction of wildlife habitat will be minimal (98% of feature remains)  Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature  Minimal risk of contamination to soils from spills and leaks anticipated.	Displacement of wildlife using habitat due to construction noise (temporary) and encroachment onto feature.	Maintain function of habitat.  Minimize changes to form of habitat (i.e. minimal encroachment).  Ensure that habitat significance is maintained (no change in significance expected).  Ensure minimal residual disturbance to wildlife using habitat.  After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.	<i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur. Please refer to Appendix D in the NHAG (OMNR, 2011) for reference to this approach to identifying and addressing SWH as well as Appendix A of this report for pre-construction monitoring protocols.</i>  Construction will not occur within SWH during nesting season (April-June).  Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).  Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.  Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
			<u>Use of access road for maintenance:</u> No direct effects anticipated.	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		Use of access road will be restricted for maintenance vehicles only when required. Post-construction habitat use monitoring to ensure ongoing use of habitat by birds during migration.
SP01-SP02	Access Road (29m); Collector (29m)	Seeps and springs function as important feeding and drinking areas for a variety of animal species, as well as specialized habitat for some plant species. These sites are particularly valuable for wildlife during winter (OMNR, 2012).	<u>Construction/ Decommissioning of access road and overhead collector line:</u> No encroachment onto feature. Potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized. Minimal risk of contamination to soils from spills and leaks anticipated.	Localized displacement of wildlife using SP01-SP02 due to construction noise.	Maintain form and function of habitat. Ensure minimal residual disturbance to wildlife using habitat.	Areas for construction will be demarcated. All workers will be notified of feature significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area). Silt barriers (e.g. fencing) will be erected along the edge of the wetland boundary. Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established. Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance:</u> Use of road salt during winter months may increase salinity of WE02.	Indirect effects from operation (i.e. noise) could temporarily disturb wildlife living in this habitat.		
ABH02	Access Road (62m); Collector (60m)	Wetland, lake or pond within or adjacent to (within 120 m) to a woodland that provide amphibian breeding habitat. Woodlands with permanent ponds or those containing water in most years until mid-July are most likely to be used as breeding habitat.	<u>Construction/ Decommissioning of access road and overhead collector line:</u> The >30 m buffer between this feature and any construction/ decommissioning activities will ensure that no environmental impacts occur. No risk of contamination to soils from spills and leaks anticipated.	Localized displacement of wildlife inhabiting ABH02 due to construction noise.	Maintain form and function of habitat. Ensure minimal residual disturbance to wildlife using habitat.	Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area). Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. Post-construction monitoring to ensure ongoing use of habitat by amphibians during breeding season (April-June).
			<u>Use of access road for maintenance:</u> The >30 m buffer between this feature and any operation activities will ensure that no environmental impacts occur.	No impacts anticipated.		
ABH03	Access Road (0m); Collector	Wetland, lake or pond within or adjacent to (within 120 m) to a	<u>Construction/ Decommissioning of access road, overhead collector line, hardstand and Turbine 3:</u>	Localized displacement of amphibians using habitat due to construction noise.	Maintain function of habitat. Minimize changes to	<i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur. Please refer to Appendix D in the NHAG (OMNR, 2011) for reference to this approach to identifying and addressing SWH as well as Appendix A of this report for pre-</i>

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
	(0m); Hardstand (0m); Turbine (0m)	woodland that provide amphibian breeding habitat. Woodlands with permanent ponds or those containing water in most years until mid-July are most likely to be used as breeding habitat.	<p>Encroachment onto woodland component of habitat (total woodland area removed is 1.21 ha); no encroachment onto wetland components; destruction of wildlife habitat will be minimal (99% of feature remains)</p> <p>Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature</p> <p>Potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized.</p> <p>Minimal risk of contamination to soils from spills and leaks anticipated.</p>		<p>form of habitat (i.e. minimal encroachment onto woodland and no encroachment into wetland).</p> <p>Ensure that habitat significance is maintained (no change in significance expected).</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p> <p>After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.</p>	<p><i>construction monitoring protocols.</i></p> <p>Construction will not occur within SWH during breeding season (April-June).</p> <p>Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</p> <p>Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.</p> <p>Silt barriers (e.g. fencing) will be erected along the edge of the habitat boundary where required (along wetland boundaries). Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established.</p> <p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p>
			<p><u>Use of access road for maintenance and operation of Turbines 1 and 3:</u></p> <p>No direct effects anticipated.</p>	<p>Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.</p>		<p>Use of access road will be restricted for maintenance vehicles only when required.</p> <p>Post-construction monitoring to ensure ongoing use of habitat by amphibians during breeding season (April-June).</p>
ABH04	Access Road (0m); Collector (0m); Hardstand (0m); Turbine (0m)	Wetland, lake or pond within or adjacent to (within 120 m) to a woodland that provide amphibian breeding habitat. Woodlands with permanent ponds or those containing water in most years until mid-July are most likely to be used as breeding habitat.	<p><u>Construction/ Decommissioning of access road, overhead collector line, hardstand and Turbine 4:</u></p> <p>Encroachment onto woodland component of habitat (total woodland area removed is 1.39 ha); no encroachment onto wetland components; destruction of wildlife habitat will be minimal (99% of feature remains)</p> <p>Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature</p> <p>Potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized.</p> <p>Minimal risk of contamination to soils from spills and leaks</p>	<p>Localized displacement of amphibians using habitat due to construction noise.</p>	<p>Maintain function of habitat.</p> <p>Minimize changes to form of habitat (i.e. minimal encroachment onto woodland and no encroachment into wetland).</p> <p>Ensure that habitat significance is maintained (no change in significance expected).</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p> <p>After decommissioning, restoration of feature at the landowner's discretion should ensure</p>	<p><i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur. Please refer to Appendix D in the NHAG (OMNR, 2011) for reference to this approach to identifying and addressing SWH as well as Appendix A of this report for pre-construction monitoring protocols.</i></p> <p>Construction will not occur within SWH during breeding season (April-June).</p> <p>Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</p> <p>Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.</p> <p>Silt barriers (e.g. fencing) will be erected along the edge of the habitat boundary where required (along wetland boundaries). Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established.</p> <p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p>

