



**Stantec**

**WHITE PINES WIND PROJECT  
PROJECT DESCRIPTION REPORT**

File No. 160960594  
September 2012

Prepared for:

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## 1.0 Introduction

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### 1.1 PROJECT OVERVIEW

wpd Canada Corporation (wpd) is a renewable energy development company based in Mississauga, Ontario and is dedicated to providing renewable energy for Ontario. Further information can be found on the company website at <http://www.canada.wpd.de>. wpd is proposing to develop, construct and operate the White Pines Wind Project (the Project) in Prince Edward County, Ontario, in response to the Government of Ontario's initiative to promote the development of renewable electricity in the province (**Figure 1, Appendix A**). The Project was awarded an Ontario Feed-In-Tariff (FIT) contract with the Ontario Power Authority (OPA) in May, 2010 (FIT Contract No. F-000675-WIN-130-601).

The wind turbine Study Area is generally bounded by i) Brummell Road/Bond Road to the North; ii) Lighthall Road to the West; iii) Gravelly Bay Road to the East; and iv) Lake Ontario to the South (**Figure 2, Appendix A**). The proposed Project Location includes all parts of the land in, on or over which the Project is proposed. The Project Location, including all Project infrastructure, is on privately owned land where landowners have entered into a lease agreement with wpd, and on municipal road allowance. The legal descriptions of the parcels of land that will contain Project infrastructure, and the lease agreements, are provided in **Appendix B**.

The basic components of the Project include 29 REpower MM92-2.05 MW wind turbine generators with a total maximum installed nameplate capacity of 59.45 MW (FIT Contract maximum of 60 MW), step-up transformers located adjacent to each turbine, an electrical power line system, two transformer substations (substation), turbine access roads, and a fenced storage area. Temporary components during construction include work and storage areas at the turbine locations and along access roads and laydown areas (**Figure 2, Appendix A**). The collector system will transport the electricity generated from each turbine to a substation located near Turbine 7 (T07) off Royal Road east of Dainard Road.

An interconnection line will connect the substation near T07 to a substation to be built near the Picton Transformer Station (TS) on County Road 5. While the potential interconnection line's location is depicted on the maps in Appendix A, the actual location of the line is still under negotiation between wpd and Hydro One Networks Inc. (HONI). If HONI is responsible for construction and operation of the interconnection line to the County Road 5 substation, assessment of potential effects of the line will be outside the REA process and will be covered under HONI's own Class Environmental Assessment for Minor Transmission Facilities. It is known at this time that wpd will be responsible for construction and operation of portions of the interconnection line along May Road and Fry Road; those portions of the line will therefore be assessed as part of the current REA process.

wpd has retained Stantec Consulting Ltd. (Stantec) to prepare a Renewable Energy Approval (REA) Application, as required under Ontario Regulation 359/09 - Renewable Energy Approvals under Part V.0.1 of the Act of the *Environmental Protection Act* (O. Reg. 359/09). According to

subsection 6.(3) of O. Reg. 359/09, the Project is classified as a Class 4 Wind Facility and will follow the requirements identified in O.Reg.359/09 for such a facility.

## 1.2 REPORT REQUIREMENTS

This document provides a preliminary description of the proposed White Pines Wind Project (the Project). This Project Description Report has been written in accordance with Ontario Regulation 359/09 (Renewable Energy Approvals under Part V.0.1 of the Act) under the *Environmental Protection Act* and the MOE's *Technical Guide for Renewable Energy Approvals (2012)*.

O. Reg. 359/09 sets out specific content requirements for the Project Description Report as provided below.

**Table 1.1: Project Description Report Requirements: O.Reg. 359/09**

Requirements	Completed	Section Reference
Set out a description of the following in respect of the renewable energy Project:		
1. Any energy sources to be used to generate electricity at the renewable energy generation facility.	✓	3.1
2. The facilities, equipment or technology that will be used to convert the renewable energy source or any other energy source to electricity.	✓	3.3
3. If applicable, the class of the renewable energy generation facility.	✓	1.1
4. The activities that will be engaged in as part of the renewable energy project.	✓	3.6
5. The name plate capacity of the renewable energy generation facility.	✓	1.1
6. The ownership of the land on which the project location is to be situated.	✓	3.2
7. Any negative environmental effects that may result from engaging in the project.	✓	4.0 and Appendix C
8. An unbound, well-marked, legible and reproducible map that is an appropriate size to fit on a 215 millimetre by 280 millimetre page, showing the project location and the land within 300 metres of the project location.	✓	Appendix A

## 2.0 General Requirements

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### 2.1 PROJECT LOCATION

The Project will be located on privately-owned land in Prince Edward County, Ontario (**Appendix A, Figure 1**).

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

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

For the purposes of this Project, the Project Location includes the footprint of the facility components, plus any temporary work and storage locations. The boundary of the Project Location is used for defining setback and site investigation distances according to O. Reg. 359/09. The Project Location (or construction area) includes the footprint of the facility components, plus any temporary work and storage locations. All construction and installation activities will be conducted within this designated area; this includes construction vehicles and personnel. Similarly, all installation activities related to collector lines within the municipal road allowance will be contained within the boundaries of the road allowance.

Although O. Reg. 359/09 considers the REA process in terms of the Project Location, the siting process for wind projects is an iterative process, and therefore final location of Project components is not available at Project outset. Therefore, a Study Area is developed to examine the general area within which the wind Project components may be sited; information gathered within this larger area feeds into the siting exercise. The Study Area was determined through professional judgment and experience with the well-known and generally predictable environmental effects of the construction and operation of wind facilities.

Project siting has been refined over the course of the Project assessment, allowing results to be presented in terms of Project Location instead of Study Area, although the Study Area continued to be used for public notification.

### 2.2 CONTACTS

#### **Applicant**

The applicant and proponent for the Project is wpd Canada Corporation (wpd). Contact information is as follows:

Name:	Khlaire Parré
Title:	Director of Renewable Energy Approvals
Company:	wpd Canada Corporation
Address:	2233 Argentia Road, Suite 102

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905-813-8400 ext 112  
Project Email: [WhitePinesProject@wpd-canada.ca](mailto:WhitePinesProject@wpd-canada.ca)  
Project Telephone: 1-888-712-2401

The lead consultant for preparation of the Renewable Energy Approval (REA) application is Stantec Consulting Ltd. (Stantec). Stantec provides professional consulting services in planning, engineering, architecture, interior design, landscape architecture, surveying, environmental sciences, project management, and project economics for infrastructure and facilities projects. The consultant's office and Project contact is:

Name: Shawna Peddle  
Title: Senior Project Manager  
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## 2.3 AUTHORIZATIONS REQUIRED

At the federal, provincial, and municipal level multiple permits, licenses and authorizations may be required to facilitate the development of the Project, in addition to the REA. The ultimate applicability of all permits, licenses and authorizations will be determined based on the Project's detailed design.

### 2.3.1 Federal

It is expected that a Federal EA will not be required for the Project, as the Project is not listed in the Designated Project Regulations under the Canadian Environmental Assessment Act, 2012.

The agency consultation program for the Project included all federal departments and agencies typically interested in wind power projects (e.g., Department of National Defense, Environment Canada, Transport Canada, etc.). All required federal permits and authorizations required for the Project will be determined, but may include those listed in **Table 2.1**.

Permit / License/Authorization	Administering Agency	Rationale
Aeronautical Obstruction Clearance	Transport Canada – Aviation Division	Turbine lighting and marking
Land Use Clearance	NavCanada	Aeronautical safety mapping and designations
Scientific Collector's Permit under the Migratory Bird Convention Act, 1994 (MBCA)	Environment Canada/Canadian Wildlife Service	Allow the wind company and its agents to collect, possess, to utilize for scientific research purposes, deceased specimens of migratory birds obtained

**Table 2.1: Federal Permits, Licenses and Authorizations**

Permit / License/Authorization	Administering Agency	Rationale
		from the study area during post-construction monitoring

### 2.3.2 Provincial

All provincial permits, licenses and authorizations required for the Project will be determined, and may include those listed in **Table 2.2**.

**Table 2.2: Provincial Permits, Licenses and Authorizations**

Permit / License/Authorization	Administering Agency	Rationale
Certificate of Inspection	Electrical Safety Authority	A record that electrical work complies with the requirements of the Ontario Electrical Safety Code.
Customer Impact Assessment	Hydro One Networks Inc. (HONI)	Integration of project with Hydro One and effects to customers
Connection Cost Recovery Agreement (CCRA)	HONI	Recovery of costs to grid operator of changes to allow connection
Approval of Connection	Independent Electricity System Operator (IESO)	Electrical interconnect with IESO-regulated network
Connection Assessment	IESO	Integration of project with IESO-controlled transmission system
System Impact Assessment	IESO	Integration of project with IESO-controlled transmission system
Notice of Project	Ministry of Labour	Notify the Ministry of Labour before construction begins.
Change of Access and Heavy/Oversize Load Transportation Permit	Ministry of Transportation (MTO)	Compliance with provincial highway traffic and road safety regulations
Highway Entrance Permit	MTO	Entrance permit for new or upgraded road entrances onto a provincial highway Interference or obstruction of the highway
Special vehicle configuration permit	MTO	Use of non-standard vehicles to transport large components
Transportation Plan	MTO	Adherence to road safety and suitability
Wide or excess load permit	MTO	Transportation of large or heavy items on provincial highways
Generator's License	Ontario Energy Board (OEB)	Generation of electrical power for sale to grid
Leave to Construct	OEB	Authorization to construct power transmission lines
Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses Permit	Quinte Conservation	Work within floodplains, water crossings, river or stream valleys, hazardous lands and within or adjacent to wetlands. Projects requiring review, <i>Fisheries Act</i> authorization and/or assessment under the <i>Canadian Environmental Assessment Act</i> are forwarded to the Department of Fisheries and Oceans (DFO)



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### 2.3.3 Municipal

All permits, licenses and authorizations required for the Project will be confirmed in consultation with Prince Edward County during the municipal consultation process as set out under O. Reg. 359/09 (**Table 2.3**).

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**Table 2.3: Key Municipal Permits and Authorizations**

Permit/License/Authorization	Rationale
Constructing, Demolition and Change of Use Permits and Inspections, County of Prince Edward	Compliance with building codes
Entrance Permit, County of Prince Edward	Entrance from county roads
Oversized Load Permit, County of Prince Edward	For moving oversized or heavy loads
Right of Way Permit, County of Prince Edward	Required for works in municipal road allowances
Road Condition Agreement	Assessment of pre and post construction conditions of roads to be used for material delivery and construction equipment movement
Sign Permit , County of Prince Edward	As necessary
Temporary Road Occupancy Permit, County of Prince Edward	For temporary placement of items on county roads

### 3.0 Project Information

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#### 3.1 ENERGY SOURCES

Wind turbines capture the kinetic energy in surface winds and convert it into electrical energy in the form of electricity. In addition to the tower, wind turbines are comprised of three basic parts: blades, a shaft, and a generator. As wind moves over the turbine’s blades it causes “lift”; the same effect used by airplane wings. This lift force causes the blade assembly to rotate. The rotational energy resulting from the movement of the blades is directly transferred to the drive shaft. The rotating shaft transfers the energy through a gearbox and into an alternating current generator which then converts the mechanical energy into useable 60 Hz electricity.

No supplementary fuel sources will be used to generate electricity for the Project.

#### 3.2 LAND OWNERSHIP

The Project will be located on privately owned lands and municipal road allowance within Prince Edward County. The legal description of the parcels of land that will be used for the Project will be provided as part of the REA application and are located in **Appendix B** to this report.

#### 3.3 PROJECT COMPONENTS

This section provides a general description of the major equipment and infrastructure associated with operation of the Project.

##### 3.3.1 Wind Turbine Generators

The Project will utilize 29 REpower 2.05 MW wind turbines. The Project has a total maximum installed nameplate capacity of 59.45 MW (FIT Contract maximum of 60 MW). A summary of the basic specifications of the turbine model is provided in **Table 3.1** below; detailed information about the turbine model is provided in the Wind Turbine Specifications Report.

Manufacturer	REpower
Model	MM92
Name plate capacity (MW)	2.05 MW
Hub height above grade	100 m
Blade length	45.2 m
Rotor diameter	92.5 m
Rotor sweep area	6,720 m <sup>2</sup>
Nominal revolutions (rotational speed)	7.8-15.0 rpm
Frequency	60 Hz
Sound power	5 m/s – 101.7 dBA

**Table 3.1: REpower MM92 - Wind Turbine Specifications**

	6 m/s – 103.4 dBA
	7 m/s – 104.2 dBA
	>8 m/s – 104.2 dBA

Turbine coordinates for the Project are provided in Table 3.2. To identify turbine locations with Google Earth, go to [earth.google.com](http://earth.google.com), and copy the Latitude followed by the Longitude into the Search Maps bar. Click Search Maps – a green arrow should appear indicating the coordinates you entered.

**Table 3.2: Turbine Coordinates**

<b>Turbine</b>	<b>Latitude</b>	<b>Longitude</b>
T01	43.9248	-77.0972
T02	43.9219	-77.0944
T03	43.9189	-77.0924
T04	43.9293	-77.0751
T05	43.9131	-77.0859
T06	43.9173	-77.0732
T07	43.9014	-77.0773
T08	43.8974	-77.1200
T09	43.9011	-77.1167
T10	43.9065	-77.1148
T11	43.8962	-77.0916
T12	43.8853	-77.1063
T13	43.8832	-77.1013
T14	43.8866	-77.0989
T15	43.8892	-77.0944
T16	43.8827	-77.0941
T17	43.8849	-77.0903
T18	43.8855	-77.0643
T19	43.8897	-77.0624
T20	43.8928	-77.0565
T21	43.9040	-77.0435
T22	43.9013	-77.0392
T23	43.8930	-77.0185
T24	43.8938	-77.0111
T25	43.9271	-76.9848
T26	43.9319	-76.9685
T27	43.9206	-76.9604
T28	43.9247	-76.9550
T29	43.9256	-76.9474

### **3.3.2 Crane Pads**

Crane pads will be constructed at the same time as the access roads and will be within the construction area at each turbine site. The crane pad area will be approximately 30 m x 45 m.

Generally, the process for crane pad construction will be the same as that for access roads; surface material will be stripped and stockpiled (topsoil separate from subsoil) and a gravel or stone base applied. The excavated soil will be re-used on site as feasible. Once the turbine erection is complete, the gravel area around each turbine and the crane pads will be kept, while the remaining construction area will be rehabilitated to pre-existing conditions. Perimeter surface hydrology will be maintained during crane pad construction.

### **3.3.3 Electrical Infrastructure**

#### **Electrical Collector Lines and Fibre Optic Cable**

From each step-up transformer, 34.5 kV underground and/or overhead collector lines carry the electricity generated by the turbines to a substation located on private property, along the access road to turbine T07. Where feasible, underground collector lines and fibre optic cables have been incorporated into access roads. Where collector lines will be underground, a trench is ploughed and reel trucks dispense the cable at a depth of approximately 1.0 m. The cables will be bedded in sand and the trench will be backfilled with the excavated material. Where directional drilling will be required to install the cable, it will be enclosed in plastic conduits. No blasting is anticipated for the installation of underground collector lines. If bedrock is encountered close to the surface it will be removed by mechanical digger to the necessary depth.

For overhead collector line sections installed in the municipal road allowance that require new poles, equipment used may include a tandem truck pole carrier equipped with an integral crane, a truck or track mounted pole auger, and a backhoe or track mounted excavator. After delivery of the poles, post insulators will be installed and poles will be set into holes augured to a depth of approximately two to three metres. The poles will be plumbed, backfilled, and stabilized with guy wires as appropriate. The power lines will then be strung using reel trailers and tensioning machines. Some sections of the municipal road allowance contain existing distribution lines. In these areas, the existing poles will be upgraded using methods described above. Details of the upgrade, if applicable, will be covered under a joint use agreement with HONI.

#### **May and Fry Interconnection Line**

From the substation located near T07, an interconnection line will carry the 34.5 kV electricity to a substation to be built near the Picton TS. Construction methods for the May Rd. and Fry Rd. portions of the interconnection line, which fall under the responsibility of wpd, will follow those listed above for the electrical collector lines.

#### **Substations**

The substation yards will be approximately 70 m by 70 m. Construction of the substations will include excavation of the area to allow construction of concrete foundations and installation of gravel. An electrical grounding grid, to which the transformer and all other electrical equipment and structures are grounded, will be installed throughout the yards and covered by gravel fill. The main transformer and other substation structures will be installed on the foundations and electrically connected to the incoming and outgoing power lines. A chain link fence will enclose the yards and will be equipped with a locked vehicle gate to allow for maintenance access. An

oil containment structure will be constructed for the transformer, acting as a double containment system for the oil to be used in the transformer.

### **3.3.4 Access Roads**

Approximately 16.7 km of new access roads will be constructed to support construction and transportation vehicles. The gravel access roads will be used periodically during operation for ongoing turbine maintenance. The access roads will be approximately 5 m wide (5.5 m at a turning radius) with a 10 m wide staging area (15 m total), and include 30 m wide access road entrances off municipal roads (with a 15 m wide staging area). Staging areas will be temporary and will be restored to pre-existing conditions at the end of the construction phase.

All access roads have been planned in consultation with the landowner to parallel property boundaries to reduce potential impacts to drainage systems, farm operations and agricultural lands wherever possible. The excavation for the roadbed is expected to be above the water table at all times of the year. No blasting is anticipated for the access roads. If bedrock is encountered close to the surface it will be removed by mechanical digger to the necessary depth required for the roadbed.

The access roads and associated underground electrical collector lines and fibre optic cables will require permanent culvert installations for both watercourse crossings and for equalization of surface water flow. All crossings will require permit approval from Quinte Conservation.

### **3.3.5 Storage Area**

A storage area will be constructed near T06 to contain a variety of materials required throughout the construction and operation of the Project. A gravel or stone base will be applied to the storage area and a chain link fence will enclose the storage area, equipped with a locked vehicle gate to allow for maintenance access.

## **3.4 TEMPORARY USES OF LAND**

Lands to be temporarily used during the construction are staging areas at each turbine location (including construction areas and crane laydown areas), temporary areas for access road and collector line construction, including staging areas, some delivery truck turnaround areas, access road entrances, and staging areas for collector lines. Any temporary structures used during construction will not be serviced, and will be placed within the delineated construction work areas.

Following construction activities, all temporary work locations will be restored to pre-existing conditions. Restoration work will start following installation of the wind turbines and removal of all construction materials and equipment from each turbine site. This includes removal of the granular and geotextile material from applicable areas. Restoration activities will follow the Site Restoration Plan outlined in the [Decommissioning Plan Report](#).

### **3.4.1 Turbine Locations**

#### **Construction Areas**

A construction area will be used around the turbine base, within which will be a turbine staging area and the permanent crane pad. The turbine staging area will be used for temporary storage of turbine components, parking and foundation spoil (excavated soil from foundation area) pile. Turbine components will be delivered directly to the staging areas for temporary storage until assembled. Staging areas will not be excavated or gravelled, and will be restored to pre-existing conditions at the end of the construction phase. Staging areas will be actively used throughout the construction phase, to varying degrees during all construction activities at the siting areas.

#### **Crane Laydown Areas**

A heavy-lift crawler crane will be used to assemble the turbines. Crane laydown areas are temporary platforms for the helper cranes that parallel access roads, and will be put in place at the same time as the access roads. Crane paths for movement of the crane between turbine sites will be located along access roads and municipal roads where possible, and the crane will be in some places broken down and transported to other turbine siting areas for re-assembly. Crane laydown areas will be approximately 6 m x 120 m.

Generally, the process for crane laydown area construction will be the same as that for access roads: surface material will be stripped and stockpiled (topsoil separate from subsoil) and a gravel or stone base is applied. The gravel base may be deeper than that of the access roads at an approximate depth of 0.5 m of Granular B type gravel (final amount to be determined following completion of detailed geotechnical studies, and in consultation with the turbine supplier). The excavated soil will be re-used on site as feasible. Metal plates will be laid on the ground prior to crane assembly, and will be disassembled after assembly of the crane.

Once the turbine erection is complete, the crane laydown areas will be rehabilitated to pre-existing conditions. Perimeter surface hydrology will be maintained during construction, and all proposed crane laydown areas have been located on private lands where landowners have agreements with wpd.

### **3.4.2 Access Roads**

#### **Staging Areas**

A 10 m staging area will be required for construction of the 5 m wide access road (15 m total). The timing of the temporary use of land for the access road staging areas will begin with the construction of the access roads and these areas will be rehabilitated at the end of the construction phase. The duration of time that the land will be actively used is expected to be 5-6 months.

#### **Delivery Truck Turnaround Areas**

All sites require turnaround areas for delivery trucks. These turnaround areas will be the same width as access roads, with turning radii, and will be constructed in the same manner, including

the requirement for staging areas. The timing of the temporary use of land for the delivery truck turnaround areas will begin with the construction of the access roads and these areas will be restored to pre-existing conditions, as possible, at the end of the construction phase.

### **Access Road Entrances**

Access road entrances will require a wider turning radius for construction/delivery vehicles. Entrances will be approximately 30 m wide during the construction phase, and can be reduced to an appropriate width at the end of the construction phase to account for routine maintenance vehicles once commissioned.

### **3.4.3 Collector Lines and Interconnection Line**

Collector lines will be located both within municipal road allowance and on private property, while the May and Fry Road portions of the interconnection line will be entirely within municipal road allowance. When located within municipal road allowance temporary staging areas will be required on portions of the road bed and shoulder.

## **3.5 PROJECT SCHEDULE**

Table 3.3 provides an overview of the projected dates associated with the REA phase of the Project.

<b>Milestone</b>	<b>Approximate Date</b>
Initiate Public REA Process	March 2011
REA technical studies	Ongoing through to early 2012
Public Open House #1	March 22, 2012
Draft REA Reports to Public	June 2012
Public Open House #2	August 30, 2012
REA Submission	September 2012
REA Approval	Approx. 6 months after submission
Start of Construction	6-12 months after REA approval
Commercial Operation Date (COD)	6-9 months from Start of Construction
Repowering/Decommissioning	Approximately 20.5 years after Commercial Operation

## **3.6 PROJECT ACTIVITIES**

A general overview of the activities during construction, operation, and decommissioning phases of the Project is provided in **Table 3.4**. More specific details on the project phases and related activities are outlined in the Construction Plan Report, Design and Operations Report, and the Decommissioning Plan Report.

<b>Project Phase</b>	<b>Activities</b>
<b>Construction</b>	<b>Private Lands - Turbine and Substation Sites</b>
	Delineation of temporary work areas
	Preparation of laydown areas
	Access road construction
	Substation construction
	Completion of necessary site grading
	Installation of tower and substation foundations
	Installation of crane pads
	Turbine erection
	Installation of step-up transformer and required wiring
	Installation of collector lines, usually parallel to access roads
	Reclamation of temporary work areas
	Site landscaping (final grading, topsoil replacement, etc.)
	<b>Off-site Activities - Municipal Road Allowance</b>
	Installation of collector lines and May/Fry interconnection line
<b>Operation</b>	<b>Private Lands - Turbine and Substation Sites</b>
	Preventative maintenance
	Unplanned maintenance
	Access road maintenance and snow clearing
	Meter calibrations
	Grounds keeping
	Remote turbine condition monitoring
	<b>Off-site Activities - Municipal Road Allowance</b>
	Electrical line maintenance and inspection
<b>Decommissioning</b>	<b>Private Lands - Turbine and Substation Sites</b>
	Removal of turbine infrastructure and step-up transformers
	Site grading (dependent upon new proposed use)
	Possible removal of access roads dependent upon agreement with property owner
	Possible excavation and removal of collector lines depending upon agreement with property owner
	Disconnection of substations from provincial grid
	Removal of substations
	<b>Off-site Activities - Municipal Road Allowance</b>
Possible removal of collector system and May/Fry interconnection line	

**3.6.1 Facility Phases, Timing & Scheduling**

The projected starting dates for Project construction, operation and decommissioning activities are provided in **Tables 3.5 and 3.6** below.

