



**AMHERST ISLAND WIND ENERGY
PROJECT**
PROJECT DESCRIPTION REPORT

File No. 160960595
April 2013
Revised December 2013

Prepared for:

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1.0 Introduction

1.1 PROJECT OVERVIEW

Windlectric Inc. (the Proponent or Windlectric) is proposing to develop, construct, and operate the 56 - 75 megawatt (MW) Amherst Island Wind Energy Project (the Project) within Loyalist Township (the Township) in the County of Lennox and Addington (the County) in eastern Ontario, in response to the Government of Ontario's initiative to promote the development of renewable electricity in the province.

The basic components of the proposed Project include up to 36 Siemens wind turbines. The turbine model proposed utilizes the same 36 turbine pad locations that have been subject to the assessment required under the Renewable Energy Approval (REA). The layout includes 24 Siemens SWT-2.3-113 2300 kW and twelve (12) Siemens SWT-2.3-113 2221 kW model wind turbines. The final layout will result in a total installed nameplate capacity of approximately 56 - 75 MW. The number of wind turbines will be dependent upon final selection of the model of the wind turbine most appropriate to the proposed Project.

The proposed Project will also include a 34.5 kilovolt (kV) underground and/or overhead electrical power line collector system, fibre optic data lines from each turbine and/or wireless technology for the communication of data, a transmission line, truck turnaround areas, a submarine cable, an operations and maintenance building, permanent dock, a substation, a switching station, an un-serviced storage shed, one connection point to the existing electrical system, cable vault areas, meteorological tower(s) (met tower(s)), access road(s) to the met tower site(s), and turbine access roads with culvert installations, as required, at associated watercourse crossings.

Temporary components during construction may include staging areas for the turbines, access roads, met tower(s), collector lines and transmission line as well as crane paths, a temporary dock, site office(s), batch plant, central staging areas, and associated watercourse crossings. The electrical power line collector system would transport the electricity generated from each turbine to the substation, along the submarine cable to the mainland and then to a switching station located near to an existing Hydro One Networks Inc. (HONI) 115 kV transmission line.

The Proponent has elected to assess and seek approval for some alternative Project configurations. The REA application process will consider:

- two alternative mainland transmission line routes;
- two alternative switching station locations and corresponding point of common coupling with the HONI line;
- three alternative mainland temporary dock locations along the mainland;

- a submarine cable with three alternative submarine cable routes near the mainland;
- three alternative mainland submarine cable landing locations and corresponding cable vault locations;
- up to three alternative met tower locations; and,
up to three potential locations for an operations and maintenance building.

Final selection of the sites to be used would be based on the results of consultation activities, detailed design / engineering work, and the conditions experienced during construction.

Windlectric 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, this Project is classified as a Class 4 Wind Facility. The *Draft Project Description Report* is one component of the REA application for the Project, and has been prepared in accordance with O. Reg. 359/09, and the Ministry of the Environment's (MOE) *Technical Guide to Renewable Energy Approvals* (MOE 2011).

1.2 REPORT REQUIREMENTS

The purpose of the *Draft Project Description Report* is to provide the public, Aboriginal communities, municipalities, and regulatory agencies with an understanding of the proposed Project, including any environmental effects that may result from engaging in the proposed Project.

The *Draft Project Description Report* has been prepared in accordance with Item 10, Table 1 of O. Reg. 359/09 and the Ministry of the Environment's (MOE's) guidance document *Technical Guide to Renewable Energy Approvals*.

The following table summarizes the requirements of this report as specified under O. Reg. 359/09:

Requirements	Section Reference
• Any energy sources to be used to generate electricity at the renewable energy generation facility.	2.2
• The facilities, equipment or technology that will be used to convert the renewable energy source or any other energy source to electricity.	2.3
• If applicable, the class of the renewable energy generation facility.	1.1
• The activities that will be engaged in as part of the renewable energy project.	2.5
• The name plate capacity of the renewable energy generation facility.	2.1
• The ownership of the land on which the project location is to be situated.	1.2
• Any negative environmental effects that may result from engaging in the project.	3.0
• 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 Information

2.1 PROJECT INFORMATION

The following provides a list of project information:

Name of the Project: Amherst Island Wind Energy Project
Proponent: Windlectric Inc.
Energy Source: Wind energy. No supplementary fuel sources will be used to generate electricity.
Nameplate Capacity: Up to 75MW
Class of Facility: Class 4 Wind Facility
Land Ownership: Privately owned lands, within Municipal and County road right of ways, within municipal unopened road allowances, Crown Land (bed of Lake Ontario).

2.2 CONTACT INFORMATION

The proponent for the proposed Project is Windlectric Inc. (a subsidiary of Algonquin Power Co.). The proponent is responsible for the design, construction, operation, and decommissioning of the proposed Project.

Windlectric's office and contact for the proposed Project is:

Name: Sean Fairfield
Title: Senior Manager – Project Planning
Company: Algonquin Power Co.
Address: 2845 Bristol Circle,
Oakville, ON L6H 7H7
Tel: 905-465-4518

or,

Name: Alex Tsopelas
Title: Project Manager, Renewables
Company: Algonquin Power Co.
Address: 2845 Bristol Circle,
Oakville, ON L6H 7H7
Tel: 905-829-6388

The proponent's contact information for project questions, comments and consultation is as follows:

Project Name: Amherst Island Wind Energy Project
Address: c/o Windlectric Inc.
2845 Bristol Circle,
Oakville, ON L6H 7H7
Project Telephone: 1-855-466-8068
Project Fax: 905-465-4514
Project Email: windlectric@amherstislandwindproject.com
Project Website: www.amherstislandwindproject.com

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 contact information is:

Name: Rob Rowland
Title: Senior Project Manager
Company: Stantec Consulting Ltd.
Address: Suite 1 - 70 Southgate Drive
Guelph, ON N1G 4P5
Tel: 519-836-6966 ext. 550

or,

Name: Kerrie Skillen
Title: Project Manager
Company: Stantec Consulting Ltd.
Address: 3430 South Service Road, Unit 203
Burlington, ON L7N 3T9
Tel: 905-931-3923

2.3 PROJECT LOCATION

The proposed Project will be entirely located within Loyalist Township (the Township) in the County of Lennox and Addington (the County) in eastern Ontario.

The Project Location includes lands on Amherst Island, and a corridor stretching between the Island and the mainland where the submarine cable is proposed. The mainland portion of the Project Location stretches from the mainland shoreline, north of the Invista Transformer Station and is generally bounded by i) County Road 4 to the West; ii) the Canadian National Railway line to the North; and iii) approximately 500 m East of Jim Snow Drive to the East.

In accordance with O. Reg. 359/09, the Project Location includes all land and buildings/structures associated with the Project and any air space in which the Project will occupy. This includes structures such as turbines, access roads and collector lines as well as any temporary work areas (the 'constructible area' for the Project) which are required to be utilized during the construction of the Project. The entire constructible area may not be used at each Project Location. The constructible areas have been reduced in size in areas where constraints exist (e.g. natural features) and construction will be limited to the smaller area.

The boundary of the Project Location is used for defining setback and site investigation distances according to O. Reg. 359/09.

Settlements in the general vicinity of the Project include Stella, Emerald, Millhaven, Ernestown, Amherstview, and Bath.

The proposed Project is not located in any areas protected under provincial plans and policies described in O. Reg. 359/09, including the Greenbelt Plan, Oak Ridges Moraine Conservation Plan, Niagara Escarpment Plan, and the Lake Simcoe Protected Plan. There are no Provincial Parks located within the general vicinity of the Project Location.

The Project Location is shown in **Appendix A**.

2.4 OTHER REQUIRED APPROVALS

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

2.4.1 Federal

A Federal Screening report is not expected to be required for the proposed Project, as it is not anticipated that it will cause a 'trigger' under the *Canadian Environmental Assessment Act* (CEAA), such as a Harmful Alteration, Disruption or Destruction of fish habitat under the *Fisheries Act*, or application for project funding under a future program similar to *ecoEnergy for Renewable Power*. However, the consultation program for the proposed Project will include all federal departments and agencies typically interested in wind power projects (e.g., Department of National Defense, Environment Canada, Transport Canada, etc.). Potential federal permits and authorizations that may be required for the Project include those listed in Table 2.1 with the potential for additional approvals if requested by regulatory agencies.

Table 2.1: Federal Permits and Authorizations

Permit / Authorization	Administering Agency	Rationale
Aeronautical Obstruction Clearance	Transport Canada – Aviation Division	Turbine lighting and marking
Land Use Clearance	NavCanada	Aeronautical safety mapping and designations
Navigational Clearance	Transport Canada – Marine Division	Crossing a navigable watercourse Installation of temporary dock Installation of permanent dock
Fisheries Act Authorization	Fisheries and Oceans Canada	Watercourse crossings. Harmful alteration, disruption, or destruction of fish and/or fish habitat

2.4.2 Provincial

In addition to REA, all provincial permits and authorizations required for the proposed Project will be determined, and may include those listed in Table 2.2.

Table 2.2: Key Provincial Permits and Authorizations

Key Permit / Authorization	Administering Agency	Rationale
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.
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.
Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses Permit	Cataraqui Region Conservation Authority	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).
Certificate of Inspection	Electrical Safety Authority (ESA)	A record that electrical work complies with the requirements of the Ontario Electrical Safety Code.
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.
Notice of Project	Ministry of Labour	Notify the Ministry of Labour before construction begins.
Special vehicle configuration permit	Ministry of Transportation (MTO)	Use of non-standard vehicles to transport large components.
Transportation Plan	MTO	Adherence to road safety and suitability.

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Table 2.2: Key Provincial Permits and Authorizations

Key Permit / Authorization	Administering Agency	Rationale
Highway Entrance Permit	MTO	Entrance permit for new or upgraded road entrances onto a provincial highway Interference or obstruction of the highway.
Change of Access and Heavy/Oversize Load Transportation Permit	MTO	Compliance with provincial highway traffic and road safety regulations.
Wide or excess load permit	MTO	Transportation of large or heavy items on provincial highways.
Endangered Species Act permit	Ministry of Natural Resources (MNR)	If provincially listed species at risk or their habitat are present.
Emission Summary and Dispersion Modeling (ESDM) Report	MOE	Documentation for emissions from temporary concrete batch plant
Disposition of Crown Land Authorization	MNR	Project components crossing a navigable watercourse subject to the Public Lands Act.

2.4.3 Municipal

Several permits and authorizations may also be required from the Township and/or the County (Table 2.3).

Table 2.3: Municipal Permits and Authorizations

Key Permit / Authorization	Rationale
Municipal Consent, Work within the R.O.W	Required for works in municipal road allowances or unopened road allowances.
Consent/Severance Application	Required if easements over private lands required.
Consent – Tree Cutting	If required, authorization from the Township/County as necessary for pruning or removal of trees within road allowances.
Road Cut Permit	May be required for access roads off of county roads or works to county roads.
Pre-Condition Survey	Assessment of pre-construction conditions for engineering staff.
Building Permit	Compliance with building codes.
Entrance Permit	Entrance from county roads.
Transportation Plan	Adherence to road safety and suitability.
Additional Plans related to general engineering (e.g. siltation control, lot grading, plan of services, etc.), installation of temporary and/or permanent dock, water, wastewater, storm water, transportation, and geotechnical	Required supporting information/plans required by the Township and the County.

3.0 Project Components

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

3.1 WIND TURBINE GENERATORS

The proposed Project will include up to 36 Siemens wind turbines. The turbine model proposed utilizes the same 36 turbine pad locations that have been subject to the assessment required under the Renewable Energy Approval (REA). The layout includes 24 Siemens SWT-2.3-113 2300 kW and twelve (12) Siemens SWT-2.3-113 2221 kW model wind turbines. The final layout will result in a total installed nameplate capacity of approximately 56 - 75 MW. The turbines under consideration have the same physical footprint. Windlectric has completed the REA such that any wind turbine model under consideration could be placed in the layout provided in **Appendix A**.

A summary of the basic specifications of the turbine models being considered is provided in Table 3.1 below.

Each of the wind turbine installations would consist of the following key components:

- Concrete foundation;
- Steel support tower (comprised of 5 sections);
- Nacelle containing the electrical generator;
- Hub (rotating structure that holds the turbine blades);
- 3 rotor blades;
- A pad mount transformer to convert power from 690 V to 34.5 kV; and,
- Electrical controls and connections.

Detailed information about the specific turbine models are provided in the *Draft Wind Turbine Specifications Report*.

Table 3.1: Basic Turbine Specifications	
Operating Data	Specification
General	
Rated capacity (kW)	2300 kW/2221 KW
Cut-in wind speed (m/s)	3 m/s
Cut-out wind speed (m/s)	25 m/s
Rotor	
Number of rotor blades	3
Rotor diameter (m)	113 m

Table 3.1: Basic Turbine Specifications

Operating Data	Specification
Blade length (m)	55 m
Swept area (m ²)	10,000 m ²
Tower	
Hub height (m)	99.5 m
Tip height (m)	154.5 m

3.2 ACCESS ROADS

Approximately 35 km of new access roads are required for installation and operation of the Project components including wind turbines, met tower(s), operations and maintenance building, substation, temporary dock, permanent dock and switching station. Where possible, access roads have been planned in a manner that reduces the amount of land required to access the Project components or utilizes existing agricultural laneways, thus reducing potential impacts on the existing environment. New access roads will be constructed as required to provide access to Project components.

Access roads will be approximately 4 - 6 metres wide and will not require resizing for the operation phase, with the exception of the entrances off the Township or County roads that require wider turning radii, of approximately 50 m, during construction.

Some access roads require turnaround areas for delivery trucks. These turnaround areas will be the same width as access roads, with turning radii.

3.3 WATER CROSSINGS

Permanent culvert installations would be required along access roads and associated underground collector and data lines that cross watercourses. All crossings would require a permit approval from the Cataraqui Region Conservation Authority (CRCA) and/or the Department of Fisheries and Oceans (DFO).

Culverts required for any water crossings are described in the *Draft Water Assessment and Water Body Report*.

3.4 ELECTRICAL INFRASTRUCTURE

3.4.1 Turbine Transformers and Collector system

A pad mount transformer, located on the ground adjacent to the tower of each wind turbine, is required to transform the electricity created in the nacelle to a standard operating power line voltage (i.e. 690 V to 34.5 kV). The transformers will be approximately 2 m x 2 m.

A 690 V cable runs down the turbine tower to the pad mount transformer. From the pad mount transformer, underground 34.5 kV collector lines will carry the electricity to the municipal road allowances following the turbine access roads or, along the most direct path possible between two turbines (i.e. across a field), on private land, to the substation.

All proposed collector lines have been routed on private lands where landowners have agreements with the Proponent. Where possible, the underground and/or overhead collector lines have been incorporated into the design of the access roads to reduce the area required for construction and minimize the potential construction impacts. Junction boxes are required at the junction of an underground collector line going from private land to the public road allowance.

Some sections of the collector system may have to be installed above ground if required to pass sensitive natural features or other obstacles.

Data cabling, if installed, would run with the collector lines, whether underground or overhead.

3.4.2 Substation

Associated with the Project will be a substation. At the substation, the accumulated power from the collector lines will be transformed from a 34.5 kV collection voltage to a 115 kV transmission voltage. The substation will be located on private land on the north side of 2nd Concession Road between Stella 40 Foot Road and Dump Road. The substation will consist of a prepared area of approximately 80 m by 100 m in size. A chain link safety fence will enclose the substation. A locked vehicle gate will allow for maintenance access.

The substation will house the switching, control, protection, communication and metering systems required to support the operation of the substation. The substation will include one (1) 34.5/115 kV transformer.

A sound attenuation wall will be built at the substation transformer. The barrier will be continuous and its surface density will be 184 kg/m², exceeding the 20-kg/m² requirement established by MOE.

An access road for the substation will be constructed from 2nd Concession Road.

The substation will be operated, monitored and controlled 24-hours a day via a telecommunication system.

A conceptual drawing of the substation is shown in Figure 6.

3.4.3 Transmission Line

The 115 kV (nominal) transmission line connecting the substation to the Hydro One Networks Inc. (HONI) electrical grid can be broken into three distinct geographic sections:

1. Amherst Island: approximately 1.5 km of overhead or underground line to connect the substation with the submarine cable.
2. Lake Ontario: approximately 4.5 km of submarine cable to connect Amherst Island to the mainland.

3. Mainland: there are currently two options for the transmission line route on the mainland.

Mainland Transmission Line Option 1: the transmission line would be comprised of approximately 0.7 km of underground or overhead line, across Highway 33 (in consultation with the Ministry of Transportation) to a switching station located near the Invista Transformer Station, where it will be connected to the to an existing HONI 115 kV transmission line (Q6S) which currently connects to the Invista Transformer Station. In order to connect to the HONI QS6 three (3) new wooden poles will be installed by HONI within their approved right of way.

Mainland Transmission Line Option 2: the transmission line would be comprised of an approximately 1.7 km underground or overhead cable from the cable vault, across Highway 33, along the east side of Jim Snow Drive, to a switching station located north east of the intersection of Jim Snow Drive and Taylor Kidd Blvd, then along the north side of Taylor Kidd Blvd. where it will connect to the HONI Q6S. Consultation with the Ministry of Transportation and the County of Lennox and Addington will be required for the placement of the line. In order to connect to the HONI QS6 three (3) new wooden poles will be installed by HONI within their approved right of way.

A conceptual drawing of the cable termination on the mainland is shown in Figure 7 and 8.

The land-based transmission line on Amherst Island will be constructed as an overhead or underground line. If required, a 115 kV riser will be installed to transition from the overhead line to the submarine cable. A conceptual drawing of the submarine cable termination on Amherst Island is shown in Figure 9.

The Township will be kept informed about the final design of the 115 kV cable risers will be done in consultation with the Township.

3.4.4 Submarine Cable

A submarine cable is required to convey electricity from Amherst Island to the mainland.

Specifications (final specifications subject to final manufacturer)

- Voltage: 115kV (nominal)
- Material: galvanized steel armour cable (crosslinkable polyethylene (XLPE) insulation)
- Diameter: 170mm ± 20mm
- Conduit: High-density polyethylene (HDPE) schedule 40 and diameter is 14" ± 2"

The submarine cable will be protected by electrical protection relays and high voltage circuit breakers, as well as remote teleprotection to HONI's system. A cross section of a submarine cable is shown in Figure 10 as an example.

The submarine cable will also contain a fibre optic data cable to facilitate supervisory control and data acquisition (SCADA) and protection requirements.

The submarine cable will extend from the landfall location on Amherst Island, approximately 750 m west of Stella, to a landfall near the intersection of Jim Snow Drive and Bath Road on the mainland. Three landfall locations on the mainland are being considered as part of this REA application. Only one option will be constructed and used as part of the Project.

The three submarine cable landfall locations being considered on the mainland are:

1. South of Jim Snow Drive
2. South of the Invista Transformer Station
3. Approximately 300 m west of Option 2.

The submarine cable will connect directly to the overhead or underground line on Amherst Island and the underground or overhead line on the mainland with splices located in concrete cable vaults approximately 50 m inland from both shorelines. A conceptual drawing of the cable vaults is shown in Figure 11.

To facilitate the installation of the submarine cable and to provide an additional level of protection, Windlectric is proposing to utilize a protective cable technology (such as steel armouring or a protective conduit) at the two landings. The use of armouring or conduits could require trenching near the shoreline. The submarine cable will be laid to avoid any water intakes. The two submarine cable ends (island side and mainland side) would be pulled through or trenched into the buried concrete cable vaults.