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
			anticipated.		no residual effects.	
			<u>Use of access road for maintenance and operation of Turbine 4:</u> No direct effects anticipated.	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		Use of access road will be restricted for maintenance vehicles only when required. Post-construction monitoring to ensure ongoing use of habitat by amphibians during breeding season (April-June).
ABH01	Access Road (1m); Staging Area (84m)	Isolated wetland that is > 120 m from a woodland. Permanent standing water and evidence of amphibians present within the wetland.	<u>Construction/ Decommissioning of access road and staging area:</u> No encroachment onto feature. Potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized. Minimal risk of contamination to soils from spills and leaks anticipated.	Localized displacement of wildlife inhabiting SWH due to construction noise.	Maintain form and function of habitat. Ensure minimal residual disturbance to wildlife using habitat.	<i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur. Please refer to Appendix D in the NHAG (OMNR, 2011) for reference to this approach to identifying and addressing SWH as well as Appendix A of this report for pre-construction monitoring protocols.</i> Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area). Staging area (outside wetland) will be re-vegetated with native species following the completion of any construction/decommissioning activities. Silt barriers (e.g. fencing) will be erected along the edge of the habitat boundary when and where appropriate. Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established. Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.
			<u>Use of access road for maintenance:</u> No direct effects anticipated.	Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.		Use of access road will be restricted for maintenance vehicles only when required. Post-construction monitoring to ensure ongoing use of habitat by amphibians during breeding season (April-June).
<b>HABITAT FOR SPECIES OF CONSERVATION CONCERN – see Figure 1-5</b>						
MBBA02	Access Road (15m); Collector (23m); Hardstand (20m);	Provides nesting habitat in wetlands for marsh birds. Wetlands contain shallow water and emergent	<u>Construction/ Decommissioning of access road, overhead collector line, hardstand and Turbine 4:</u> No encroachment onto feature. Potential for erosion and/or	Localized displacement of wildlife inhabiting SWH due to construction noise.	Maintain form and function of habitat. Ensure minimal residual disturbance to wildlife using habitat.	<i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur. Please refer to Appendix D in the NHAG (OMNR, 2011) for reference to this approach to identifying and addressing SWH as well as Appendix A of this report for pre-construction monitoring protocols.</i> Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual

Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
	Bladeswept area (0m)	vegetation.	<p>sedimentation from construction activities, but these impacts will be short term and highly localized.</p> <p>Minimal risk of contamination to soils from spills and leaks anticipated.</p>			<p>monitoring of work area to ensure compliance (construction only occurring within demarcated area).</p> <p>Silt barriers (e.g. fencing) will be erected along the edge of the habitat boundary when and where appropriate. Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established.</p> <p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p>
			<p><u>Use of access road for maintenance and operation of Turbine 4:</u></p> <p>No direct effects anticipated.</p>	<p>Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.</p>		<p>Use of access road will be restricted for maintenance vehicles only when required.</p> <p>Post-construction habitat use monitoring to ensure ongoing use of habitat by birds during nesting season (April-June).</p>
ESBR01	Access Road (0m); Collector (0m); Hardstand (70m); Bladeswept area (25m)	Large field areas succeeding to shrub and thickets habitats greater than 10 ha in size. Woodlands dominated by shrubs support and sustain a diversity of avian species.	<p><u>Construction/ Decommissioning of access road, overhead collector line and hardstand:</u></p> <p>Encroachment onto feature due to road, collector line and hardstand construction/ decommissioning will be kept to a minimum (total area removed is 0.5 ha); destruction of wildlife habitat will be minimal (98% of feature remains)</p> <p>Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature</p> <p>Minimal risk of contamination to soils from spills and leaks anticipated.</p>	<p>Displacement of wildlife using habitat due to construction noise (temporary) and encroachment onto feature.</p>	<p>Maintain function of habitat.</p> <p>Minimize changes to form of habitat (i.e. minimal encroachment onto habitat).</p> <p>Ensure that habitat significance is maintained (no change in significance expected).</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p> <p>After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.</p>	<p>Construction will not occur within SWH during breeding season (April-June).</p> <p>Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</p> <p>Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.</p> <p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p>
			<p><u>Use of access road for maintenance and operation of Turbine 3:</u></p> <p>No direct effects anticipated.</p>	<p>Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.</p>		



Natural Feature ID	Distance to Project Components within 120 m	Function	Potential Negative Effect(s)		Performance Objective	Mitigation Measures
			Direct	Indirect		
<b>GENERALIZED SIGNIFICANT WILDLIFE HABITAT – see Figure 1-6</b>						
GSWH	Access Road (1m); Collector (18m); Staging Area (84 m)	May provide suitable habitat for Reptile Hibernaculum, Marsh Bird Breeding Habitat, Shrub/Early Successional Bird Breeding Habitat, and Open Country Bird Breeding Habitat.  <i>Please refer to Appendix D in the NHAG (OMNR, 2011) for reference to this approach to identifying and addressing SWH.</i>	<u>Construction/ Decommissioning of access road, overhead collector line:</u>  No encroachment onto feature.  Potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized.  Minimal risk of contamination to soils from spills and leaks anticipated.	Localized displacement of wildlife inhabiting SWH due to construction noise.	Maintain form and function of habitat.  Ensure minimal residual disturbance to wildlife using habitat.	Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).  Silt barriers (e.g. fencing) will be erected along the edge of the habitat boundary when and where appropriate. Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established.  Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.