The construction schedule is detailed in the Construction Plan Report. Operation and maintenance activities will occur as required throughout the life of the Project, and are detailed in the Design and Operations Report. While the specific schedule for decommissioning will be determined at the time it is undertaken, the general staging of undertakings are outlined in the Decommissioning Plan Report.



The wind turbines used for the Project can be expected to be in service for the term of the 20 year Ontario Power Authority Feed-In Tariff contract. Following the term of the contract, a decision will be made regarding whether to extend the life of the facility or to decommission. Barring routine scheduled maintenance, the turbines are expected to be operational 24 hours a day, 7 days a week, assuming appropriate wind conditions.

**Table 3.5: Major Project Phases and Scheduling Milestones**

Construction	Operation	Decommissioning/Repowering
6-12 months after REA approval	6-9 months from start of construction	Approx. 20.5 years after commercial operation

**Table 3.6: Construction Activities – Projection and Schedule**

Start of Construction: 6-12 months after REA approval	
Construction Activity	1 Week
Delineation of temporary work areas	
Completion of necessary site grading	
Access road construction and culvert installation	
Turbine site excavation	
Installation of turbine foundations (including curing)	
Installation of underground collector lines	8 weeks - within marked period
Turbine erection	
Restoration of watercourses and temporary work areas	
<b>Substation Sites</b>	
Installation of substations	10 weeks - within marked period
Wind turbine commissioning	
Test Operation	
Site landscaping	
<b>Additional Activities</b>	
Turbine component transportation to Project Location	10 weeks, distributed over 22 weeks
Installation of collector lines in municipal road allowances	8 weeks - start TBD in consultation with municipal authorities

*Note: All dates are approximate, and subject to change as the permitting process continues. Construction activities will take place during regular construction hours. When construction is anticipated to be required outside of these hours, the timing will be discussed in advance with the County.*

### 3.6.2 Waste Generation and Emissions

During construction and decommissioning, waste material will be generated at, and transported from, the Project Location. Waste material produced by the Project is expected to consist of construction material (e.g., excess fill/soil, scrap lumber, banding, plastic wrap removed from palletized goods, etc.) and a small amount of domestic waste. Waste would also be generated as a result of ongoing maintenance activities (e.g., used lubricants and oils).

All wastes will be handled and recycled or disposed of in accordance with regulatory requirements.

### **3.6.3 Air Emissions and Dust Generation**

#### **Construction and Decommissioning**

Construction and decommissioning activities will rely on a wide range of mobile equipment, such as bulldozers, dump trucks, and cranes. The engine exhaust from these vehicles, especially from those operating on diesel fuel, represents a source of particulate and other emissions.

Construction and decommissioning related traffic and various construction activities (e.g. excavation, grading, soil stripping and exposed areas) have the potential to create nuisance dust effects in the immediate vicinity of the Project.

#### **Operation**

During operations minor localized air emissions will occur from the periodic use of maintenance equipment over the life of the Project. In addition, personnel vehicles and waste management haulers will travel to and from the sites during regular business hours. Operations related traffic has the potential to create nuisance dust effects in the immediate vicinity of the facility, however effects are anticipated to be short-term in duration and highly localized.

An examination of the Project's air emissions was undertaken in context of the requirements of O. Reg. 419/05, and is provided in the Design and Operations Report. It was determined that since Ontario Regulation 419/05 does not apply to discharges of contaminants from motor vehicles, and all other facility sources can be considered negligible, no further assessment is required.

### **3.6.4 Noise Emissions**

#### **Construction and Decommissioning**

During construction and decommissioning, noise will be generated by the operation of heavy equipment at each of the work areas and associated vehicular traffic on-site and on haul routes.

#### **Operation**

Mechanical and aerodynamic noise will be emitted from the wind turbines and substations. A Noise Assessment Report has been completed for the Project in accordance with the MOE "Noise Guidelines for Wind Farms", dated October 2008 and O. Reg. 359/09, and is provided as an appendix in the Design and Operations Report.

Based upon the Project design, the analysis carried out in the Noise Assessment Report indicates that noise produced by the Project will be within the acceptable limits established by the MOE at all non-participating noise receptors.

### **3.6.5 Hazardous Materials**

#### **Construction and Decommissioning**

Hazardous materials are limited to fuels and lubricants that will be on-site for use in equipment. These materials will be stored in appropriate storage containers by the Construction or Decommissioning Contractor. Designated storage areas and the type of storage areas will be confirmed by the Construction Contractor prior to construction, and by the decommissioning contractor prior to decommissioning.

#### **Operation**

Hazardous materials to be used during the course of Project operation are limited to lubricants and fluids for the operation and maintenance of the turbines, substations, and other equipment. These will be stored at the substation buildings.

Typical containment facilities and emergency response materials will be maintained on-site as required. Disposal of any hazardous materials will be in accordance with regulatory requirements. The process for final disposal of any hazardous waste will be developed during the REA process.

There are no other known hazardous by-products of the wind energy generation process itself.

### **3.6.6 Sewage and Stormwater Management**

Sanitary waste generated by the construction crew will be collected via portable toilets and wash stations supplied by the construction contractor. Disposal of these wastes will be the responsibility of the contracted party and will be done in accordance with regulatory requirements.

No stormwater management is required for the Project.

### **3.6.7 Water-taking Activities**

MOE water well records indicate that 343 wells are located within the Study Area. Based on regional geology the proposed on-site construction activity is expected to have minimal impact to bedrock water quality. There is no indication that significant dewatering will be expected during excavations and it is not expected that water taking will exceed 50,000 l/d.

## 4.0 Description of Potential Environmental Effects

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Based on the current understanding of the potential effects of constructing, operating, and decommissioning a wind project, Project-specific issues and potential effects have been identified (see **Appendix C**). **Appendix C1** describes potential effects and mitigation measures for construction and decommissioning of the Project, whereas **Appendix C2** describes potential effects and mitigation measures for operation and maintenance of the Project. **Appendix C3** outlines monitoring plans for the construction, operation and decommissioning of the Project. Detailed descriptions of all potential effects, mitigation measures, and monitoring plans will be provided in the following reports:

- Construction Plan Report;
- Design and Operations Report, including the Property Line Setback Assessment; Noise Assessment Report;
- Decommissioning Plan Report;
- Natural Heritage Assessment and Environmental Impact Study;
- Water Assessment and Water Body Report;
- Stage I and II Archaeology Assessment;
- Protected Properties Report; and,
- Heritage Impact Assessment Report.

Based upon the screening of environmental features, experience gained during Project planning, and the requirements of the REA process, these Project-specific issues and potential effects have been identified and will be assessed as part of the REA application process:

- Cultural Heritage and Archaeological Resources;
- Natural Heritage Resources;
- Water Bodies and Aquatic Resources;
- Air, Odour and Dust Emissions;
- Environmental Noise;
- Land Use and Socio-Economic Resources;
- Existing Local Infrastructure;
- Waste Management and Contaminated Lands; and,
- Public Health and Safety.

#### 4.1 PROJECT RELATED SETBACKS

A key component of the REA process is the establishment of common setbacks for all renewable energy facilities in the Province. The Project was designed to meet the mandatory setbacks within O. Reg. 359/09 in all cases. Within the Regulation there are some setbacks for which studies that identify potential negative environmental effects and mitigation measures can be conducted in lieu of meeting the setback requirements. In some instances in the proposed design, Project components are proposed within the defined setbacks for natural features and property lines. In these instances, additional assessments have been conducted as per the requirements of O.Reg.359/09 and results have established that impacts will be low or not expected with the implementation of recommended mitigation measures. The results of the assessments are provided in the Natural Heritage Assessment and Environmental Impact Study, the Water Assessment Report, and the Property Line Setback Assessment, which is provided as an appendix to the Design and Operations Report.

Mapping that identifies on-site and off-site land uses within 300 m of the Project Location, including natural heritage features, water bodies, and built heritage features as identified in the records review and site investigations, is provided in **Appendix A**.

Key setbacks which will be applied throughout the design of the Project are as follows:

<b>Feature</b>	<b>Setback Distance</b>	<b>Study Alternative When Within Setback</b>
Non-participating receptor	550 m (from turbine base)	A Noise Impact Assessment was completed for the Project according to MOE Noise Guidelines.
Public road right-of-way and railway right-of-way	Turbine blade length + 10 m (from turbine base)	N/A
Property line	Turbine height (excluding blades) (from turbine base)	Does not apply to parcels of land if the abutting parcel of land is a participant in the Project or if it is demonstrated that the wind turbine will not result in adverse impacts on nearby business, infrastructure, properties or land use activities. A Property Line Setback Assessment was completed.
Petroleum resources operation	75 m *	Development and site alteration may be possible within setback area; engineering report required.
Provincial park or conservation reserve	120 m *	Development not permitted within feature, unless not prohibited under the <i>Provincial Parks and Conservation Reserves Act</i> . Development and site alteration may be possible within setback area; EIS required.
Provincially significant southern/coastal wetland	120 m *	Development not permitted within feature. Development and site alteration may be possible within setback area; EIS required.
Provincially significant ANSI (Earth Science)	50 m *	Development and site alteration may be possible within natural feature and setback area; EIS required.
Provincially significant ANSI (Life Science)	120 m *	Development and site alteration may be possible within natural feature and setback area; EIS required.
Significant valleyland	120 m *	Development and site alteration may be possible within natural feature and setback area; EIS required.
Significant woodland	120 m *	Development and site alteration may be possible

#### 4.2

**Table 4.1: Key Potential Project Setbacks**

<b>Feature</b>	<b>Setback Distance</b>	<b>Study Alternative When Within Setback</b>
		within natural feature and setback area; EIS required.
Significant wildlife habitat	120 m *	Development and site alteration may be possible within natural feature and setback area; EIS required.
Permanent or intermittent stream	120 m from the average annual high water mark *	Development and site alteration may be possible within setback area; additional report required. No turbine or transformer located within a permanent or intermittent stream or within 30 m of the average annual high water mark.
Lake	120 m from the average annual high water mark *	Development and site alteration may be possible within water body and setback area; additional report required.
Lake Trout lake that is at or above development capacity	300 m from the average annual high water mark *	Development and site alteration may be possible within water body and setback area; additional report required.
Seepage area	120 m *	Development and site alteration may be possible within setback area; additional report required. No turbine or transformer located within 30 m of a seepage area.

*Note: No areas protected under specified Provincial Policies and Plans (i.e. Greenbelt Plan, Oak Ridges Moraine Conservation Plan, Niagara Escarpment Plan, or the Lake Simcoe Watershed Plan); all related setbacks have therefore been removed from this list.*

*\* Setback distances are measured from the Project Location as defined in O. Reg. 359/09.*

## 5.0 Conclusion and Signatures


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This Project Description Report for the White Pines Wind Project has been prepared by Stantec for wpd in accordance with Item 10, Table 1 of Ontario Regulation 359/09 and the MOE's *Technical Guide to Renewable Energy Approvals* (2012).

This report has been prepared by Stantec for the sole benefit of wpd, and may not be used by any third party without the express written consent of wpd. The data presented in this report are in accordance with Stantec's understanding of the Project as it was presented at the time of the Report.

### STANTEC CONSULTING LTD.

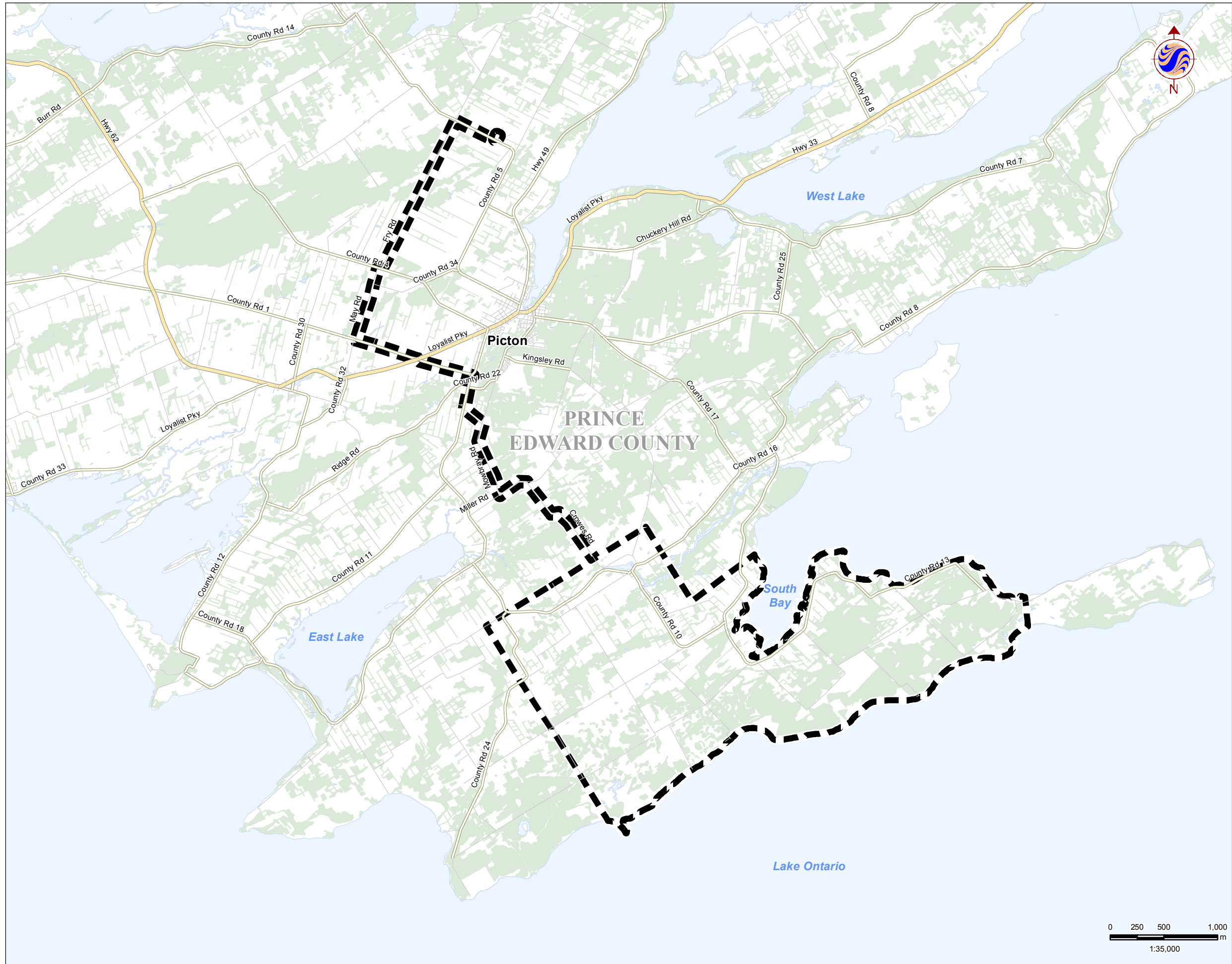
  
\_\_\_\_\_  
Mark Knight, MA, MCIP, RPP  
Project Manager

  
\_\_\_\_\_  
Shawna Peddle, MSc.  
Senior Project Manager







# **Appendix A**

## **Project Location and Study Area**





**Legend**

-  Project Study Area
-  Highway
-  Major Road
-  Local Road
-  Waterbody (MNR)
-  Woodland (MNR)



**Notes**

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2011.



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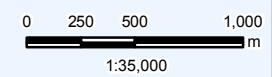
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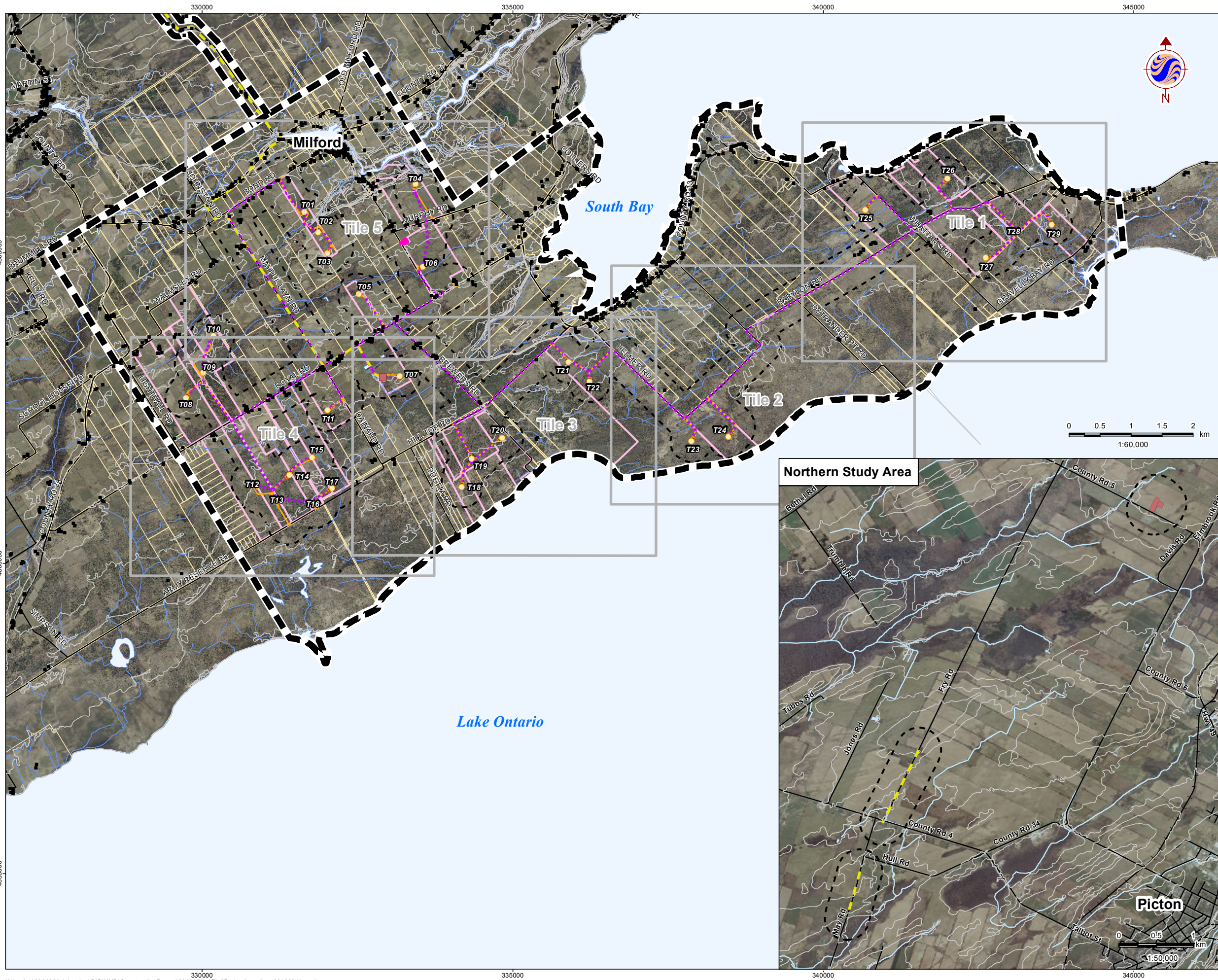
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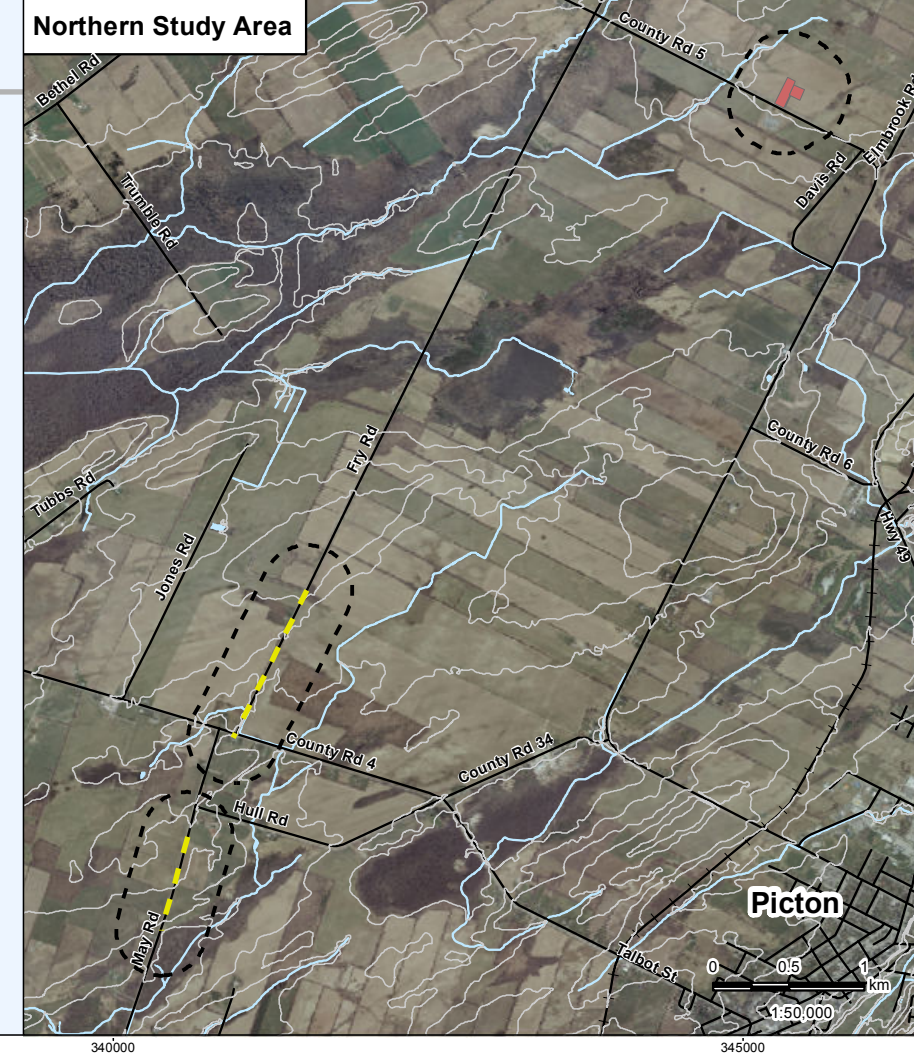
**Project Study Area**





### Legend

- Study Area
- 300m Zone of Investigation
- Proposed Project Components**
  - Wind Turbine (Blade Sweep)
  - Access Road
  - Collector Line
  - Interconnection Line
  - Construction Area
  - Turbine Laydown Area
  - Crane Laydown Area
  - Substation
  - Storage Area
  - Optioned Properties
- Existing Features**
  - Road
  - Railway
  - Contour Line (5 meter intervals)
  - Property Line
  - Building
  - Waterbody (as per MNR base mapping)
  - Watercourse (as per MNR base mapping)