Nearshore survey work at the landfall locations has been completed to confirm the location of existing utilities and the geophysical characteristics of the lake bottom that will be encountered when installing the conduits.

Windlectric has, and will continue, to consult with DFO, as required, to ensure compliance with DFO's *Operational Statement for Underwater Cables*.

The proposed route of the submarine cable crosses the existing MTO air bubbler system, which is used for ice control on the water surface, to allow for the Amherst Island Ferry to travel between the mainland and the island during the winter months. Windlectric has, and will continue, to consult with MTO, as required, to determine an approach for crossing the Amherst Island Ferry bubbler system.

3.4.5 Switching Station

Associated with the proposed Project will be a switching station where the electrical infrastructure will be connected to the existing HONI QS6. The switching station will consist of a prepared area of approximately 2500 m² in size and will be located on private land.

As discussed in Section 3.4.3 there are currently two options for the mainland transmission line route. Each option requires a switching station.

For *Mainland Transmission Line Option 1* the switching station would be located near the Invista Transformer Station. A conceptual drawing of the switching station on the Invista property is shown in Figure 12.

For *Mainland Transmission Line Option 2* the switching station would be located north east of the intersection of Jim Snow Drive and Taylor Kidd Blvd. A conceptual drawing of the switching station is shown in Figure 13

3.4.6 Island Dock

As part of the proposed Project, a permanent docking facility is required on Amherst Island to meet shipping and construction requirements. The dock structure has to accommodate large barges and be capable of handling heavy items associated with the construction of the proposed Project. The dock will be located approximately 750 m west of Stella.

The dock types under consideration are as follows (note: the labeled designations below correspond to conceptual design nomenclature information that was submitted to the Department of Fisheries and Oceans):

1. Dock Type Option 2 - Steel frame on rock lake bottom (posts) with concrete slab decking. Requires a concrete abutment.
2. Option 2A – Drive piles into lake bottom and level at pile caps. Platform (decking) constructed of a light steel frame or concrete slabs on the piles. Requires a concrete abutment.
3. Option 3 – Drive piles into lake bottom and level at pile caps. Platform is concrete slabs with sides and bottom that is back-filled with gravel. Requires a concrete abutment.

All of the above options include a length of fixed dock of approximately 30 m by 7 m in size [+/- 50%], with a single jack-up barge, of approximately 20 m by 12 m in size [+/- 50%], on the off-shore end that is adjustable due to water levels changes. Total area (above the water) for the dock including the jack-up barge is 450 m² [+/- 50%].

The dock design, and construction will be completed in consultation with the DFO, as required, to ensure compliance with their *Operational Statement (OS) for Dock and Boathouse Construction*.

3.4.7 Operations and Maintenance Building

An operations and maintenance building will be required on the island to facilitate the day-to-day operations of the Project. The building footprint is approximately 1100 m² while the basic dimensions of the building would be approximately 30 m x 60 m. The footprint for the entire yard for the building is approximately 4900 m².

The building will be located on private land and have space for parking and on-site storage. The building will include office space, warehouse and workshop space, kitchen, and restrooms. It would also include areas for storage of equipment and spare parts, and would have a secure area for hazardous materials and lubricant storage.

The operations and maintenance building yard may include a chain link fence. The proposed layout for the operations and maintenance building is shown in The proposed layout for the operations and maintenance building is shown in Figure 14.

Several locations are being considered for the location of the operations and maintenance building. Only one location will be used as part of the Project.

The wind farm will be operated, monitored and controlled 24-hours a day. To facilitate this monitoring, fibre optic data cable and/or wireless technology would be used. If data cabling is used it will be installed in conjunction with the collector line system, from each wind turbine to the substation and then to the operations and maintenance building.

An underground septic tank (capacity of 10,000L) and aboveground non-potable water tank (capacity of 10,000L) would service the operations and maintenance building. The final design of the septic system would conform to local building code and health unit requirements.

No groundwater or surface water supplies are anticipated to be used for the facility. Above ground water tanks for non-potable and potable water will be installed. It is expected that water will be used to hose down the floor or the workshop. A sump/drainage pit will collect the residues and drain to the septic system.

Electrical power for the operations and maintenance building will be delivered by an overhead HONI line, which will terminate on a transformer pole adjacent to the facility. The transformer will step down the power supply to a voltage that can be utilized within the operations and maintenance building. The final connection of the power will be made through underground cable from the transformer pole to the building electrical service located within the building.

3.4.8 Storage Shed

An unserviced storage shed will be situated across Art McGinns Road from S17 and S10. The building will measure approximately 6 m x 8 m, situated on a gravel base area of approximately 7m x 9 m base, and is anticipated to be a prefabricated engineered structure with a concrete foundation that will extend below the frost line. The building will house equipment and spare parts to be used during construction and operations of the Project.

3.4.9 Met Tower

1-3 permanent met towers would be installed for use during the operation phase of the Project. The met tower(s) would be a steel lattice structure with a height of 60 m or 100 m.

The met tower(s) foundation design is dependent on ground conditions and is typically a steel reinforced concrete-filled pedestal foundation. The met tower(s) will either be freestanding supported entirely by the foundation or would have guy wires for lateral support anchored with reinforced buried concrete. The 100 m met tower foundation will be approximately 5 m x 5 m, and its associated anchor blocks (if required) will be approximately 2 m x 2 m. The 60 m met tower foundation will be approximately 1 m x 1 m, and its associated anchor blocks (if required) will be approximately 1 m x 1 m.

The met tower(s) will carry instrumentation for collecting wind data to support operation of the Project. Power and data cabling for the met tower(s) would be trenched in from the nearest collector line system.

Windlectric has a 60 m re-instrumented tubular guyed met tower which was installed in 2005. This met tower has been used to identify the quality of wind resource for the proposed Project. The wind data collected will be used to determine the best orientation of the wind turbines. This tower is a prospecting tower and may be removed upon reaching commercial operation.

Access for installation of new met tower(s) is required. See Section 3.2 for more information on access roads.

3.5 TEMPORARY COMPONENTS

Lands to be temporarily used during the construction of the proposed Project are for turbine, access road, met tower, collector line and transmission line staging areas, crane paths, a temporary dock, site office(s), batch plant, central staging areas, and associated watercourse crossings.

Any temporary office buildings, including the proposed site office(s), used during construction will not be serviced, and would be placed within the delineated construction work areas.

Following construction activities, all of the temporary locations will be restored to pre-existing conditions. Restoration work would start following installation of each wind turbine and removal of all construction materials and equipment from each turbine site. This includes removal of the granular and geotextile material from applicable areas.

3.5.1 Turbine Staging Area

The constructible area at each turbine location is approximately 100 m x 100 m and will be used as a construction staging area. Within the constructible area will be a turbine staging area for construction of the turbine foundation and assembly of the turbine, and a crane pad where the crane(s) will rest during turbine installation. The crane pad area will be approximately 25m x 60 m. The constructible areas would also be used for temporary storage of the turbine components, parking and foundation spoil pile.

Staging areas for the turbine components would not be graveled. Instead, top soil would be removed and stock piled, the subsoil's would be compacted and temporary laminated crane mats would be used under each of the crane stabilizer arms. If required, portions of the constructible area have been reduced on a site-by-site basis to avoid natural features and water bodies.

Turbine constructible areas would be actively used throughout the construction phase, to varying degrees during all construction activities at turbine siting areas. These same staging areas would be used in the future should maintenance during the operation of the wind turbine require large components to be removed/replaced from the turbine.

Once the turbine erection is complete, the prepared area around each turbine and the crane pads (25 m x 60 m) will be kept, while the remaining constructible area will be rehabilitated to pre-existing conditions.

3.5.2 Crane Paths

A heavy-lift crawler and mobile crane(s) would be used to assemble the turbines. The movement of the crane(s) between turbine sites, termed 'crane paths', would follow access roads and municipal roads where possible. The crane(s) would be, in some places, broken down and transported to other turbine locations for re-assembly. However, there may be instances where it is more effective, to minimize potential impact to municipal roads and avoid demobilization of the crane(s), to move the crane(s) along the most direct path possible between two turbines. All proposed crane paths will follow collector line corridors, with a constructible area of approximately 10 m wide. All proposed crane paths will be on private lands where landowners have agreements with the Proponent.

Crane paths will be approximately 10 m wide, be relatively level and rolled as required. Crane mats would be used where required to facilitate the crane moving through soft or wet areas.

Crane paths not located on roads would be initiated in conjunction with turbine assembly and would be used to move the crane(s) at the next turbine assembly area. These paths would be rehabilitated to pre-construction condition at the end of the construction phase.

3.5.3 Access Road Staging Area

A staging area would occur within the approximately 10 m staked constructible area along access roads for construction of the 4 m to 6 m wide access road.

Some access roads require turnaround areas for delivery trucks. These turnaround areas will be the same width as access roads, and include the same requirements for staging areas.

A staging area would occur within the approximately 50 m wide staked constructible area along access road entrances off municipal roads for construction of the 10 m to 15 m wide access road entrances.

Portions of the constructible area will be reduced on a site-by-site basis to avoid natural features and water bodies, as appropriate.

Access road staging areas may be used for temporary laydown of turbine components during construction. No site preparation is required within these staging areas (provided they are in safe working condition), however in locations where turbine components are temporarily stored; these areas will be restored following turbine erection to pre-existing conditions.

3.5.4 Met Tower Staging Area

The constructible area to install a 100 m met tower would be approximately 150 m x 150 m. The constructible area to install a 60 m met tower would be approximately 100 m x 100 m. Within the constructible area will be a met tower staging area for construction of the met tower foundation, required anchor blocks and assembly of the met tower.

3.5.5 Roadside Collector and Transmission Line Staging Area

Roadside collector and transmission lines will be sited within the municipal road allowance. Final details of the line requirements will be developed at the detailed design stage in consultation with the Township and County. The entire span of the municipal road allowance has been included within the assessment of temporary land use, though this entire area will not be used for installation of the collector and/or transmission lines.

3.5.6 Central Staging Areas

Temporary central staging areas will be set up on Amherst Island and the mainland to facilitate construction of the proposed Project. Central staging areas are proposed on Amherst Island near the substation property, and the submarine cable landing area. On the mainland, central staging areas are proposed at the submarine and dock landing areas, near the Invista Transformer Station, and north east of the intersection of Jim Snow Drive and Taylor Kidd Blvd. The central staging areas vary in size from as small as approximately 30 m x 50 m to as large as approximately 25 acres.

The central staging areas will support the following construction operations, as required:

- Laydown of Project components including, but not limited to, wind turbine components, electrical cabling, pad-mount transformers, general construction materials such as gravel and steel.
- Parking areas for Contractors, Subcontractors and Other Contractors;
- Site Office(s);
- Rail unloading crane pad;
- Cable vault construction and installation;
- Docking facility construction and installation (for both permanent and temporary docks);

- Switching station construction;
- Batch Plant;
- Portable generators;
- Maintenance and tool storage;
- Water and rinsing facilities (water to be brought in by tanker);
- Above ground storage tank(s) ("AST's"), in properly contained spill containment structures;
- Equipment storage and maintenance area;
- Disposal facilities for various solid wastes;
- Temporary toilet facilities – self-contained with no on-site disposal; and,
- Waste disposal containers.

3.5.6.1 Batch Plant

A temporary concrete batch plant will be utilized on Amherst Island to facilitate construction of the proposed Project. The batch plant will be located approximately 600 m west of Stella 40 Foot Road, north of 2nd Concession Road. The prepared area for the batch plant will be approximately 120 m x 150 m.

Within the prepared area of the batch plant there will be a variety of functioning services and utilities. Facilities located within this area include a small laboratory office to test concrete quality, a potential office located within a trailer, a volumetric or by weight mobile batching plant, a shelter for concrete ad mixture, a washing station, water tank(s), a vertical cement tanker with a screw discharge area or an area for 1 m³ of cement and bags, and a truck fueling station. This location will also provide parking for 6-10 concrete truck mixers, and serve as a stockpile area for concrete aggregate including sand, stone and fine aggregate.

The following discussion provides a general description of typical operation procedures for a concrete batch plant.

Aggregate materials (i.e., limestone, gravel, and sand) will be delivered to the batch plant by truck and will be deposited into storage piles. A front-end loader will transfer aggregate material from the storage piles into an above ground hopper. The hopper will gravity feed an inclined conveyor that will transfer the aggregates to aggregate compartments in the plant. Aggregate materials will then be gravity fed to the aggregate weigh scales located underneath each compartment. The aggregate weigh scale will feed a second conveyor, which will transfer the appropriate mass of material into a truck mixer.

Cementitious materials (i.e., Portland cements and slag) will be delivered by tanker and will be stored in one of two silos. The two silos may be filled simultaneously using blowers on the transport trucks and have a capacity of approximately 65 tonnes each. Cementitious materials from Silo #1 will be transferred to the cement scale by two enclosed cement augers.

Cementitious materials from Silo #2 will be transferred to the cement scale by gravity. The appropriate mass of cementitious material from the cement scale will then be gravity fed through a pipe into the truck mixer.

At the truck mixer, water will be introduced via a spray over the raw material drop point. If necessary, the water will be heated by a heater or boiler. Small quantities of admixes (i.e., chemical additives to achieve certain properties in concrete) may also be added. Each raw material batch will be mixed inside the truck mixer drum for approximately 15 minutes. The resulting wet concrete product will then be transported to the pour site with the mixer drum set at a constant rate of revolution.

If an electrical feed is not available at the batch plant site, power for the plant will have to be provided by a diesel generator set. As appropriate, the generator set will be housed in an outdoor enclosure adjacent to the batch plant.

There will be no discharge of wastewater to the environment which would require an approval for an industrial sewage works under Section 53 of the *Ontario Water Resource Act*. If water taking exceeds 50,000 litres/day, an application for a Permit To Take Water will be required under the *Ontario Water Resources Act*. It is anticipated that water for the concrete will come either from Lake Ontario (if the water is suitable) or otherwise will be trucked from the mainland. The water will be stored on site in a water tank(s). Waste water will be contained in a designated area where it can be removed from the site and disposed of appropriately according to the relevant regulations.

The batch plant will require an Environmental Compliance Approval and if required a Permit to Take Water from the Ministry of Environment. The necessary technical information pertaining to the proposed facility will be submitted to the Ministry of the Environment for their review, outside of the Renewable Energy Approval process. The temporary facility will be sited and operated in compliance with the appropriate provincial compliance requirements and municipal by-laws (if applicable).

3.5.6.2 Site Office(s)

Temporary site office(s) will be set up on Amherst Island and the mainland to facilitate construction of the proposed Project. The temporary site offices will not be serviced, and would be placed within the delineated construction work areas.

The site office(s) on Amherst Island will be located approximately 600 m west of Stella 40 Foot Road, north of 2nd Concession Road, near the location for the proposed batch plant. The prepared area for the site office(s) on Amherst Island will be approximately 50 m x 50 m. The area surrounding the site office(s) will serve as an area for parking.

The site office(s) on the mainland will be located within any of the proposed central staging areas. The prepared area for the site office(s) on the mainland will be approximately 50 m x 50 m. The area surrounding the site office(s) will serve as an area for parking.

The temporary site office(s) will be constructed using modular trailers. Main communication among the site(s) will likely be by radio and cell phones. Some land lines will be required and an internet rotor will be installed. A power source will most likely be obtained from nearby hydro poles. Temporary office(s) may be equipped with washrooms; however some modular trailer washroom facilities may be required to be brought on site.

3.5.7 Mainland Dock

As part of the proposed Project, a temporary docking facility is required on the mainland to meet shipping and construction requirements. The dock structure has to accommodate large barges and be capable of handling heavy items associated with the construction of the proposed Project. Post construction, all in water works will be removed. On shore abutment may remain depending on agreement with landowner.

The location of the dock on the mainland has not been finalized. There are three alternative locations for the mainland dock, which include:

1. East Dock Option: approximately 300 m east of the intersection of Jim Snow Drive and Bath Road.
2. Centre Dock Option: south of Jim Snow Drive.
3. West Dock Option: approximately 600 m west of the intersection of Jim Snow Drive and Bath Road.

The dock types under consideration are as follows (note: the labeled designations below correspond to conceptual design nomenclature information that was submitted to the DFO):

1. Dock Type Option 2 - Steel frame on rock lake bottom (posts) with concrete slab decking. Requires a concrete abutment.
2. Option 2A – Drive piles into lake bottom and level at pile caps. Platform (decking) constructed of a light steel frame or concrete slabs on the piles. Requires a concrete abutment.
3. Option 3 – Drive piles into lake bottom and level at pile caps. Platform is concrete slabs with sides and bottom that is back-filled with gravel. Requires a concrete abutment.

All of the above options include a length of fixed dock, with a single jack-up barge on the off-shore end that is adjustable due to water levels changes.

Dock length varies by location. Table 3.2 lists the approximate dock and jack-up barge lengths for each option.

Table 3.2: Doc and Jack-Up Barge Size Options

Mainland Dock Option	Dock Size [+/- 50%]	Jack-up barge Size [+/- 50%]	Dock Area above the water (including jack-up barge) [+/- 50%]
West Dock Option	85 m by 7 m	20 m by 12 m	835 m ²
Centre Dock Option	165 m by 7 m	20 m by 12 m	1395 m ²
East Dock Option	30 m by 7 m	20 m by 12 m	450 m ²

In addition to the details provided in Table 3.2, the following information applies to the dock designs:

- The number of posts/piles will be very similar among options and the final number will not be known until all options are detailed. The current design is based on allowable bearing pressure on the rock, based on rock quality identified during test pitting on the Island. This is subject to confirmation when boreholes are drilled.
- Design with posts on lake bottom (Option 2) will be more complex than those with piles anchored in the bedrock (Options 2A and 3).
- Hydraulic cylinder ramps will be required for all the construction options to allow for water level adjustment. Total of 0.4 m² footprint required (base of two cylinders) for each dock.
- Each dock will require four dolphins to which the transportation barges will be tied. Each dolphin has an area of 0.75 m², a total of 3 m² per dock for dolphins.
- The dock width is approximately 7 m for most of its length. The jack-up barges on the end of each dock are 20 m long and 12 m wide. The dock width of approximately 7 m assumes that transportation trucks will cross Highway 33 in a perpendicular manner and there is no need for turning from the highway. If turning is required, additional dock width would be necessary.

3.5.8 Temporary Watercourse crossings

No temporary water crossings are expected as part of the proposed Project.

4.0 Project Activities

4.1 OVERVIEW OF ACTIVITIES

A general overview of the activities during construction, operation, and decommissioning phases of the proposed Project are provided in Table 4.1.