## 5 PRE-CONSTRUCTION MONITORING

Eighteen candidate habitats within the vicinity of the Project Location require further study prior to construction of the Ernestown Wind Park. Currently these habitats are being treated as significant and mitigation measures are discussed in **Table 4-1**. Should it be determined that these habitats are not significant as a result of future field evaluations, then mitigation measures and further monitoring will not occur because a habitat does not provide the assumed ecological functions. Please see **Appendix A** for methodology for each habitat that required pre-construction monitoring.

## 6 ENVIRONMENTAL EFFECTS MONITORING PLAN

As discussed in the *Design and Operations Report*, environmental effects monitoring is proposed in respect to any negative environmental effects that may result from the development of Ernestown Wind Park project. As per the REA regulation, the monitoring plan identified:

- performance objectives in respect to the identified negative environmental effects;
- all mitigation measures planned to achieve performance objectives;
- how the project will be monitored to ensure that mitigation strategies are meeting performance objectives to assist in achieving the performance objects; and
- contingency measures to be implemented should monitoring reveal that mitigation measures have failed.

For the purposes of this *Environmental Impact Study Report*, specific mitigation and monitoring measures for potential environmental impacts are addressed below in **Table 6-1**. The mitigation and associated monitoring measures are relevant to the significant natural features which can be seen above in **Table 3-1**. Information presented below will serve to verify that mitigation measures are functioning in order to meet performance objectives. If performance objectives are not being met, as indicated by monitoring, contingency measures will be used to ensure that remedial action is taken to comply with identified performance objectives.

**Table 6-1:** Summary of Environmental Monitoring Plan for Operation of Ernestown Wind Park

Feature	Distance to project locations (components)	Potential Negative Environmental Effects	Mitigation Strategy	Performance Objective	Environmental Effects Monitoring Plan					Contingency Measure
					Methodology	Monitoring Locations	Frequency and Duration of Sample Collection	Technical and Statistical Value of Data	Reporting Requirements	
<p><u>Raptor Wintering Area:</u></p> <p>RWA01: Access Road (0m); Collector (0m); Hardstand (0m); Turbine (0m)</p> <p>RWA02: Access Road (0m); Collector (0m); Hardstand (0m); Turbine (0m)</p>	<p>Encroachment onto feature due to road, collector line, hardstand and turbine construction/ decommissioning will be kept to a minimum; destruction of wildlife habitat will be minimal.</p> <p>Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature</p> <p>Minimal risk of contamination to soils from spills and leaks anticipated.</p> <p>Minimal risk of contamination to soils from spills and leaks anticipated.</p> <p>Displacement of wildlife using habitat due to construction noise (temporary) and encroachment onto feature.</p> <p>Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.</p>	<p>Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</p> <p>Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.</p> <p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p> <p>Use of access road will be restricted for maintenance vehicles only when required.</p> <p>Post-construction habitat use monitoring to ensure ongoing use of habitat by birds during migration.</p>	<p>Maintain function of habitat.</p> <p>Minimize changes to form of habitat (i.e. minimal encroachment).</p> <p>Ensure that habitat significance is maintained (no change in significance expected).</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p> <p>After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.</p> <p><i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur.</i></p>	<p>Methodology will follow that established for pre-construction surveys, <b>Appendix A.</b></p>	<p>Surveys will be conducted throughout RWA01 and RWA02 following preselected transects, which will be chosen based on discussions with the MNR.</p>	<p>One year of data will be collected prior to construction within 120 m of the feature.</p> <p>A total of 6 visits will be made to the candidate woodlot between January and March– <b>Appendix A</b> contains complete details.</p> <p>Two years of data will be collected post-construction following protocols for pre-construction surveys.</p>	<p>Pre-construction surveys will evaluate habitat for significance.</p> <p>All post-construction data will be compared with observations obtained during pre-construction habitat-use surveys on species richness and abundance.</p>	<p>Results of post-construction transect surveys to monitor changes in winter raptor abundance and richness will be compiled annually and submitted to the MNR for review.</p>	<p>If pre-construction surveys determine that candidate habitat is significant then mitigation measures will be implemented. If habitat is not significant then no mitigation measures will be implemented.</p> <p>If a change in species richness and/or abundance is noted during post-construction monitoring then MNR will be contacted to discuss further measures.</p> <p>Upon submission of annual post-construction reports to MNR it will be determined in consultation with MNR whether contingency measures are required.</p>	