- ### Notes
1. Coordinate System: UTM NAD 83 - Zone 18 (N).
  2. Data Sources: Ontario Ministry of Natural Resources, © Queens Printer Ontario, 2011; © Natural Resources Canada, 2011; © WPD Canada, 2011; © Prince Edward County, 2011.
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Figure No.  
2.0

Title  
**Project Location**



**Legend**

- Study Area
- 300m Zone of Investigation
- Proposed Project Components**
- Wind Turbine (Blade Sweep)
- Access Road
- Collector Line
- Interconnection Line
- Construction Area
- Turbine Laydown Area
- Crane Laydown Area
- Substation
- Storage Area
- Buildable Area
- Optioned Properties
- Existing Features**
- Road
- Railway
- Contour Line (5 meter intervals)
- Property Line
- Building
- Waterbody (as per MNR base mapping)
- Watercourse (as per MNR base mapping)
- Setbacks**
- Road Setback- Blade Tips Plus 10m (55.2m)
- Property Line Setback (100m)

**Notes**

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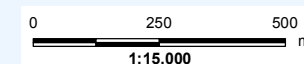
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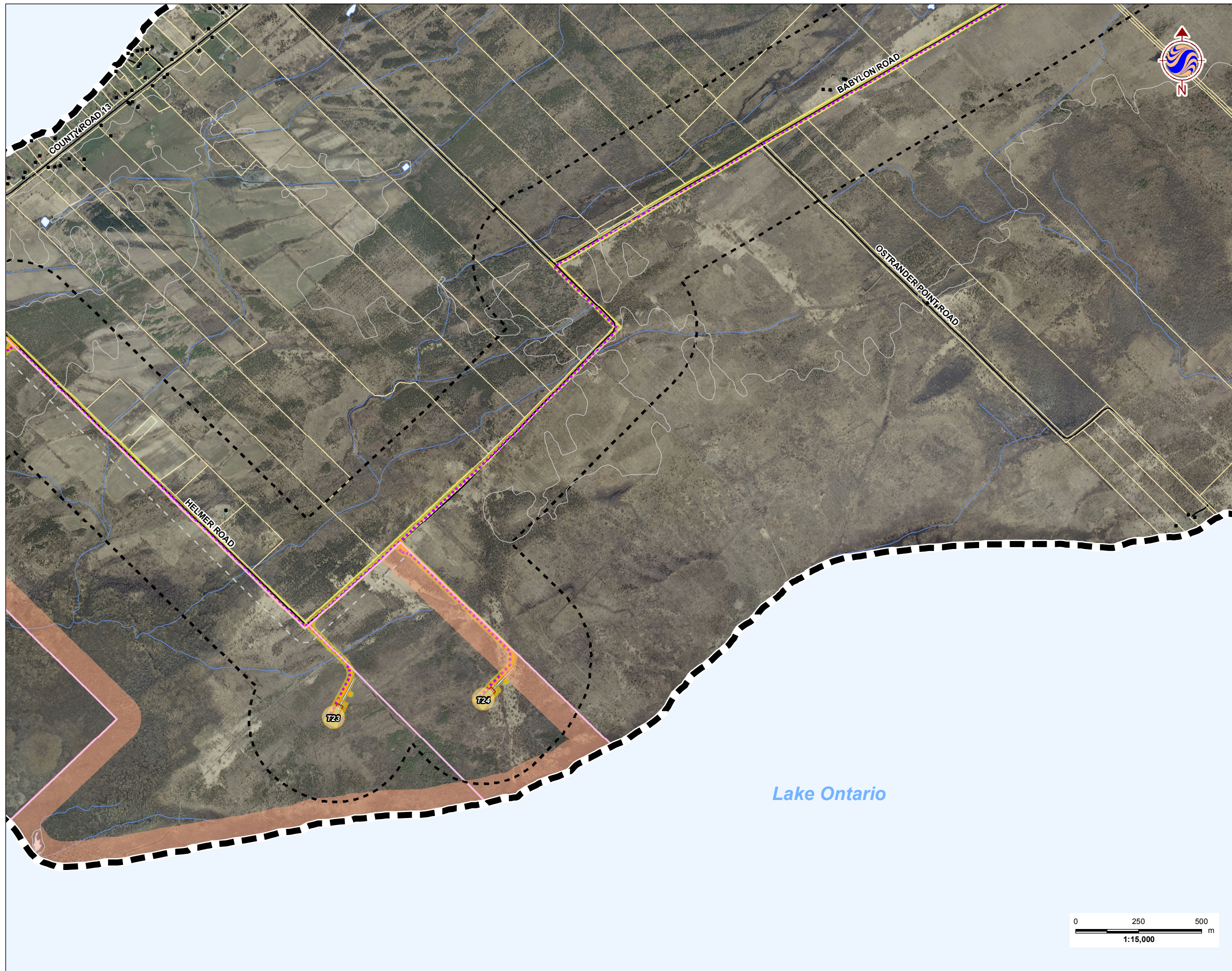
2.1

Title

**Project Location**

Tile 1





**Legend**

- Study Area
- 300m Zone of Investigation
- Proposed Project Components**
- Wind Turbine (Blade Sweep)
- Access Road
- Collector Line
- Interconnection Line
- Construction Area
- Turbine Laydown Area
- Crane Laydown Area
- Substation
- Storage Area
- Buildable Area
- Optioned Properties
- Existing Features**
- Road
- Railway
- Contour Line (5 meter intervals)
- Property Line
- Building
- Waterbody (as per MNR base mapping)
- Watercourse (as per MNR base mapping)
- Setbacks**
- Road Setback- Blade Tips Plus 10m (55.2m)
- Property Line Setback (100m)

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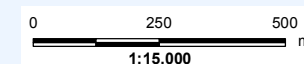
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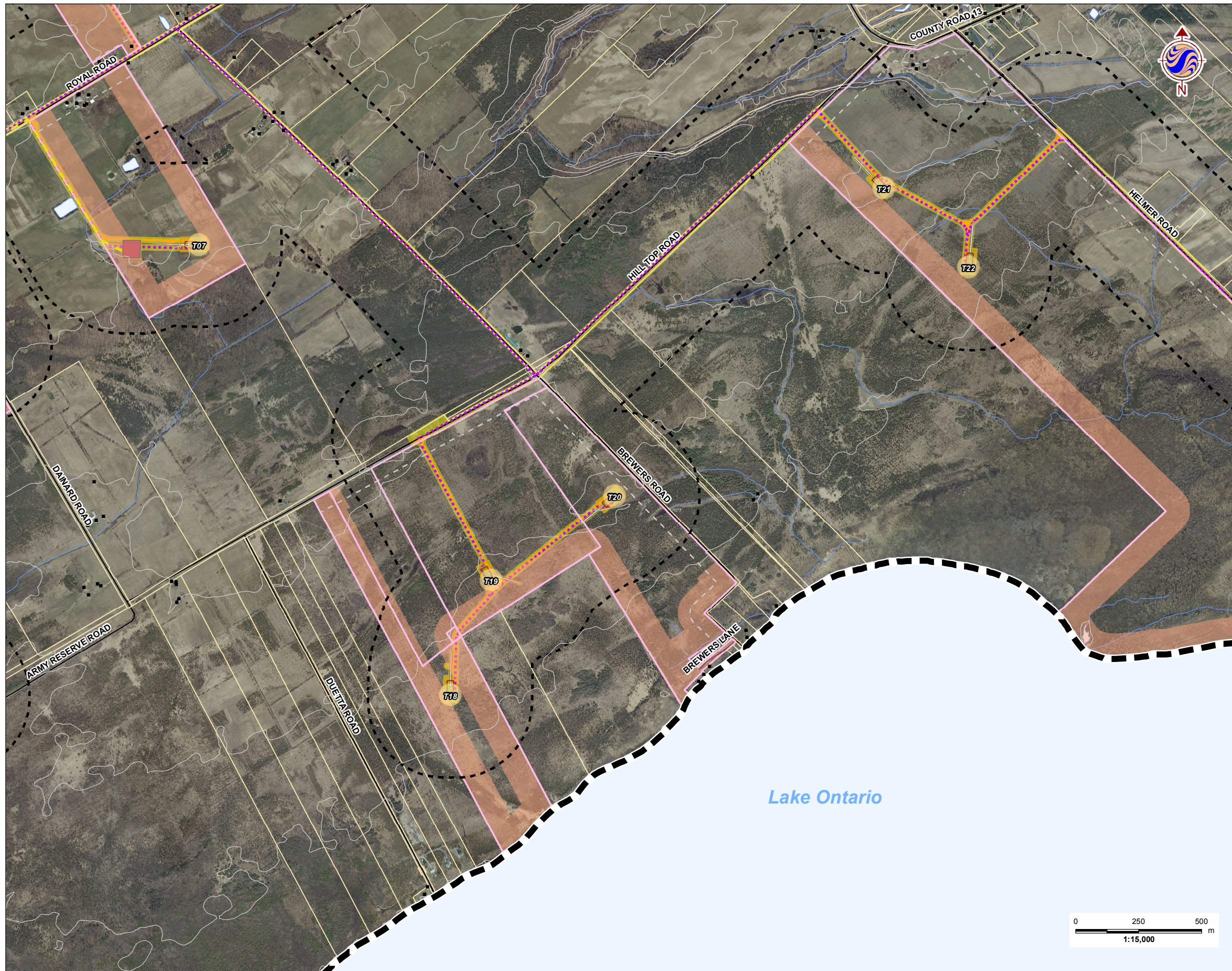
Figure No.

2.2

Title

**Project Location**  
Tile 2





**Legend**

- Study Area
- 300m Zone of Investigation
- Proposed Project Components**
- Wind Turbine (Blade Sweep)
- Access Road
- Collector Line
- Interconnection Line
- Construction Area
- Turbine Laydown Area
- Crane Laydown Area
- Substation
- Storage Area
- Buildable Area
- Optioned Properties
- Existing Features**
- Road
- Railway
- Contour Line (5 meter intervals)
- Property Line
- Building
- Waterbody (as per MNR base mapping)
- Watercourse (as per MNR base mapping)
- Setbacks**
- Road Setback- Blade Tips Plus 10m (55.2m)
- Property Line Setback (100m)

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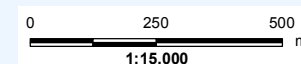
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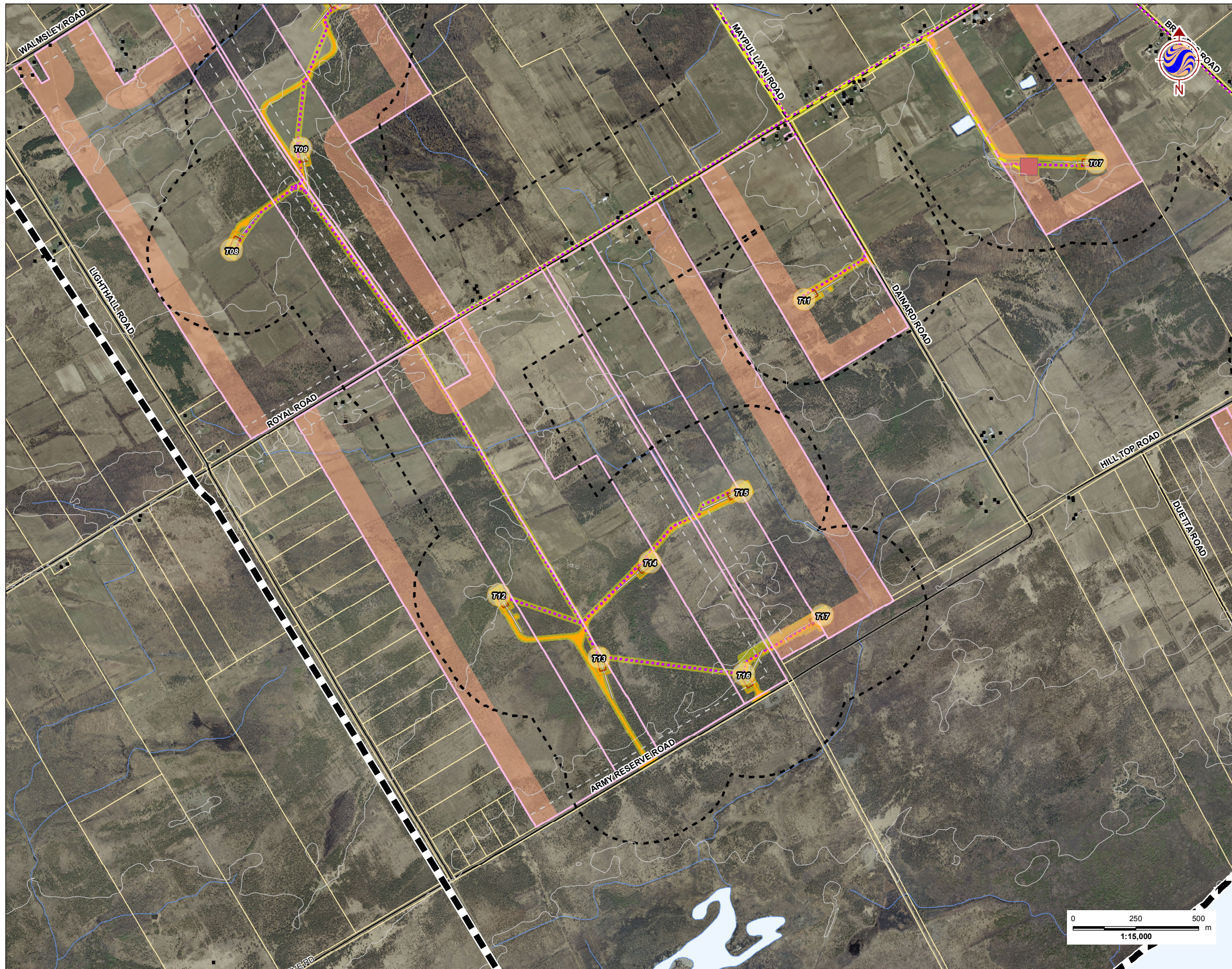
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2.3

Title

**Project Location**  
Tile 3





**Legend**

- Study Area
- 300m Zone of Investigation
- Proposed Project Components**
- Wind Turbine (Blade Sweep)
- Access Road
- Collector Line
- Interconnection Line
- Construction Area
- Turbine Laydown Area
- Crane Laydown Area
- Substation
- Storage Area
- Buildable Area
- Optioned Properties
- Existing Features**
- Road
- Railway
- Contour Line (5 meter intervals)
- Property Line
- Building
- Waterbody (as per MNR base mapping)
- Watercourse (as per MNR base mapping)
- Setbacks**
- Road Setback- Blade Tips Plus 10m (55.2m)
- Property Line Setback (100m)

**Notes**

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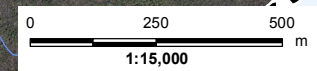
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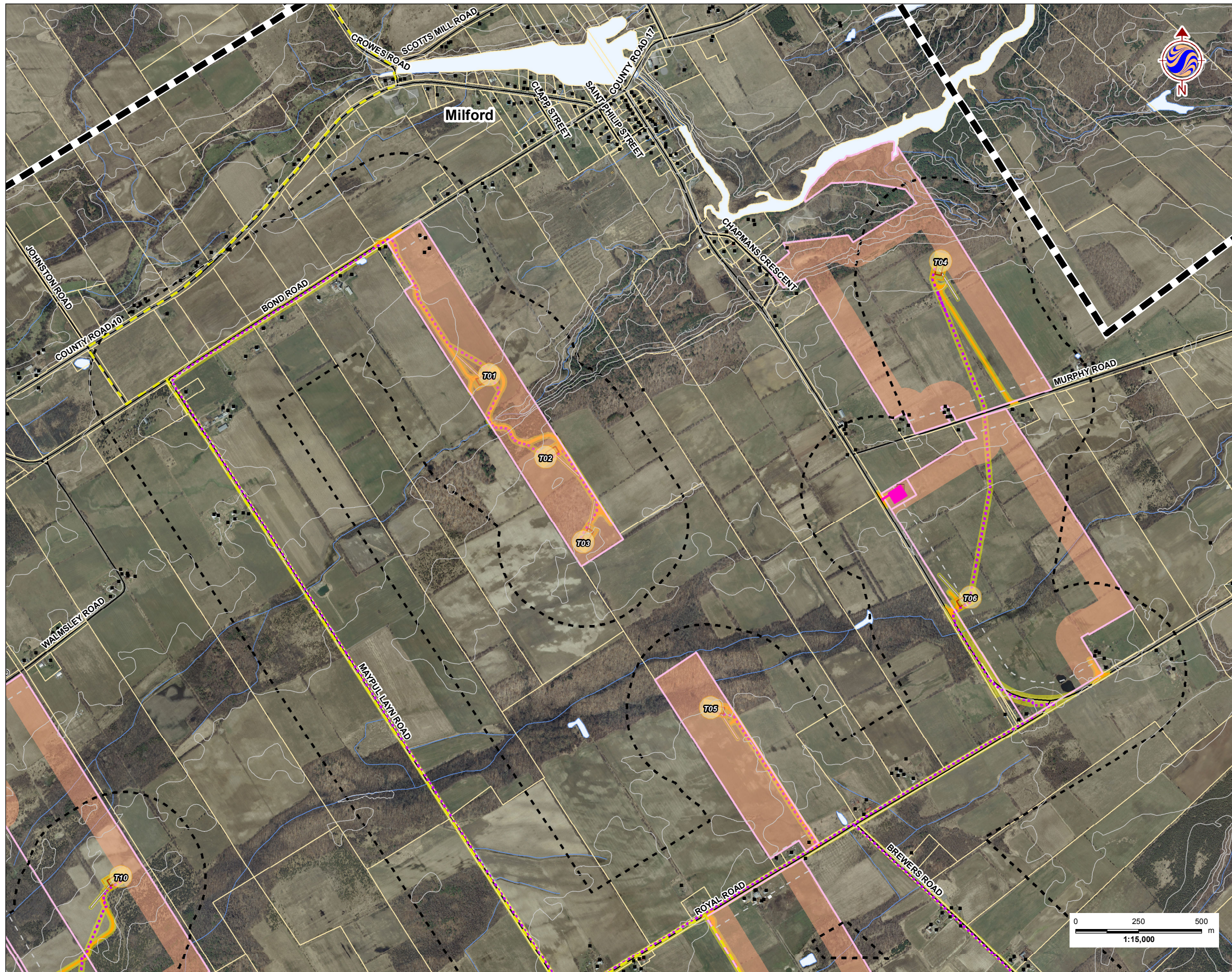
Figure No.

2.4

Title

**Project Location**  
Tile 4





**Legend**

- Study Area
- 300m Zone of Investigation
- Proposed Project Components**
- Wind Turbine (Blade Sweep)
- Access Road
- Collector Line
- Interconnection Line
- Construction Area
- Turbine Laydown Area
- Crane Laydown Area
- Substation
- Storage Area
- Buildable Area
- Optioned Properties
- Existing Features**
- Road
- Railway
- Contour Line (5 meter intervals)
- Property Line
- Building
- Waterbody (as per MNR base mapping)
- Watercourse (as per MNR base mapping)
- Setbacks**
- Road Setback- Blade Tips Plus 10m (55.2m)
- Property Line Setback (100m)

**Notes**

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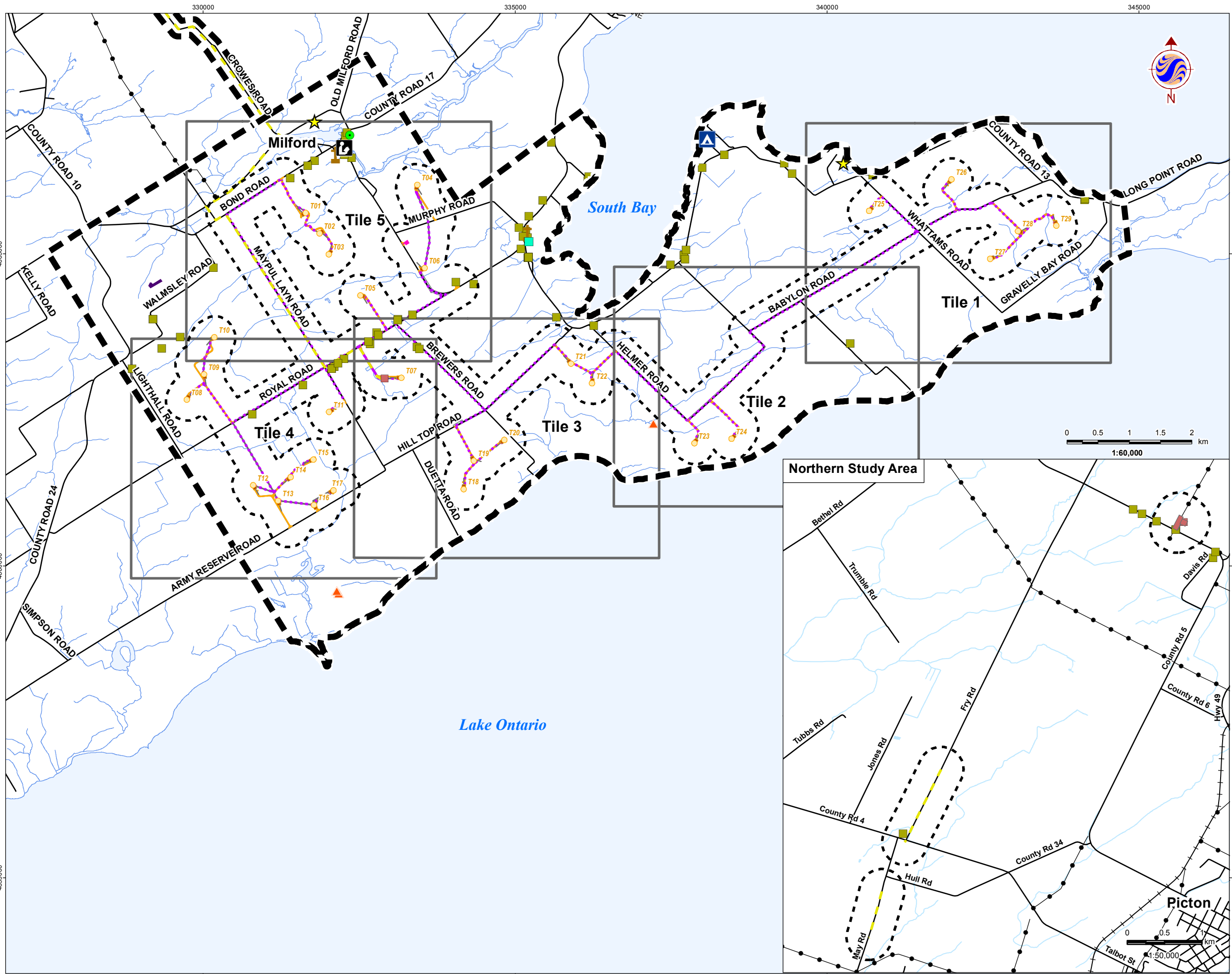
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Figure No.