Project Phase	Activities
Construction	Turbine and Met Tower Sites
	Delineation of temporary work areas
	Completion of necessary vegetation clearing and site grading
	Access road construction and culvert installation
	Installation of turbine staging areas, access road staging areas and crane paths
	Installation of turbine and met tower foundations
	Installation of pad-mount transformers
	Turbine and met tower erection
	Installation of collector lines, and data cabling (if required) usually parallel to access roads
	Restoration of temporary work areas
	Substation Site
	Delineation of temporary work areas
	Completion of necessary vegetation clearing and site grading
	Installation of substation
	Restoration of temporary work areas
	Operations and Maintenance Building Site
	Delineation of temporary work areas
	Completion of necessary vegetation clearing and site grading
	Construction of operations and maintenance building
	Restoration of temporary work areas
	Switching Station Site
	Delineation of temporary work areas
	Completion of necessary vegetation clearing and site grading
	Installation of switching station and connection with grid
	Reclamation of temporary work areas
	Additional Activities
	Preparation of central staging areas
	Completion of permanent access roads
	Installation of batch plant and site office(s)
	Installation of collector lines, transmission lines and submarine cable
	Installation of cable vaults
	Installation (and removal, if required) of temporary dock
	Installation of permanent dock
Reclamation of all other temporary work areas	

Table 4.1: Key Project Activities

Project Phase	Activities
Operation	Turbine and Met Tower Sites
	Preventative and routine maintenance
	Unplanned maintenance
	Meter calibrations
	Grounds keeping
	Substation Site
	Preventative and routine maintenance
	Unplanned maintenance
	Operations and Maintenance Building Site
	Preventative and routine maintenance
	Unplanned maintenance
	Remote wind farm condition monitoring
	Switching Station Site
	Preventative maintenance
	Unplanned maintenance
	Additional Activities
	Collector line, transmission line and submarine cable maintenance
Cable vault maintenance	
Permanent dock maintenance	
Decommissioning	Turbine and Met Tower Sites
	Removal of turbine and met tower infrastructure
	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
	Substation Site
	Removal of substation
	Operations and Maintenance Building Site
	Removal of operations and maintenance building, dependent on agreement with property owner
	Switching Station Site
	Removal of switching station
	Additional Activities
	Disconnection from provincial grid
Removal of collector system in municipal right of way (remove wires and poles as required, dependent upon agreement with municipality)	
Removal of permanent dock (if required)	

4.2 TIMING AND SCHEDULING

The projected start dates for construction, operation and decommissioning activities are provided in the table below.

Construction is anticipated to commence in Fall of 2014 and finish early 2016. Operation and maintenance activities would occur as required throughout the life of the Project. The specific schedule for decommissioning would be determined at the time it is undertaken.

The wind turbines used for the Project can be expected to be in service for the term of the 20 year Ontario Power Authority Power Purchase Agreement. Following the term of the contract, a decision would 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 4.2: Major Project Phases and Anticipated Scheduling Milestones

Construction	Operation	Decommissioning/Repowering
Fall 2014 to early 2016	Q2 2016	2035

4.3 KEY PROCESS ACTIVITIES

4.3.1 Waste Generation

Construction and Decommissioning

During construction and decommissioning, waste material would 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, brush, scrap lumber and metal, banding, plastic wrap removed from palletized goods, equipment packaging, grease and oil, steel, etc.) and a minor amount of domestic waste (i.e. garbage, recycling and organics). As requested by Loyalist Township no waste material will be deposited at the Amherst Island waste disposal facility.

Operation

During operation, waste will be generated through general maintenance and office activities. Lubricating and hydraulic oils associated with Project maintenance and operation would be used for the Project, and waste materials such as oily rags, empty grease/oil containers and cleaning fluids in low volumes. Although the exact oil and grease requirements for the Project are not known at this time, oil changes will be completed in accordance with annual analysis recommendations. An oil change is not likely to occur until the findings of the annual analysis indicate that it is required or via the manufacturers maintenance schedule recommendations. The amount of oil and grease stored on site would depend on availability, transportation schedules, and the service cycle.

A minor amount of domestic waste (i.e. garbage, recycling, and organics), would be generated during standard operation and maintenance activities.

Waste materials will be temporarily stored at the operations and maintenance building and would require reuse, recycling, and/or disposal at an appropriate facility. There would be no on-site disposal of waste during the operation of the Project. Used oil would be stored in a designated area of the operations and maintenance building, and picked up by certified contractor with the appropriate manifests in place.

4.3.2 Air Emissions and Dust Generation

Construction and Decommissioning

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

Construction related traffic and various construction activities (e.g. excavation, grading, soil stripping, and exposed areas) have the potential to create dust emission. However the effects are anticipated to be short-term in duration and localized.

Operation

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

An examination of the Project's air emissions will be undertaken in context of the requirements of O. Reg. 419/05, and will be provided in the *Draft Design and Operations Report*.

Acoustic emissions from the Project (turbines and substation) will be assessed in detail during the REA process. All emissions will be managed within the limits set by regulatory requirements.

4.3.3 Noise

Construction and Decommissioning

During construction, noise would be generated by the operation of heavy equipment at each of the work areas and associated traffic on-site and on haul routes. The effects are anticipated to be short-term in duration and localized.

Operation

Mechanical and aerodynamic noise would be emitted from the wind turbines in addition to environmental noise from the transformers located at the substation. A *Draft Noise Assessment Report* has been prepared for the proposed Project in accordance with the MOE *Noise Guidelines for Wind Farms*, dated October 2008 and O. Reg. 359/09.

4.3.4 Hazardous Materials**Construction and Decommissioning**

Hazardous materials to be used during the course of construction are related to fuels, lubricants and fluids that are required for use in construction equipment. These materials will be stored in appropriate storage units during the construction phase of the Project by the construction contractor. Designated storage unit areas and the type of storage units will be confirmed by the construction contractor prior to construction.

Fueling of construction vehicles will take place within designated fueling areas (complying with all applicable regulations) for example such as the operation and maintenance building location, the project laydown (central construction) area and individual work areas. The method of fuel storage (during construction) would be with the use of above ground storage tank(s) ("AST's) (complying with provincial regulations - i.e. double walled with spill containment). It is anticipated that three (3) AST's will be used, each holding a volume of approximately 1000 litres. The fuel would be diesel and regular petrol for use by the construction equipment. An AST would not be used during operation of the project. It should be noted that licensed mobile fuel delivery vehicles will be utilized to service equipment not located at the locations referenced above. This methodology is consistent with best practices (for fuelling vehicles) used in the Ontario construction industry and other jurisdictions.

Disposal of any hazardous materials will be in accordance with regulatory requirements.

Operation

Hazardous materials are limited to lubricants and fluids that would be on-site for the operation and maintenance of the turbines, substation, and other equipment. These materials will be stored in appropriate storage containers during the operation phase by the operation contractor. Designated storage areas and the type of storage areas would be confirmed by the operation contractor prior to operation. Disposal of any hazardous materials will be in accordance with regulatory requirements. There are no other known hazardous by-products of the wind energy generation process itself.

4.3.5 Sewage**Construction and Decommissioning**

Sanitary waste generated by the construction and decommissioning crews will be collected via portable toilets and wash stations supplied by a third party contractor. Disposal of these wastes

will be the responsibility of the contracted party and will be done in accordance with regulatory requirements.

Operation

The operations and maintenance building would contain restroom and shower facilities that would be serviced by a septic system. Based on the Ontario Building Code criteria, it is anticipated that each employee will generate 125 L of wastewater per shift with the use of showers and other common daily general usage. A conservative estimate of 20 employees was assumed to calculate total sewage generation at 2,500 L/day. An underground septic tank (capacity of 10,000L) would service the operations and maintenance building. Therefore the septic system will have a capacity of four times the required volume.

The final design of the septic system would conform to local building code and health unit requirements.

As appropriate, the contents of the septic tank will be pumped and hauled for off-site disposal by a license waste hauler. It is not anticipated that any chemical inputs will be required for the proper functioning of the septic system.

4.3.6 Stormwater

Construction and Decommissioning

During construction and decommissioning, proper grading would be conducted and mitigation measure implemented to reduce potential for runoff at the work areas.

Operation

The Project is not anticipated to require significant alteration to surface water runoff, or to involve the storage of surface water. As the Subject Property is of limited topographic relief, erosion of excavated materials and changes to stormwater runoff is not anticipated. If required a Stormwater Management Plan would be implemented for the substation property. The Stormwater Management Plan, will be designed in compliance with the "*Stormwater Management Planning and Design Manual*" (MOE, 2003) and Cataraqui Region Conservation Authority (CRCA) requirements.

4.3.7 Water-taking Activities

Construction and Decommissioning

There is potential for groundwater to be encountered during the installation of the turbine foundations, access roads, underground collector lines, cable vaults, substation, switching station and operations and maintenance building. As such, it is possible that some dewatering activities may be required when installing these project components; however withdrawal amounts are anticipated to be below 50,000 L/day.

It is possible that rainwater may collect in the open excavations during construction. It is possible that some dewatering activities would be required.

It is possible that some watercourse crossings would require the use of a dam and pump, where the water may be moved by mechanical means.

Operation

Aboveground potable and non-potable water tanks (capacity of 10,000L) would service the operations and maintenance building. The above ground potable water tank will be replenished as required by a licensed hauler.

No groundwater or surface water supplies are anticipated to be used for the facility. It is expected that water will be used to hose down the floor or the workshop. A sump/drainage pit will collect the residues and drain to the septic system.

5.0 Description of Potential Environmental Effects

O. Reg. 359/09 requires that any adverse environmental effects that may result from engaging in the proposed Project be described in the REA application. The term “environment” in O. Reg. 359/09 has the same meaning as in the *Environmental Assessment Act*, and includes the natural, physical, cultural, and socio-economic environment.

The following is a high level summary of the methodology that has been applied in order to identify potential adverse environmental effects that may result from construction and operation of the Project:

- Collect information on the existing environment using available background information, consultation with stakeholders, and site investigations.
- Review the proposed Project activities in order to predict the potential interactions between the Project and environment.
- Identify potential interactions that could cause an adverse effect on the environment.
- Develop measures to avoid, mitigate, and monitor potential adverse effects.

The following environmental features have been assessed as part of the REA application process:

- Heritage and Archaeological Resources;
- Natural Heritage Resources;
- Water Bodies and Aquatic Resources;
- Air, Odour, Dust;
- Environmental Noise;
- Land Use and Socio-Economic Resources;
- Provincial and Local Infrastructure; and,
- Public Health and Safety.

Mapping provided in **Appendix A** illustrates the natural environment and socio-economic features and shows the 300 m study area around the Project Location boundary. The detailed studies in the *Draft Natural Heritage Assessment and Environmental Impact Study (NHA/EIS)* and the *Draft Water Assessment and Water Body Report (WAWBR)*, and subsequent addenda to each report, are completed in the context of a 120 m zone of investigation, also shown on mapping provided in **Appendix A**.

For some natural environment and socio-economic features, avoidance during Project siting and mitigation measures are anticipated to eliminate all effects. The application of these principles has greatly reduced the potential for adverse environmental effects from the Project.

The key performance objective for each of the features noted above is avoiding and/or minimizing potential effects (through the use of appropriate mitigation measures) to the features throughout the construction, operation and decommissioning phases of the Project. The proposed mitigation measures would assist in achieving this performance objective.

A summary of potential effects and mitigation strategies with corresponding performance objectives, monitoring plans and contingency measures that have been identified which may result from the construction, operation and decommissioning of the Project is provided in **Appendix B**.

6.0 Closure

The Amherst Island Wind Energy Project *Draft Project Description Report* has been prepared by Stantec for Windlectric in accordance with Ontario Regulation 359/09, and in consideration of the *Technical Guide to Renewable Energy Approvals*.

This report has been prepared by Stantec Consulting Ltd. for the sole benefit of Windlectric, and may not be used by any third party without the express written consent of Windlectric and Stantec Consulting Ltd. 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.

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7.0 References

Canadian Environmental Assessment Agency. 1992. Canadian Environmental Assessment Act. Bill C-37. Last amended July 7, 2010.

Ontario Ministry of the Environment, 2008. Noise Guidelines for Wind Farms. Queen's Printer for Ontario. PIBS 4709e. October 2008.

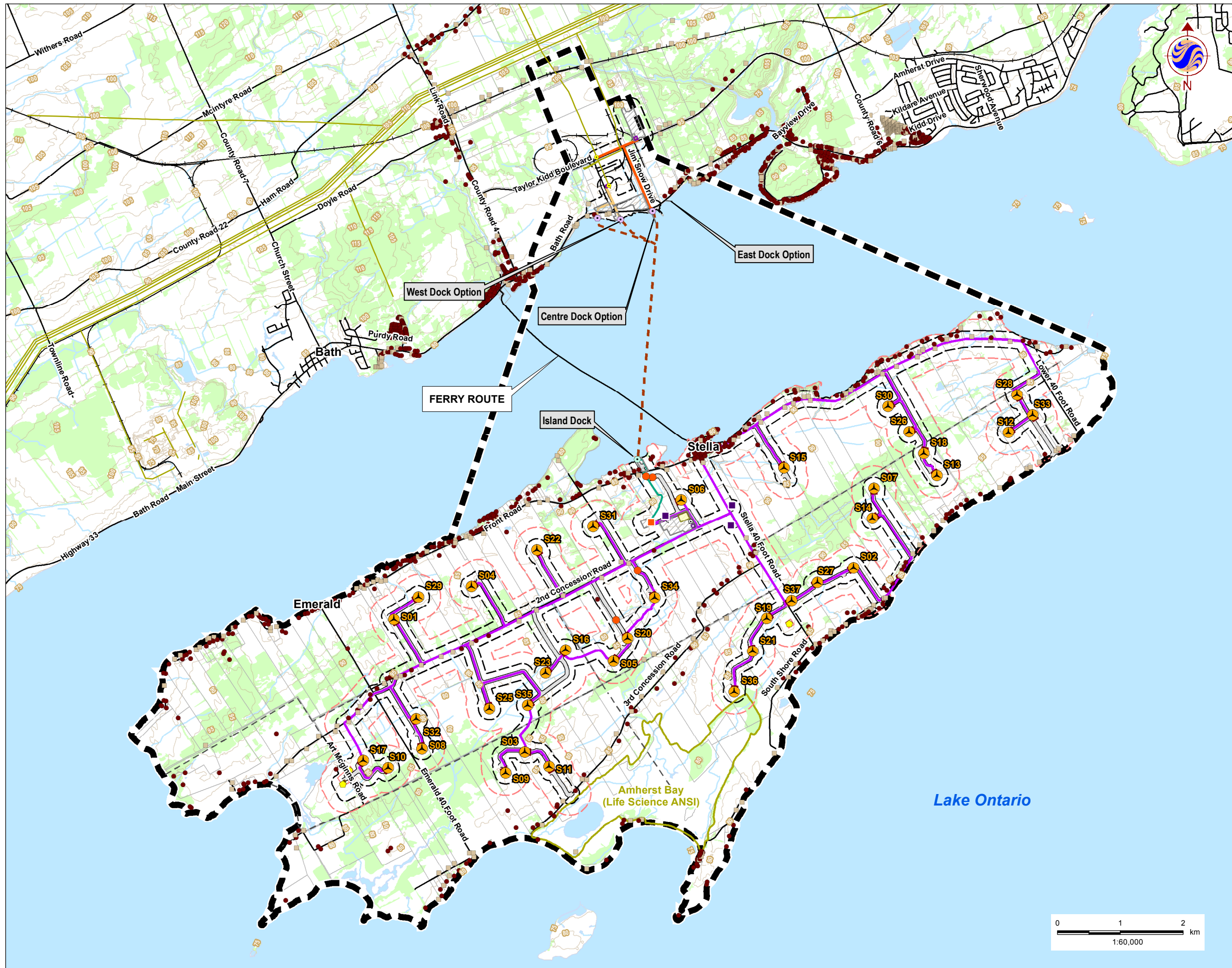
Ontario Ministry of the Environment, 2011. Technical Guide to Renewable Energy Approvals. Renewable Energy Approvals. Queen's Printer for Ontario.

Ontario Regulation 359/09. Renewable Energy Approvals Under Part V.0.1 of the Act made under the Environmental Protection Act.

Ontario Regulation 419/05. Air Pollution – Local Air Quality.

Appendix A

Figures



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
- Turbine
- Met Tower (Potential Location)
- Substation (Potential Location)
- Access Road
- Collector Lines
- Submarine Cable Path
- Laydown Area and Crane Path
- Operation and Maintenance Building (Potential Location)
- Potential Culvert Location
- Point of Common Coupling
- Mainland Cable Vault (Potential Location)
- Island Cable Vault
- Aboveground Storage Tanks (Potential Location)
- Constructible Area
- Mainland Dock (Potential Location)
- Island Dock
- Batch Plant (Potential Location)
- Site Office (Potential Location)
- Storage Shed
- Transmission Lines**
- Mainland Option 1
- Mainland Option 2
- Island Transmission Line
- Land Use**
- Central Staging Area
- Switching Station (Potential Location)
- Noise Receptors**
- Existing
- Vacant
- Existing Features**
- Road
- Unopened Road Allowance
- Railway
- Elevation Contour (metres ASL)
- Hydro Line
- Watercourse
- Waterbody
- Wooded Area
- ANSI Boundary
- Property Boundary

Notes

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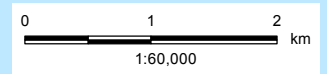
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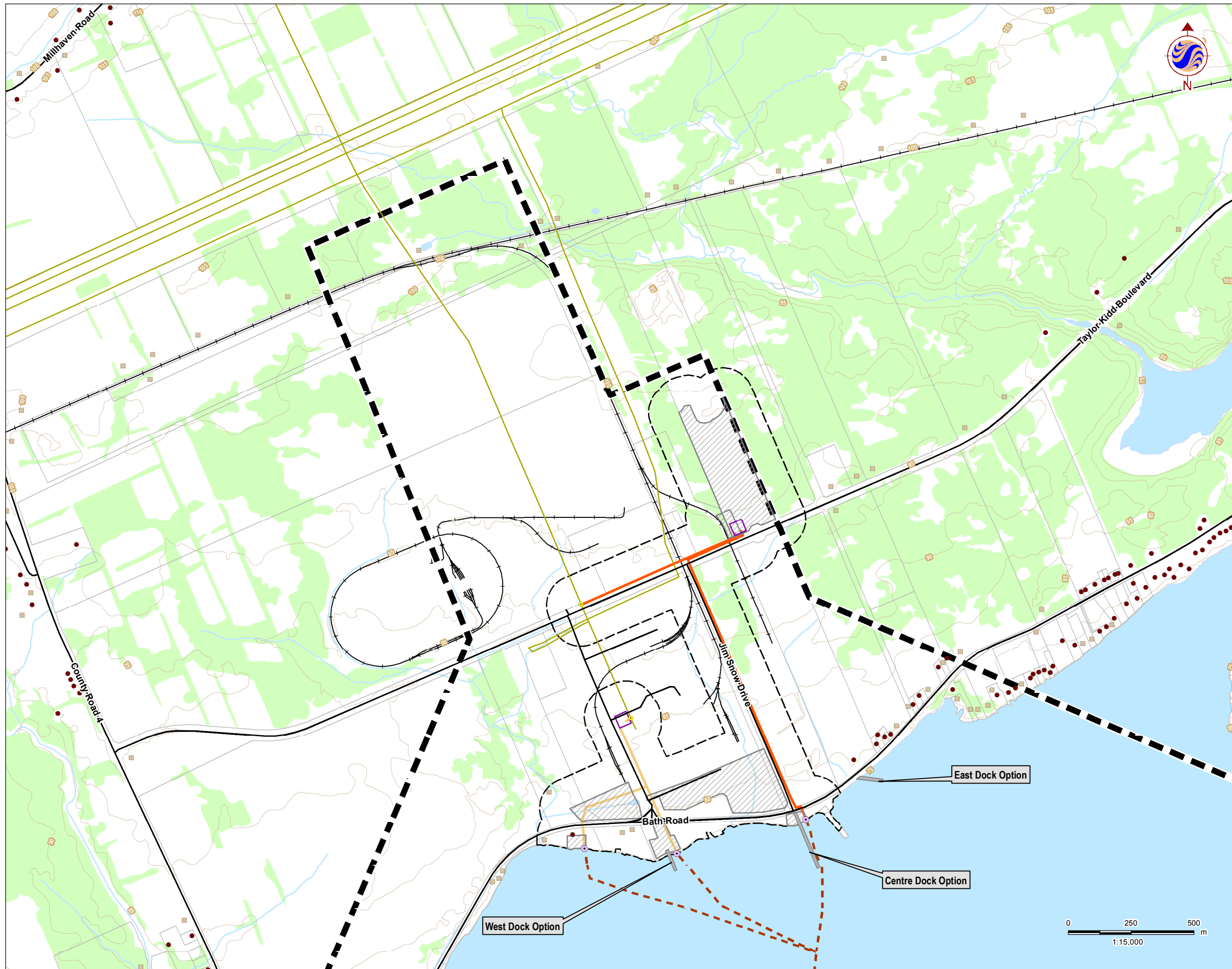
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**WINDLECTRIC INC.
AMHERST ISLAND WIND ENERGY PROJECT**