Feature	Distance to project locations (components)	Potential Negative Environmental Effects	Mitigation Strategy	Performance Objective	Environmental Effects Monitoring Plan					Contingency Measure
					Methodology	Monitoring Locations	Frequency and Duration of Sample Collection	Technical and Statistical Value of Data	Reporting Requirements	
<p><u>Bat Maternity Roosts</u></p> <p>BMR01: Access Road (35m); Collector (40m)</p> <p>BMR02: N/A</p> <p>BMR03: Access Road (93m); Collector (91m)</p> <p>BMR04: N/A</p>	<p>Localized displacement of bats using habitat.</p> <p>Indirect effects from operation (i.e. noise) could temporarily disturb wildlife living in this habitat.</p> <p>Direct effects from construction (i.e. noise, vehicle movement) could temporarily disturb wildlife using this habitat; however any disturbance is anticipated to be short-term.</p>	<p>Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</p> <p>Construction within 120 m of significant habitat will not occur during the month of June.</p> <p>Post-construction habitat use monitoring to ensure ongoing use of habitat by bats.</p> <p>Use of access road will be restricted for maintenance vehicles only when required.</p>	<p>Maintain form and function of habitat.</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p> <p><i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur.</i></p>	<p>Methodology will follow that established for pre-construction surveys, <b>Appendix A.</b></p>	<p>Surveys will be conducted within 10 m of each candidate bat maternity roost (BMR01-BMR04).</p>	<p>One year of data will be collected prior to construction within 120 m of the feature.</p> <p>A maximum of 10 visits will be made to each candidate bat maternity roost to determine significance – Appendix A contains complete details.</p> <p>Two years of data will be collected post-construction following protocols for pre-construction surveys.</p>	<p>Pre-construction surveys will evaluate habitat for significance.</p> <p>All post-construction data will be compared with observations obtained during pre-construction habitat-use surveys on species richness and abundance.</p>	<p>Results of pre-construction bat maternity roost surveys will be compiled at the end of the survey period and submitted to the MNR for review.</p> <p>Pre-construction data will be compared to post-construction data and submitted to MNR within the year that post-construction data is collected.</p>	<p>If pre-construction surveys determine that candidate habitat is significant then mitigation measures will be implemented. If habitat is not significant then no mitigation measures will be implemented.</p> <p>If a change in species richness and/or abundance is noted during post-construction monitoring then MNR will be contacted to discuss further measures.</p> <p>Upon submission of annual post-construction reports to MNR it will be determined in consultation with MNR whether contingency measures are required.</p>	
<p><u>Migratory Butterfly Stopover Area</u></p> <p>MBSA01: Access Road (0m); Collector (0m); Hardstand (0m); Turbine (0m)</p> <p>MBSA02: Access Road (0m); Collector (0m); Hardstand (0m); Turbine (0m)</p>	<p>Encroachment onto feature due to road, collector line, hardstand and turbine construction/ decommissioning will be kept to a minimum; destruction of wildlife habitat will be minimal</p> <p>Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature.</p> <p>Minimal risk of contamination to habitat from spills and leaks anticipated.</p> <p>Displacement of wildlife inhabiting feature due to construction noise (temporary) and encroachment onto feature.</p>	<p>Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</p> <p>Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.</p> <p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities</p>	<p>Maintain function of habitat.</p> <p>Minimize changes to form of habitat (i.e. minimal encroachment). Ensure that habitat significance is maintained (no change in significance expected).</p> <p>Ensure minimal residual disturbance to wildlife using</p>	<p>Methodology will follow that established for pre-construction surveys, <b>Appendix A.</b></p>	<p>Surveys will be conducted throughout candidate habitat following preselected transects, which will be chosen based on discussions with the MNR.</p>	<p>One year of data will be collected prior to construction within 120 m of the feature.</p> <p>Two years of data will be collected post-construction following protocols for pre-construction surveys.</p> <p>A total of 20 visits will be</p>	<p>Pre-construction surveys will evaluate habitat for significance.</p> <p>All post-construction data will be compared with observations obtained during pre-construction habitat-use surveys on species</p>	<p>Results of pre-construction migratory butterfly stopover area surveys will be compiled at the end of the survey period and submitted to the MNR for review.</p> <p>Pre-construction data will be compared to post-</p>	<p>If pre-construction surveys determine that candidate habitat is significant then mitigation measures will be implemented. If habitat is not significant then no mitigation measures will be implemented.</p> <p>If a change in species richness and/or abundance is noted during post-construction monitoring then MNR will be contacted to</p>	

Feature	Distance to project locations (components)	Potential Negative Environmental Effects	Mitigation Strategy	Performance Objective	Environmental Effects Monitoring Plan					Contingency Measure
					Methodology	Monitoring Locations	Frequency and Duration of Sample Collection	Technical and Statistical Value of Data	Reporting Requirements	
		Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.	<p>with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p> <p>Post-construction habitat use monitoring to ensure ongoing use of habitat by butterflies during migration.</p> <p>Use of access road will be restricted for maintenance vehicles only when required.</p>	<p>habitat.</p> <p>After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.</p>			made to the candidate woodlot in the fall, – <b>Appendix A</b> contains complete details.	richness and abundance.	construction data and submitted to MNR within the year that post-construction data is collected.	discuss further measures.
LMSA01 Landbird Migratory Stopover Habitat	Bladeswept area (93m)	Indirect effects from operation (i.e. noise) could temporarily disturb wildlife living in this habitat.	<p>Post-construction habitat use monitoring to ensure ongoing use of habitat by butterflies during migration.</p> <p>Use of access road will be restricted for maintenance vehicles only when required.</p>	<p>Maintain form and function of habitat.</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p> <p><i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur.</i></p>	Methodology will follow that established for pre-construction surveys, <b>Appendix A.</b>	Surveys will be conducted throughout LMSA01 following preselected transects, which will be chosen based on discussions with the MNR.	<p>One year of data will be collected prior to construction within 120 m of the feature.</p> <p>A total of 20 visits will be made to the candidate woodlot in fall, and 20 more will be made in the spring – <b>Appendix A</b> contains complete details.</p> <p>Two years of data will be collected post-construction following protocols for pre-construction surveys.</p>	<p>Pre-construction surveys will evaluate habitat for significance.</p> <p>All post-construction data will be compared with observations obtained during pre-construction habitat-use surveys on species richness and abundance.</p>	<p>Results of post-construction transect surveys to monitor changes in landbird abundance and richness will be compiled annually and submitted to the MNR for review.</p>	<p>If pre-construction surveys determine that candidate habitat is significant then mitigation measures will be implemented. If habitat is not significant then no mitigation measures will be implemented.</p> <p>If a change in species richness and/or abundance is noted during post-construction monitoring then MNR will be contacted to discuss further measures.</p> <p>Upon submission of annual post-construction reports to MNR it will be determined in consultation with MNR whether contingency measures are required.</p>