2.5

Title

**Project Location**  
Tile 5



- ### Legend
- Study Area
  - 300m Zone of Investigation
  - Proposed Project Components**
    - Wind Turbine (Blade Sweep)
    - Access Road
    - Collector Line
    - Interconnection Line
    - Construction Area
    - Turbine Laydown Area
    - Crane Laydown Area
    - Substation
    - Storage Area
  - Existing Features**
    - Road
    - Railway
    - Transmission Line
    - Petroleum Well (Abandoned)
    - Conservation Area
    - Church
    - Fairgrounds
    - Library
    - Museum
    - RV Park
    - Heritage and Protected Properties
    - Contaminated Site
    - Waterbody (as per MNR base mapping)
    - Watercourse (as per MNR base mapping)

- ### Notes
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Figure No.  
3.0

Title  
**Socio-Economic Features**





### Legend

- Study Area
- 300m Zone of Investigation
- Proposed Project Components**
  - Wind Turbine (Blade Sweep)
  - Access Road
  - Collector Line
  - Interconnection Line
  - Construction Area
  - Turbine Laydown Area
  - Crane Laydown Area
  - Substation
  - Storage Area
- Existing Features**
  - Road
  - Railway
  - Transmission Line
  - Building
  - Petroleum Well (Abandoned)
  - Conservation Area
  - Water Well Records (MOE)
  - Church
  - Fairgrounds
  - Library
  - RV Park
  - Heritage and Protected Properties
  - Waterbody (as per MNR base mapping)
  - Watercourse (as per MNR base mapping)

- ### Notes
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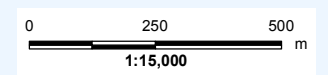
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Figure No.  
**3.1**

Title  
**Socio-Economic  
Features  
Tile 1**





- ### Legend
- Study Area
  - 300m Zone of Investigation
  - Proposed Project Components**
  - Wind Turbine (Blade Sweep)
  - Access Road
  - Collector Line
  - Interconnection Line
  - Construction Area
  - Turbine Laydown Area
  - Crane Laydown Area
  - Substation
  - Storage Area
  - Existing Features**
  - Road
  - Railway
  - Transmission Line
  - Building
  - Petroleum Well (Abandoned)
  - Conservation Area
  - Water Well Records (MOE)
  - Church
  - Fairgrounds
  - Library
  - RV Park
  - Heritage and Protected Properties
  - Waterbody (as per MNR base mapping)
  - Watercourse (as per MNR base mapping)

- ### Notes
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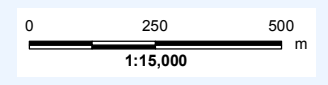
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Figure No.  
**3.2**

Title  
**Socio-Economic  
Features  
Tile 2**





**Legend**

- Study Area
- 300m Zone of Investigation
- Proposed Project Components**
- Wind Turbine (Blade Sweep)
- Access Road
- Collector Line
- Interconnection Line
- Construction Area
- Turbine Laydown Area
- Crane Laydown Area
- Substation
- Storage Area
- Existing Features**
- Road
- Railway
- Transmission Line
- Building
- Petroleum Well (Abandoned)
- Conservation Area
- Water Well Records (MOE)
- Church
- Fairgrounds
- Library
- RV Park
- Heritage and Protected Properties
- Waterbody (as per MNR base mapping)
- Watercourse (as per MNR base mapping)

**Notes**

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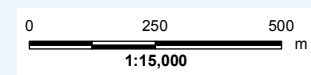
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160960594

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WHITE PINES WIND PROJECT

Figure No.  
**3.3**

Title  
**Socio-Economic  
Features  
Tile 3**





### Notes

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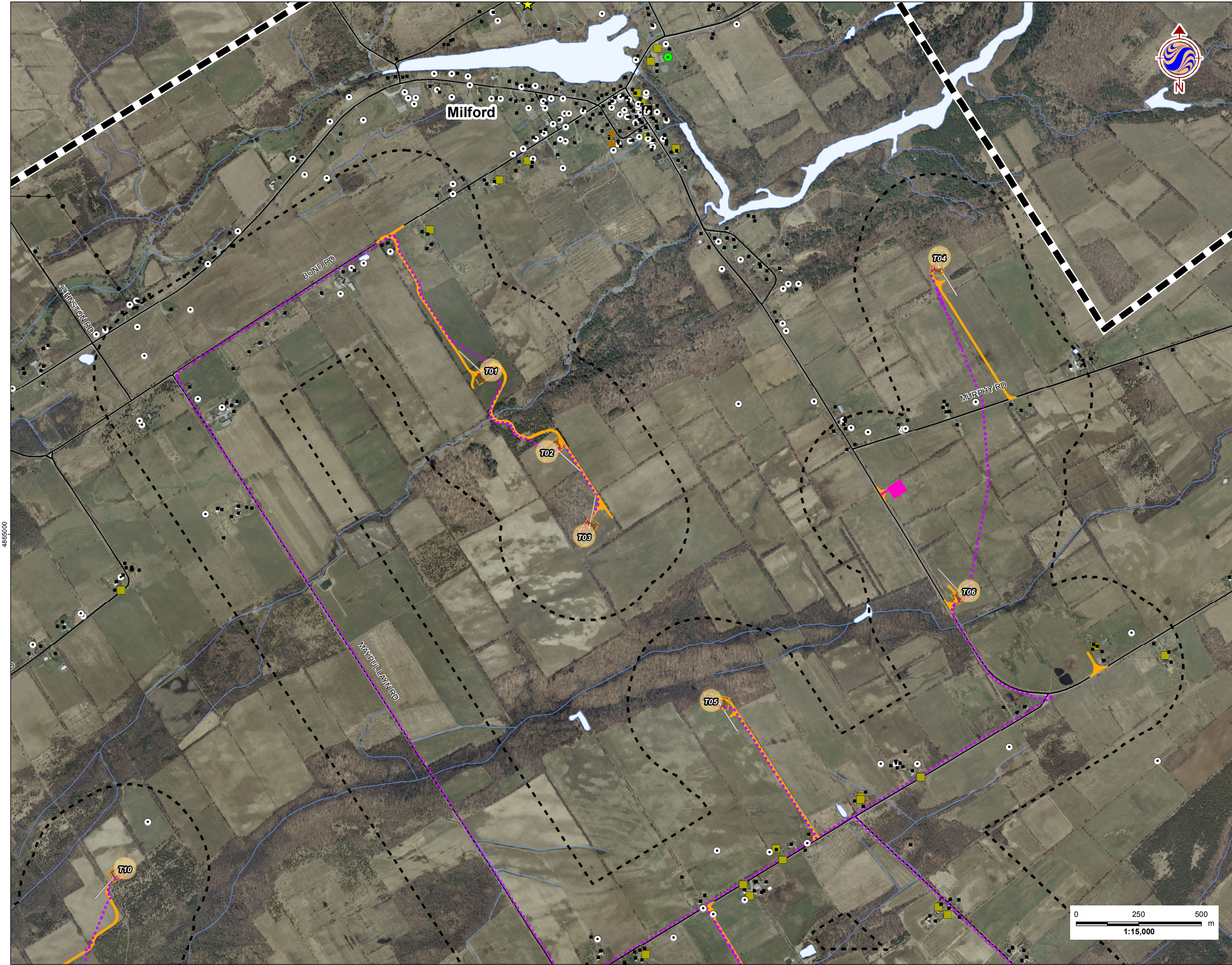
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WPD CANADA CORP.  
WHITE PINES WIND PROJECT

Figure No.  
3.4

Title  
**Socio-Economic  
Features**  
Tile 4

4860000



### Legend

- Study Area
- 300m Zone of Investigation
- Proposed Project Components**
  - Wind Turbine (Blade Sweep)
  - Access Road
  - Collector Line
  - Interconnection Line
  - Construction Area
  - Turbine Laydown Area
  - Crane Laydown Area
  - Substation
  - Storage Area
- Existing Features**
  - Road
  - Railway
  - Transmission Line
  - Building
  - Petroleum Well (Abandoned)
  - Conservation Area
  - Water Well Records (MOE)
  - Church
  - Fairgrounds
  - Library
  - RV Park
  - Heritage and Protected Properties
  - Waterbody (as per MNR base mapping)
  - Watercourse (as per MNR base mapping)

- ### Notes
1. Coordinate System: UTM NAD 83 - Zone 18 (N).
  2. Data Sources: Ontario Ministry of Natural Resources © Queens Printer Ontario, 2011; © Natural Resources Canada, 2011; © WPD Canada, 2011; © Prince Edward County, 2011.
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Imagery Date: 2008



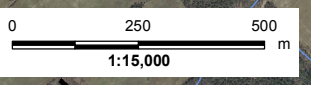
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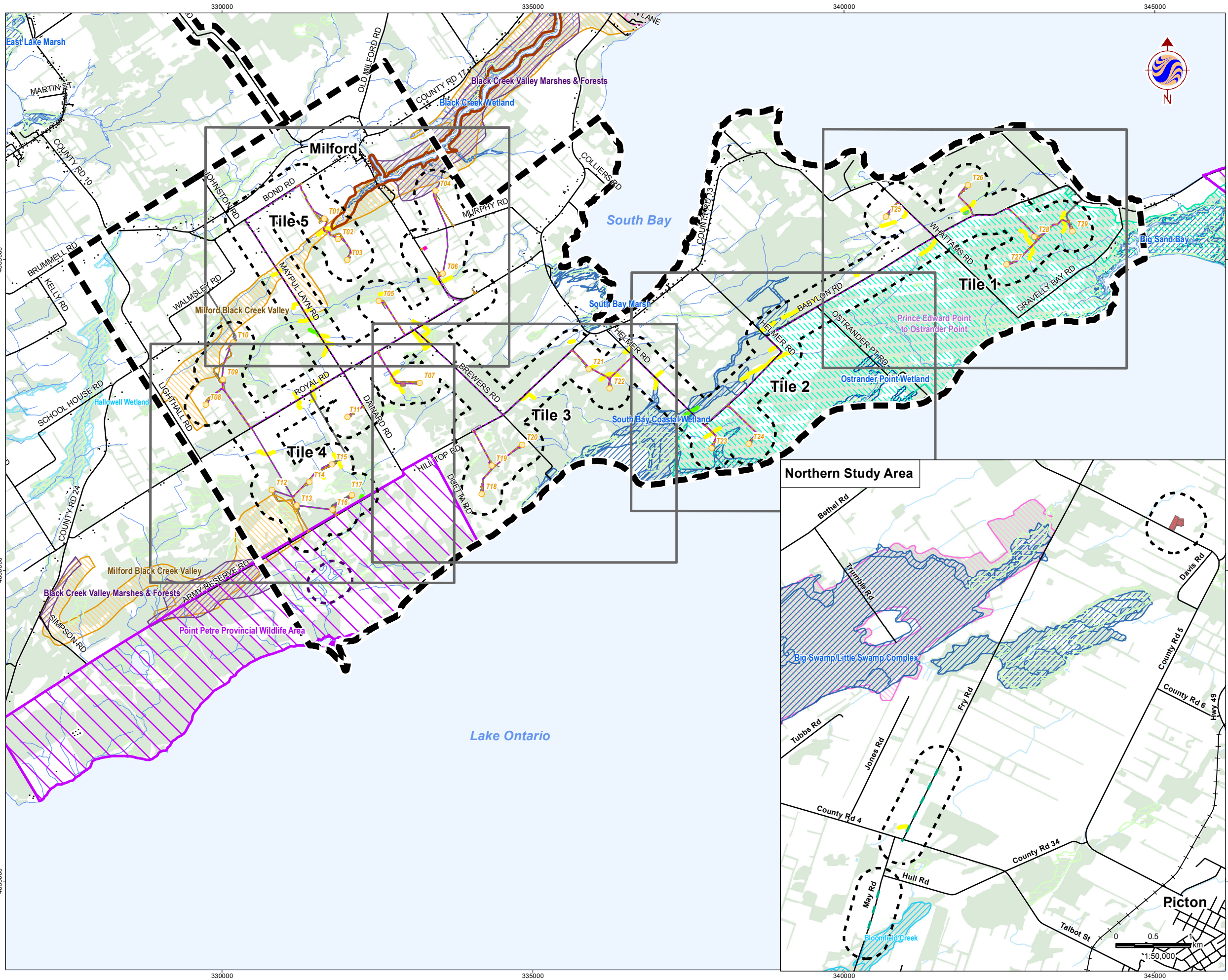
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160960594

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WPD CANADA CORP.  
WHITE PINES WIND PROJECT

Figure No.  
**3.5**

Title  
**Socio-Economic Features**  
Tile 5





**Legend**

- Study Area
- 300m Zone of Investigation
- Proposed Project Components**
- Wind Turbine (Blade Sweep)
- Access Road
- Collector Line
- Interconnection Line
- Substation
- Storage Area
- Existing Features**
- Highway / Expressway
- Road
- Railway
- Watercourse (as per MNR base mapping)
- Building
- Waterbody (as per MNR base mapping)
- Unevaluated Wetland
- REA Water Body
- Not a REA Water Body
- Natural Features- Records Review**
- Black Creek Valleyland
- Provincially Significant Wetland
- Non-Provincially Significant Wetland
- Wildlife Area
- Great Blue Heron Colony/  
Osprey Nest 300m Buffer
- Area of Natural and Scientific Interest (ANSI)**
- Earth Science, Provincially Significant
- Earth Science, Regionally Significant
- Life Science, Provincially Significant
- Life Science, Regionally Significant
- Candidate Life Science, Provincially Significant

**Notes**

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2. Data Sources: Ontario Ministry of Natural Resources  
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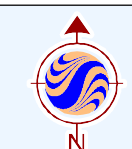
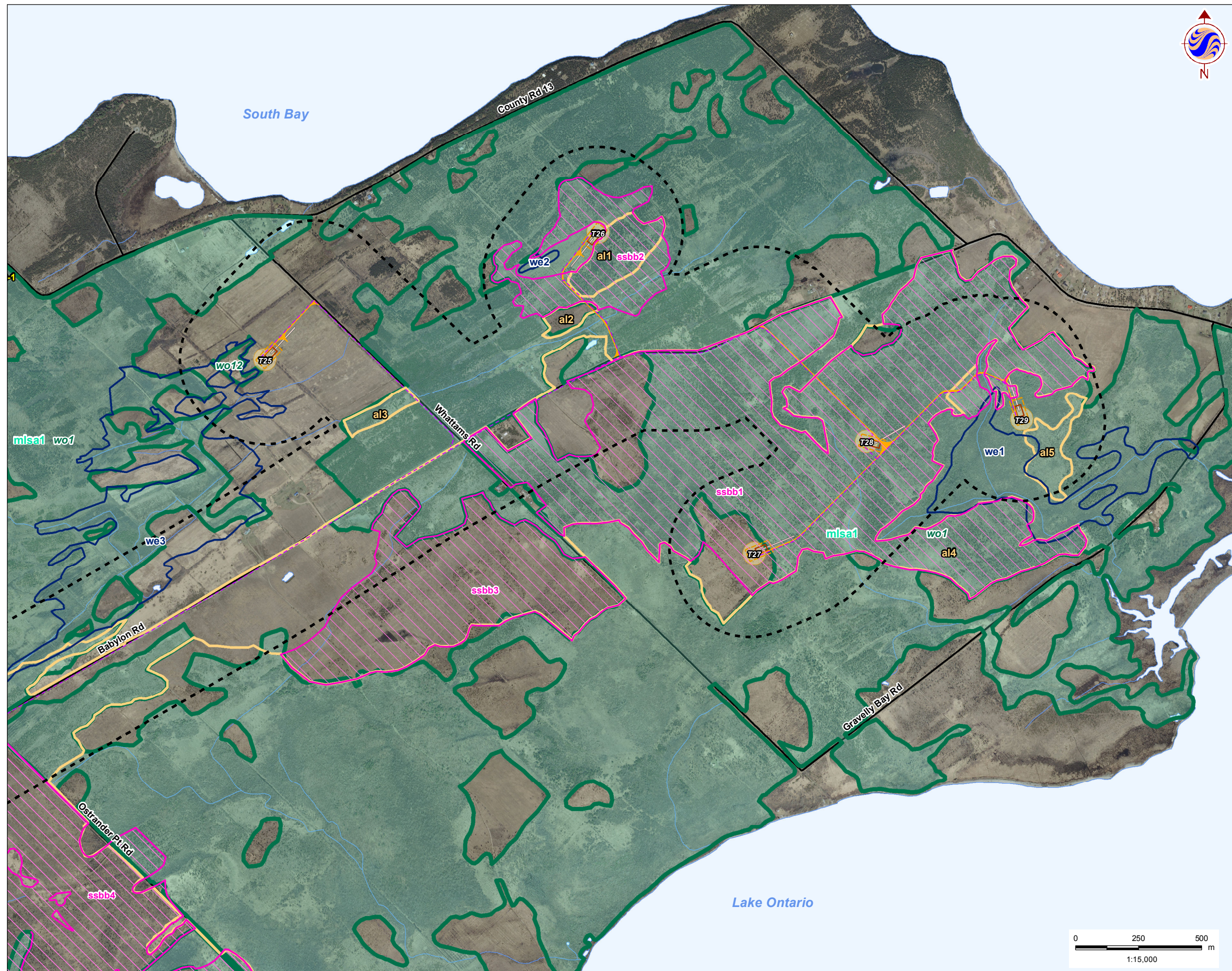
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WHITE PINES WIND PROJECT

Figure No.  
4.0

Title  
**Natural Heritage Features  
and Water Bodies**



- Legend**
- 300m Zone of Investigation
  - Proposed Project Components**
    - Wind Turbine (Blade Sweep)
    - Access Road
    - - - Proposed Collector Line
    - ▭ Construction Area
    - ▭ Turbine Laydown Area
    - ▭ Crane Laydown Area
    - ▭ Substation
    - ▭ Storage Area
  - Existing Features**
    - Highway / Expressway
    - Road
    - +— Railway
    - Watercourse (as per MNR base mapping)
    - Waterbody (as per MNR base mapping)
  - Natural Features**
    - ▭ Wetland Feature (we)
    - ▭ Woodland Feature (wo)
  - Significant Wildlife Habitat**
    - ▭ Migratory Landbird Stopover Area (mlsa)
    - ▭ Alvar Features (al)
    - ▭ Amphibian Breeding Habitat (ah)
  - Species of Conservation Concern**
    - ▭ Shrub/ Successional Breeding Birds (ssbb)

- Notes**
1. Coordinate System: UTM NAD 83 - Zone 18 (N).
  2. Data Sources: Ontario Ministry of Natural Resources © Queens Printer Ontario, 2009; © Natural Resources Canada, 2009; © WPD Canada, 2010; © Prince Edward County, 2004.
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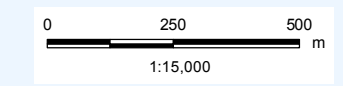
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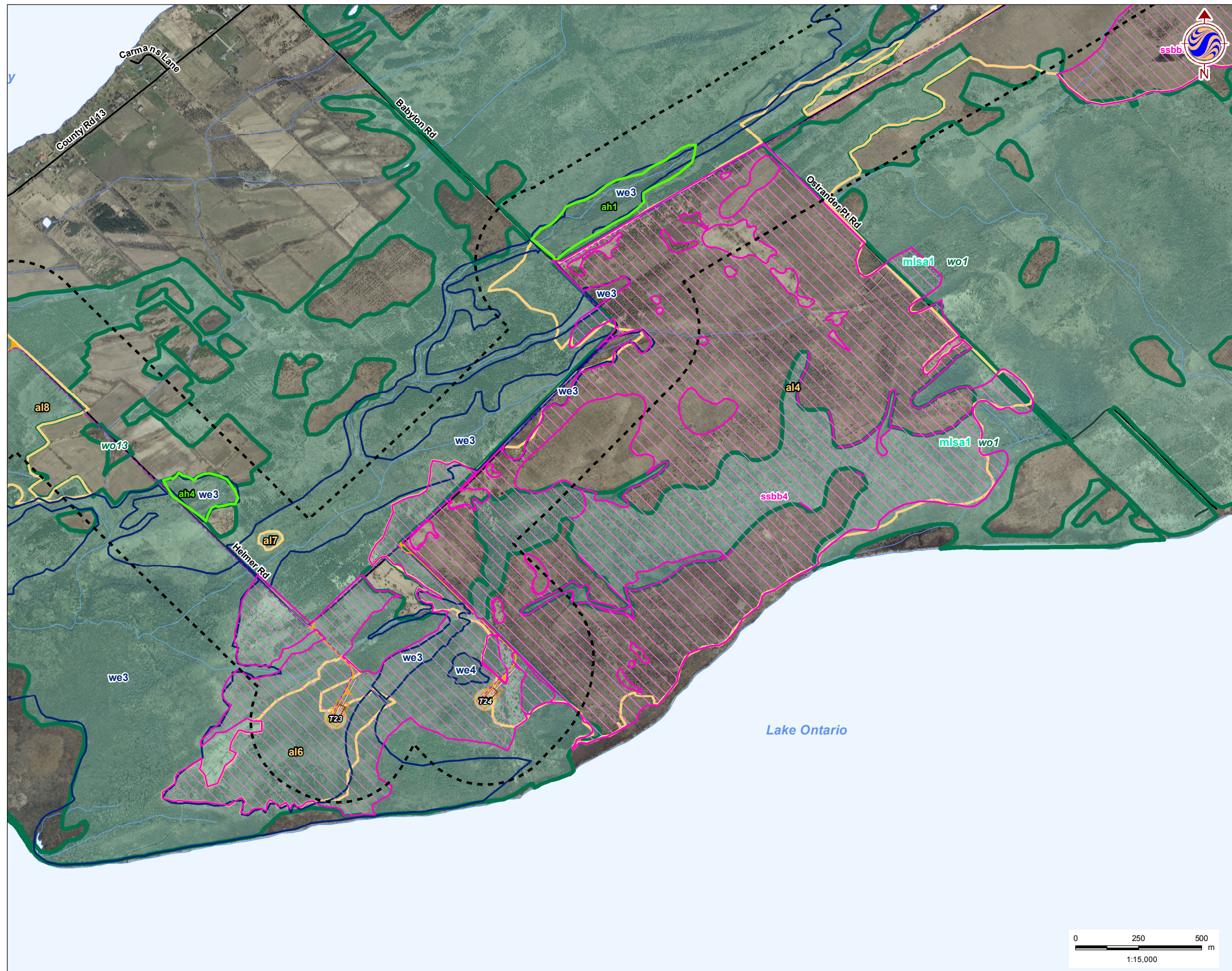
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WHITE PINES WIND PROJECT

Figure No.  
4.1

Title  
**Natural Heritage Features**  
Tile 1 of 6





- ### Legend
- 300m Zone of Investigation
  - Proposed Project Components**
    - Wind Turbine (Blade Sweep)
    - Access Road
    - Proposed Collector Line
    - Construction Area
    - Turbine Laydown Area
    - Crane Laydown Area
    - Substation
    - Storage Area
  - Existing Features**
    - Highway / Expressway
    - Road
    - Railway
    - Watercourse (as per MNR base mapping)
    - Waterbody (as per MNR base mapping)
  - Natural Features**
    - Wetland Feature (we)
    - Woodland Feature (wo)
  - Significant Wildlife Habitat**
    - Migratory Landbird Stopover Area (mlsa)
    - Alvar Features (al)
    - Amphibian Breeding Habitat (ah)
  - Species of Conservation Concern**
    - Shrub/ Successional Breeding Birds (ssbb)

- ### Notes
1. Coordinate System: UTM NAD 83 - Zone 18 (N).
  2. Data Sources: Ontario Ministry of Natural Resources © Queens Printer Ontario, 2009; © Natural Resources Canada, 2009; © WPD Canada, 2010; © Prince Edward County, 2004.
  3. Image Sources: © First Base Solutions, 2011 - Imagery Date 2008.