Figure No.
1

Title
Project Location & Study Area



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Revised: 2013-11-20 By: pworsell



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
- Turbine
- Met Tower (Potential Location)
- Substation (Potential Location)
- Access Road
- Collector Lines
- Submarine Cable Path
- Laydown Area and Crane Path
- Operation and Maintenance Building (Potential Location)
- Potential Culvert Location
- Point of Common Coupling
- Mainland Cable Vault (Potential Location)
- Island Cable Vault
- Aboveground Storage Tanks (Potential Location)
- Constructible Area
- Mainland Dock (Potential Location)
- Island Dock
- Batch Plant (Potential Location)
- Site Office (Potential Location)
- Storage Shed
- Transmission Lines**
- Mainland Option 1
- Mainland Option 2
- Island Transmission Line
- Land Use**
- Central Staging Area
- Switching Station (Potential Location)
- Noise Receptors**
- Existing
- Vacant
- Existing Features**
- Road
- Unopened Road Allowance
- Railway
- Elevation Contour (metres ASL)
- Hydro Line
- Watercourse
- Waterbody
- Wooded Area
- ANSI Boundary
- Property Boundary

Notes

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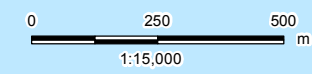
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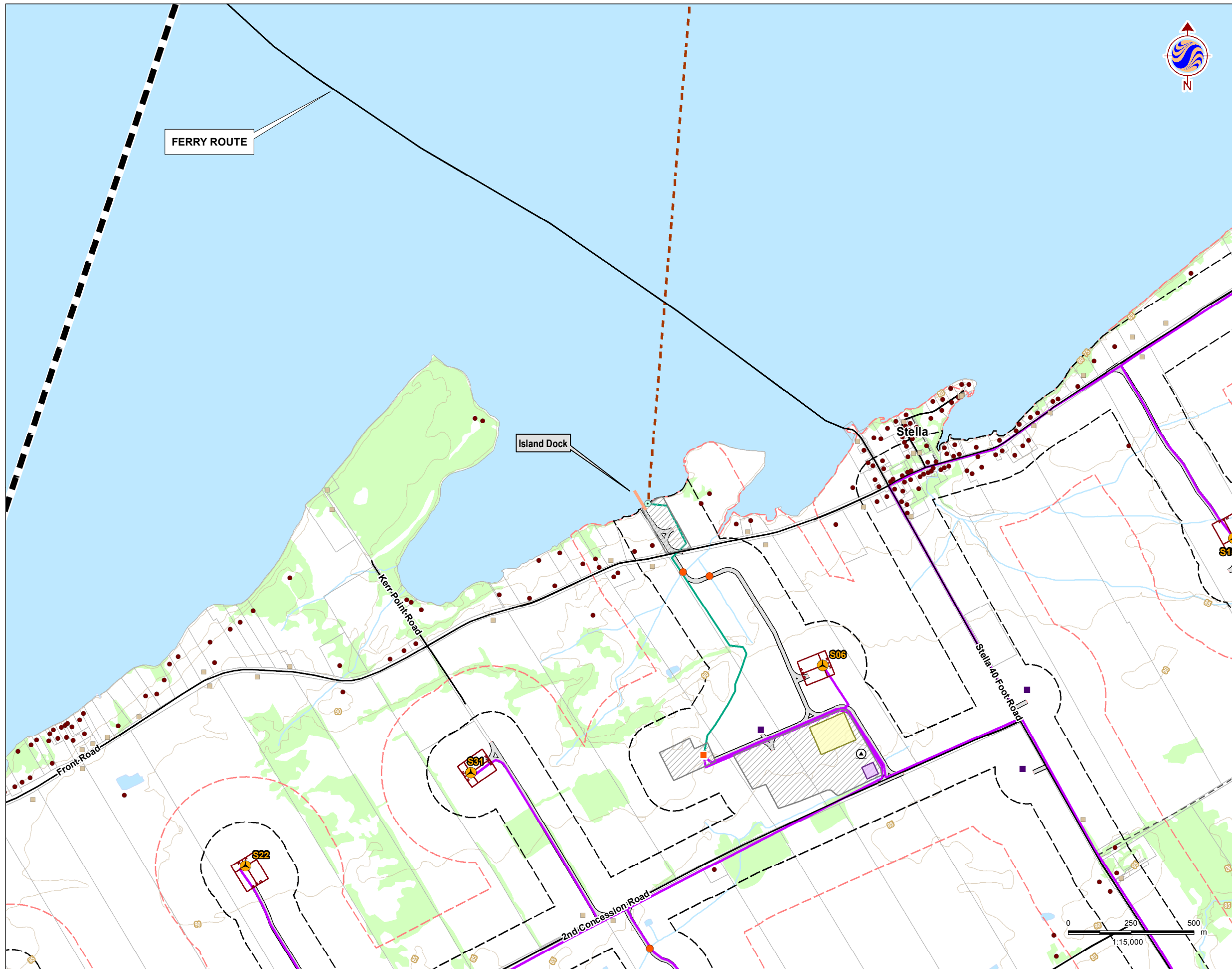
Figure No.

1.1

Title

Project Location & Study Area





Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
- Turbine
- Met Tower (Potential Location)
- Substation (Potential Location)
- Access Road
- Collector Lines
- Submarine Cable Path
- Laydown Area and Crane Path
- Operation and Maintenance Building (Potential Location)
- Potential Culvert Location
- Point of Common Coupling
- Mainland Cable Vault (Potential Location)
- Island Cable Vault
- Aboveground Storage Tanks (Potential Location)
- Constructible Area
- Mainland Dock (Potential Location)
- Island Dock
- Batch Plant (Potential Location)
- Site Office (Potential Location)
- Storage Shed
- Transmission Lines**
- Mainland Option 1
- Mainland Option 2
- Island Transmission Line
- Land Use**
- Central Staging Area
- Switching Station (Potential Location)
- Noise Receptors**
- Existing
- Vacant
- Existing Features**
- Road
- Unopened Road Allowance
- Railway
- Elevation Contour (metres ASL)
- Hydro Line
- Watercourse
- Waterbody
- Wooded Area
- ANSI Boundary
- Property Boundary

Notes

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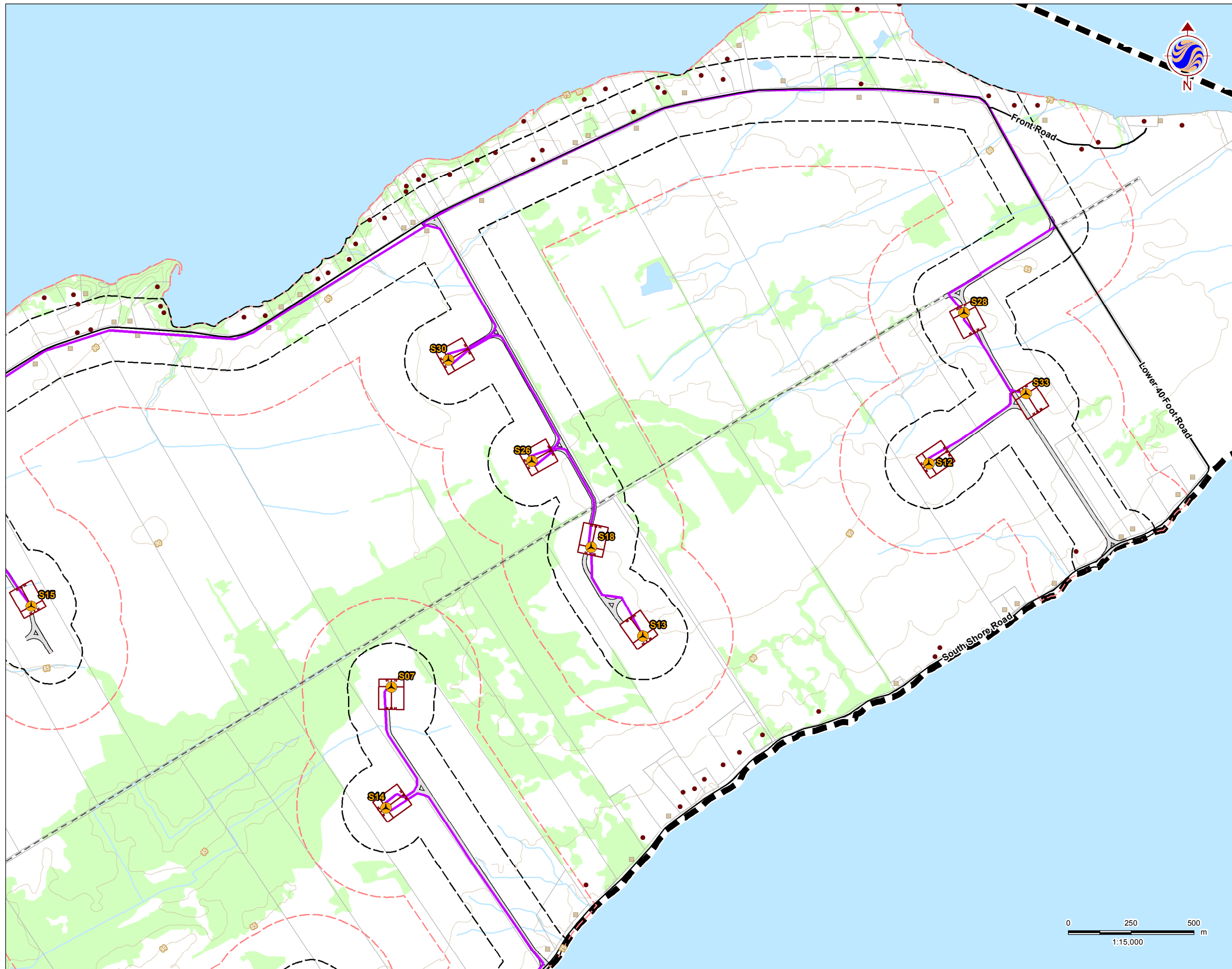
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AMHERST ISLAND WIND ENERGY PROJECT

Figure No.

1.2

Title

Project Location & Study Area



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
- Turbine
- Met Tower (Potential Location)
- Substation (Potential Location)
- Access Road
- Collector Lines
- Submarine Cable Path
- Laydown Area and Crane Path
- Operation and Maintenance Building (Potential Location)
- Potential Culvert Location
- Point of Common Coupling
- Mainland Cable Vault (Potential Location)
- Island Cable Vault
- Aboveground Storage Tanks (Potential Location)
- Constructible Area
- Mainland Dock (Potential Location)
- Island Dock
- Batch Plant (Potential Location)
- Site Office (Potential Location)
- Storage Shed
- Transmission Lines**
- Mainland Option 1
- Mainland Option 2
- Island Transmission Line
- Land Use**
- Central Staging Area
- Switching Station (Potential Location)
- Noise Receptors**
- Existing
- Vacant
- Existing Features**
- Road
- Unopened Road Allowance
- Railway
- Elevation Contour (metres ASL)
- Hydro Line
- Watercourse
- Waterbody
- Wooded Area
- ANSI Boundary
- Property Boundary

Notes

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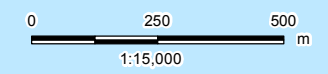
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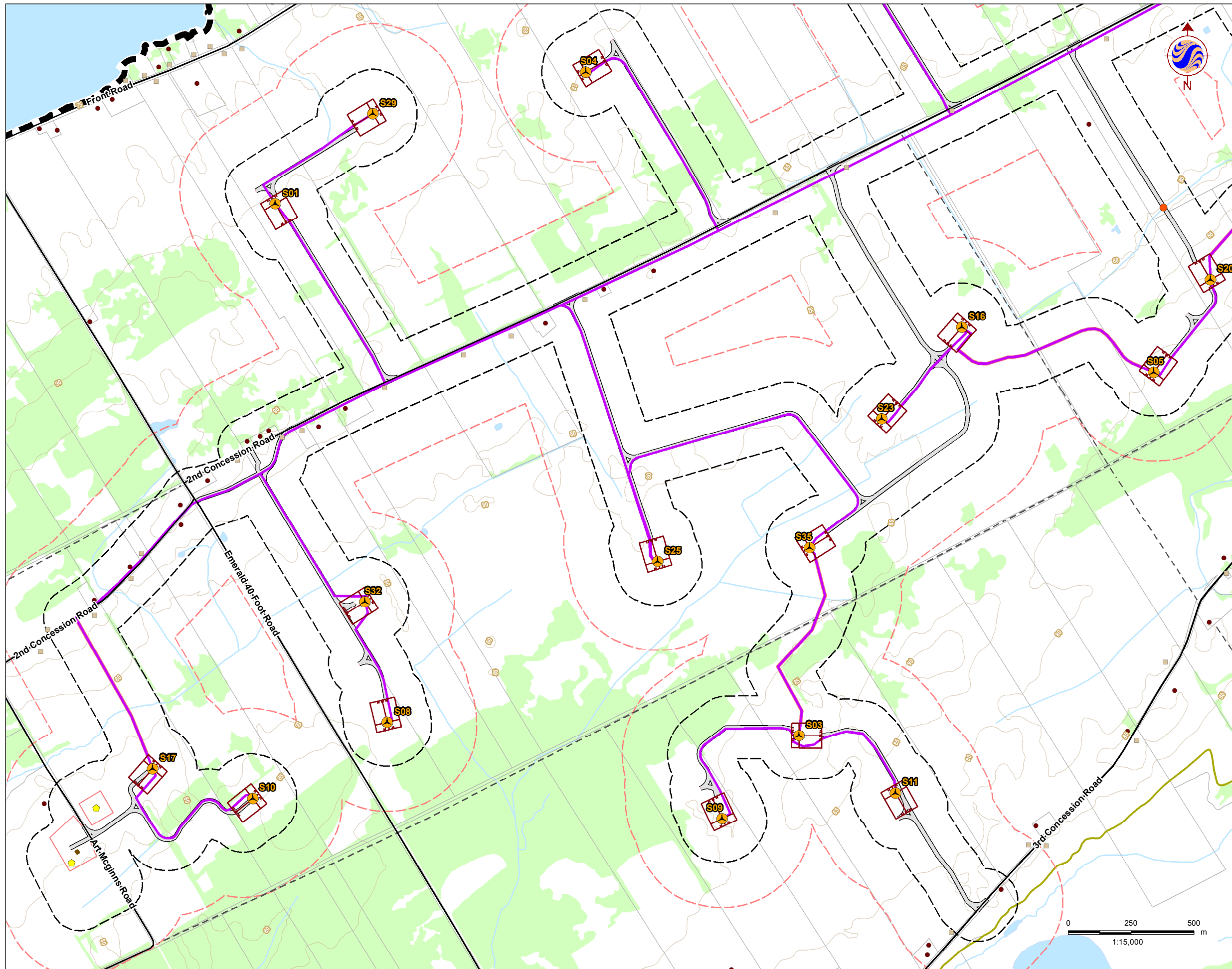
Figure No.

1.3

Title

Project Location & Study Area





Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
- Turbine
- Met Tower (Potential Location)
- Substation (Potential Location)
- Access Road
- Collector Lines
- Submarine Cable Path
- Laydown Area and Crane Path
- Operation and Maintenance Building (Potential Location)
- Potential Culvert Location
- Point of Common Coupling
- Mainland Cable Vault (Potential Location)
- Island Cable Vault
- Aboveground Storage Tanks (Potential Location)
- Constructible Area
- Mainland Dock (Potential Location)
- Island Dock
- Batch Plant (Potential Location)
- Site Office (Potential Location)
- Storage Shed
- Transmission Lines**
- Mainland Option 1
- Mainland Option 2
- Island Transmission Line
- Land Use**
- Central Staging Area
- Switching Station (Potential Location)
- Noise Receptors**
- Existing
- Vacant
- Existing Features**
- Road
- Unopened Road Allowance
- Railway
- Elevation Contour (metres ASL)
- Hydro Line
- Watercourse
- Waterbody
- Wooded Area
- ANSI Boundary
- Property Boundary

Notes

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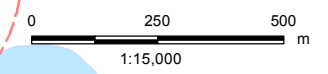
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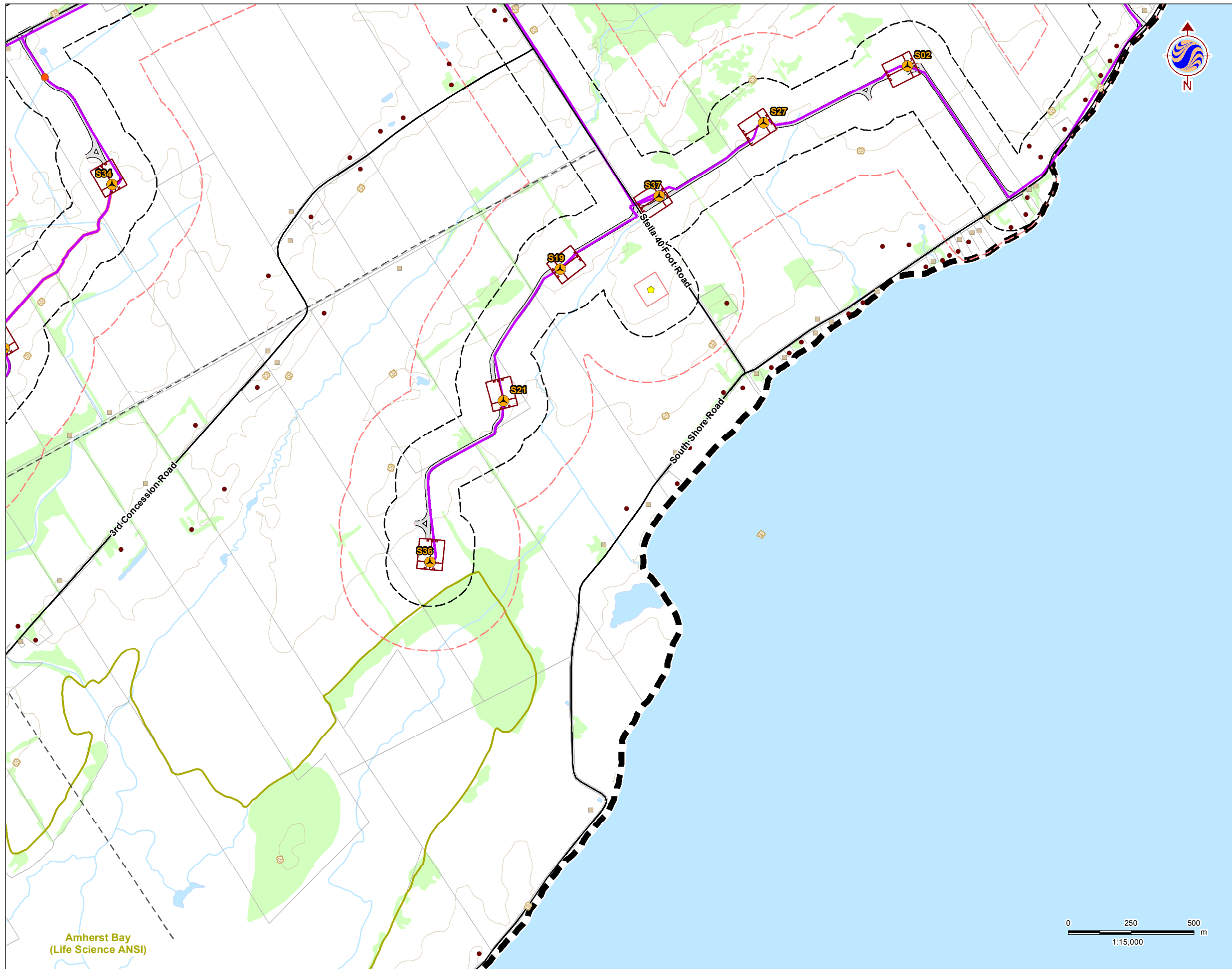
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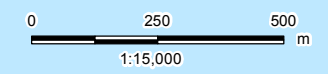
Title