Feature	Distance to project locations (components)	Potential Negative Environmental Effects	Mitigation Strategy	Performance Objective	Environmental Effects Monitoring Plan					Contingency Measure
					Methodology	Monitoring Locations	Frequency and Duration of Sample Collection	Technical and Statistical Value of Data	Reporting Requirements	
<p><u>Landbird Migratory Stopover Habitat</u></p> <p>LMSA02: Access Road (0m); Collector (0m); Hardstand (0m); Turbine (0m)</p> <p>LMSA03: Access Road (0m); Collector (0m); Bladeswept area (107m)</p> <p>LMSA04: Access Road (0m); Collector (0m); Hardstand (0m); Turbine (0m)</p>	<p>Encroachment onto feature due to road and collector line construction/ decommissioning will be kept to a minimum; destruction of wildlife habitat will be minimal.</p> <p>Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature</p> <p>Minimal risk of contamination to soils from spills and leaks anticipated.</p> <p>Displacement of wildlife using habitat due to construction noise (temporary) and encroachment onto feature.</p> <p>Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.</p>	<p>Construction will not occur within SWH during peak migration period (April-May and August-October).</p> <p>Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</p> <p>Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.</p> <p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p> <p>Post-construction habitat use monitoring to ensure ongoing use of habitat by birds during migration.</p>	<p>Maintain function of habitat.</p> <p>Minimize changes to form of habitat (i.e. minimal encroachment).</p> <p>Ensure that habitat significance is maintained (no change in significance expected).</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p> <p>After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.</p> <p><i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur.</i></p>	<p>Methodology will follow that established for pre-construction surveys, <b>Appendix A.</b></p>	<p>Surveys will be conducted throughout LMSA02, LMSA03 and LMSA04 following preselected transects, which will be chosen based on discussions with the MNR.</p>	<p>One year of data will be collected prior to construction within 120 m of the feature.</p> <p>A total of 20 visits will be made to the candidate woodlot in fall, and 20 more will be made in the spring – <b>Appendix A</b> contains complete details.</p> <p>Two years of data will be collected post-construction following protocols for pre-construction surveys.</p>	<p>Pre-construction surveys will evaluate habitat for significance.</p> <p>All post-construction data will be compared with observations obtained during pre-construction habitat-use surveys on species richness and abundance.</p>	<p>Results of post-construction transect surveys to monitor changes in landbird abundance and richness will be compiled annually and submitted to the MNR for review.</p>	<p>If pre-construction surveys determine that candidate habitat is significant then mitigation measures will be implemented. If habitat is not significant then no mitigation measures will be implemented.</p> <p>If a change in species richness and/or abundance is noted during post-construction monitoring then MNR will be contacted to discuss further measures.</p> <p>Upon submission of annual post-construction reports to MNR it will be determined in consultation with MNR whether contingency measures are required.</p>	
<p><u>Waterfowl Nesting Area</u></p>	<p>Encroachment onto feature due to road, collector line and hardstand construction/ decommissioning will be kept to a minimum; destruction of wildlife habitat</p>	<p>Construction will not occur within SWH during nesting season (April-June).</p> <p>Areas for construction will be demarcated. All</p>	<p>Maintain function of habitat.</p> <p>Minimize changes</p>	<p>Methodology will follow that established for pre-</p>	<p>Surveys will be conducted throughout WNA01 and</p>	<p>One year of data will be collected prior to construction within 120 m of</p>	<p>Pre-construction surveys will evaluate habitat for</p>	<p>Results of post-construction transect surveys to</p>	<p>If pre-construction surveys determine that candidate habitat is significant then mitigation measures</p>	