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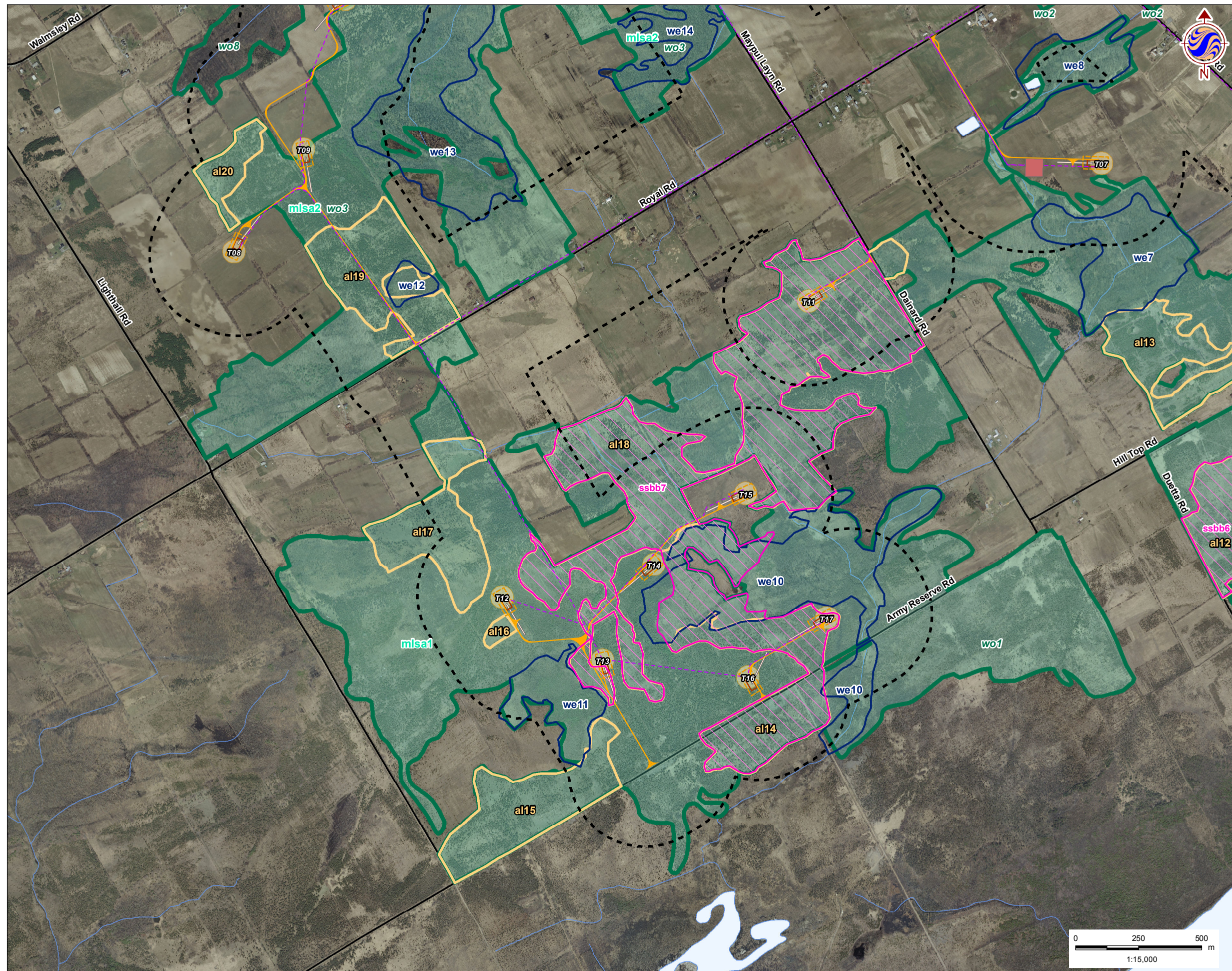
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WPD CANADA CORP.  
WHITE PINES WIND PROJECT

Figure No.  
4.2

Title  
**Natural Heritage Features**  
Tile 2 of 6







**Legend**

--- 300m Zone of Investigation

**Proposed Project Components**

- Wind Turbine (Blade Sweep)
- Access Road
- - - Proposed Collector Line
- ▭ Construction Area
- ▭ Turbine Laydown Area
- ▭ Crane Laydown Area
- ▭ Substation
- ▭ Storage Area

**Existing Features**

- Highway / Expressway
- Road
- +— Railway
- Watercourse (as per MNR base mapping)
- Waterbody (as per MNR base mapping)

**Natural Features**

- ▭ Wetland Feature (we)
- ▭ Woodland Feature (wo)

**Significant Wildlife Habitat**

- ▭ Migratory Landbird Stopover Area (mlsa)
- ▭ Alvar Features (al)
- ▭ Amphibian Breeding Habitat (ah)

**Species of Conservation Concern**

- ▭ Shrub/ Successional Breeding Birds (ssbb)

**Notes**

1. Coordinate System: UTM NAD 83 - Zone 18 (N).
2. Data Sources: Ontario Ministry of Natural Resources © Queens Printer Ontario, 2009; © Natural Resources Canada, 2009; © WPD Canada, 2010; © Prince Edward County, 2004.
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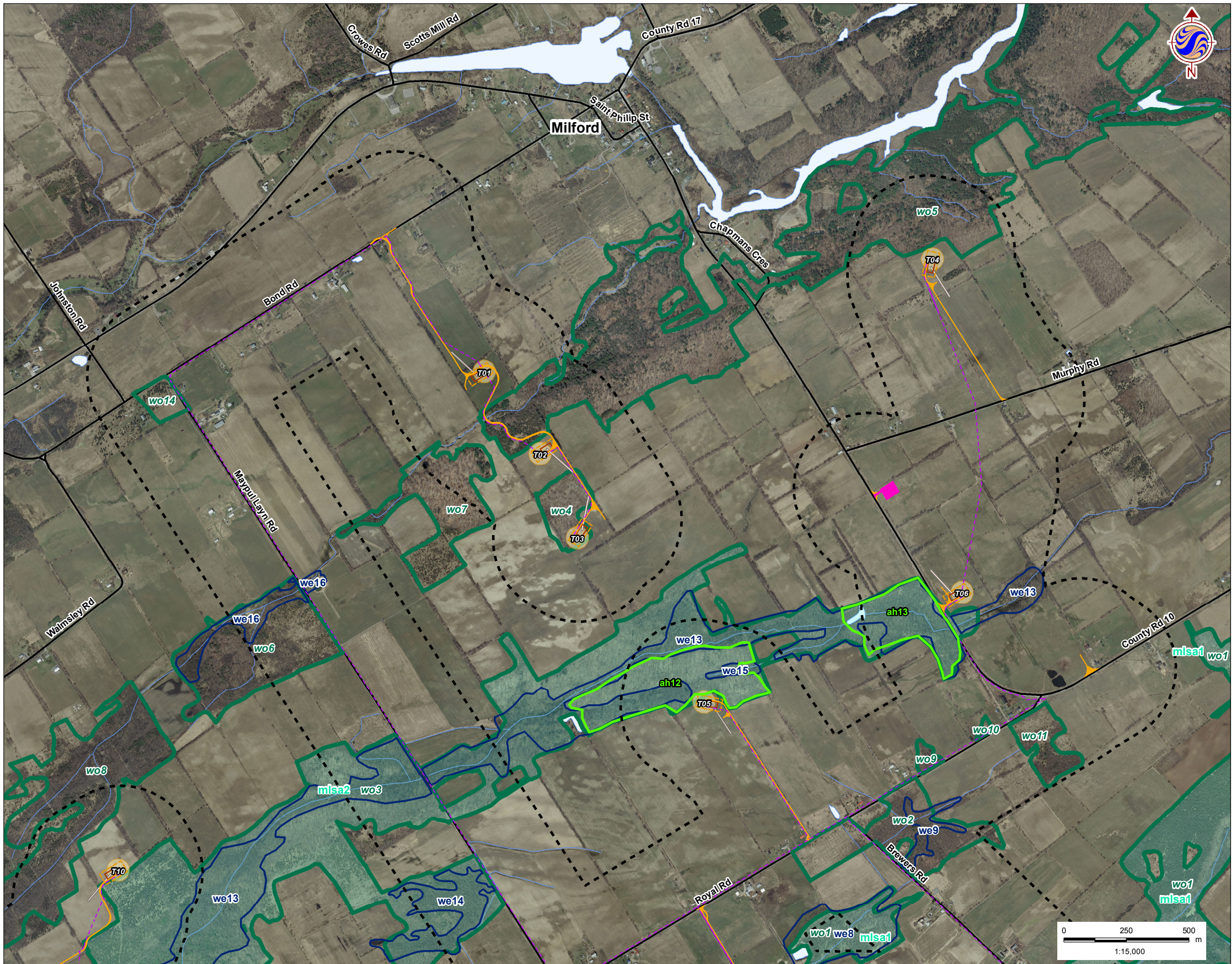
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WHITE PINES WIND PROJECT

Figure No.  
4.4

Title  
**Natural Heritage Features**  
Tile 4 of 6



**Legend**

- 300m Zone of Investigation
- Proposed Project Components**
- Wind Turbine (Blade Sweep)
- Access Road
- Proposed Collector Line
- ▭ Construction Area
- ▭ Turbine Laydown Area
- ▭ Crane Laydown Area
- ▭ Substation
- ▭ Storage Area
- Existing Features**
- Highway / Expressway
- Road
- ++ Railway
- Watercourse (as per MNR base mapping)
- ▭ Waterbody (as per MNR base mapping)
- Natural Features**
- ▭ Wetland Feature (we)
- ▭ Woodland Feature (wo)
- Significant Wildlife Habitat**
- ▭ Migratory Landbird Stopover Area (mlsa)
- ▭ Alvar Features (al)
- ▭ Amphibian Breeding Habitat (ah)
- Species of Conservation Concern**
- ▭ Shrub/ Successional Breeding Birds (ssbb)

**Notes**

1. Coordinate System: UTM NAD 83 - Zone 18 (N).
2. Data Sources: Ontario Ministry of Natural Resources Canada, © Queens Printer Ontario, 2009; © Natural Resources Canada, 2009; © WPD Canada, 2010; © Prince Edward County, 2004.
3. Image Sources: © First Base Solutions, 2011 - Imagery Date 2008.



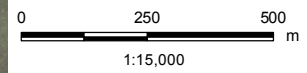
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WHITE PINES WIND PROJECT

Figure No.  
4.5

Title  
**Natural Heritage Features**  
Tile 5 of 6



323400 323700 324000 324300 324600 324900

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 Revised: 2012-09-11 By: dharvey

4875000 4875300 4875600 4875900 4876200 4876500 4876800 4877100 4877400



Legend	
	120m Zone of Investigation
	Proposed Interconnection Line
	Buildable Area
	Road
	Watercourse
	Waterbody
<b>Site Investigation: Natural Features</b>	
	Woodland (Stantec)
	Generalized Wildlife Habitat (Stantec)
	Wetland (Stantec)

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 WPD CANADA CORP.  
 WHITE PINES WIND PROJECT

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Figure No.  
 4.6

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Title  
**Natural Heritage Features**

September 2012  
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## **Appendix B**

### **Legal Description of Project Land Parcels**

**Properties with Infrastructure Confirmed**

PT LT 23-24 CON 1 SOUTH OF BLACK RIVER S MARYSBURGH AS IN PE136686 (PARCEL 1 AND 2); PRINCE EDWARD

PT LT 24 CON 1 SOUTH OF BLACK RIVER S MARYSBURGH PT 1 47R6022; PRINCE EDWARD

PT LT 2 CON 3 SOUTH SIDE OF EAST LAKE ATHOL PT 4 47R3259; PRINCE EDWARD

PT LT 2 CON 3 SOUTH SIDE OF EAST LAKE ATHOL PT 3 47R3259; PRINCE EDWARD

PT LT 1 CON 4 SOUTH SIDE OF EAST LAKE ATHOL AS IN PE172229; PRINCE EDWARD

PT LT 3 BLK 15 S MARYSBURGH; PT LT 4 BLK 15 S MARYSBURGH AS IN PE164498; PRINCE EDWARD

PT LT 1 BLK 15 S MARYSBURGH AS IN PE167062; S/T PE167062; PRINCE EDWARD

PT LT A CON SOUTH OF PRINCE EDWARD BAY S MARYSBURGH; PT LT B CON SOUTH OF PRINCE EDWARD BAY S MARYSBURGH PT 1 47R4803; PRINCE EDWARD

PT LT C CON SOUTH OF PRINCE EDWARD BAY S MARYSBURGH; PT LT D CON SOUTH OF PRINCE EDWARD BAY S MARYSBURGH; PT LT E CON SOUTH OF PRINCE EDWARD BAY S MARYSBURGH AS IN PE179249 S OF RIDGE RD; PRINCE EDWARD

PT LT E CON SOUTH OF PRINCE EDWARD BAY S MARYSBURGH; PT LT F CON SOUTH OF PRINCE EDWARD BAY S MARYSBURGH PT 1 47R1215; S/T EXECUTION 05-0000112, IF ENFORCEABLE; PRINCE EDWARD

PT LT F CON SOUTH OF PRINCE EDWARD BAY S MARYSBURGH; PT LT G CON SOUTH OF PRINCE EDWARD BAY S MARYSBURGH PT 2 47R4804; PRINCE EDWARD

PT LT D CON SOUTH OF PRINCE EDWARD BAY S MARYSBURGH; PT LT E CON SOUTH OF PRINCE EDWARD BAY S MARYSBURGH AS IN PE179249 (PCL 1 & 3) N OF RIDGE RD & S OF COUNTY RD # 13; PRINCE EDWARD

PT LT 27 CON 1 SOUTH OF BLACK RIVER S MARYSBURGH AS IN PE171775; PRINCE EDWARD

PT LT 23-24 CON 1 SOUTH OF BLACK RIVER S MARYSBURGH PARTS 1 AND 2 47R1500 EXCEPT PT 1 47R2366; PRINCE EDWARD

PT LT 27 CON 1 SOUTH OF BLACK RIVER S MARYSBURGH AS IN PE160537; PRINCE EDWARD

PT BLOCK CON 2 SOUTH OF BLACK RIVER S MARYSBURGH AS IN PE115855; PRINCE EDWARD

PT BLK D CON 2 SOUTH OF BLACK RIVER S MARYSBURGH AS IN PE136158; S/T LIFE INTEREST IN PE67745; PRINCE EDWARD

PT LT 3-4 CON 3 SOUTH SIDE OF EAST LAKE ATHOL AS IN PE98075, PE103233 & PT 6 47R5399; S/T PE103233; S/T AL6035, AL6073; PRINCE EDWARD

PT LT 1 CON 3 SOUTH SIDE OF EAST LAKE ATHOL PT 1 47R7567; PRINCE EDWARD

LT 3 CON 4 SOUTH SIDE OF EAST LAKE ATHOL; PRINCE EDWARD

PT LT 2 CON 4 SOUTH SIDE OF EAST LAKE ATHOL AS IN PE172228; S/T EXECUTION 03-0000052, IF ENFORCEABLE; S/T EXECUTION 03-0000053, IF ENFORCEABLE; PRINCE EDWARD

PT LT 1-2 CON 4 SOUTH SIDE OF EAST LAKE ATHOL PT 1 47R7973; T/W AL6521; PRINCE EDWARD

PT BLK C CON 2 SOUTH OF BLACK RIVER S MARYSBURGH PT 1 47R7414; S/T EXECUTION 05-0000112, IF ENFORCEABLE; PRINCE EDWARD

PT BLK C CON 2 SOUTH OF BLACK RIVER S MARYSBURGH; PT RDAL BTN CON 2 AND CON 3 SOUTH OF BLACK RIVER S MARYSBURGH AS IN PE165877; PRINCE EDWARD

PT LT 1 BLK 15 S MARYSBURGH; PT LT 2 BLK 15 S MARYSBURGH; PT LT 3 BLK 15 S MARYSBURGH AS IN PE103665; PRINCE EDWARD

LT 11-13 CON WEST OF LONG POINT S MARYSBURGH; LT 12 CON ROUND PRINCE EDWARD BAY S MARYSBURGH; PT LT 11 CON ROUND PRINCE EDWARD BAY S MARYSBURGH; PT RDAL BTN LT 10 AND LT 11 CON WEST OF LONG POINT S MARYSBURGH AS IN PE53144 S OF COUNTY RD # 9; PRINCE EDWARD

LT 10 CON WEST OF LONG POINT S MARYSBURGH; PT LT 9 CON WEST OF LONG POINT S MARYSBURGH AS IN PE172255; PRINCE EDWARD

PT LT E CON SOUTH OF PRINCE EDWARD BAY S MARYSBURGH PT 3 47R243 EXCEPT PT 1 47R1268; PRINCE EDWARD

PT LT K CON WEST OF LONG POINT S MARYSBURGH AS IN PE48493 N OF GRAVELLY BAY RD; PRINCE EDWARD

PT LT 14 CON2 SW GREEN POINT SOPHIASBURGH PT1 47R4375 EXEPT PT1 47R7360, PT 1 & 2 47R6590, S/T PE153158; S/TOH101; PRINCE EDWARD

PT LT 3 BLK 15 S MARYSBURGH AS IN PE126041; PRINCE EDWARD

## **Appendix C**

# **Overview of Potential Environmental Effects and Monitoring Plan**



**Appendix C1: Summary of Potential Environmental Effects and Mitigation Strategy for Construction and Decommissioning of the Project**

**PROJECT PHASE: CONSTRUCTION & DECOMMISSIONING**

Environmental Feature	Potential Adverse Effects	Mitigation Strategy	Net Effects
<b>Cultural Heritage and Archaeological Resources</b>			
Protected Properties and Cultural Heritage Resources	<ul style="list-style-type: none"> <li>Potential impacts to views and vibration damage during installation of below-grade infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>Construction and decommissioning to be undertaken in such a way as to minimize impacts to the cultural heritage features inventoried in the <u>Heritage Impact Assessment Report</u>.</li> <li>Care should be taken during construction to monitor noise and vibration levels to avoid damaging structures that abut the municipal road allowance where construction activities are being undertaken.</li> </ul> <p>In regards to the three protected properties it is recommended that:</p> <ul style="list-style-type: none"> <li>Maximum acceptable peak particle velocity should be determined by a qualified engineer prior to any subgrade activities to ensure structural integrity of the Dulmage-Farrington-Marshall Driveshed, the residential building on the Gibbins' Property and the Royal Street Cheese Factory.</li> <li>Vibration levels should be monitored during any below-grade construction activities in the vicinity of the Dulmage-Farrington-Marshall Driveshed, the residential building on the Gibbins' Property and the Royal Street Cheese Factory.</li> <li>Installation of any above ground collector lines should avoid the west side of Brewers Road in the vicinity of the Dulmage-Farrington-Marshall Driveshed; the south side of Royal Road in the vicinity of the Royal Street Cheese Factory and the Gibbins' Property; and the east side of Dainard Road in the vicinity of the Gibbins' Property; and</li> <li>Removal of or damage to trees along Brewers Road should be avoided.</li> </ul> <p>In regards to the 6 significant built heritage resources and the one significant cultural heritage landscape it is recommended that:</p> <ul style="list-style-type: none"> <li>Prior to any below-grade construction within 50 m of 104 Brewers Road, or 940, 1038, 1210, 1247, and 1327 Royal Road, a study should be conducted by a qualified engineer to determine the</li> </ul>	Application of the recommended mitigation measures will result in no net effects on protected properties and cultural heritage resources during construction of the Project.

**Appendix C1: Summary of Potential Environmental Effects and Mitigation Strategy for Construction and Decommissioning of the Project**

**PROJECT PHASE: CONSTRUCTION & DECOMMISSIONING**

Environmental Feature	Potential Adverse Effects	Mitigation Strategy	Net Effects
		maximum vibration peak particle velocity for each structure; <ul style="list-style-type: none"> <li>• Vibrations should be monitored during below grade construction to ensure that acceptable vibration levels are not exceeded;</li> <li>• In the event that an above ground collector lines are installed, those components should be installed on the side of the road opposite the BHR or CHL in order to best conserve significant views; and,</li> <li>• The removal of trees along roads in the Study Area should be avoided to the greatest extent practicable.</li> </ul>	
Archaeological Resources	<ul style="list-style-type: none"> <li>• Potential impacts to archaeological resources could occur if encountered during construction.</li> </ul>	<ul style="list-style-type: none"> <li>• Stage 1 and 2 archaeological assessments have been undertaken. No evidence of archaeological sites was found.</li> <li>• Construction Contractor would be notified of the stop work protocol should artefacts and/or human remains be encountered during excavation as described in the <u>Construction Plan Report</u>.</li> </ul>	By following the procedures recommended no adverse net effects on archaeological resources are anticipated during construction of the Project.
<b>Natural Heritage Resources</b>			
Wetlands	<ul style="list-style-type: none"> <li>• Eighteen wetlands identified as occurring within 300 m of the Project Location.</li> <li>• No direct loss of wetland habitat or function as a result of the Project.</li> <li>• Indirect impacts from dust, sedimentation and erosion, and the potential for accidental spills.</li> <li>• Disrupted quality of surface water inputs.</li> <li>• Changes in vegetation composition and opportunity for introduction/spread of invasive</li> <li>• Disturbance or disruption to wildlife function.</li> </ul>	<ul style="list-style-type: none"> <li>• No development would occur within the wetland boundary.</li> <li>• Silt barriers along wetland edges that occur within 30 m of construction/decommissioning activities.</li> <li>• Where possible, and as appropriate, access roads will be constructed at or near existing grade to maintain surface flow contributions to wetland.</li> <li>• Work areas would be staked by a qualified ecologist prior to construction to assist with the demarcation of the construction area and the Contractor would ensure all activities avoid sensitive areas.</li> <li>• Where new access roads cross existing drainage features, design will include culverts or other appropriate structures of sufficient size to accommodate flow.</li> <li>• Mitigation measures for vegetation removal will be implemented as outlined in Section 6.4.1.1 of the <u>Environmental Impact Study Report</u>.</li> <li>• Mitigation measures for sediment and erosion will be implemented as outlined in Section 6.4.1.2 of the <u>Environmental Impact Study Report</u>.</li> <li>• Mitigation measures for dewatering will be implemented as outlined in Section 6.4.1.3 of the <u>Environmental Impact Study Report</u>.</li> </ul>	It is anticipated that with the implementation of the mitigation measures there will be no adverse net effects to wetlands during construction of the project.