Project Location & Study Area





Amherst Bay
(Life Science ANSI)



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
- Turbine
- Met Tower (Potential Location)
- Substation (Potential Location)
- Access Road
- Collector Lines
- Submarine Cable Path
- Laydown Area and Crane Path
- Operation and Maintenance Building (Potential Location)
- Potential Culvert Location
- Point of Common Coupling
- Mainland Cable Vault (Potential Location)
- Island Cable Vault
- Aboveground Storage Tanks (Potential Location)
- Constructible Area
- Mainland Dock (Potential Location)
- Island Dock
- Batch Plant (Potential Location)
- Site Office (Potential Location)
- Storage Shed
- Transmission Lines**
- Mainland Option 1
- Mainland Option 2
- Island Transmission Line
- Land Use**
- Central Staging Area
- Switching Station (Potential Location)
- Noise Receptors**
- Existing
- Vacant
- Existing Features**
- Road
- Unopened Road Allowance
- Railway
- Elevation Contour (metres ASL)
- Hydro Line
- Watercourse
- Waterbody
- Wooded Area
- ANSI Boundary
- Property Boundary

Notes

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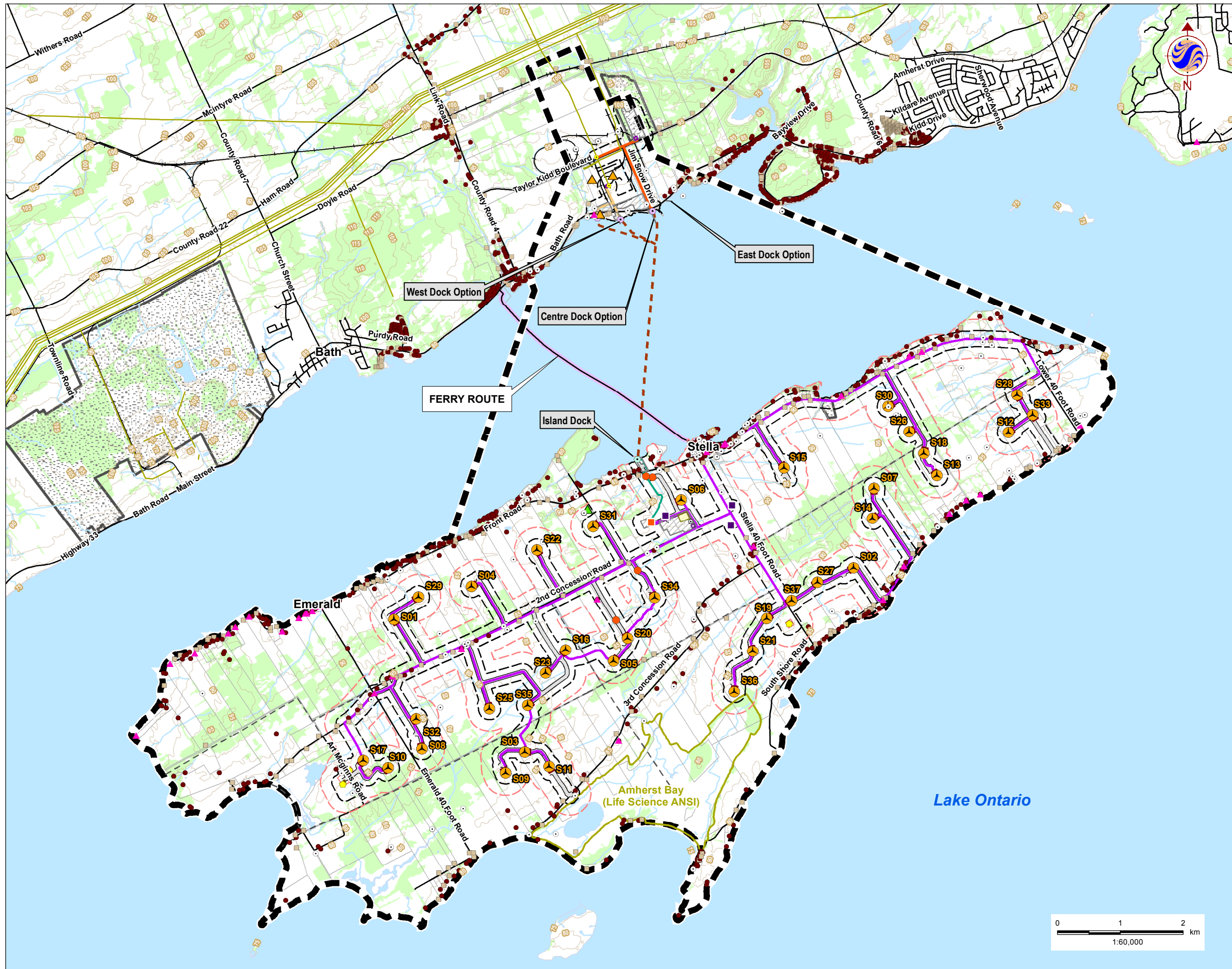
WINDLECTRIC INC.
AMHERST ISLAND WIND ENERGY PROJECT

Figure No.

1.5

Title

Project Location & Study Area



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
 - Turbine
 - Met Tower (Potential Location)
 - Substation (Potential Location)
 - Access Road
 - Collector Lines
 - Submarine Cable Path
 - Laydown Area and Crane Path
 - Operation and Maintenance Building (Potential Location)
 - Potential Culvert Location
 - Point of Common Coupling
 - Mainland Cable Vault (Potential Location)
 - Island Cable Vault
 - Aboveground Storage Tanks (Potential Location)
 - Constructible Area
 - Mainland Dock (Potential Location)
 - Island Dock
 - Batch Plant (Potential Location)
 - Site Office (Potential Location)
 - Storage Shed
- Transmission Lines**
 - Mainland Option 1
 - Mainland Option 2
 - Island Transmission Line
- Land Use**
 - Central Staging Area
 - Switching Station (Potential Location)
- Noise Receptors**
 - Existing
 - Vacant
- Existing Features**
 - Road
 - Unopened Road
 - Railway
 - Elevation Contour (metres ASL)
 - Hydro Line
 - Watercourse
 - Waterbody
 - Wooded Area
 - Aggregate Site - Active
 - ANSI Boundary
 - Property Boundary
 - Landfill - Active
 - Landfill - Closed
 - Water Well Record
 - Built Heritage Resource
 - Ferry Landscape
 - Village of Stella



Notes
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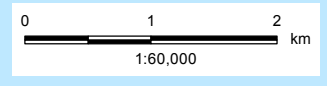
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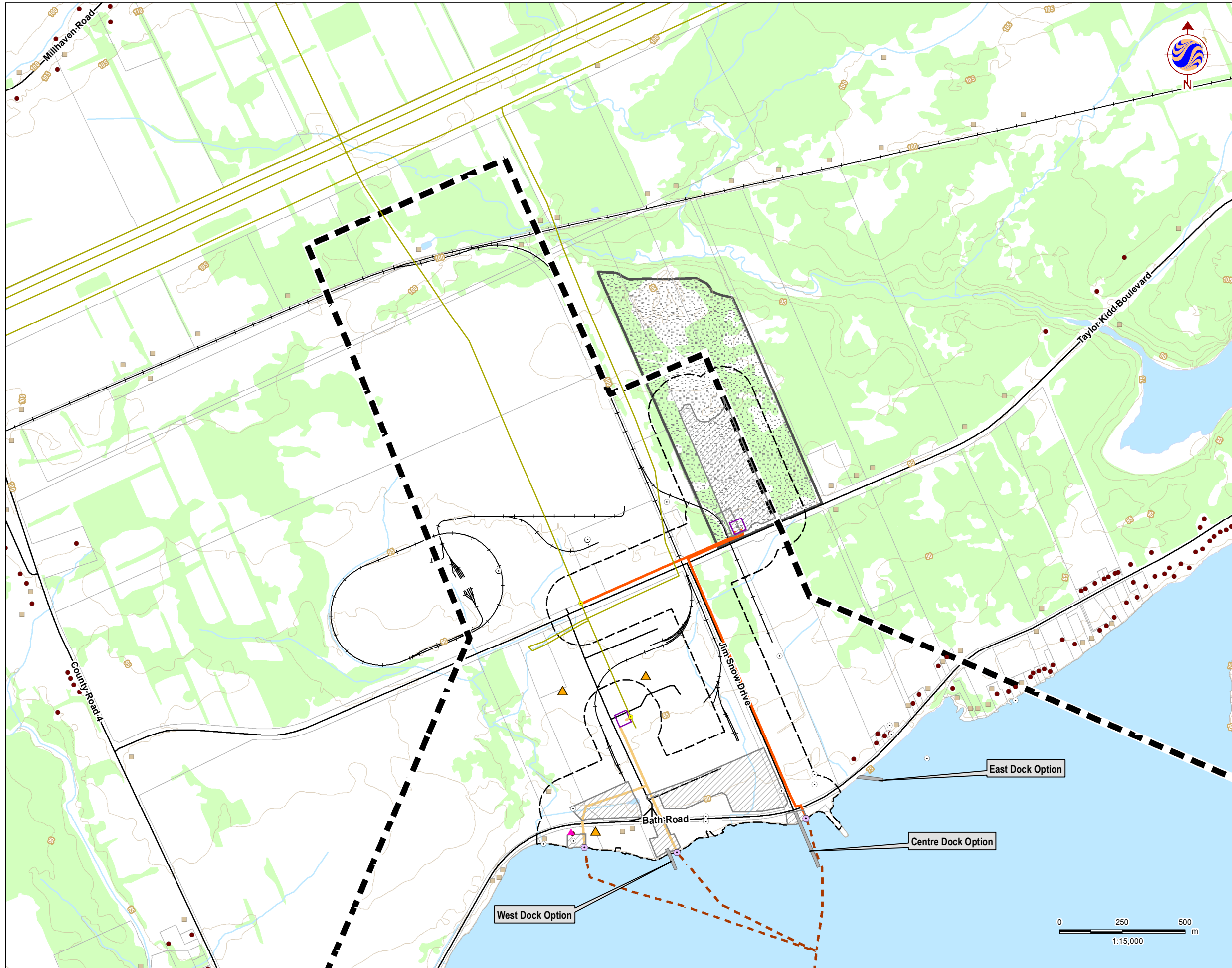
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 AMHERST ISLAND WIND ENERGY PROJECT

Figure No.
 2

Title
Socio-Economic Features - Overview





Legend

- | | | | |
|--|---|--|--------------------------------|
| | Project Study Area | | Noise Receptors |
| | 300m Zone of Investigation | | Existing Features |
| | 120m Zone of Investigation | | Road |
| | Project Components | | Unopened Road |
| | Turbine | | Allowance |
| | Met Tower (Potential Location) | | Railway |
| | Substation (Potential Location) | | Elevation Contour (metres ASL) |
| | Access Road | | Watercourse |
| | Collector Lines | | Hydro Line |
| | Submarine Cable Path | | Waterbody |
| | Laydown Area and Crane Path | | Wooded Area |
| | Operation and Maintenance Building (Potential Location) | | Aggregate Site - Active |
| | Potential Culvert Location | | ANSI Boundary |
| | Point of Common Coupling | | Property Boundary |
| | Mainland Cable Vault (Potential Location) | | Water Well Record |
| | Island Cable Vault | | Built Heritage Resource |
| | Aboveground Storage Tanks (Potential Location) | | Ferry Landscape |
| | Constructible Area | | Village of Stella |
| | Mainland Dock (Potential Location) | | Landfill - Active |
| | Island Dock | | Landfill - Closed |
| | Batch Plant (Potential Location) | | |
| | Site Office (Potential Location) | | |
| | Storage Shed | | |
| | Transmission Lines | | |
| | Mainland Option 1 | | |
| | Mainland Option 2 | | |
| | Island Transmission Line | | |
| | Land Use | | |
| | Central Staging Area | | |
| | Switching Station (Potential Location) | | |

Notes

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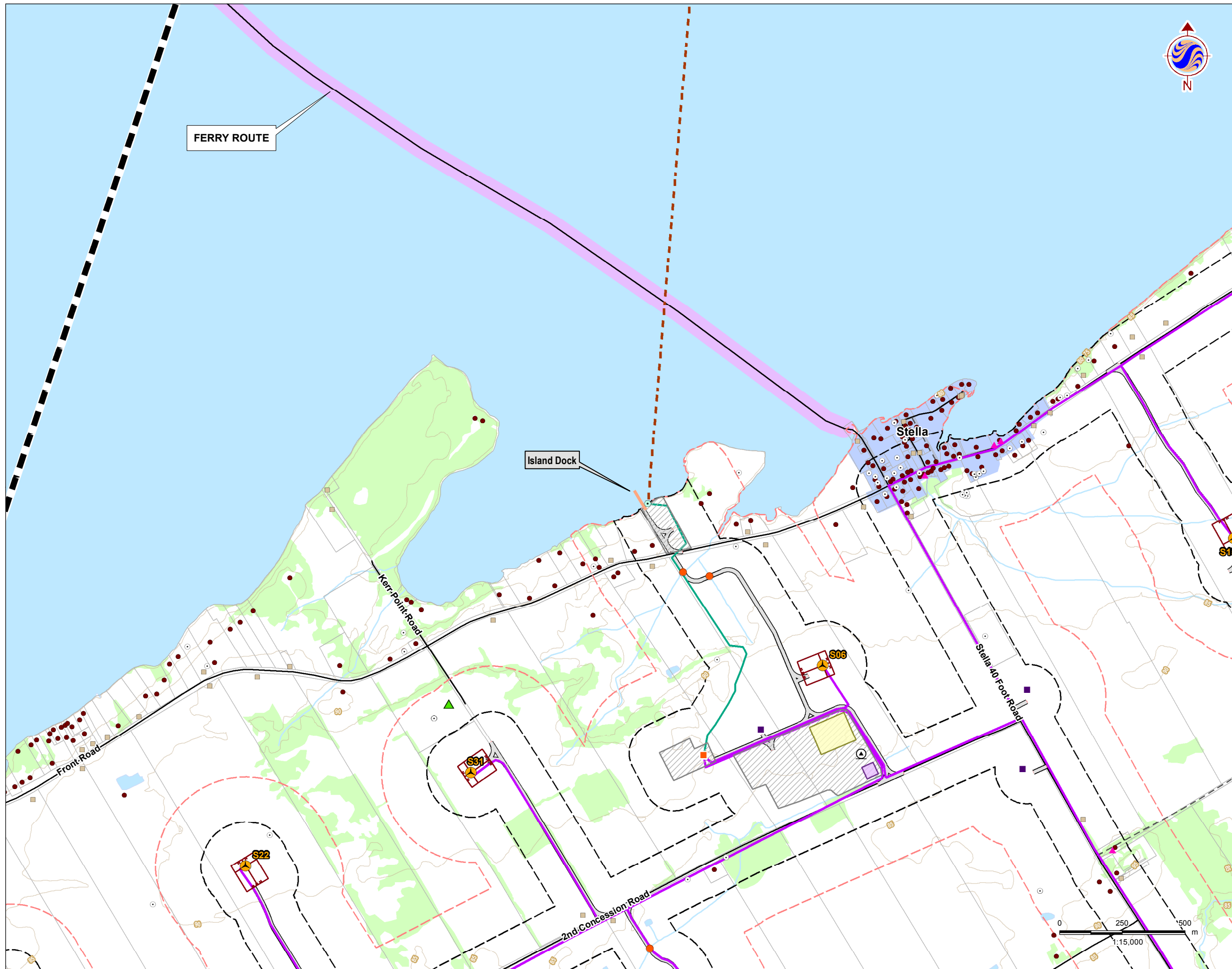
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AMHERST ISLAND WIND ENERGY PROJECT

Figure No.