Feature	Distance to project locations (components)	Potential Negative Environmental Effects	Mitigation Strategy	Performance Objective	Environmental Effects Monitoring Plan					Contingency Measure
					Methodology	Monitoring Locations	Frequency and Duration of Sample Collection	Technical and Statistical Value of Data	Reporting Requirements	
WNA01: Access Road (0 m); Collector (0 m); Hardstand (6 m); Bladeswept area (0 m)  WNA02: Access Road (0 m); Collector (0 m)		<p>will be minimal</p> <p>Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature.</p> <p>Minimal risk of contamination to soils from spills and leaks anticipated.</p> <p>Displacement of wildlife using habitat due to construction noise (temporary) and encroachment onto feature.</p> <p>Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.</p>	<p>workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</p> <p>Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.</p> <p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p> <p>Use of access road will be restricted for maintenance vehicles only when required.</p> <p>Post-construction habitat use monitoring to ensure ongoing use of habitat by birds during migration.</p>	<p>to form of habitat (i.e. minimal encroachment).</p> <p>Ensure that habitat significance is maintained (no change in significance expected).</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p> <p>After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.</p> <p><i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur.</i></p>	<p>construction surveys, <b>Appendix A.</b></p>	WNA02.	<p>the feature.</p> <p>One set of visits will be made in late April/early May and another in late May/early June – <b>Appendix A</b> contains complete details.</p> <p>Two years of data will be collected post-construction following protocols for pre-construction surveys.</p>	<p>significance.</p> <p>All post-construction data will be compared with observations obtained during pre-construction habitat-use surveys on species richness and abundance.</p>	<p>monitor changes in waterfowl abundance and richness will be compiled annually and submitted to the MNR for review.</p>	<p>will be implemented. If habitat is not significant then no mitigation measures will be implemented.</p> <p>If a change in species richness and/or abundance is noted during post-construction monitoring then MNR will be contacted to discuss further measures.</p> <p>Upon submission of annual post-construction reports to MNR it will be determined in consultation with MNR whether contingency measures are required.</p>
ABH01 Amphibian Breeding Habitat (Wetland)	Access Road (1m); Staging Area (84m)	<p>No encroachment onto feature.</p> <p>Potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized.</p> <p>Minimal risk of contamination to soils from spills and leaks anticipated.</p>	<p>Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</p> <p>Staging area (outside wetland) will be re-vegetated with native species following the completion of any construction/decommissioning activities.</p>	<p>Maintain form and function of habitat.</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p> <p><i>Should habitat be determined through</i></p>	<p>Methodology will follow that established for pre-construction surveys, <b>Appendix A.</b></p>	<p>Surveys will be conducted ABH01.</p>	<p>One year of data will be collected prior to construction within 120 m of the feature.</p> <p>Two years of data will be collected post-</p>	<p>Pre-construction surveys will evaluate habitat for significance.</p> <p>All post-construction data will be</p>	<p>Results of pre-construction amphibian breeding habitat surveys will be compiled at the end of the survey period and submitted to the MNR</p>	<p>If pre-construction surveys determine that candidate habitat is significant then mitigation measures will be implemented. If habitat is not significant then no mitigation measures will be implemented.</p>

Feature	Distance to project locations (components)	Potential Negative Environmental Effects	Mitigation Strategy	Performance Objective	Environmental Effects Monitoring Plan					Contingency Measure
					Methodology	Monitoring Locations	Frequency and Duration of Sample Collection	Technical and Statistical Value of Data	Reporting Requirements	
		<p>Localized displacement of wildlife inhabiting SWH due to construction noise.</p> <p>Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.</p>	<p>Silt barriers (e.g. fencing) will be erected along the edge of the habitat boundary when and where appropriate. Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established.</p> <p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p>	<p><i>pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur.</i></p>			<p>construction following protocols for pre-construction surveys.</p> <p>Three surveys will be conducted between April and July 5<sup>th</sup>, with at least 15 days between each survey, on nights when the minimum nightly temperature is above 5°C, 10°C, and 17°C respectively – <b>Appendix A</b> contains complete details.</p>	<p>compared with observations obtained during pre-construction habitat-use surveys on species richness and abundance.</p>	<p>for review.</p> <p>Results of post-construction surveys to monitor changes in abundance and species richness will be compiled and submitted to the MNR for review.</p>	<p>If a change in species richness and/or abundance is noted during post-construction monitoring then MNR will be contacted to discuss further measures.</p>
ABH02 Amphibian Breeding Habitat (Woodland)	Access Road (62m); Collector (60m)	<p>The &gt;30 m buffer between this feature and any construction/ decommissioning activities will ensure that no environmental impacts occur.</p> <p>No risk of contamination to soils from spills and leaks anticipated.</p> <p>Localized displacement of wildlife inhabiting ABH02 due to construction noise.</p>	<p>Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</p> <p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p>	<p>Maintain form and function of habitat.</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p> <p><i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur</i></p>	Methodology will follow that established for pre-construction surveys, <b>Appendix A.</b>	Surveys will be conducted ABH02.	<p>One year of data will be collected prior to construction within 120 m of the feature.</p> <p>Two years of data will be collected post-construction following protocols for pre-construction surveys.</p> <p>Three surveys will be conducted between April and July 5<sup>th</sup>,</p>	<p>Pre-construction surveys will evaluate habitat for significance.</p> <p>All post-construction data will be compared with observations obtained during pre-construction habitat-use surveys on species richness and abundance.</p>	<p>Results of pre-construction amphibian breeding habitat surveys will be compiled at the end of the survey period and submitted to the MNR for review.</p> <p>Results of post-construction surveys to monitor changes in abundance and species richness will</p>	<p>If pre-construction surveys determine that candidate habitat is significant then mitigation measures will be implemented. If habitat is not significant then no mitigation measures will be implemented.</p> <p>If a change in species richness and/or abundance is noted during post-construction monitoring then MNR will be contacted to discuss further measures.</p>