**Appendix C1: Summary of Potential Environmental Effects and Mitigation Strategy for Construction and Decommissioning of the Project**

**PROJECT PHASE: CONSTRUCTION & DECOMMISSIONING**

Environmental Feature	Potential Adverse Effects	Mitigation Strategy	Net Effects
		<ul style="list-style-type: none"> <li>• All refuelling activities will occur well away from wetlands. In the event of an accidental spill, the MOE Spills Action Centre will be contacted and emergency spill procedures implemented immediately.</li> <li>• Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</li> <li>• Mitigations measures to be applied to each wetland feature are provided in Table 6.5, Appendix B of the <u>Environmental Impact Study Report</u>.</li> </ul>	
Areas of Natural and Scientific Interest (ANSIs)	<ul style="list-style-type: none"> <li>• Erosion or loss of all or part of Earth Science ANSI. Alteration or destruction of landforms can also occur in association where grading activities are undertaken.</li> <li>• Impacts to the candidate Life Science ANSI are outlined in 'Natural Heritage Resources' section of this table.</li> </ul>	<p>For the Earth Science ANSI, the following mitigation measures will be implemented:</p> <ul style="list-style-type: none"> <li>• Mitigation measures for vegetation removal will be implemented as outlined in Section 6.4.1.1 of the <u>Environmental Impact Study Report</u>;</li> <li>• Mitigation measures for sediment and erosion control will be implemented as outlined in Section 6.4.1.2 of the <u>Environmental Impact Study Report</u>;</li> <li>• Mitigation measures for dewatering will be implemented as outlined in Section 6.4.1.3. of the <u>Environmental Impact Study Report</u>; and</li> <li>• Where possible, and as appropriate, access roads will be constructed at or near existing grade.</li> </ul> <p>For the candidate Life Science ANSI, mitigation measures will follow those outlined throughout <b>Section 3.3</b> of the <u>Construction Plan Report</u>.</p>	The Earth Science ANSI has been designated for its geological importance, and not its ecological importance. Works for the Project that are proposed in the ANSI are spatially small and shallow works that would not impact the Earth Science ANSI feature or its function. There would not be a loss of provincially significant earth science values as a result of the Project
Valleylands	<ul style="list-style-type: none"> <li>• Erosion leading to sedimentation of watercourses.</li> </ul>	<ul style="list-style-type: none"> <li>• Mitigation measures for sediment and erosion control will be implemented as outlined in Section 6.4.1.2 of the <u>Environmental Impact Study Report</u>.</li> </ul>	The application of the mitigation measures during construction will ensure that effects to surface water due to construction activities are minimized, and that any potential net effects are spatially and temporally limited.
Woodlands	<ul style="list-style-type: none"> <li>• Indirect impacts due to dust generation, sedimentation and erosion.</li> </ul>	<ul style="list-style-type: none"> <li>• A Natural Areas Management Strategy will be developed and implemented for the Project as described in Section 6.5 of the <u>Environmental Impact Study Report</u>. Mitigation measures for</li> </ul>	With the implementation of the mitigation measures, permanent impacts to woodland

**Appendix C1: Summary of Potential Environmental Effects and Mitigation Strategy for Construction and Decommissioning of the Project**

**PROJECT PHASE: CONSTRUCTION & DECOMMISSIONING**

Environmental Feature	Potential Adverse Effects	Mitigation Strategy	Net Effects
	<ul style="list-style-type: none"> <li>• Potential for accidental spills.</li> <li>• Removal of woodland habitat.</li> <li>• Potential effects to flora and fauna: loss of species diversity, reducing or fragmenting available habitat, introduction or spread of invasive species and from temporary disruption to movement of wildlife.</li> <li>• Improper removal of wastes.</li> </ul>	<p>vegetation removal will be implemented as outlined in Section 6.4.1.1 of the <u>Environmental Impact Study Report</u>;</p> <ul style="list-style-type: none"> <li>• Mitigation measures for sediment and erosion control will be implemented as outlined in Section 6.4.1.2 of the <u>Environmental Impact Study Report</u>;</li> <li>• Mitigation measures for dewatering will be implemented as outlined in Section 6.4.1.3. of the <u>Environmental Impact Study Report</u>; and</li> <li>• All refueling activities will occur well away from the woodlands. In the event of an accidental spill, the MOE Spills Action Centre will be contacted and emergency spill procedures implemented immediately.</li> <li>• Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</li> <li>• Mitigation measures by feature are provided in Table 6.6, Appendix B of the <u>Environmental Impact Study Report</u>.</li> </ul>	<p>habitat will be a small percentage of the entire amount present in the Study Area.</p>
Provincial Parks and Conservation Reserves	<ul style="list-style-type: none"> <li>• No features identified within 300 m of the Project Location.</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<p>N/A</p>
Other Designated Natural Areas	<ul style="list-style-type: none"> <li>• Potential impacts to natural heritage and recreational values are outlined in '<i>Significant Wildlife and Wildlife Habitat</i>' and '<i>Game and Fishery Resources</i>'.</li> </ul>	<ul style="list-style-type: none"> <li>• Mitigation measures are outlined in '<i>Significant Wildlife and Wildlife Habitat</i>' and '<i>Game and Fishery Resources</i>'.</li> </ul>	<p>A review of net effects on natural and heritage and recreation values of the two designated natural areas are outline in '<i>Significant Wildlife and Wildlife Habitat</i>' and '<i>Game and Fishery Resources</i>'.</p>
Significant Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>• Information has been provided to the MNR as part of the <i>Approval and Permitting Requirements Document for Renewable Energy Projects</i> (APRD) requirements.</li> <li>• Potential effects to generalized significant wildlife habitat areas include vegetation removal, wildlife</li> </ul>	<ul style="list-style-type: none"> <li>• Consultation is ongoing with the Ministry of Natural Resources regarding species at risk. Prior to construction and decommissioning, all applicable permits and approvals would be obtained, and all conditions contained within permits and approvals would be implemented.</li> </ul> <p>For generalized significant wildlife habitat areas, migratory landbird stopover and staging areas, and shrub/successional breeding bird areas, the following mitigation measures will be implemented:</p> <ul style="list-style-type: none"> <li>• In the vicinity of the generalized significant wildlife habitat, construction machinery should be checked daily for snakes prior to operating.</li> <li>• A Natural Areas Management Strategy will be developed and</li> </ul>	<p>With the implementation of the mitigation measures, construction effects to significant wildlife habitat will be reduced and will be temporary.</p>

**Appendix C1: Summary of Potential Environmental Effects and Mitigation Strategy for Construction and Decommissioning of the Project**

**PROJECT PHASE: CONSTRUCTION & DECOMMISSIONING**

Environmental Feature	Potential Adverse Effects	Mitigation Strategy	Net Effects
	<p>mortality and indirect effects through dust, sedimentation and erosion, accidental spills, and traffic.</p> <ul style="list-style-type: none"> <li>• Potential effects to landbird stopover and staging areas include destruction, fragmentation and disturbance of habitat, and disturbance due to increased traffic, noise or dust.</li> <li>• Potential indirect effects to amphibian breeding areas through direct disturbance and mortality, and indirectly through dust, sedimentation, erosion and accidental spills.</li> <li>• Potential effects to shrub/successional breeding bird areas include destruction, fragmentation and/or disturbance of habitat, direct loss of nests, and disturbance due to increased traffic, noise or dust.</li> </ul>	<p>implemented for the Project as described in Section 6.5 of the <u>Environmental Impact Study Report</u>.</p> <ul style="list-style-type: none"> <li>• Mitigation measures for vegetation removal will be implemented as outlined in Section 6.4.1.1 of the <u>Environmental Impact Study Report</u>;</li> <li>• Mitigation measures for sediment and erosion control will be implemented as outlined in Section 6.4.1.2 of the <u>Environmental Impact Study Report</u>;</li> <li>• Mitigation measures for dewatering will be implemented as outlined in Section 6.4.1.3. of the <u>Environmental Impact Study Report</u>; and</li> <li>• All refueling activities will occur well away from the areas. In the event of an accidental spill, the MOE Spills Action Centre will be contacted and emergency spill procedures implemented immediately.</li> <li>• Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</li> </ul> <p>For amphibian breeding areas, the following mitigation measures will be implemented:</p> <ul style="list-style-type: none"> <li>• Mitigation measures for sediment and erosion control will be implemented as outlined in Section 6.4.1.2 of the <u>Environmental Impact Study Report</u>; and</li> <li>• All refuelling activities will occur well away from the areas. In the event of an accidental spill, the MOE Spills Action Centre will be contacted and emergency spill procedures implemented immediately.</li> </ul>	
<p>Other Wildlife and Wildlife Habitat</p>	<ul style="list-style-type: none"> <li>• Direct loss of species habitat is addressed in 'Wetlands', 'Woodlands', 'Significant Wildlife and Wildlife Habitat', 'Significant Flora and Vegetation Communities' and 'Other Flora and Vegetation Communities'.</li> </ul>	<ul style="list-style-type: none"> <li>• Mitigation measures related to additional traffic are provided in '<i>Local Traffic</i>'.</li> <li>• Mitigation measures related to noise from construction and decommissioning activities are outlined in '<i>Environmental Noise</i>'.</li> <li>• Mitigation measures related to dust are outlined in '<i>Dust and Odour Emissions</i>'.</li> <li>• Accidental mortality of wildlife during construction activities will be</li> </ul>	<p>With the implementation of the mitigation measures, permanent impacts to wildlife and wildlife habitat will be a small percentage of the entire amount present in the Study Area.</p>

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**PROJECT PHASE: CONSTRUCTION & DECOMMISSIONING**

Environmental Feature	Potential Adverse Effects	Mitigation Strategy	Net Effects
	<ul style="list-style-type: none"> <li>• Accidental mortality to wildlife.</li> <li>• Indirect disturbance to wildlife and their habitats.</li> </ul>	<p>reported to wpd and the environmental representative of the Construction Contractor. wpd will review all instances of mortality with the Ministry of Natural Resources to determine where it is feasible for construction details such as employee training, traffic speed and construction location to be adjusted.</p>	
<p>Significant Flora and Vegetation Communities</p>	<ul style="list-style-type: none"> <li>• Temporary and permanent removal of portions of alvar-like vegetation communities.</li> <li>• Disturbance (dust, erosion and sedimentation, spills).</li> <li>• Introduction or spread of exotic species.</li> </ul>	<ul style="list-style-type: none"> <li>• A Natural Areas Management Strategy will be developed and implemented for the Project as described in Section 6.5 of the <u>Environmental Impact Study Report</u>.</li> <li>• Records of the restoration and invasive species control work will be kept and successes or failures communicated and contributed to knowledge of alvar habitats in Ontario.</li> <li>• Management efforts will be coordinated with other interest groups willing to partner that have specific knowledge of alvar habitat management and the local natural heritage of the area.</li> <li>• Mitigation measures for vegetation removal will be implemented as outlined in Section 6.4.1.1 of the <u>Environmental Impact Study Report</u>.</li> <li>• Mitigation measures for sediment and erosion control will be implemented as outlined in Section 6.4.1.2 of the <u>Environmental Impact Study Report</u>.</li> <li>• Mitigation measures for dewatering will be implemented as outlined in Section 6.4.1.3 of the <u>Environmental Impact Study Report</u>.</li> <li>• Where possible, and as appropriate, access roads will be constructed at or near existing grade.</li> <li>• All refueling activities will occur well away from alvar communities. In the event of an accidental spill, the MOE Spills Action Centre will be contacted and emergency spill procedures implemented immediately.</li> <li>• Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</li> <li>• Mitigation measures for each alvar-like community feature are provided in Table 6.7, Appendix B of the <u>Environmental Impact Study Report</u>.</li> </ul>	<p>With the implementation of the mitigation measures, permanent impacts to alvar-like vegetation communities will be a small percentage of the entire amount present in the Study Area.</p>
<p>Other Flora and Vegetation Communities</p>	<ul style="list-style-type: none"> <li>• Temporary and permanent removal of vascular plants and portions of vegetation communities.</li> </ul>	<ul style="list-style-type: none"> <li>• Mitigation, replanting and restoration measures for impacts to vascular plants and natural vegetation will be implemented as outlined in Sections 6.4.1.1 and 6.5 of the <u>Environmental Impact Study Report</u>.</li> </ul>	<p>With the implementation of the mitigation measures, permanent impacts to vascular plants and vegetation</p>

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Environmental Feature	Potential Adverse Effects	Mitigation Strategy	Net Effects
<b>Water Bodies and Aquatic Resources</b>			
Groundwater	<ul style="list-style-type: none"> <li>Some dewatering activity possible during excavations; would not exceed 50,000 litres (L) per day.</li> <li>Potential for contamination through accidental spills.</li> </ul>	<ul style="list-style-type: none"> <li>If groundwater is encountered during excavations, good practices would be used, including the following key measures:                             <ul style="list-style-type: none"> <li>– minimizing the length of time that the excavation is open;</li> <li>– monitoring seepage into the excavation;</li> <li>– energy dissipation techniques would be used for any pumped water to reduce the potential for erosion and sourcing; and</li> <li>– If energy dissipation measures are found to be inadequate, the rate of dewatering would be reduced or ceased until satisfactory mitigation measures are in place.</li> </ul> </li> <li>As per S.13 of the <i>Environmental Protection Act</i>, all spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of the prescribed regulatory levels will be reported to the MOE’s Spills Action Centre.</li> </ul>	Some localized and temporary disturbance to groundwater may be possible during the excavation of the turbine foundations or installation of other Project components requiring excavation. However, it is anticipated that any potential effects will be short term in nature and have little to no effect on groundwater flow conditions or adjacent private water wells.
Surface Water, Fish and Fish Habitat	<ul style="list-style-type: none"> <li>There are four features that meet the definition of a waterbody as set out in O. Reg. 359/09 or areas of potential fish habitat within 120m of the Project Location.</li> <li>Potential effects from soil erosion, stormwater runoff, accidental spills, disturbing riparian vegetation and machinery fording watercourses.</li> </ul>	<ul style="list-style-type: none"> <li>All in-water work should be completed within MNR timing windows.</li> <li>Sedimentation and Erosion: the Contractor would implement best practice sedimentation and erosion control measures as described in the <u>Construction Plan Report</u>. Key measures include:                             <ul style="list-style-type: none"> <li>– Barrier installation (e.g. silt fencing);</li> <li>– Minimizing vegetation removal on slopes; and,</li> <li>– Proper stockpiling of erodible materials;</li> </ul> </li> <li>As soon as possible following completion of the construction activity, stream banks will be restored to their original grade.</li> <li>As per s.13 of the <i>Environmental Protection Act</i>, all spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of prescribed regulatory levels will be reported to the MOE’s Spills Action Centre.</li> <li>As appropriate, the Contractor (or designate) will be on-site during installation of watercourse crossings to ensure compliance with</li> </ul>	Any potential net effects would be spatially and temporally limited.

**Appendix C1: Summary of Potential Environmental Effects and Mitigation Strategy for Construction and Decommissioning of the Project**

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Environmental Feature	Potential Adverse Effects	Mitigation Strategy	Net Effects
		specifications and site plans. • The Contractor will ensure areas are restored to pre-existing conditions, as possible, following completion of the construction/decommissioning activities.	
<b>Air Quality and Environmental Noise</b>			
Air Emissions	<ul style="list-style-type: none"> <li>• The engine exhaust from vehicles represents a source of particulate and other emissions.</li> <li>• Traffic delays result in increased emissions from vehicles traveling slowly through construction zones.</li> <li>• The delivery of materials can generate emissions, especially for sites that are relatively far from material manufacturers.</li> </ul>	<ul style="list-style-type: none"> <li>• Multi-passenger vehicles should be utilized to the extent practical.</li> <li>• Company and contractor personnel should avoid idling of vehicles when not necessary for construction activities.</li> <li>• Equipment and vehicles should be turned off when not in use unless required for activities and/or effective operation.</li> <li>• Equipment and vehicles should be maintained in good working order with functioning mufflers and emission control systems as available.</li> <li>• All vehicles should be fitted with catalytic converters as required.</li> <li>• All construction equipment and vehicles should meet the emissions requirements of the Ministry of the Environment (MOE) and/or Ministry of Transportation (MTO).</li> <li>• As appropriate, records of vehicle maintenance should be retained and made available for periodic review by the Contractor.</li> <li>• All vehicles identified through the monitoring program that fail to meet the minimum emission standards would be repaired immediately or replaced as soon as practicable.</li> </ul>	Limited to the work areas, and the magnitude of combustion emissions are limited. Any adverse net effects are anticipated to be short-term in duration and highly localized.
Dust and Odour Emissions	<ul style="list-style-type: none"> <li>• Winds may erode and disperse loose soil material, storage piles and road surfaces, which may be a nuisance to residential properties and have various impacts on the natural environment.</li> <li>• No odour emissions are anticipated from the Project.</li> </ul>	<ul style="list-style-type: none"> <li>• The Contractor should implement good site practices which may include:                             <ul style="list-style-type: none"> <li>– Maintaining equipment in good running condition and in compliance with regulatory requirements;</li> <li>– Protecting stockpiles of friable material with a barrier or windscreen and in the event of dry conditions and excessive dust;</li> <li>– Dust suppression (e.g. water) of source areas; and</li> <li>– Covering loads of friable materials during transport.</li> </ul> </li> <li>• An Environmental Management Plan will be developed by the Contractor that would include protocols for dust emission control and responding to community complaints.</li> </ul>	Any adverse net effects to air quality from dust emissions are anticipated to be short-term in duration and highly localized.



**Appendix C1: Summary of Potential Environmental Effects and Mitigation Strategy for Construction and Decommissioning of the Project**

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<b>Environmental Feature</b>	<b>Potential Adverse Effects</b>	<b>Mitigation Strategy</b>	<b>Net Effects</b>
Environmental Noise	<ul style="list-style-type: none"> <li>Noise would be generated by the operation of heavy equipment at each of the work areas and associated vehicular traffic on-site and on haul routes.</li> </ul>	<ul style="list-style-type: none"> <li>All engines associated with construction and decommissioning equipment would be equipped with mufflers and/or silencers in accordance with MOE and/or MTO guidelines and regulations.</li> <li>To the greatest extent possible, activities that could create excessive noise would be restricted to regular construction hours and adhere to the Prince Edward County Noise/Nuisance By-law 900-2002 and Amending By-Law No. 2819-2011. If activities that cause excessive noise must be carried out outside of these time frames, adjacent residents would be notified in advance and by-law conformity will occur, as required.</li> <li>Sources of continuous noise, such as portable generator sets, would be shielded as appropriate or located so as to minimize disturbance to local residents.</li> </ul>	Intermittent noise would increase during regular construction hours at the work areas and/or along the haul route. Any adverse net effects due to noise are anticipated to be short-term in duration and intermittent.
<b>Land Use and Socio-Economic Resources</b>			
Areas Protected Under Provincial Plans & Policies	<ul style="list-style-type: none"> <li>No areas protected under provincial plans and policies are located within 300 m of the Project Location.</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	N/A
Existing Land Uses	<ul style="list-style-type: none"> <li>Lands where Project infrastructure is located will be changed from present land use for the duration of the Project.</li> <li>There will be a temporary increase in noise and dust levels around the work and haul areas resulting in potential effects to adjacent land uses.</li> </ul>	<ul style="list-style-type: none"> <li>Landowners would be compensated by wpd for land that will be utilized during the lifespan of the Project through the land lease agreements.</li> <li>Mitigation measures related to noise from construction and decommissioning activities are outlined in '<i>Environmental Noise</i>'.</li> <li>Mitigation measures related to dust are outlined in '<i>Dust and Odour Emissions</i>'.</li> </ul>	Disturbance would be short-term in duration, temporary, and will be minimized through the implementation of good site practices, transportation planning, and communication with the community.
Recreation Areas & Cultural Features	<ul style="list-style-type: none"> <li>Interference with nearby recreational uses from traffic, dust and noise.</li> </ul>	<ul style="list-style-type: none"> <li>Mitigation measures related to noise from construction and decommissioning activities are outlined in '<i>Environmental Noise</i>'.</li> <li>Mitigation measures related to dust are outlined in '<i>Dust and Odour Emissions</i>'.</li> </ul>	Any adverse net effects are anticipated to be short term and intermittent.