2.1

Title

Socio-Economic Features



Legend

- | | | | | |
|---------------------------|---|--------------------------|--|--------------------------------|
| | Project Study Area | Noise Receptors | | Existing |
| | 300m Zone of Investigation | | | Vacant |
| | 120m Zone of Investigation | Existing Features | | Road |
| Project Components | | | | Unopened Road |
| | Turbine | | | Allowance |
| | Met Tower (Potential Location) | | | Railway |
| | Substation (Potential Location) | | | Elevation Contour (metres ASL) |
| | Access Road | | | Watercourse |
| | Collector Lines | | | Hydro Line |
| | Submarine Cable Path | | | Waterbody |
| | Laydown Area and Crane Path | | | Wooded Area |
| | Operation and Maintenance Building (Potential Location) | | | Aggregate Site - Active |
| | Potential Culvert Location | | | ANSI Boundary |
| | Point of Common Coupling | | | Property Boundary |
| | Mainland Cable Vault (Potential Location) | | | Water Well Record |
| | Island Cable Vault | | | Built Heritage Resource |
| | Aboveground Storage Tanks (Potential Location) | | | Ferry Landscape |
| | Constructible Area | | | Village of Stella |
| | Mainland Dock (Potential Location) | | | Landfill - Active |
| | Island Dock | | | Landfill - Closed |
| | Batch Plant (Potential Location) | | | |
| | Site Office (Potential Location) | | | |
| | Storage Shed | | | |
| Transmission Lines | | | | |
| | Mainland Option 1 | | | |
| | Mainland Option 2 | | | |
| | Island Transmission Line | | | |
| Land Use | | | | |
| | Central Staging Area | | | |
| | Switching Station (Potential Location) | | | |



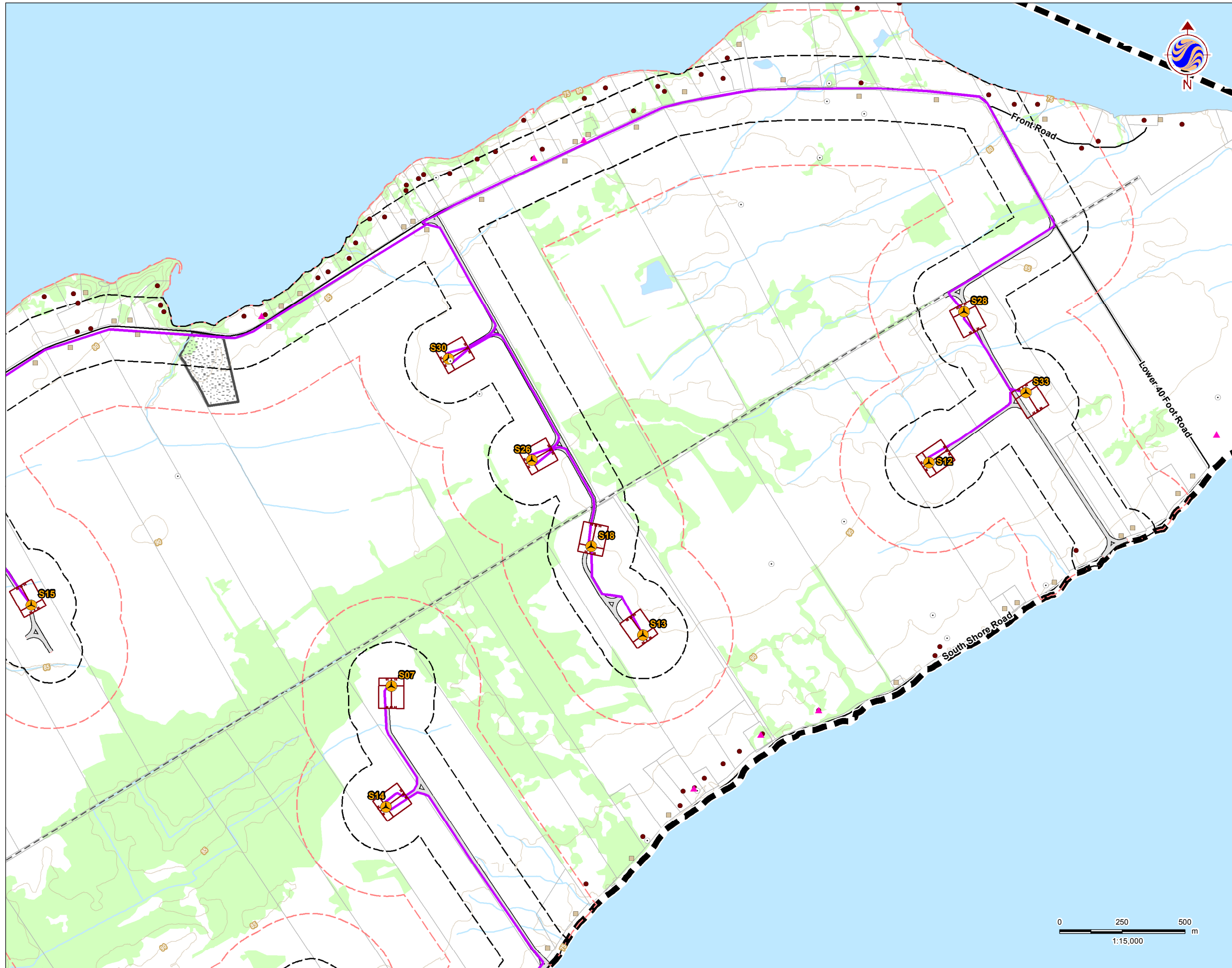
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 AMHERST ISLAND WIND ENERGY PROJECT**

Figure No.
2.2

Title
Socio-Economic Features



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
 - Turbine
 - Met Tower (Potential Location)
 - Substation (Potential Location)
 - Access Road
 - Collector Lines
 - Submarine Cable Path
 - Laydown Area and Crane Path
 - Operation and Maintenance Building (Potential Location)
 - Potential Culvert Location
 - Point of Common Coupling
 - Mainland Cable Vault (Potential Location)
 - Island Cable Vault
 - Aboveground Storage Tanks (Potential Location)
 - Constructible Area
 - Mainland Dock (Potential Location)
 - Island Dock
 - Batch Plant (Potential Location)
 - Site Office (Potential Location)
 - Storage Shed
- Transmission Lines**
 - Mainland Option 1
 - Mainland Option 2
 - Island Transmission Line
- Land Use**
 - Central Staging Area
 - Switching Station (Potential Location)
- Noise Receptors**
 - Existing
 - Vacant
- Existing Features**
 - Road
 - Unopened Road
 - Railway
 - Elevation Contour (metres ASL)
 - Watercourse
 - Hydro Line
 - Waterbody
 - Wooded Area
 - Aggregate Site - Active
 - ANSI Boundary
 - Property Boundary
 - Water Well Record
 - Built Heritage Resource
 - Ferry Landscape
 - Village of Stella
 - Landfill - Active
 - Landfill - Closed

- Notes**
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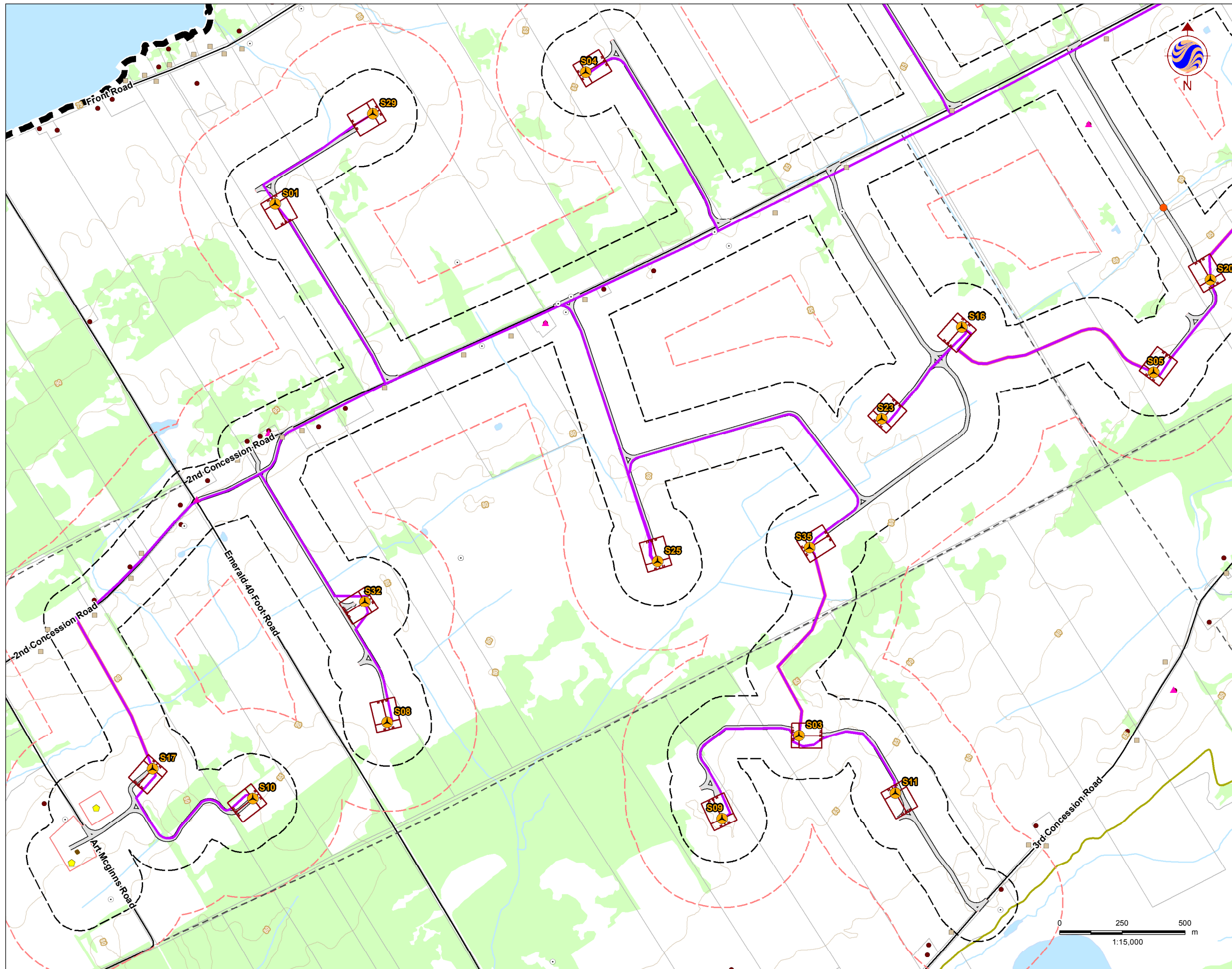
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Client/Project
**WINDLECTRIC INC.
AMHERST ISLAND WIND ENERGY PROJECT**

Figure No.
2.3

Title
Socio-Economic Features



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
 - Turbine
 - Met Tower (Potential Location)
 - Substation (Potential Location)
 - Access Road
 - Collector Lines
 - Submarine Cable Path
 - Laydown Area and Crane Path
 - Operation and Maintenance Building (Potential Location)
 - Potential Culvert Location
 - Point of Common Coupling
 - Mainland Cable Vault (Potential Location)
 - Island Cable Vault
 - Aboveground Storage Tanks (Potential Location)
 - Constructible Area
 - Mainland Dock (Potential Location)
 - Island Dock
 - Batch Plant (Potential Location)
 - Site Office (Potential Location)
 - Storage Shed
- Transmission Lines**
 - Mainland Option 1
 - Mainland Option 2
 - Island Transmission Line
- Land Use**
 - Central Staging Area
 - Switching Station (Potential Location)
- Noise Receptors**
 - Existing
 - Vacant
- Existing Features**
 - Road
 - Unopened Road
 - Allowance
 - Railway
 - Elevation Contour (metres ASL)
 - Watercourse
 - Hydro Line
 - Waterbody
 - Wooded Area
 - Aggregate Site - Active
 - ANSI Boundary
 - Property Boundary
 - Water Well Record
 - Built Heritage Resource
 - Ferry Landscape
 - Village of Stella
 - Landfill - Active
 - Landfill - Closed

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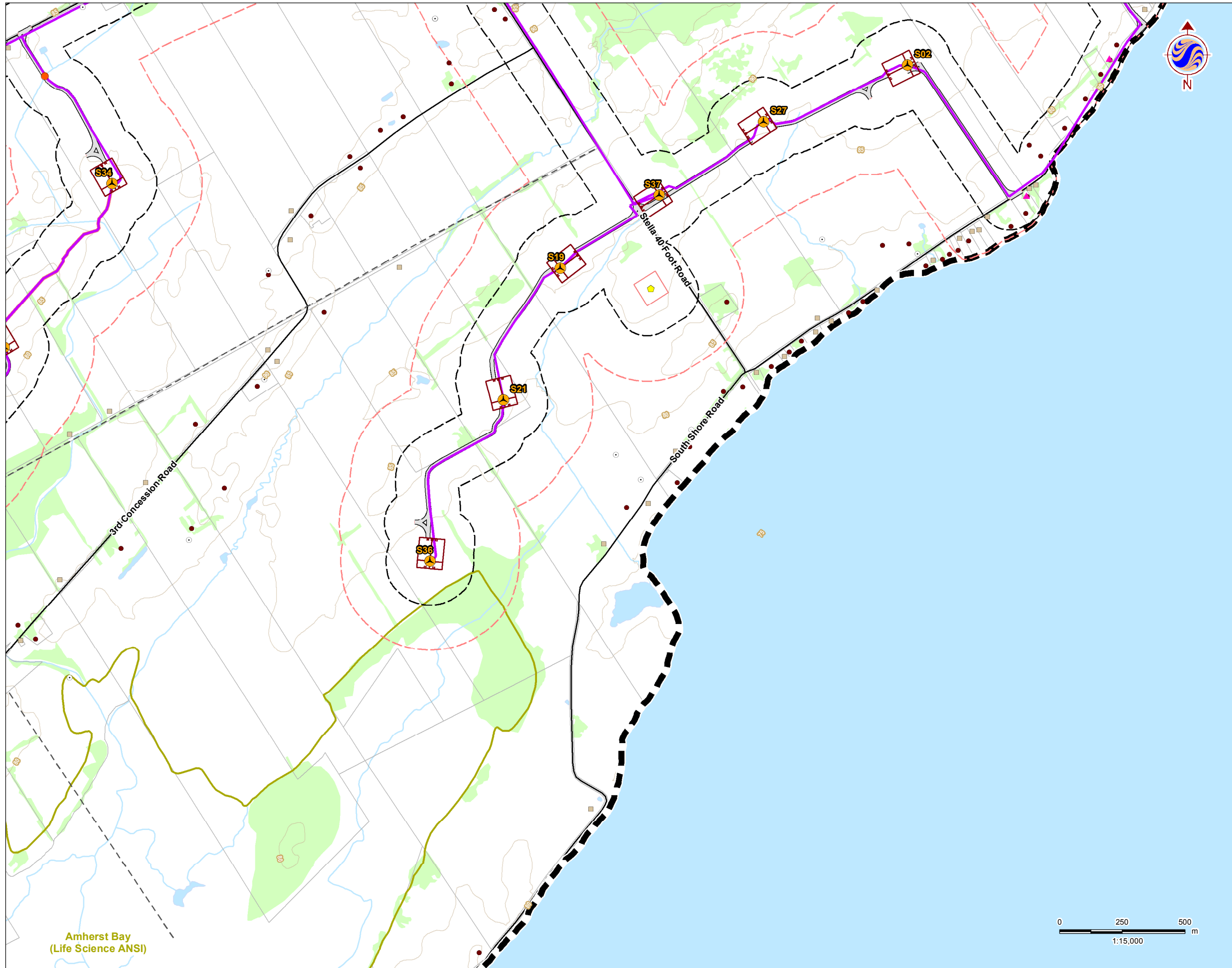
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**WINDLECTRIC INC.
 AMHERST ISLAND WIND ENERGY PROJECT**

Figure No.
2.4

Title

Socio-Economic Features



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
- Turbine
- Met Tower (Potential Location)
- Substation (Potential Location)
- Access Road
- Collector Lines
- Submarine Cable Path
- Laydown Area and Crane Path
- Operation and Maintenance Building (Potential Location)
- Potential Culvert Location
- Point of Common Coupling
- Mainland Cable Vault (Potential Location)
- Island Cable Vault
- Aboveground Storage Tanks (Potential Location)
- Constructible Area
- Mainland Dock (Potential Location)
- Island Dock
- Batch Plant (Potential Location)
- Site Office (Potential Location)
- Storage Shed
- Transmission Lines**
- Mainland Option 1
- Mainland Option 2
- Island Transmission Line
- Land Use**
- Central Staging Area
- Switching Station (Potential Location)
- Noise Receptors**
- Existing
- Vacant
- Existing Features**
- Road
- Unopened Road
- Allowance
- Railway
- Elevation Contour (metres ASL)
- Watercourse
- Hydro Line
- Waterbody
- Wooded Area
- Aggregate Site - Active
- ANSI Boundary
- Property Boundary
- Water Well Record
- Built Heritage Resource
- Ferry Landscape
- Village of Stella
- Landfill - Active
- Landfill - Closed

- Notes**
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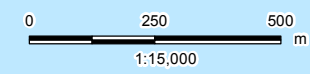
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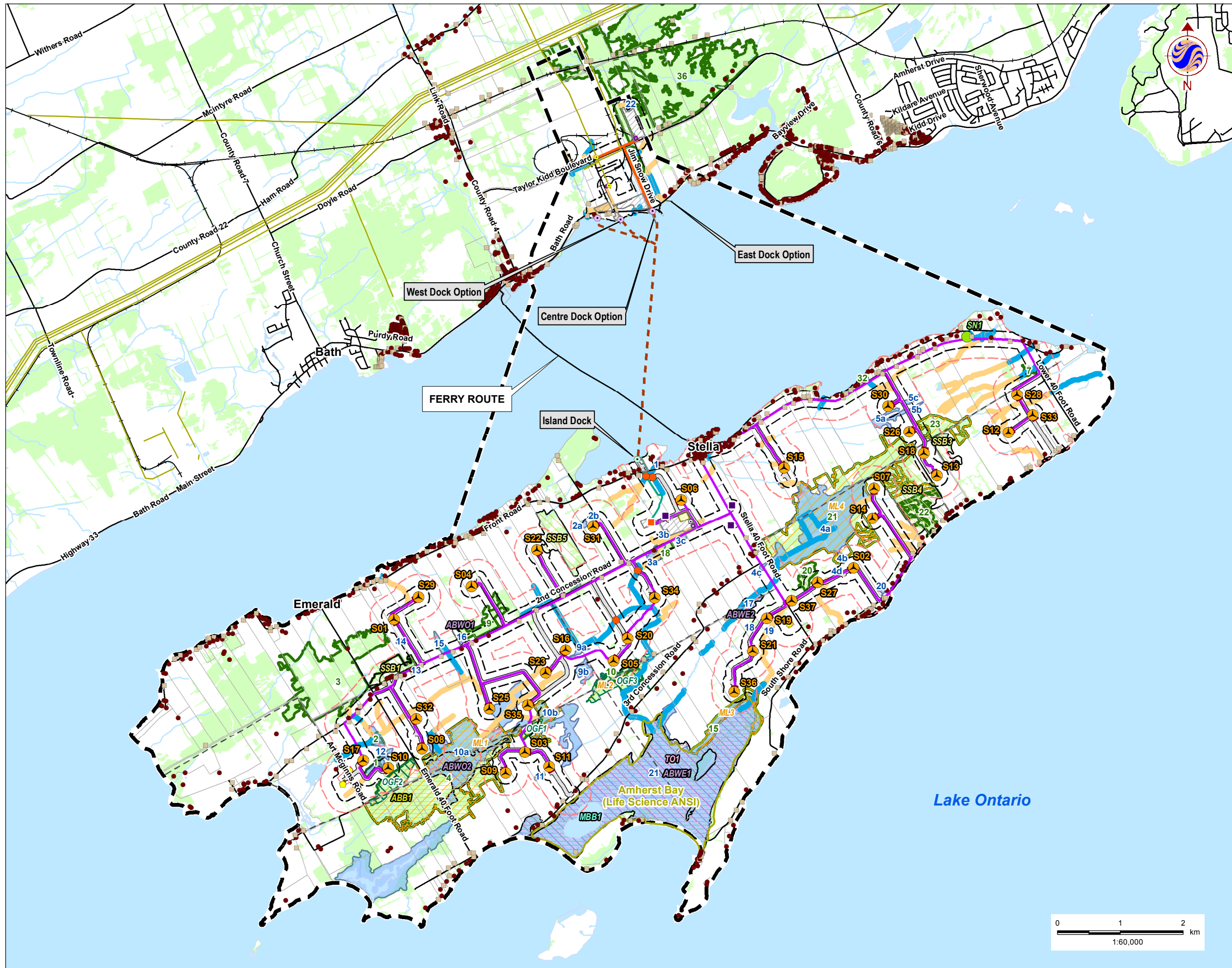
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Client/Project
**WINDLECTRIC INC.
AMHERST ISLAND WIND ENERGY PROJECT**

Figure No.
2.5

Title
Socio-Economic Features





Legend

	Project Study Area		Noise Receptors
	300m Zone of Investigation		Noise Receptors
	120m Zone of Investigation		Existing Features
	Turbine		Existing Features
	Met Tower (Potential Location)		Existing Features
	Substation (Potential Location)		Existing Features
	Access Road		Existing Features
	Collector Lines		Existing Features
	Submarine Cable Path		Existing Features
	Laydown Area and Crane Path		Existing Features
	Operation and Maintenance Building (Potential Location)		Existing Features
	Potential Culvert Location		Existing Features
	Point of Common Coupling		RE Status
	Mainland Cable Vault (Potential Location)		RE Status
	Island Cable Vault		Significant Wildlife Habitat Features
	Aboveground Storage Tanks (Potential Location)		Significant Wildlife Habitat Features
	Constructible Area		Significant Wildlife Habitat Features
	Mainland Dock (Potential Location)		Significant Wildlife Habitat Features
	Island Dock		Significant Wildlife Habitat Features
	Batch Plant (Potential Location)		Significant Wildlife Habitat Features
	Site Office (Potential Location)		Significant Wildlife Habitat Features
	Storage Shed		Significant Wildlife Habitat Features
	Mainland Option 1		Significant Wildlife Habitat Features
	Mainland Option 2		Significant Wildlife Habitat Features
	Island Transmission Line		Significant Wildlife Habitat Features
	Central Staging Area		
	Switching Station (Potential Location)		