Feature	Distance to project locations (components)	Potential Negative Environmental Effects	Mitigation Strategy	Performance Objective	Environmental Effects Monitoring Plan					Contingency Measure
					Methodology	Monitoring Locations	Frequency and Duration of Sample Collection	Technical and Statistical Value of Data	Reporting Requirements	
<p><u>Amphibian Breeding Habitat (Woodland)</u></p> <p>ABH03: Access Road (0m); Collector (0m); Hardstand (0m); Turbine (0m)</p> <p>ABH04: Access Road (0m); Collector (0m); Hardstand (0m); Turbine (0m)</p>	<p>Encroachment onto woodland component of habitat; no encroachment onto wetland components.</p> <p>Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature</p> <p>Potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized.</p> <p>Minimal risk of contamination to soils from spills and leaks anticipated.</p> <p>Localized displacement of amphibians using habitat due to construction noise.</p> <p>Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.</p>	<p>Construction will not occur within SWH during breeding season (April-June).</p> <p>Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</p> <p>Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities, at the discretion of the landowner.</p> <p>Silt barriers (e.g. fencing) will be erected along the edge of the habitat boundary where required (along wetland boundaries). Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established.</p> <p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and</p>	<p>Maintain function of habitat.</p> <p>Minimize changes to form of habitat (i.e. minimal encroachment onto woodland and no encroachment into wetland).</p> <p>Ensure that habitat significance is maintained (no change in significance expected).</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p> <p>After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.</p>	<p>Methodology will follow that established for pre-construction surveys, <b>Appendix A.</b></p>	<p>Surveys will be conducted ABH03.</p>	<p>One year of data will be collected prior to construction within 120 m of the feature (ABH04 only).</p> <p>Two years of data will be collected post-construction following protocols for pre-construction surveys.</p> <p>Three surveys will be conducted between April and July 5<sup>th</sup>, with at least 15 days between each survey, on nights when the minimum nightly temperature is above 5°C, 10°C, and 17°C respectively – <b>Appendix A</b></p>	<p>All post-construction data will be compared with observations obtained during pre-construction habitat-use surveys on species richness and abundance.</p>	<p>Results of post-construction surveys to monitor changes in abundance and species richness will be compiled and submitted to the MNR for review.</p>	<p>If a change in species richness and/or abundance is noted during post-construction monitoring then MNR will be contacted to discuss further measures.</p>	

Feature	Distance to project locations (components)	Potential Negative Environmental Effects	Mitigation Strategy	Performance Objective	Environmental Effects Monitoring Plan					Contingency Measure
					Methodology	Monitoring Locations	Frequency and Duration of Sample Collection	Technical and Statistical Value of Data	Reporting Requirements	
			<p>emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p> <p>Use of access road will be restricted for maintenance vehicles only when required.</p> <p>Post-construction monitoring to ensure ongoing use of habitat by amphibians during breeding season (April-June).</p>				contains complete details.			
MBBA02 Marsh Bird Breeding Area	Access Road (15m); Collector (23m); Hardstand (20m); Bladeswept area (0m)	<p>No encroachment onto feature.</p> <p>Potential for erosion and/or sedimentation from construction activities, but these impacts will be short term and highly localized.</p> <p>Minimal risk of contamination to soils from spills and leaks anticipated.</p> <p>Localized displacement of wildlife inhabiting SWH due to construction noise.</p> <p>Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.</p>	<p>Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</p> <p>Silt barriers (e.g. fencing) will be erected along the edge of the habitat boundary when and where appropriate. Erosion and sediment fencing will be maintained and monitored, especially after a rain event and until vegetation has become established.</p> <p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p> <p>Use of access road will be restricted for maintenance vehicles only when required.</p> <p>Post-construction habitat use monitoring to ensure ongoing use of habitat by birds during</p>	<p>Maintain form and function of habitat.</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p> <p><i>Should habitat be determined through pre-construction monitoring to not be significant then mitigation measures will not be applied and no monitoring will occur.</i></p>	Methodology will follow that established for pre-construction surveys, <b>Appendix A.</b>	Surveys will be conducted throughout MBBA02.	<p>One year of data will be collected prior to construction within 120 m of the feature.</p> <p>Two rounds of 15 minute point counts between mid-May and early-July at least 10 days apart – <b>Appendix A</b> contains complete details.</p> <p>Two years of data will be collected post-construction following protocols for pre-construction surveys.</p>	<p>Pre-construction surveys will evaluate habitat for significance.</p> <p>All post-construction data will be compared with observations obtained during pre-construction habitat-use surveys on species richness and abundance.</p>	<p>Results of post-construction transect surveys to monitor changes in marsh bird abundance and richness will be compiled annually and submitted to the MNR for review.</p>	<p>If pre-construction surveys determine that candidate habitat is significant then mitigation measures will be implemented. If habitat is not significant then no mitigation measures will be implemented.</p> <p>If a change in species richness and/or abundance is noted during post-construction monitoring then MNR will be contacted to discuss further measures.</p> <p>Upon submission of annual post-construction reports to MNR it will be determined in consultation with MNR whether contingency measures are required.</p>