**Appendix C1: Summary of Potential Environmental Effects and Mitigation Strategy for Construction and Decommissioning of the Project**

**PROJECT PHASE: CONSTRUCTION & DECOMMISSIONING**

Environmental Feature	Potential Adverse Effects	Mitigation Strategy	Net Effects
Agricultural Lands and Operations	<ul style="list-style-type: none"> <li>• Inconvenience to operations, including site-specific cropping patterns.</li> <li>• Use of agricultural land for the facility components and temporary work areas, including use of areas of prime agricultural land.</li> <li>• Potential impacts to soil.</li> <li>• Potential for transportation of soybean cyst nematode (SCN) contaminated soil to non-infested fields.</li> <li>• Impacts to livestock.</li> </ul>	<ul style="list-style-type: none"> <li>• Mitigation measures related to construction and decommissioning traffic is outlined in '<i>Local Traffic</i>'.</li> <li>• Detailed mitigation measures for impacts to agricultural lands and operations are provided in the <u>Construction Plan Report</u>. Key measures include:               <ul style="list-style-type: none"> <li>– Implementing a wet soil shutdown practice;</li> <li>– Disruption to drainage ditches, culverts, field entrances and fences will be repaired appropriately.</li> <li>– Monitoring of topsoil stripping in areas to be restored after the construction/decommissioning activity;</li> <li>– Decompaction to occur as required;</li> <li>– Topsoil replacement;</li> <li>– A soil sampling program should be implemented to identify potential SCN infestation; and,</li> <li>– Regular communication will be maintained with property/livestock owners in order to ensure a minimum level of impact on livestock.</li> </ul> </li> </ul>	Adverse net effects to agricultural lands and operations are expected to be temporary and spatially limited.
Mineral, Aggregate, and Petroleum Resources	<ul style="list-style-type: none"> <li>• Project activities are not anticipated to have any potential effects on these resources</li> </ul>	<ul style="list-style-type: none"> <li>• Utility locates will be conducted prior to construction to identify unrecorded, improperly decommissioned wells.</li> </ul>	None
Game And Fishery Resources	<ul style="list-style-type: none"> <li>• Sensory disturbance to game species may occur due to noise from construction and decommissioning activities.</li> <li>• Creating access to previously inaccessible areas due to construction of access roads.</li> </ul>	<ul style="list-style-type: none"> <li>• Mitigation measures related to noise from construction and decommissioning activities are outlined in '<i>Environmental Noise</i>'.</li> <li>• wpd will work with the Ministry of Natural Resources and participating landowners should access roads be found to act as means of access for illegal hunting during construction.</li> </ul>	<p>Any adverse net effects due to construction and decommissioning noise is expected to be temporary and intermittent.</p> <p>Due to siting of access roads on private land, any increased access for hunting during construction will be illegal and is thus anticipated to be an infrequent occurrence.</p>

**Appendix C1: Summary of Potential Environmental Effects and Mitigation Strategy for Construction and Decommissioning of the Project**

**PROJECT PHASE: CONSTRUCTION & DECOMMISSIONING**

<b>Environmental Feature</b>	<b>Potential Adverse Effects</b>	<b>Mitigation Strategy</b>	<b>Net Effects</b>
Local Traffic	<ul style="list-style-type: none"> <li>• The increase in traffic, including excess load traffic, may result in short-term, localized disturbance to traffic patterns, increase in traffic volume, and potential traffic safety hazards.</li> </ul>	<ul style="list-style-type: none"> <li>• The Contractor will implement a Traffic Management Plan.</li> </ul>	While truck traffic will increase during certain phases, the effect of construction/decommissioning on local traffic will be temporary, short term, and mitigated through the Traffic Management Plan.
Local Economy	<ul style="list-style-type: none"> <li>• Direct employment during construction.</li> <li>• Indirect and induced employment.</li> <li>• Increased demand for some goods and services in the local area.</li> <li>• Potential disruption to use and enjoyment of businesses may occur within the Study Area.</li> <li>• Potential effects to existing land uses due to Project construction activities are outlined in the 'Existing Land Uses' section of this table.</li> </ul>	<ul style="list-style-type: none"> <li>• Construction and decommissioning phases of the Project would provide positive economic benefits, therefore no mitigation measures are required.</li> <li>• Disruptions in the vicinity of local businesses will be largely due to an increase in traffic, and will be short term and are not expected to affect use of these businesses.</li> </ul>	N/A
<b>Existing Local Infrastructure</b>			
Provincial and Municipal infrastructure	<ul style="list-style-type: none"> <li>• There is the potential to interfere with local utilities.</li> <li>• Transportation of excess loads and large turbine components may produce abnormal wear on the County roads.</li> </ul>	<ul style="list-style-type: none"> <li>• The Contractor would implement a Traffic Management Plan.</li> <li>• wpd will undertake consultation with the County regarding any necessary agreements related to wear on roads from transportation of Project materials in addition to obtaining required permits for use of County roads.</li> <li>• wpd would undertake consultation with the MTO regarding any necessary agreements related to wear on roads from transportation</li> </ul>	<p>Abnormal wear on roads is possible.</p> <p>Net effects are anticipated to be limited and short-term.</p>

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<b>Environmental Feature</b>	<b>Potential Adverse Effects</b>	<b>Mitigation Strategy</b>	<b>Net Effects</b>
		<ul style="list-style-type: none"> <li>of Project materials in addition to obtaining the required permits for use of provincial highways.</li> <li>County requirements will be adhered to for constructing new entrances off County roads and locating the substations.</li> </ul>	
Navigable Waters	<ul style="list-style-type: none"> <li>No navigable waters identified within 300 m of the Project Location.</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	N/A
Utilities	<ul style="list-style-type: none"> <li>Potential exists for interference with local utilities.</li> </ul>	<ul style="list-style-type: none"> <li>In the event that any unidentified utilities are damaged during construction or decommissioning, wpd will pay for repairs.</li> <li>Detailed plans or agreements regarding the use of road allowances for electrical collector lines will be developed with the County.</li> <li>wpd will obtain all necessary permits and authorizations for connection into the HONI system.</li> </ul>	None
<b>Waste Management and Contaminated Lands</b>			
Landfill Sites	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	N/A
Contaminated Lands	<ul style="list-style-type: none"> <li>There is potential for finding contaminated sites.</li> </ul>	<ul style="list-style-type: none"> <li>In the event that previously unknown contaminated soils, such as buried tanks, drums, oil residue or gaseous odour, are uncovered or suspected of being uncovered, activities would cease in that location until the source of the contamination is further investigated.</li> <li>In such an instance, wpd would seek expert advice on assessing and developing a soil sampling, handling and remediation plan. All contaminated material would be managed in accordance with the applicable sections of the <i>Environmental Protection Act</i> and Regulation 347.</li> </ul>	None
Waste Generation	<ul style="list-style-type: none"> <li>Improper disposal of waste material generated may result in contamination to soil, groundwater, and/or surface water resources on and off the Project sites. Litter generated may also become a nuisance to nearby residences if not appropriately contained and</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor would implement a site-specific waste collection and disposal management plan, which may include site practices such as:                             <ul style="list-style-type: none"> <li>systematic collection and separation of waste materials;</li> <li>all waste materials and recycling would be transported off-site by private waste material collection contractors licensed with a Certificate of Approval – Waste Management System;</li> <li>contractors will be required to remove their excess materials from the site;</li> <li>excess materials generated during the course of construction</li> </ul> </li> </ul>	Minor incremental effect on soil, groundwater, and surface water at the waste disposal site(s) depending on municipal on-site containment practices and quality of the landfill protection mechanisms.

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Environmental Feature	Potential Adverse Effects	Mitigation Strategy	Net Effects
	<p>allowed to blow off the site.</p>	<p>excavations of soil would be handled in accordance with the MOE’s Protocol for the Management of Excess Materials in Road Construction and Maintenance;</p> <ul style="list-style-type: none"> <li>– excess excavated soils may be reused elsewhere on the property with landowner permission;</li> <li>– labelling and proper storage of hazardous and liquid wastes (e.g. used oil, drained hydraulic fluid, and used solvents) in a secure area that would ensure containment of the material in the event of a spill;</li> <li>– dumping or burying wastes within the Project sites will be prohibited;</li> <li>– should contaminated soil be encountered during the course of excavations the contaminated material would be disposed of in accordance with the current appropriate provincial legislation, such as Ontario Regulation 347, the General – Waste Management Regulation;</li> <li>– disposal of non-hazardous waste at a registered waste disposal site(s);</li> <li>– if waste is classified as waste other than solid non-hazardous, a Generator Registration Number is required from the MOE and the generator would have obligations regarding manifesting of waste. Compliance with Schedule 4 of Regulation 347 is mandatory when determining waste category;</li> <li>– implementation of an on-going waste management program consisting of reduction, reuse, and recycling of materials; and</li> <li>– disposal of sanitary wastes would be the responsibility of the contracted third party and they would ensure disposal in accordance with appropriate legislation, standards and policies.</li> </ul> <ul style="list-style-type: none"> <li>• During construction, the cement provider would be responsible for ensuring that wash water from the cleaning of cement truck drums is disposed of in a sewage works designed for that purpose and approved under Section 53.(1) of the <i>Ontario Water Resources Act</i>, or under Part 8 of the <i>Building Code Act</i>.</li> </ul>	

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Environmental Feature	Potential Adverse Effects	Mitigation Strategy	Net Effects
Accidental Spills	<ul style="list-style-type: none"> <li>Some materials, such as fuel, lubricating oils and other fluids, have the potential for discharge to the on-site environment through accidental spills.</li> </ul>	<ul style="list-style-type: none"> <li>Accidental Spills: the Emergency Response and Communications Plan developed by the Contractor and/or wpd would include protocols for the proper handling of material spills and associated procedures to be undertaken in the event of a spill. Key measures include:                             <ul style="list-style-type: none"> <li>standard containment facilities and emergency response materials would be maintained on-site as required; and</li> <li>refuelling, equipment maintenance, and other potentially contaminating activities would occur in designated areas.</li> </ul> </li> <li>As appropriate spills would be reported immediately to the MOE Spills Action Centre.</li> </ul>	None
<b>Public Health and Safety</b>			
Public Health and Safety	<ul style="list-style-type: none"> <li>Potential effects to public health and safety are largely in the form of increased traffic, dust emissions, construction noise and unauthorized access of the public to the work sites.</li> </ul>	<ul style="list-style-type: none"> <li>A detailed Traffic Management Plan, Emergency Response and Communications Plan and Health and Safety Plan would be prepared and implemented by the Contractor.</li> <li>Mitigation measures related to the increased traffic is outlined in '<i>Local Traffic</i>'.</li> <li>Mitigation measures related to dust emissions is provided in '<i>Dust and Odour Emissions</i>'.</li> <li>Mitigation measures related to noise from construction and decommissioning activities is provided in '<i>Environmental Noise</i>'.</li> <li>Land access will be controlled through signage and restricted to authorized personnel only. The Health and Safety Plan will consider both public and occupational health and safety issues. This may include protecting the public from equipment and areas by posting warning signs, use of personal protective equipment, accident reporting, equipment operation, and confined space entry.</li> <li>Discussions have been undertaken, and would continue, with local emergency services personnel. wpd will participate in a training session for these workers.</li> </ul>	There is minimal increased or new risk to public health and safety from construction and/or decommissioning of the Project.

**Appendix C2: Summary of Potential Environmental Effects and Mitigation Strategy for Operation of the Project**

**PROJECT PHASE: OPERATION**

<b>Environmental Feature</b>	<b>Potential Adverse Effects</b>	<b>Mitigation Strategy</b>	<b>Net Effects</b>
<b><i>Cultural Heritage and Archaeological Resources</i></b>			
Protected Properties and Cultural Heritage Resources	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
Archaeological Resources	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
<b><i>Natural Heritage Resources</i></b>			
Wetlands	<ul style="list-style-type: none"> <li>• Contamination through accidental spills.</li> <li>• Dust emissions, sedimentation and erosion during operation and maintenance.</li> <li>• Disturbance or disruption to the wildlife function supported by the feature.</li> </ul>	<ul style="list-style-type: none"> <li>• No maintenance activities will be permitted within the wetland boundary.</li> <li>• Mitigation measures related to sediment and erosion control are outlined in Section 6.4.1.2 of the <u>Environmental Impact Study Report</u>.</li> <li>• All refueling activities will occur well away from wetlands. MOE Spills Action Centre will be contacted and emergency spill procedures implemented immediately in the event of an accidental spill.</li> <li>• Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>
Areas of Natural and Scientific Interest	<ul style="list-style-type: none"> <li>• Erosion leading to sedimentation of watercourses.</li> </ul>	<ul style="list-style-type: none"> <li>• Mitigation measures for sediment and erosion control will be implemented as outlined in Section 6.4.1.2 of the <u>Environmental Impact Study Report</u>.</li> </ul>	<ul style="list-style-type: none"> <li>• Any potential net effects are spatially and temporally limited.</li> </ul>
Valleylands	<ul style="list-style-type: none"> <li>• Erosion leading to sedimentation of watercourses.</li> </ul>	<ul style="list-style-type: none"> <li>• Mitigation measures for sediment and erosion control will be implemented as outlined in Section 6.4.1.2 of the <u>Environmental Impact Study Report</u>.</li> </ul>	<ul style="list-style-type: none"> <li>Any potential net effects are spatially and temporally limited</li> </ul>
Significant Woodlands	<ul style="list-style-type: none"> <li>• Indirect impacts such as dust generation, sedimentation and erosion.</li> <li>• Increased traffic during maintenance activities.</li> <li>• Contamination through accidental spills.</li> <li>• Improper disposal of wastes.</li> </ul>	<ul style="list-style-type: none"> <li>• Mitigation measures for sediment and erosion control will be implemented as outlined in Section 6.4.1.2 of the <u>Environmental Impact Study Report</u>.</li> <li>• All refueling activities will occur well away from the woodlands. In the event of an accidental spill, the MOE Spills Action Centre will be contacted and emergency spill procedures implemented immediately.</li> <li>• Any fuel storage and activities with the potential for</li> </ul>	<ul style="list-style-type: none"> <li>• Any potential net effects are spatially and temporally limited.</li> </ul>

**Appendix C2: Summary of Potential Environmental Effects and Mitigation Strategy for Operation of the Project**

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Environmental Feature	Potential Adverse Effects	Mitigation Strategy	Net Effects
		contamination will occur in properly protected and sealed areas. • Mitigation measures for waste are outlined in 'Waste Generation'.	
Provincial Parks and Conservation Reserves	• None	• N/A	• N/A
Other Designated Natural Areas	• Potential impacts outlined in 'Significant Wildlife and Wildlife Habitat' and 'Game and Fisheries Resources'.	• Mitigation measures for natural heritage and recreation values are outlined in 'Significant Wildlife and Wildlife Habitat' and 'Game and Fisheries Resources'.	• A review of net effects is outlined in 'Significant Wildlife and Wildlife Habitat' and 'Game and Fisheries Resources'.
Significant Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>• Indirect effects to generalized significant wildlife habitat.</li> <li>• Disturbance and direct mortality to area-sensitive breeding bird populations.</li> <li>• Migratory landbird stopover and staging areas: Direct mortality from collision with turbines.</li> <li>• Turbines may act as a barrier to movement, yet the impact is not fully understood.</li> <li>• Amphibian breeding areas: Direct mortality of amphibians due to vehicles using access and existing roads.</li> <li>• Accidental spills resulting in potential contamination or sedimentation of habitat.</li> <li>• Shrub / Successional bird areas: Direct mortality of birds may occur from collisions with turbines.</li> </ul>	<ul style="list-style-type: none"> <li>• Consultation is ongoing with the Ministry of Natural Resources.</li> <li>• An Environmental Effects Monitoring Plan has been incorporated into the <u>Design and Operations Report</u>.</li> <li>• In the event that the threshold for bird mortality is exceeded, a contingency and adaptive management plan will be implemented to reduce bird mortality and ensure that the mortality rates are maintained below the threshold level.</li> <li>• Minimum turbine setback has been established at 400m from the "nearshore" area.</li> <li>• For areas of generalized significant wildlife habitat, migratory landbird stopover and staging areas, and shrub/successional breeding bird areas:                             <ul style="list-style-type: none"> <li>• Turbine lighting must conform to Transport Canada standards.</li> <li>• To the extent possible, no steady burning lights/floodlights will be used at the facility.</li> <li>• Post-construction mortality and disturbance monitoring for birds will be conducted.</li> </ul> </li> <li>• The Environmental Effects Monitoring Plan will identify performance objectives to assess the effectiveness of the proposed mitigation measures,</li> </ul>	• With the implementation of the mitigation measures, construction effects to significant habitat will be minimized.



**Appendix C2: Summary of Potential Environmental Effects and Mitigation Strategy for Operation of the Project**

**PROJECT PHASE: OPERATION**

Environmental Feature	Potential Adverse Effects	Mitigation Strategy	Net Effects
		<p>and describes a response and contingency plan that will be implemented if performance objectives cannot be met.</p> <ul style="list-style-type: none"> <li>• All refueling activities will occur well away from the areas. MOE Spills Action Centre will be contacted in the event of a spill and emergency spill procedures will be implemented immediately.</li> <li>• Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</li> <li>• For amphibian breeding areas:               <ul style="list-style-type: none"> <li>• Maintenance vehicle traffic will primarily be restricted to daytime hours and speeds restricted to 30 km/hr limit. Speed limit signage will be erected.</li> <li>• All refueling activities will occur well away from the areas. MOE Spills Action Centre will be contacted in the event of a spill and emergency spill procedures will be implemented immediately.</li> <li>• Mitigation measures for sediment and erosion control will be implemented as outlined in Section 6.4.1.2 of the <u>Environmental Impact Study Report</u>.</li> </ul> </li> </ul>	
Other Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>• Direct loss of species habitat.</li> <li>• Indirect disturbance to wildlife and their habitats.</li> <li>• Accidental mortality of wildlife.</li> </ul>	<ul style="list-style-type: none"> <li>• wpd will review any instances of mortality with the MNR to determine where it is feasible for maintenance details such as employee training, traffic speed and location to be adjusted.</li> <li>• See '<i>Significant Wildlife and Wildlife Habitat</i>', '<i>Local Traffic</i>', '<i>Environmental Noise</i>', '<i>Dust and Odour Emissions</i>', '<i>Wetlands</i>', '<i>Woodlands</i>', '<i>Significant Flora and Vegetation Communities</i>' and '<i>Other Flora and Vegetation Communities</i>'.</li> </ul>	<ul style="list-style-type: none"> <li>• With the implementation of the mitigation measures, impacts to wildlife and wildlife habitat will be minimized.</li> </ul>
Significant Flora and Vegetation Communities	<ul style="list-style-type: none"> <li>• Impacts from day to day use of the road system and maintenance activities associated with the road.</li> </ul>	<ul style="list-style-type: none"> <li>• Specific mitigation for alvar-like communities are summarized as follows:               <ul style="list-style-type: none"> <li>• Mitigation measures for sediment and erosion control will be implemented as outlined in Section</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• The application of the mitigation measures will ensure that indirect effects to vegetation communities are minimized, and that any potential net effects are spatially and temporally</li> </ul>

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Environmental Feature	Potential Adverse Effects	Mitigation Strategy	Net Effects
		<p>6.4.1.2 of the Environmental Impact Study Report.</p> <ul style="list-style-type: none"> <li>All refueling activities will occur well away from alvar communities. In the event of an accidental spill, the MOE Spills Action Centre will be contacted and emergency spill procedures implemented immediately.</li> <li>Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</li> <li>Post-construction monitoring will be conducted to confirm the accuracy of predicted effects and adapt the management plan as necessary.</li> </ul>	<p>limited.</p>
<p>Other Flora and Vegetation Communities</p>	<ul style="list-style-type: none"> <li>Indirect impacts such as dust generation, sedimentation and erosion.</li> <li>Increased traffic and potential for accidental spills.</li> <li>Disturbance to other flora and vegetation from dust emissions.</li> </ul>	<ul style="list-style-type: none"> <li>Mitigation measures for sediment and erosion control will be implemented as outlined in Section 6.4.1.2 of the <u>Environmental Impact Study Report</u>.</li> <li>All refuelling activities will occur well away from the woodlands. In the event of an accidental spill, the MOE Spills Action Centre will be contacted and emergency spill procedures implemented immediately.</li> <li>Any fuel storage and activities with the potential for contamination will occur in properly protected and sealed areas.</li> </ul>	<ul style="list-style-type: none"> <li>Any potential net effects are spatially and temporally limited.</li> </ul>
<p><b>Water Bodies and Aquatic Resources</b></p>			
<p>Groundwater</p>	<ul style="list-style-type: none"> <li>Potential contamination from accidental spills.</li> </ul>	<ul style="list-style-type: none"> <li>Mitigation measures related to accidental spills are outlined in '<i>Accidental Spills</i>'.</li> </ul>	<ul style="list-style-type: none"> <li>Accidental spills would be spatially limited and of short duration and protocols to minimize their impact would be provided in the Emergency Response Plan.</li> </ul>
<p>Surface Water, Fish and Fish Habitat</p>	<ul style="list-style-type: none"> <li>Erosion leading to downstream sediment transport and a short-term increase in turbidity.</li> <li>Potential contamination from accidental spills.</li> </ul>	<ul style="list-style-type: none"> <li>Erosion and sediment control measures during maintenance activities will follow those outlined in <b>Section 3.4.2</b> of the <u>Construction Plan Report</u>.</li> <li>Mitigation measures related to accidental spills are outlined in '<i>Accidental Spills</i>'.</li> </ul>	<ul style="list-style-type: none"> <li>The application of the mitigation measures as necessary during maintenance activities will ensure that effects to surface water are minimized, and that any potential net effects are spatially and temporally limited.</li> </ul>

**Appendix C2: Summary of Potential Environmental Effects and Mitigation Strategy for Operation of the Project**

**PROJECT PHASE: OPERATION**

Environmental Feature	Potential Adverse Effects	Mitigation Strategy	Net Effects
<b>Air Quality and Environmental Noise</b>			
Air Emissions	<ul style="list-style-type: none"> <li>Emissions from operation and maintenance activities, including equipment and vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>Operations staff would operate vehicles in a manner that reduces air emissions to the extent practical, including:                             <ul style="list-style-type: none"> <li>Using multi-passenger vehicles as possible; and</li> <li>Avoid idling vehicles.</li> </ul> </li> <li>Equipment and vehicles would be maintained in a manner that reduces air emissions, including:                             <ul style="list-style-type: none"> <li>Using mufflers and emission control systems as available;</li> <li>Using catalytic converters as required;</li> <li>Meet the emissions requirements of the Ministry of the Environment (MOE) and/or Ministry of Transportation (MTO);</li> <li>As appropriate, records of vehicle maintenance should be retained and made available for periodic review by wpd and/or the O&amp;M Contractor; and</li> <li>All vehicles identified through the monitoring program that fail to meet the minimum emission standards would be repaired immediately or replaced as soon as practicable.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Any adverse net effects to air quality are short-term in duration and highly localized.</li> </ul>
Dust and Odour Emissions	<ul style="list-style-type: none"> <li>Dust emissions from operation and maintenance vehicles.</li> <li>Nuisance dust effects.</li> </ul>	<ul style="list-style-type: none"> <li>Maintaining equipment in good running condition and in compliance with regulatory requirements.</li> <li>Dust suppression (e.g. water) of source areas as necessary.</li> <li>Covering loads of friable materials during transport.</li> </ul>	<ul style="list-style-type: none"> <li>Any adverse net effects from dust emissions are anticipated to be short-term in duration and highly localized.</li> </ul>
Environmental Noise	<ul style="list-style-type: none"> <li>Noise emitted from use of maintenance equipment.</li> <li>Noise emitted from a turbine and/or transformer.</li> <li>Noise emitted from traffic and/or vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>The Project will operate according to the terms and conditions of the Renewable Energy Approval.</li> <li>Adherence to all noise setback requirements.</li> <li>All engines associated with maintenance equipment would be equipped with mufflers and/or silencers in accordance with MOE and/or MTO guidelines and regulations.</li> <li>Noise levels arising from maintenance equipment would</li> </ul>	<ul style="list-style-type: none"> <li>Any adverse net effects due to Noise are anticipated to be short-term in duration and intermittent.</li> </ul>

**Appendix C2: Summary of Potential Environmental Effects and Mitigation Strategy for Operation of the Project**

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<b>Environmental Feature</b>	<b>Potential Adverse Effects</b>	<b>Mitigation Strategy</b>	<b>Net Effects</b>
		also be compliant with sound levels established by the MOE. <ul style="list-style-type: none"> <li>• Routine Project maintenance to ensure infrastructure is operating properly and efficiently.</li> <li>• To the greatest extent possible, operations activities that could create excessive noise would be restricted to regular business hours, and adhere to the prince Edward County Noise/Nuisance By-law and Amending By-Law.</li> <li>• If maintenance activities causing excessive noise must be carried out outside of the time frames, adjacent residents will be notified in advance and by-law conformity will occur, as required.</li> </ul>	
<b>Land Use and Socio-Economic Resources</b>			
Areas Protected Under Provincial Plans and Policies	<ul style="list-style-type: none"> <li>• No areas protected under provincial plans and policies are located within 300 m of the Project Location.</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
Existing Land Uses	<ul style="list-style-type: none"> <li>• Removal of lands with facility components from present land-use.</li> <li>• Temporary increase in noise and dust levels.</li> <li>• Potential for minor increase in traffic.</li> </ul>	<ul style="list-style-type: none"> <li>• Landowners would be compensated by wpd for land that will be utilized during the lifespan of the Project through the land lease agreements.</li> <li>• Mitigation measures related to noise are outlined in 'Environmental Noise'.</li> <li>• Mitigation measures related to dust emissions are outlined in 'Dust and Odour Emissions'.</li> </ul>	<ul style="list-style-type: none"> <li>• Disturbance is expected to be short-term in duration, temporary, highly localized, and minimized through good site practices, transportation planning and communication with the community.</li> </ul>
Recreation Areas and Cultural Features	<ul style="list-style-type: none"> <li>• Potential disruption to use of recreational areas caused by effects due to traffic, noise, and dust.</li> </ul>	<ul style="list-style-type: none"> <li>• Mitigation measures related to noise are outlined in 'Environmental Noise'.</li> <li>• Mitigation measures related to dust emissions are outlined in 'Dust and Odour Emissions'.</li> <li>• Mitigation measures related to traffic are outlined in 'Local Traffic'.</li> </ul>	<ul style="list-style-type: none"> <li>• Any adverse net effects are anticipated to be short term and intermittent.</li> </ul>
Agricultural Lands and Operations	<ul style="list-style-type: none"> <li>• Inconvenience to operations from traffic and dust.</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• Dust emissions are expected to be short-term in duration and highly localized.</li> </ul>