Notes

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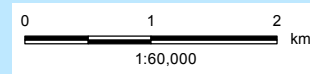
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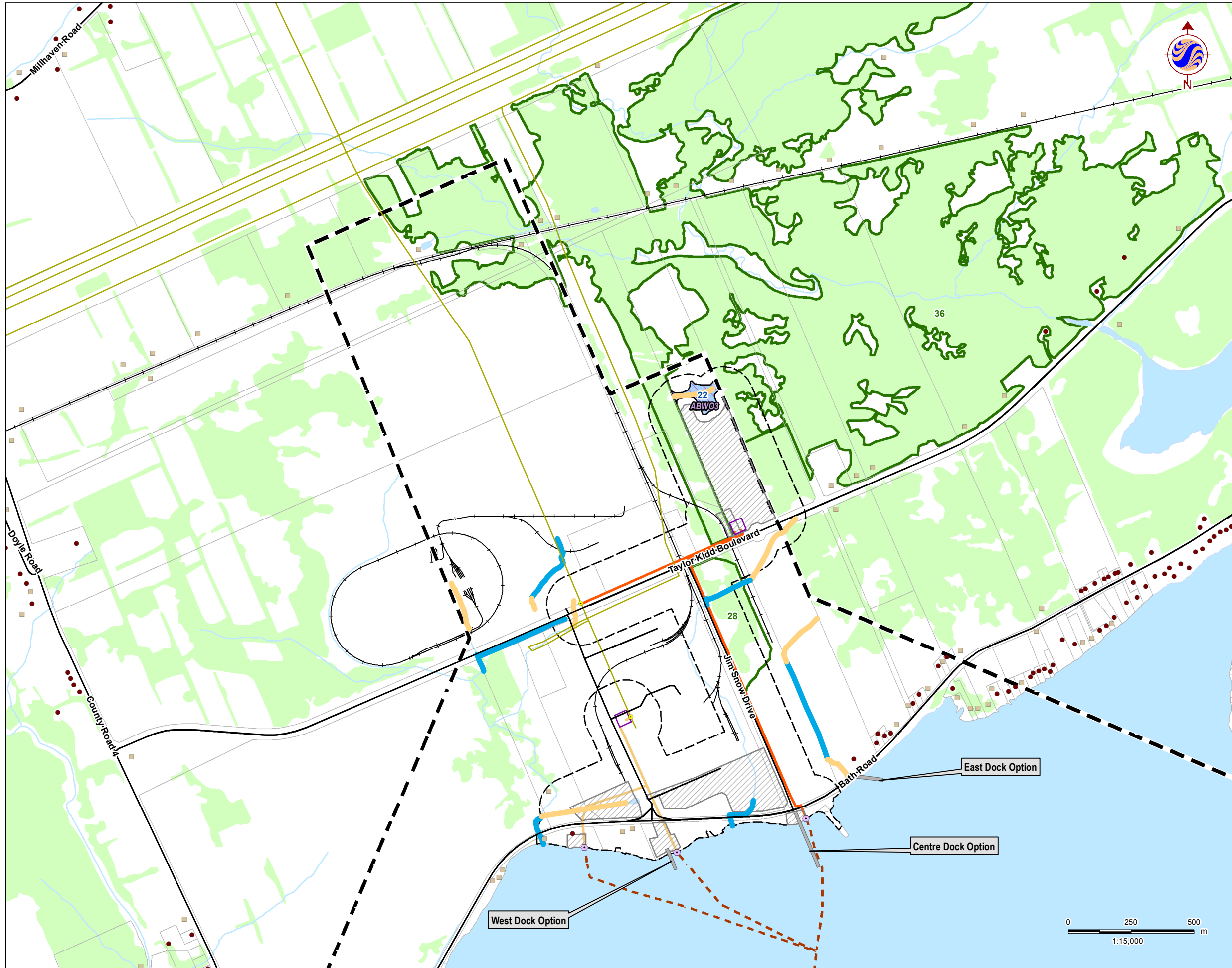
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Client/Project
WINDLECTRIC INC.
AMHERST ISLAND WIND ENERGY PROJECT

Figure No.
3

Title
**Significant Natural Features,
Wildlife Habitat and Waterbodies -
Overview**





Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
- Turbine
- Met Tower (Potential Location)
- Substation (Potential Location)
- Access Road
- Collector Lines
- Submarine Cable Path
- Laydown Area and Crane Path
- Operation and Maintenance Building (Potential Location)
- Potential Culvert Location
- Point of Common Coupling
- Mainland Cable Vault (Potential Location)
- Island Cable Vault
- Aboveground Storage Tanks (Potential Location)
- Constructible Area
- Mainland Dock (Potential Location)
- Island Dock
- Batch Plant (Potential Location)
- Site Office (Potential Location)
- Storage Shed
- Transmission Lines**
- Mainland Option 1
- Mainland Option 2
- Island Transmission Line
- Land Use**
- Central Staging Area
- Switching Station (Potential Location)
- Noise Receptors**
- Existing
- Vacant
- Existing Features**
- Road
- Unopened Road
- Allowance
- Railway
- Hydro Line
- Watercourse
- Waterbody
- Wooded Area
- ANSI Boundary
- Property Boundary
- REA Status**
- REA Water Body
- Not a REA Water Body
- Significant Wildlife Habitat Features**
- Snake Hibernacula (SN)
- Amphibian Breeding (ABWO & ABWE)
- Area-Sensitive Breeding Bird (ABB)
- Marsh Breeding Bird (MBB)
- Shrub/Early Successional Bird Breeding (SSB)
- Turtle Overwintering (TO)
- Landbird Migratory Stopover Area (ML)
- Waterfowl Stopover & Staging - Terrestrial (WT)
- Old Growth Forest (OGF)
- Significant Wetland
- Significant Woodland

Notes

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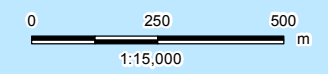
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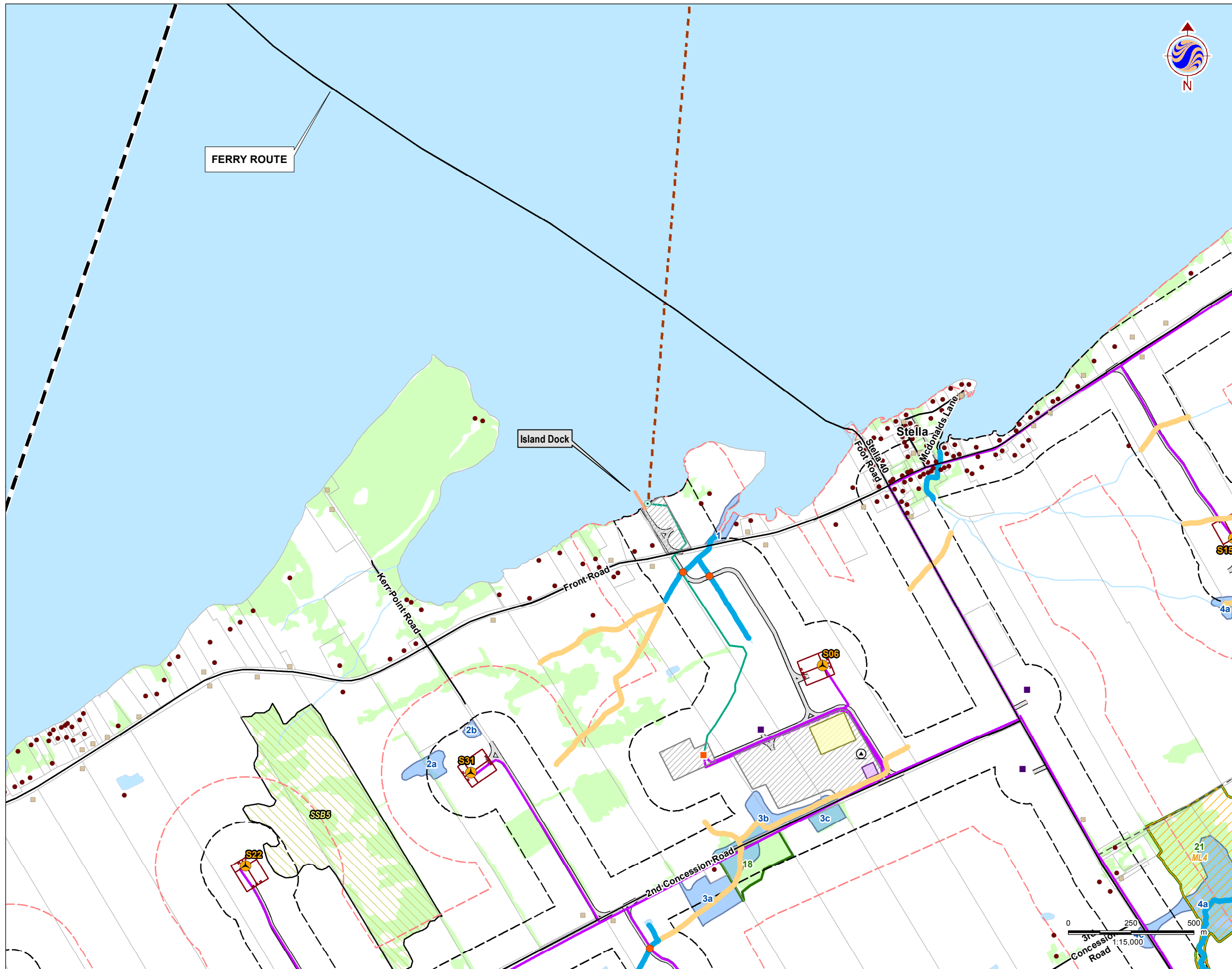
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Figure No.
3.1

Title
**Significant Natural Features,
Wildlife Habitat and Waterbodies**



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Revised: 2013-11-20 By: pworsell



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
 - Turbine
 - Met Tower (Potential Location)
 - Substation (Potential Location)
 - Access Road
 - Collector Lines
 - Submarine Cable Path
 - Laydown Area and Crane Path
 - Operation and Maintenance Building (Potential Location)
 - Potential Culvert Location
 - Point of Common Coupling
 - Mainland Cable Vault (Potential Location)
 - Island Cable Vault
 - Aboveground Storage Tanks (Potential Location)
 - Constructible Area
 - Mainland Dock (Potential Location)
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 - Significant Woodland

Notes

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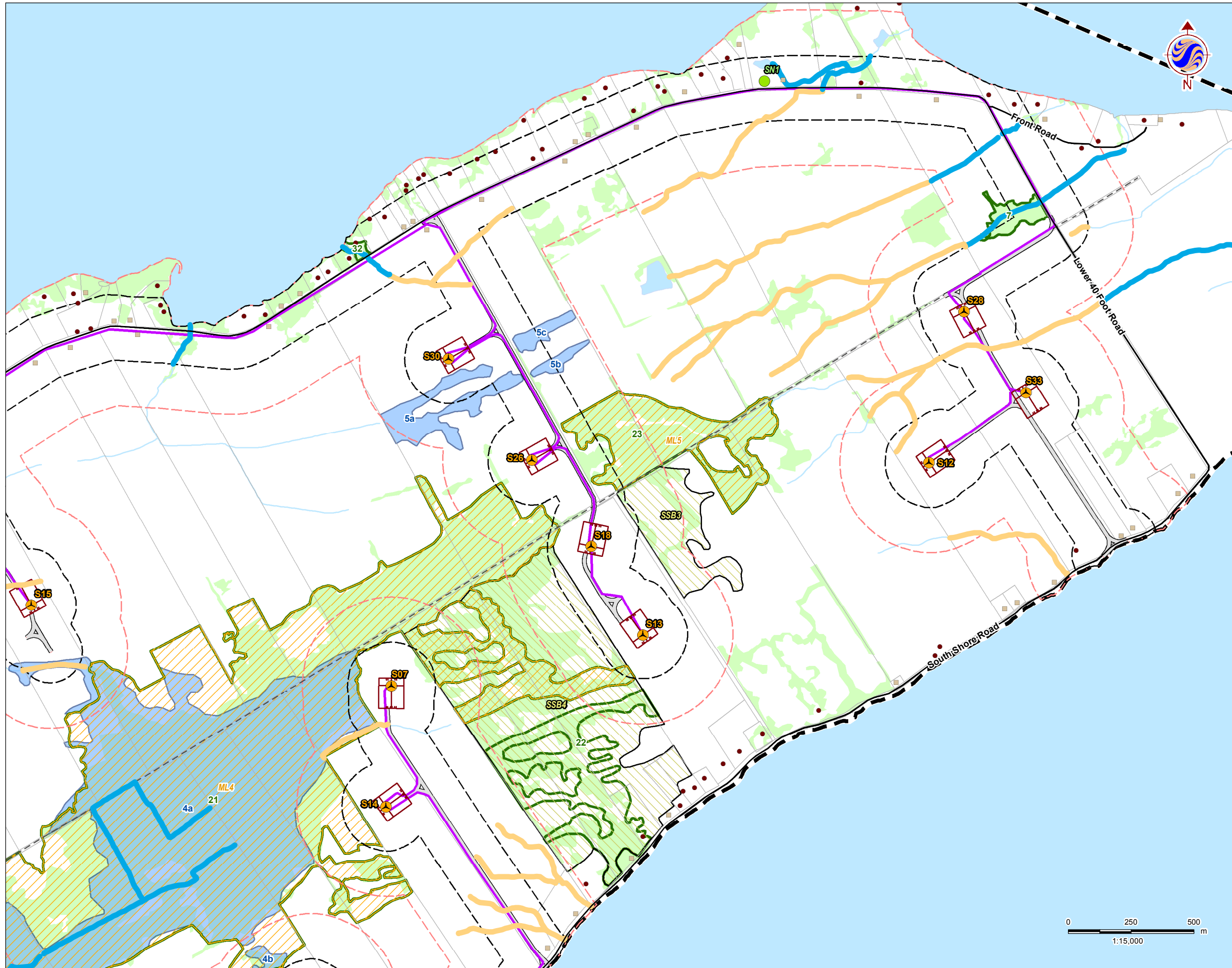
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Figure No.
3.2

Title
**Significant Natural Features,
Wildlife Habitat and Waterbodies**

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Revised: 2013-11-20 By: pworsell



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
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Notes

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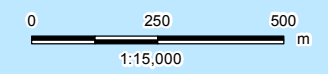
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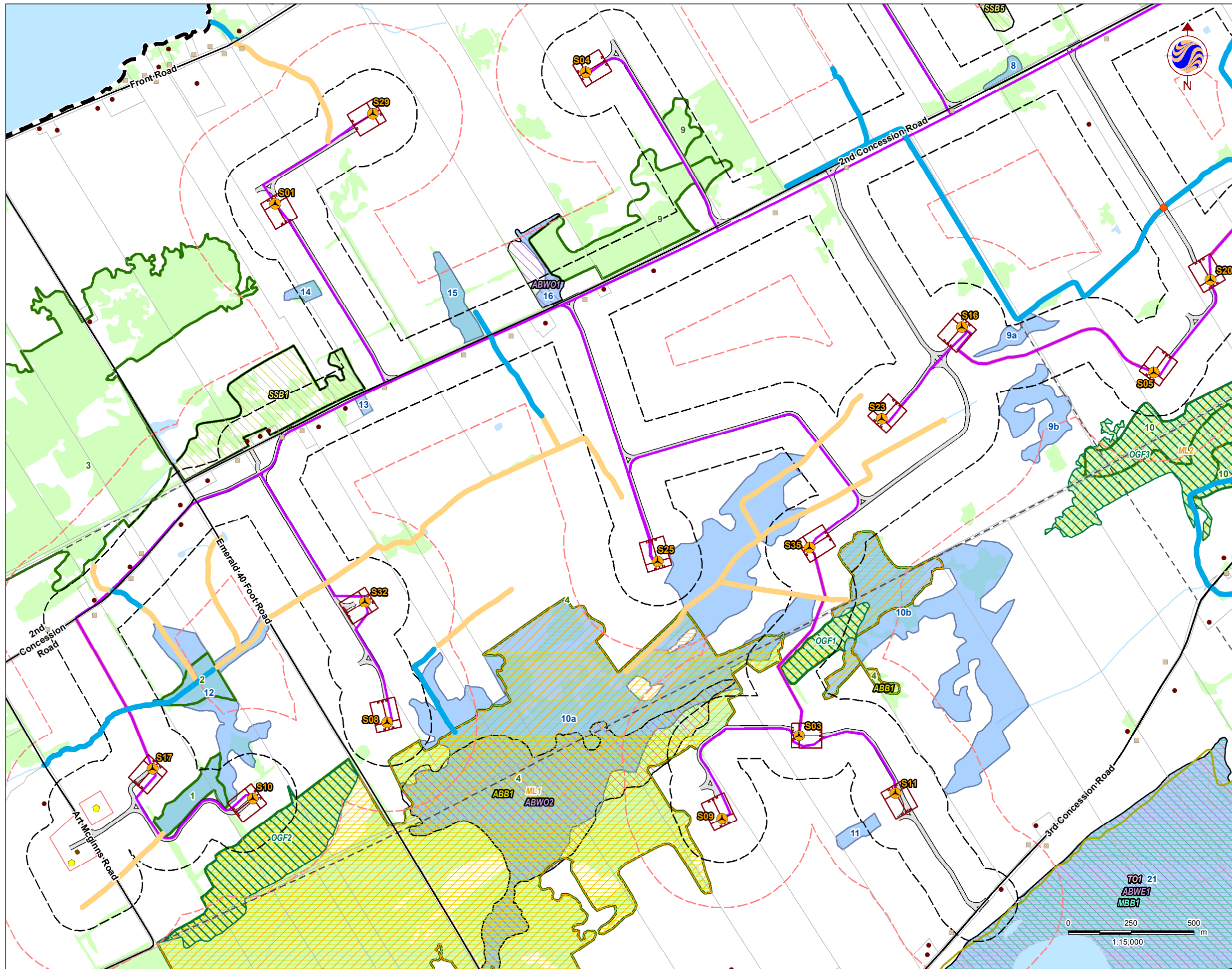
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Figure No.
3.3

Title
**Significant Natural Features,
Wildlife Habitat and Waterbodies**



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Revised: 2013-11-20 By: pworsell



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
 - Turbine
 - Met Tower (Potential Location)
 - Substation (Potential Location)
 - Access Road
 - Collector Lines
 - Submarine Cable Path
 - Laydown Area and Crane Path
 - Operation and Maintenance Building (Potential Location)
 - Potential Culvert Location
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 - Island Cable Vault
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 - Constructible Area
 - Mainland Dock (Potential Location)
 - Island Dock
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 - Site Office (Potential Location)
 - Storage Shed
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 - Mainland Option 2
 - Island Transmission Line
- Land Use**
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 - Switching Station (Potential Location)
- Noise Receptors**
 - Existing
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- Existing Features**
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Notes