Feature	Distance to project locations (components)	Potential Negative Environmental Effects	Mitigation Strategy	Performance Objective	Environmental Effects Monitoring Plan					Contingency Measure
					Methodology	Monitoring Locations	Frequency and Duration of Sample Collection	Technical and Statistical Value of Data	Reporting Requirements	
			nesting season (April-June).							
ESBR01 Early Successional Bird Breeding Habitat	Access Road (0m); Collector (0m); Hardstand (70m); Bladeswept area (25m)	<p>Encroachment onto feature due to road, collector line and hardstand construction/ decommissioning will be kept to a minimum; destruction of wildlife habitat will be minimal</p> <p>Potential for small edge effect (colonization on feature borders, pollution, erosion, loss of habitat) given encroachment onto feature</p> <p>Minimal risk of contamination to soils from spills and leaks anticipated.</p> <p>Displacement of wildlife using habitat due to construction noise (temporary) and encroachment onto feature.</p> <p>Indirect effects from operation (i.e. noise, vehicle movement) could temporarily disturb wildlife living in this habitat.</p>	<p>Construction will not occur within SWH during breeding season (April-June).</p> <p>Areas for construction will be demarcated. All workers will be notified of habitat significance. Daily visual monitoring of work area to ensure compliance (construction only occurring within demarcated area).</p> <p>Entire disturbed area will be re-vegetated with native species following the completion of any construction/decommissioning activities.</p> <p>Ensure all equipment used on site is in good working order. Ensure safe storage of petroleum, oils and lubricants. Where possible, vehicle maintenance will be performed off site, at a nearby commercial fuelling station, in order to minimize the amount of lubricants and oils stored on site. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</p> <p>Use of access road will be restricted for maintenance vehicles only when required.</p> <p>Post-construction habitat use monitoring to ensure ongoing use of habitat by birds during nesting season (April-June).</p>	<p>Maintain function of habitat.</p> <p>Minimize changes to form of habitat (i.e. minimal encroachment onto habitat).</p> <p>Ensure that habitat significance is maintained (no change in significance expected).</p> <p>Ensure minimal residual disturbance to wildlife using habitat.</p> <p>After decommissioning, restoration of feature at the landowner's discretion should ensure no residual effects.</p>	Methodology will follow that established for pre-construction surveys, <b>Appendix A.</b>	Surveys will be conducted throughout ESBR01.	Three rounds of 10 minute point counts between June and early-July at least 10 days apart – <b>Appendix A</b> contains complete details.	All post-construction data will be compared with observations obtained during pre-construction habitat-use surveys on species richness and abundance.	Results of post-construction transect surveys to monitor changes in breeding bird abundance and richness will be compiled annually and submitted to the MNR for review.	<p>If a change in species richness and/or abundance is noted during post-construction monitoring then MNR will be contacted to discuss further measures.</p> <p>Upon submission of annual post-construction reports to MNR it will be determined in consultation with MNR whether contingency measures are required.</p>

## 6.1 Environmental Effects Monitoring Plan

The *Environmental Effects Monitoring Plan (EEMP)* is an element of the *Design and Operations Report* that tracks mitigation measures and monitoring and contingency plans for environmental effects throughout all phases of the proposed project, including for significant natural heritage features and the wider environment within the Project Location. All monitoring and contingency measures in this *Environmental Impact Study Report* have been included in the EEMP, contained in the *Design and Operations Report*. In addition, any negative environmental effects have been discussed in the *Construction Plan Report*.

## 7 CONCLUSION

A total of 41 natural heritage features were determined to be significant at the proposed Ernestown Wind Park.

The following significant features were found to exist within 120 m of the Project Location:

- eleven wetlands
- eight woodlands
- twelve seasonal concentration areas of animals:
  - two raptor wintering areas
  - four bat maternities roosts (four cavity trees identified)
  - two migratory butterfly stopover areas
  - four landbird migratory stopover areas
- seven rare vegetation communities or specialized habitat for wildlife:
  - two waterfowl nesting areas
  - one seepage area (comprised of two seeps/springs)
  - four amphibian breeding habitats (one wetland and three woodland)
- two habitat for species of conservation concern:
  - one marsh bird breeding habitat
  - one shrub/early successional bird breeding habitat
- generalized candidate significant wildlife habitat

Construction will occur within 16 significant features: WO04, WOO05-4, WO05-5, WO06, BMSA01, BMSA02, LMSA02, LMSA03, LMSA04, RWA01, RWA02, WNA01, WNA02, ABH03, ABH04 and ESBR01. Many of these features, however, have been treated as significant and require pre-construction surveys to evaluate significance. Regardless of the outcome of future evaluations, all features treated as significant have been mitigated for negative impacts.

An environmental impact study was conducted to assess the potential negative impacts of the project on significant natural heritage features. This study is summarized in this report as well as in the *Environmental Effects Monitoring Plan* contained within the *Design and Operations Report*. Negative environmental effects of the project on the significant natural heritage features will be mitigated by following the procedures outlined in the sections above. It is anticipated that implementation of the mitigation and monitoring measures outlined above, in addition to those included in the *Construction Plan Report* and the *Environmental Effects Monitoring Plan* within the *Design and Operations Report*, will minimize or prevent negative environmental impacts on the natural environment. Following the restoration of natural features, at the end of the project (after decommissioning and re-vegetation), no residual impacts are anticipated.

## **8 QUALIFICATIONS AND LIMITATIONS**

M.K. Ince and Associates Ltd. (MKI) have prepared this report in accordance with information provided by its Client. The information and analysis contained herein is for the sole benefit of the Client and save for regulatory review purposes may not be relied upon by any other person.

The contents of this report are based upon our understanding of information and reports prepared by others, including Ernestown Wind Park LP's and their consultants. While we may have referred to and made use of this information and reporting, we assume no liability for the accuracy of this information.

MKI's assessment was made in accordance with guidelines, regulations and procedures believed to be current at this time. Changes in guidelines, regulations and enforcement policies can occur at any time and such changes could affect the conclusions and recommendations of this report.

## 9 LITERATURE CITED

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