**Appendix C2: Summary of Potential Environmental Effects and Mitigation Strategy for Operation of the Project**

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<b>Environmental Feature</b>	<b>Potential Adverse Effects</b>	<b>Mitigation Strategy</b>	<b>Net Effects</b>
Mineral, Aggregate, and Petroleum Resources	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
Game And Fishery Resources	<ul style="list-style-type: none"> <li>• Sensory disturbance to game species from noise.</li> </ul>	<ul style="list-style-type: none"> <li>• Turbines would be placed in agricultural lands away from woodlands, and within the REA setback requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>
Local Traffic	<ul style="list-style-type: none"> <li>• Negligible increase in traffic.</li> </ul>	<ul style="list-style-type: none"> <li>• There may be instances where excess loads (e.g. turbine and transformer components) would require special traffic planning, widening turning radiuses and road widths and the creation of new ingress/egress nodes.</li> <li>• Permits will be obtained, as necessary.</li> <li>• All non-conventional loads will have front and rear escort or “pilot” vehicles accompany truck movement on public roads.</li> <li>• wpd may provide notification of non-conventional load movements to the public.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase in truck traffic will be short-term and intermittent.</li> </ul>
Viewscape	<ul style="list-style-type: none"> <li>• Disruption to the local viewscape from siting of project infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>• Any specific issues that arise will be addressed on a case by case basis, and mitigation will be determined in consultation with the stakeholder.</li> <li>• Landscaping at the substation property and storage area.</li> </ul>	<ul style="list-style-type: none"> <li>• Some disturbance to the viewscape is unavoidable.</li> <li>• Infrastructure would be present during the life of the Project.</li> </ul>
Local Economy	<ul style="list-style-type: none"> <li>• Increase in direct, indirect and induced employment over the operations period.</li> <li>• Local economic benefits from land lease payments, municipal taxes, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• The operation of the Project would provide positive economic benefits; therefore no mitigation measures are required.</li> </ul>	<ul style="list-style-type: none"> <li>• Positive.</li> </ul>
<b>Existing Local Infrastructure</b>			
Provincial, municipal, and other major infrastructure	<ul style="list-style-type: none"> <li>• Low potential for damage to County roads.</li> <li>• Permits from the MTO may be required.</li> </ul>	<ul style="list-style-type: none"> <li>• Necessary permits would be obtained.</li> <li>• All non-conventional loads will have front and rear escort or “pilot” vehicles accompany the truck movement on public roads.</li> <li>• wpd may provide notification of non-conventional load movements to the public</li> <li>• Consultation with the County regarding excess loads with</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>

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<b>Environmental Feature</b>	<b>Potential Adverse Effects</b>	<b>Mitigation Strategy</b>	<b>Net Effects</b>
		potential to damage County roads.	
Navigable Waters	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
Telecommunication or Radar Systems	<ul style="list-style-type: none"> <li>• Potential to interfere with radio, internet or TV signals.</li> </ul>	<ul style="list-style-type: none"> <li>• wpd has consulted with relevant agencies and licensed providers to identify any likely effects to telecommunication and radar systems.</li> <li>• In the unlikely event that signal disruption is experienced, mitigation measures may include:                             <ul style="list-style-type: none"> <li>• Replacing the receiving antenna with one that has a better discrimination to the unwanted signals;</li> <li>• Relocating either the transmitter or receiver; or</li> <li>• Switching to an alternate means of receiving the information.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Any adverse effects would be limited and of short duration.</li> </ul>
Aeronautical Systems	<ul style="list-style-type: none"> <li>• Aeronautical obstruction.</li> </ul>	<ul style="list-style-type: none"> <li>• wpd has consulted with Transport Canada, NAV Canada and DND regarding the Project.</li> <li>• Turbine lighting must conform to Transport Canada standards.</li> <li>• In order to reduce rural light pollution, lights would be selected with the minimal allowable flash duration, narrow beam, and will be synchronized.</li> <li>• NAV Canada would update all aeronautical charts with the turbine locations promptly after Project approval.</li> <li>• Routine maintenance of turbines will include replacing safety lighting in the event of a malfunction.</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Waste Management and Contaminated Lands</b>			
Waste Generation	<ul style="list-style-type: none"> <li>• Improper disposal of waste material generated may result in contamination to soil, groundwater, and/or surface water resources on and off the Project sites.</li> <li>• Litter generated may also become a nuisance to nearby residences if not appropriately</li> </ul>	<ul style="list-style-type: none"> <li>• Systematic collection and separation of waste materials within on-site storage areas in weather-protected storage areas.</li> <li>• Contractors will be required to remove all waste materials from the turbine siting areas during maintenance activities.</li> <li>• All waste materials and recycling would be transported off-site by private waste material collection contractors licensed with a Certificate of Approval – Waste</li> </ul>	<ul style="list-style-type: none"> <li>• Minor incremental effect on soil, groundwater, and surface water at the waste disposal site(s) depending on municipal on-site containment practices and quality of the landfill protection mechanisms.</li> </ul>

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Environmental Feature	Potential Adverse Effects	Mitigation Strategy	Net Effects
	<p>contained and allowed to blow off the site.</p>	<p>Management System.</p> <ul style="list-style-type: none"> <li>• Labelling and proper storage of liquid wastes (e.g. used oil, drained hydraulic fluid, and used solvents) in a secure area that would ensure containment of the material in the event of a spill.</li> <li>• As per s.13 of the <i>Environmental Protection Act</i>, all spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of the prescribed regulatory levels would be reported to the MOE's Spills Action Centre;</li> <li>• As appropriate, spill kits (e.g. containing absorbent cloths and disposal containers) will be provided on-site during maintenance activities and at the operation and maintenance building.</li> <li>• Dumping or burying wastes within the Project sites would be prohibited.</li> <li>• Disposal of non-hazardous waste at a registered waste disposal site(s).</li> <li>• If waste is classified as waste other than solid non-hazardous, a Generator Registration Number is required from the MOE and the generator would have obligations regarding manifesting of waste.</li> <li>• Implementation of an on-going waste management program consisting of reduction, reuse, and recycling of materials.</li> </ul>	
<p>Accidental Spills</p>	<ul style="list-style-type: none"> <li>• Some materials, such as fuel, lubricating oils and other fluids, have the potential for discharge to the on-site environment through accidental spills.</li> </ul>	<ul style="list-style-type: none"> <li>• Standard containment facilities and emergency response materials would be maintained on-site as required.</li> <li>• Refuelling, equipment maintenance, and other potentially contaminating activities would occur in designated areas.</li> <li>• Spills should be reported immediately to the MOE Spills Action Centre, as appropriate.</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>

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<b>Environmental Feature</b>	<b>Potential Adverse Effects</b>	<b>Mitigation Strategy</b>	<b>Net Effects</b>
<i>Public Health and Safety</i>			
Turbine Blade and Structural Failure	<ul style="list-style-type: none"> <li>• Collapse of turbine tower and/or blade detachment.</li> </ul>	<ul style="list-style-type: none"> <li>• Adherence to setbacks from receptors.</li> <li>• Design, install, operate, and maintain turbines according to applicable industry standards/certifications.</li> <li>• Cease operation of turbines during high winds.</li> <li>• Use of lightning protection systems.</li> <li>• Proper training and education of staff operating the control system.</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>
Ice fall and Shed	<ul style="list-style-type: none"> <li>• Accumulation of ice on turbine blades.</li> </ul>	<ul style="list-style-type: none"> <li>• Adherence to setback from receptors.</li> <li>• Design of turbine tower reduces ice accumulation.</li> <li>• Automatic turbine shutdown due to weight imbalances.</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>
Extreme Weather Events	<ul style="list-style-type: none"> <li>• Potential damage to project infrastructure from extreme weather events.</li> </ul>	<ul style="list-style-type: none"> <li>• Design, install, operate, and maintain turbines according to applicable industry standards/certifications.</li> <li>• Failsafe devices are capable of shutting down the turbine blades in the event of excessive wind conditions, imbalance, or malfunction of other turbine components.</li> <li>• Project components have been designed to withstand the effects from extreme events.</li> <li>• Adherence to setbacks from receptors.</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>
Third Party Damage	<ul style="list-style-type: none"> <li>• Possibility for accidental collision from off-road and maintenance vehicles with Project components.</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>



**Appendix C3: Summary of Monitoring Plans for Construction, Operation and Decommissioning of the Project**

<b>Environmental Feature</b>	<b>Construction</b>	<b>Operation</b>	<b>Decommissioning</b>
<b><i>Cultural Heritage and Archaeological Resources</i></b>			
Protected Properties and Cultural Heritage Resources	<ul style="list-style-type: none"> <li>Vibration levels in the vicinity of identified properties should be monitored during any below-grade construction activities to ensure acceptable vibration levels are not exceeded.</li> </ul>	<ul style="list-style-type: none"> <li>See "Viewscape"</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Archaeological Resources	<ul style="list-style-type: none"> <li>Monitoring would be required following the unlikely event of the discovery of previously unknown archaeological resources, in consultation with the Ministry of Tourism, Culture and Sport.</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
<b><i>Natural Heritage Resources</i></b>			
Wetlands	<ul style="list-style-type: none"> <li>Stringent monitoring of vegetation clearing and disturbance to ensure terrestrial flora and fauna are protected.</li> <li>Vegetation clearing activities would be conducted under constant observation and monitoring of the Construction Contractor to ensure that vegetation is cleared only from designated areas. Areas outside the designated construction-sites would not be disturbed.</li> <li>Monitoring will be required following the unlikely occurrence of an accidental spill.</li> <li>As appropriate, records of waste generation and hauling will be maintained.</li> <li>A Vegetation Monitoring Plan will be created for the project to monitor the success of the Replanting Plan and</li> </ul>	<ul style="list-style-type: none"> <li>See 'Accidental Spills'</li> <li>See 'Dust and Odour Emissions'</li> </ul>	<ul style="list-style-type: none"> <li>Follow-up monitoring for one year after site restoration would be conducted, to allow for the Project area to experience seasonal changes and help determine if additional restoration is required, as determined by an environmental advisor.</li> <li>A monitoring plan would be prepared prior to decommissioning.</li> <li>If negative impacts are noted during monitoring activities, appropriate remediation measures would be implemented as necessary, and additional follow-up monitoring would be conducted, as determined by an environmental advisor.</li> </ul>
Areas of Natural and Scientific Interest		<ul style="list-style-type: none"> <li>See 'Surface Water, Fish, and Fish Habitat'.</li> </ul>	
Valleylands		<ul style="list-style-type: none"> <li>See 'Surface Water, Fish, and Fish Habitat'.</li> <li></li> </ul>	
Significant Woodlands		<ul style="list-style-type: none"> <li>See 'Surface Water, Fish, and Fish</li> </ul>	

**Appendix C3: Summary of Monitoring Plans for Construction, Operation and Decommissioning of the Project**

Environmental Feature	Construction	Operation	Decommissioning
	the Invasive Species Management Plan.	Habitat'. • See 'Accidental Spills' • See 'Dust and Odour Emissions'	
Provincial Parks and Conservation Reserves		• N/A	
Other Designated Natural Areas		• See 'Significant Wildlife and Wildlife Habitat'.	
Significant Wildlife and Wildlife Habitat		• Regular reporting that includes analysis and submission of results to MNR. • The Environmental Effects Monitoring Plan will identify performance objectives to assess the effectiveness of the proposed mitigation measures and describes a response and contingency plan that will be implemented if performance objectives cannot be met.	
Other Wildlife and Wildlife Habitat		• Direct mortality will be reviewed with the MNR to determine where it is feasible to maintain details to be adjusted.	
Significant Flora and Vegetation Communities		• See 'Surface Water, Fish, and Fish Habitat'.	
Other Flora and Vegetation Communities		• See 'Surface Water, Fish, and Fish Habitat'.	
Birds		• Post-construction monitoring of bird carcass searches twice-weekly at ten turbines, May 1- October 31, and raptor mortality surveys once-weekly, November 1- 30 for three years. • Post-construction monitoring for disturbance will be conducted for a period of three years, using the same protocols as the pre-construction surveys. • Post-construction monitoring for disturbance for three years. • Regular reporting that includes analysis	

**Appendix C3: Summary of Monitoring Plans for Construction, Operation and Decommissioning of the Project**

Environmental Feature	Construction	Operation	Decommissioning
		<p>and submission of results to MNR.</p> <ul style="list-style-type: none"> <li>The Environmental Effects Monitoring Plan will identify performance objectives to assess the effectiveness of the proposed mitigation measures and describes a response and contingency plan that will be implemented if performance objectives cannot be met.</li> <li>Mitigation may include additional scoped mortality and effects monitoring and operational controls, such as periodic shut-down on select turbines or blade feathering at specific times of the year, depending on the species affected.</li> </ul>	
Bats		<ul style="list-style-type: none"> <li>Post-construction monitoring of mortality rates; carcass searches twice-weekly at ten turbines, May 1- October 31, and raptor mortality surveys once-weekly, November 1- 30 for three years.</li> <li>Potential operational controls as specified by current provincial guidance (at the time of writing, threshold is 10 bats/turbine/year). Mitigation may include operational controls, such as periodic shut-down on select turbines or blade feathering at specific times of the year.</li> <li>Post-construction monitoring for disturbance for three years.</li> <li>Regular reporting that includes analysis and submission of results to MNR.</li> <li>The Environmental Effects Monitoring Plan will identify performance objectives to assess the effectiveness of the proposed mitigation measures</li> </ul>	

**Appendix C3: Summary of Monitoring Plans for Construction, Operation and Decommissioning of the Project**

Environmental Feature	Construction	Operation	Decommissioning
		<p>and describes a response and contingency plan that will be implemented if performance objectives cannot be met.</p> <ul style="list-style-type: none"> <li>Mitigation may include additional scoped mortality and effects monitoring and operational controls, such as periodic shut-down on select turbines or blade feathering at specific times of the year, depending on the species affected.</li> </ul>	
<b>Water Bodies and Aquatic Resources</b>			
Groundwater	<ul style="list-style-type: none"> <li>In the event that turbines are located within 100 m of private residential wells of participating landowners, the Contractor may, at the landowner's request, monitor the quality and quantity of the well over the course of construction.</li> <li>In the event that well water quality or quantity is disturbed as a result of construction, wpd will provide a temporary potable water supply until corrective measures are taken and would comply with MOE's <i>Guideline B-9: Resolution of Groundwater Interference Problems</i>. All corrective measures, including determination of when corrective measures are no longer required, would be outlined in the well monitoring program.</li> </ul>	<ul style="list-style-type: none"> <li>See 'Accidental Spills'</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Surface Water, Fish and Fish Habitat	<ul style="list-style-type: none"> <li>As appropriate, a Construction Contractor will be on-site during installation of Project components that could potentially affect aquatic habitats to ensure compliance with</li> </ul>	<ul style="list-style-type: none"> <li>See 'Accidental Spills'</li> <li>See Section 3.4.2 of the <u>Construction Plan Report</u></li> <li>Environmental inspection following spring run-off the year after construction (first</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>

**Appendix C3: Summary of Monitoring Plans for Construction, Operation and Decommissioning of the Project**

Environmental Feature	Construction	Operation	Decommissioning
	<p>specifications, site plans and permits.</p> <ul style="list-style-type: none"> <li>• The Construction Contractor will ensure that bank, bed, and floodplain conditions are restored to pre-construction conditions, as possible, following completion of the construction activities.</li> <li>• In particular, the Construction Contractor will ensure that pre-construction preparation is completed prior to commencement of in-stream work.</li> <li>• Where required and if applicable, the Construction Contractor will ensure that detailed pre-construction profiles of the slopes, banks, and bed are determined prior to installation of the access roads, crane paths and power lines.</li> <li>• Environmental inspection following spring run-off the year after construction (first year of operations) may be considered to review the effectiveness of the bank and slope revegetation (if required) and to check bank and slope stability.</li> <li>• The Construction Contractor will monitor weather forecasts prior to the installation of access roads, crane paths and power lines, particularly prior to work near aquatic habitats.</li> </ul>	<p>year of operation) may be considered to review the effectiveness of the bank and slope revegetation (if required), to check bank and slope stability, and to ensure surface drainage has been maintained.</p> <ul style="list-style-type: none"> <li>• In the event that adverse effects are noted, appropriate remedial measures will be completed as necessary (i.e. site rehabilitation and re-vegetation) and additional follow-up monitoring conducted as appropriate, under the direction of an environmental advisor.</li> </ul>	
<b>Air Quality and Environmental Noise</b>			
Air Emissions	<ul style="list-style-type: none"> <li>• As appropriate, records of vehicle maintenance would be retained and made available for periodic review by the Construction Contractor. All</li> </ul>	<ul style="list-style-type: none"> <li>• Adherence to Complaint Response Protocol.</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>

**Appendix C3: Summary of Monitoring Plans for Construction, Operation and Decommissioning of the Project**

<b>Environmental Feature</b>	<b>Construction</b>	<b>Operation</b>	<b>Decommissioning</b>
	vehicles identified through the monitoring program that fail to meet the minimum emission standards would be repaired immediately or replaced as soon as practicable from the construction area.		
Dust and Odour Emissions	<ul style="list-style-type: none"> <li>The Contractor would monitor to ensure that temporary topsoil storage piles are stabilized with appropriate means.</li> </ul>	<ul style="list-style-type: none"> <li>Adherence to Complaint Response Protocol.</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Environmental Noise	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>Noise monitoring (if required), would be conducted in accordance with the REA for the Project.</li> <li>Turbine shutdown in the event of a malfunctioning turbine or extreme weather event.</li> <li>Turbine maintenance to ensure turbines are running properly and efficiently.</li> <li>Adherence to Complaint Response Protocol.</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
<b>Land Use and Socio-Economic Resources</b>			
Areas Protected Under Provincial Plans & Policies	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Existing Land Uses	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>Adherence to Complaint Response Protocol.</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Recreation Areas	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>Adherence to Complaint Response Protocol.</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Agricultural Lands and Operations	<ul style="list-style-type: none"> <li>For a period of one year after restoration of temporary work areas on agricultural lands, potential soil problem areas including subsidence, soil erosion and/or stoniness would be visually monitored by a soil specialist (such as a professional agrologist), or as per agreements with</li> </ul>	<ul style="list-style-type: none"> <li>Adherence to Compliant Response Protocol.</li> </ul>	<ul style="list-style-type: none"> <li>For agricultural land, potential soil problem areas including trench subsidence, soil erosion and/or stoniness would be noted.</li> <li>Additional monitoring activities may also be conducted, depending upon the site conditions at the time of decommissioning. If negative</li> </ul>

**Appendix C3: Summary of Monitoring Plans for Construction, Operation and Decommissioning of the Project**

<b>Environmental Feature</b>	<b>Construction</b>	<b>Operation</b>	<b>Decommissioning</b>
	the landowner. • If adverse impacts are noted during monitoring, appropriate remediation measures would be developed by the soil specialist, or as per agreements with the landowner. Additional follow-up monitoring would be conducted, under supervision of the soils specialist, until adverse impacts are no longer evident.		impacts are noted during monitoring activities, appropriate remediation measures would be implemented as necessary, and additional follow-up monitoring would be conducted, as determined by an environmental inspector.
Mineral, Aggregate, and Petroleum Resources	• N/A	• N/A	• N/A
Game And Fishery Resources	• N/A	• None Required.	• N/A
Local Traffic	• N/A	• Adherence to Complaint Response Protocol.	• N/A
Local Economy	• N/A	• None required.	• N/A
Viewscape	• N/A	• Adherence to Complaint Response Protocol.	• N/A
<b>Existing Local Infrastructure</b>			
Provincial and other major infrastructure	• N/A	• None required.	• N/A
Navigable Waters	• N/A	• N/A	• N/A
Municipal infrastructure	• For a period of one year after construction (first year of operations), roads would be monitored following a heavy rain event and following spring runoff, as defined by applicable agreements, to ensure no erosion, bank slumpage, road subsidence or major rutting has occurred as a result of construction activities. As appropriate, affected roadside ditches and drains would be repaired if required and monitored to ensure that they are functioning properly.	• See 'Local Traffic'.	• N/A

**Appendix C3: Summary of Monitoring Plans for Construction, Operation and Decommissioning of the Project**

<b>Environmental Feature</b>	<b>Construction</b>	<b>Operation</b>	<b>Decommissioning</b>
	<ul style="list-style-type: none"> <li>If adverse impacts are noted during the post-construction monitoring, appropriate remediation measures would be developed as per applicable agreements. As appropriate, affected road substrate would be repaired and roadside ditches and drains would be revegetated. Additional follow-up monitoring would be conducted, as per applicable agreements, until adverse impacts are no longer evident.</li> </ul>		
Telecommunication and Radar Systems	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>Adherence to Complaint Response Protocol.</li> <li>wpd will review potential incidents of telecommunications interference on a case by case basis.</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Aeronautical Systems	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>Routine maintenance of the turbines and replacement of safety lighting in the event of malfunction.</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
<b>Waste Management and Contaminated Lands</b>			
Landfill Sites	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>None required.</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Contaminated Lands	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Waste Generation	<ul style="list-style-type: none"> <li>As appropriate, records of waste generation and hauling would be maintained. Where a third party's activities are identified as non-compliant or insufficient, the Construction Contractor would seek out an alternative recycling or disposal solution.</li> <li>Stringent monitoring of waste disposal to ensure terrestrial flora and fauna are protected.</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of an on-going waste management program consisting of reduction, reuse, and recycling of materials.</li> <li>See 'Accidental Spills'</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Accidental Spills	<ul style="list-style-type: none"> <li>Stringent monitoring of accidental</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring would be required following</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>



**Appendix C3: Summary of Monitoring Plans for Construction, Operation and Decommissioning of the Project**

<b>Environmental Feature</b>	<b>Construction</b>	<b>Operation</b>	<b>Decommissioning</b>
	<p>spills and/or leaks to ensure terrestrial flora and fauna are protected.</p> <ul style="list-style-type: none"> <li>Monitoring would be required following the unlikely event of contamination from an accidental spill or leak. Contaminated soils would be removed and replaced as appropriate. All such activities would follow procedures outlined in the Emergency Response and Communications Plan for the CEMP.</li> </ul>	<p>the unlikely event of contamination from an accidental spill or leak (method for monitoring may be developed in consultation with the Spills Action Centre of the MOE).</p> <ul style="list-style-type: none"> <li>Contaminated soils would be removed and replaced as appropriate.</li> </ul>	
<b>Public Health and Safety</b>			
Structural failure	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>Inspections of turbines will occur after extreme events and contingency measures such as turbine shutdown would be implemented in the event of structural damage.</li> <li>Turbine maintenance to ensure turbines are running properly and efficiently.</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Ice fall and shed	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>Inspections of turbines will occur after extreme events and contingency measures such as turbine shutdown will be implemented in the event of structural damage and/or icing to a turbine(s).</li> <li>Turbine maintenance to ensure turbines are running properly and efficiently.</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
Extreme Weather Events	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>See 'Turbine Blade and Structural Failure'.</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>