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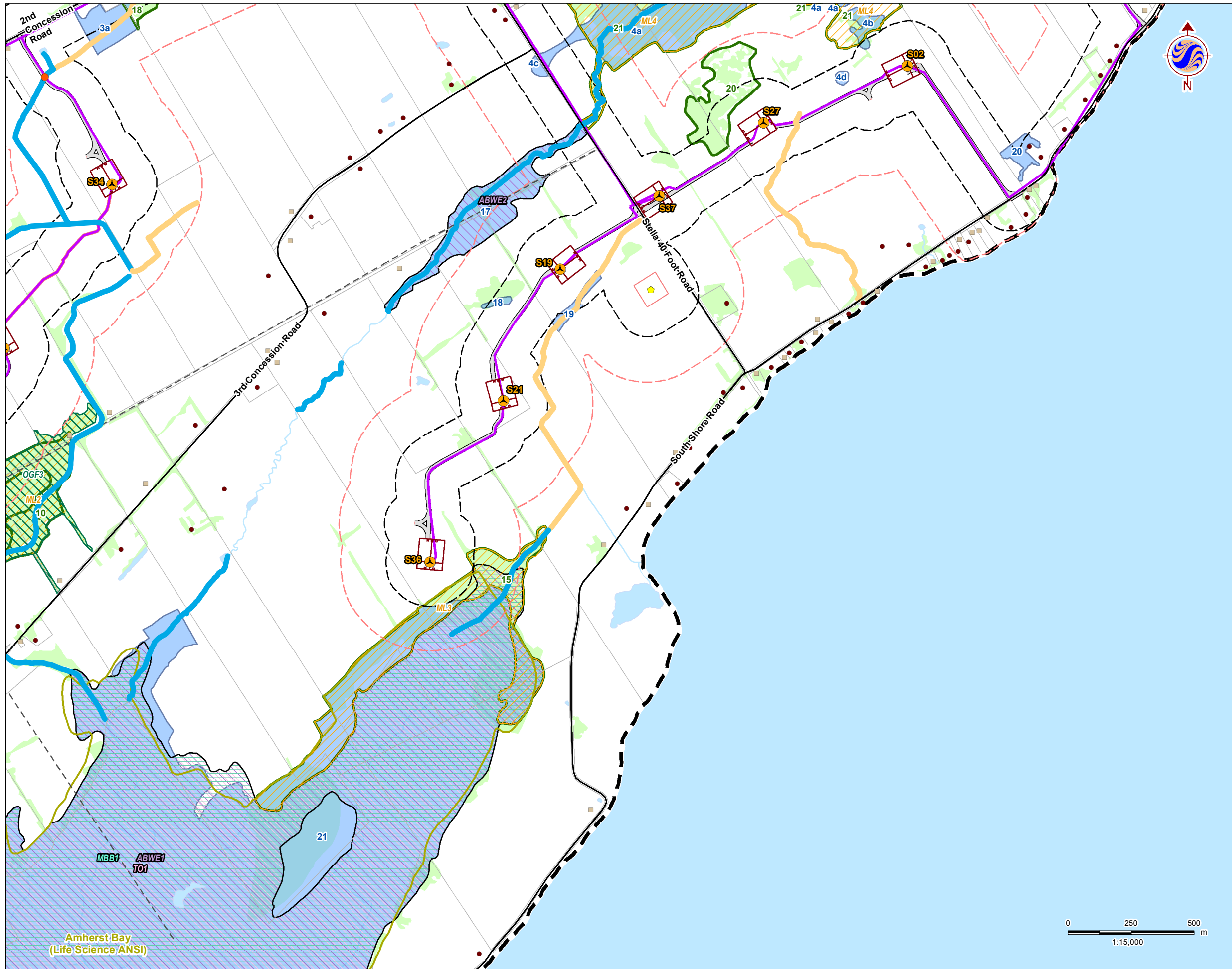
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AMHERST ISLAND WIND ENERGY PROJECT

Figure No.
3.4

Title
**Significant Natural Features,
Wildlife Habitat and Waterbodies**



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
 - Turbine
 - Met Tower (Potential Location)
 - Substation (Potential Location)
 - Access Road
 - Collector Lines
 - Submarine Cable Path
 - Laydown Area and Crane Path
 - Operation and Maintenance Building (Potential Location)
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 - Point of Common Coupling
 - Mainland Cable Vault (Potential Location)
 - Island Cable Vault
 - Aboveground Storage Tanks (Potential Location)
 - Constructible Area
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 - Island Dock
 - Batch Plant (Potential Location)
 - Site Office (Potential Location)
 - Storage Shed
- Transmission Lines**
 - Mainland Option 1
 - Mainland Option 2
 - Island Transmission Line
- Land Use**
 - Central Staging Area
 - Switching Station (Potential Location)
- Noise Receptors**
 - Existing
 - Vacant
- Existing Features**
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 - Unopened Road
 - Allowance
 - Railway
 - Hydro Line
 - Watercourse
 - Waterbody
 - Wooded Area
 - ANSI Boundary
 - Property Boundary
- REA Status**
 - REA Water Body
 - Not a REA Water Body
- Significant Wildlife Habitat Features**
 - Snake Hibernacula (SN)
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 - Waterfowl Stopover & Staging - Terrestrial (WT)
 - Old Growth Forest (OGF)
 - Significant Wetland
 - Significant Woodland

Notes

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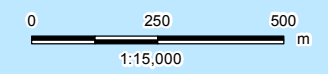
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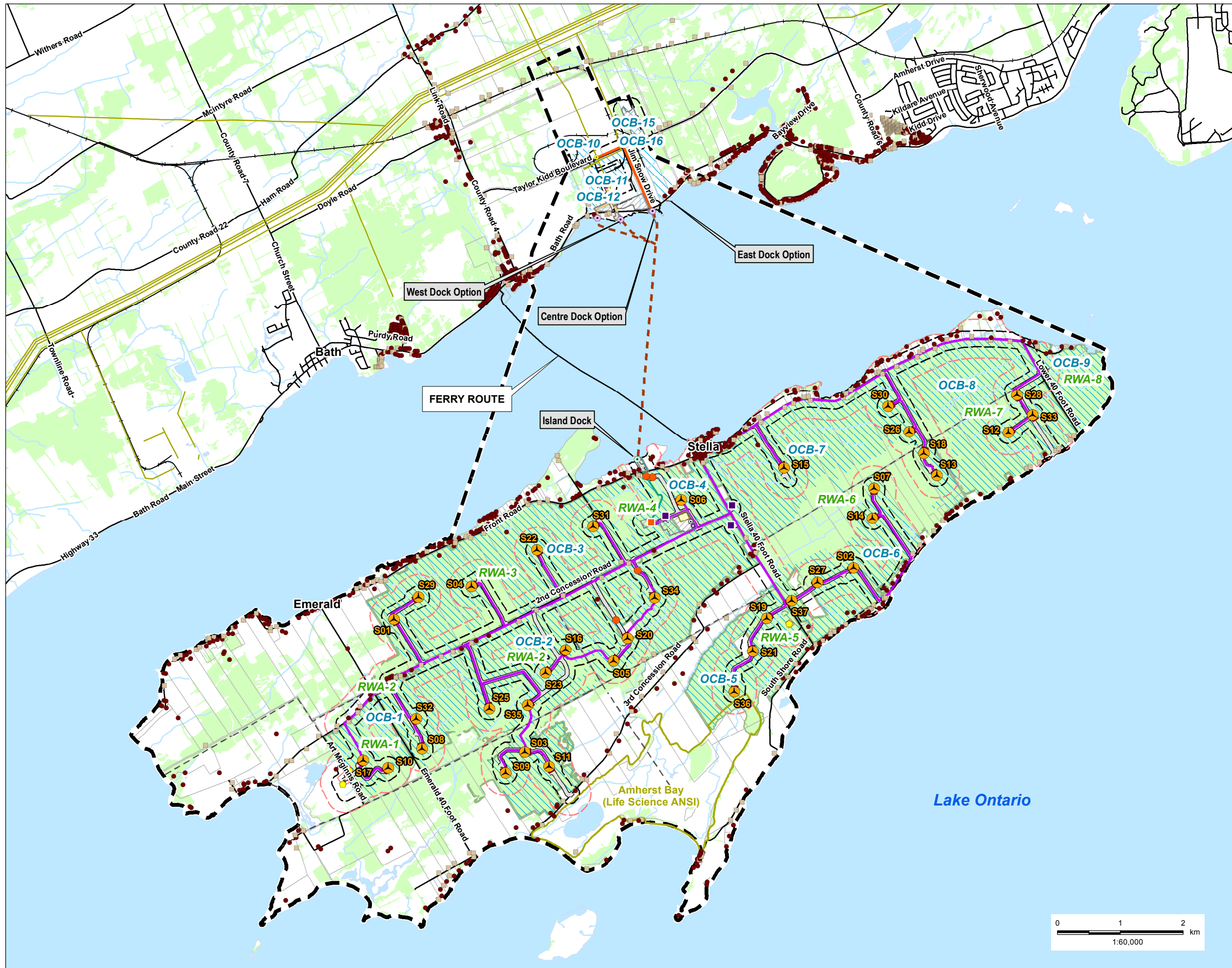
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AMHERST ISLAND WIND ENERGY PROJECT**

Figure No.
3.5

Title
**Significant Natural Features,
Wildlife Habitat and Waterbodies**



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Revised: 2013-11-20 By: pworsell



Legend

	Project Study Area		Noise Receptors
	300m Zone of Investigation		Noise Receptors
	120m Zone of Investigation		Existing Features
	Turbine		Existing Features
	Met Tower (Potential Location)		Existing Features
	Substation (Potential Location)		Existing Features
	Access Road		Existing Features
	Collector Lines		Existing Features
	Submarine Cable Path		Existing Features
	Laydown Area and Crane Path		Existing Features
	Operation and Maintenance Building (Potential Location)		Existing Features
	Potential Culvert Location		Existing Features
	Point of Common Coupling		Existing Features
	Mainland Cable Vault (Potential Location)		
	Island Cable Vault		
	Aboveground Storage Tanks (Potential Location)		
	Constructible Area		
	Mainland Dock (Potential Location)		
	Island Dock		
	Batch Plant (Potential Location)		
	Site Office (Potential Location)		
	Storage Shed		
	Mainland Option 1		
	Mainland Option 2		
	Island Transmission Line		
	Central Staging Area		
	Switching Station (Potential Location)		

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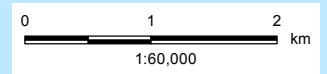
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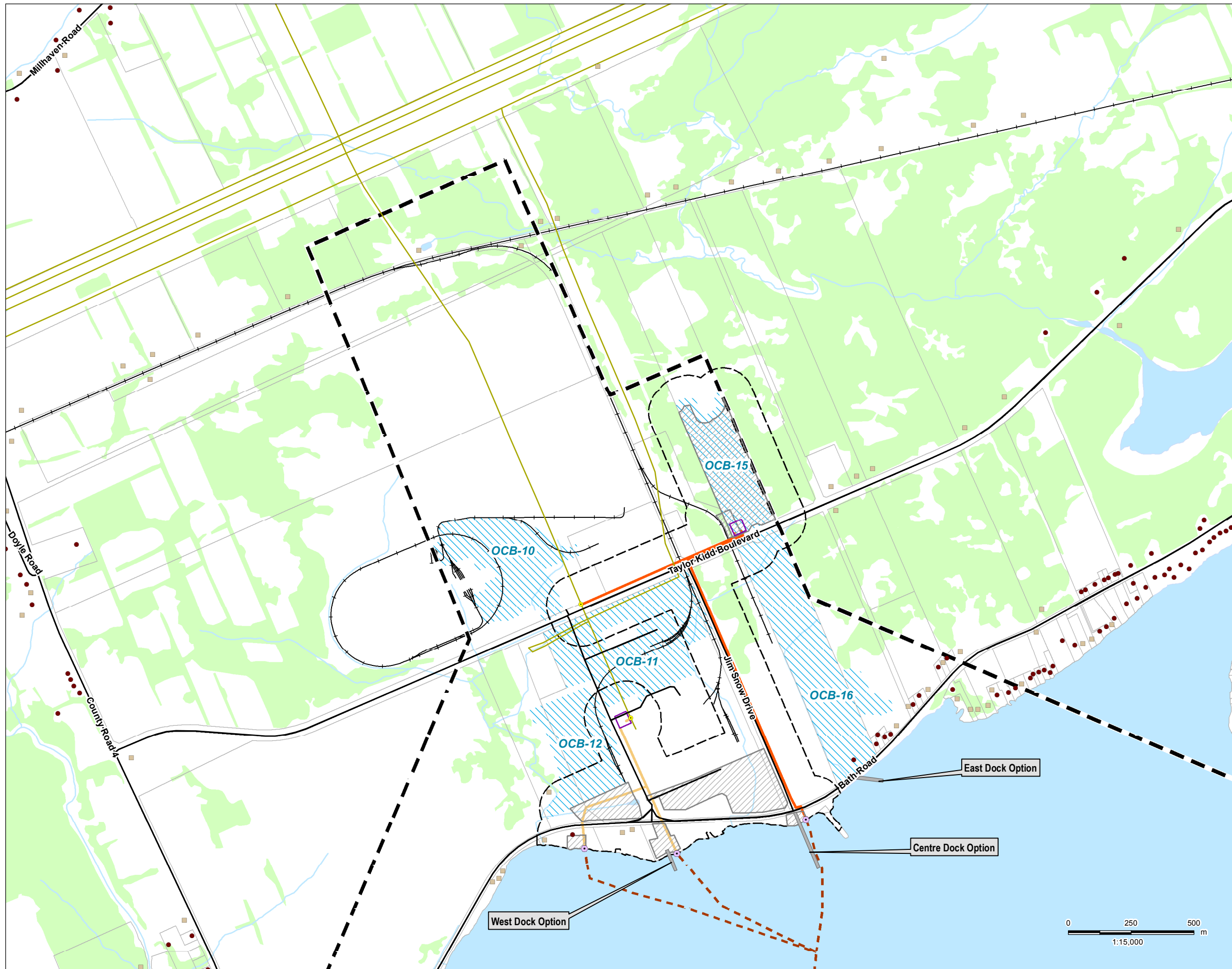
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Figure No.
4

Title
Significant Open Country Breeding Bird & Raptor Wintering Areas



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Revised: 2013-11-20 By: pworsell



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
- Turbine
- Met Tower (Potential Location)
- Substation (Potential Location)
- Access Road
- Collector Lines
- Submarine Cable Path
- Laydown Area and Crane Path
- Operation and Maintenance Building (Potential Location)
- Potential Culvert Location
- Point of Common Coupling
- Mainland Cable Vault (Potential Location)
- Island Cable Vault
- Aboveground Storage Tanks (Potential Location)
- Constructible Area
- Mainland Dock (Potential Location)
- Island Dock
- Batch Plant (Potential Location)
- Site Office (Potential Location)
- Storage Shed
- Transmission Lines**
- Mainland Option 1
- Mainland Option 2
- Island Transmission Line
- Land Use**
- Central Staging Area
- Switching Station (Potential Location)
- Noise Receptors**
- Existing
- Vacant
- Existing Features**
- Road
- Unopened Road
- Railway
- Hydro Line
- Watercourse
- Waterbody
- Wooded Area
- ANSI Boundary
- Property Boundary
- Open Country Breeding Bird Area (OCB)
- Raptor Wintering Area (RWA)

Notes

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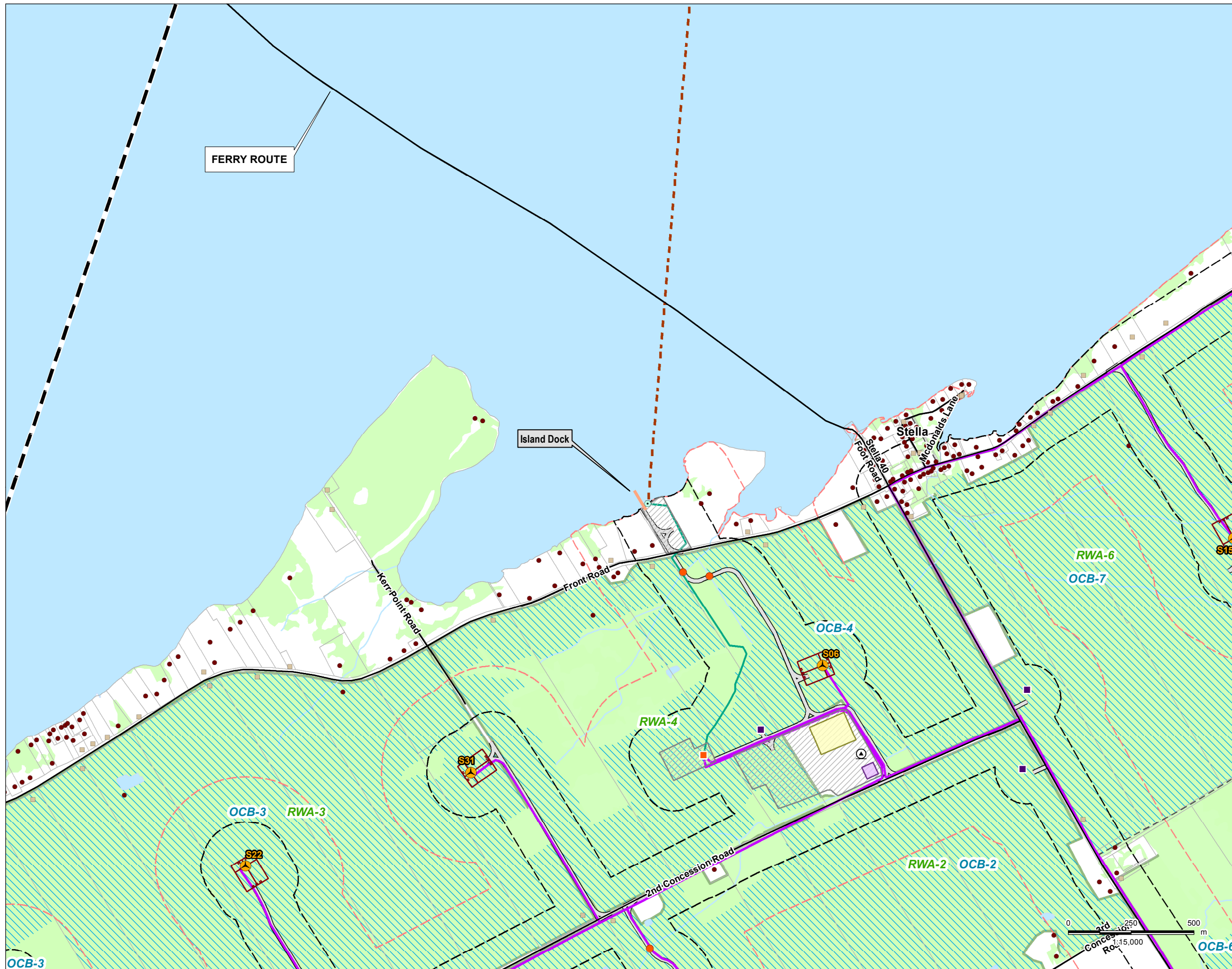
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Figure No.

4.1

Title

Significant Open Country Breeding Bird & Raptor Wintering Areas



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
 - Turbine
 - Met Tower (Potential Location)
 - Substation (Potential Location)
 - Access Road
 - Collector Lines
 - Submarine Cable Path
 - Laydown Area and Crane Path
 - Operation and Maintenance Building (Potential Location)
 - Potential Culvert Location
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 - Property Boundary
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 - Raptor Wintering Area (RWA)

Notes

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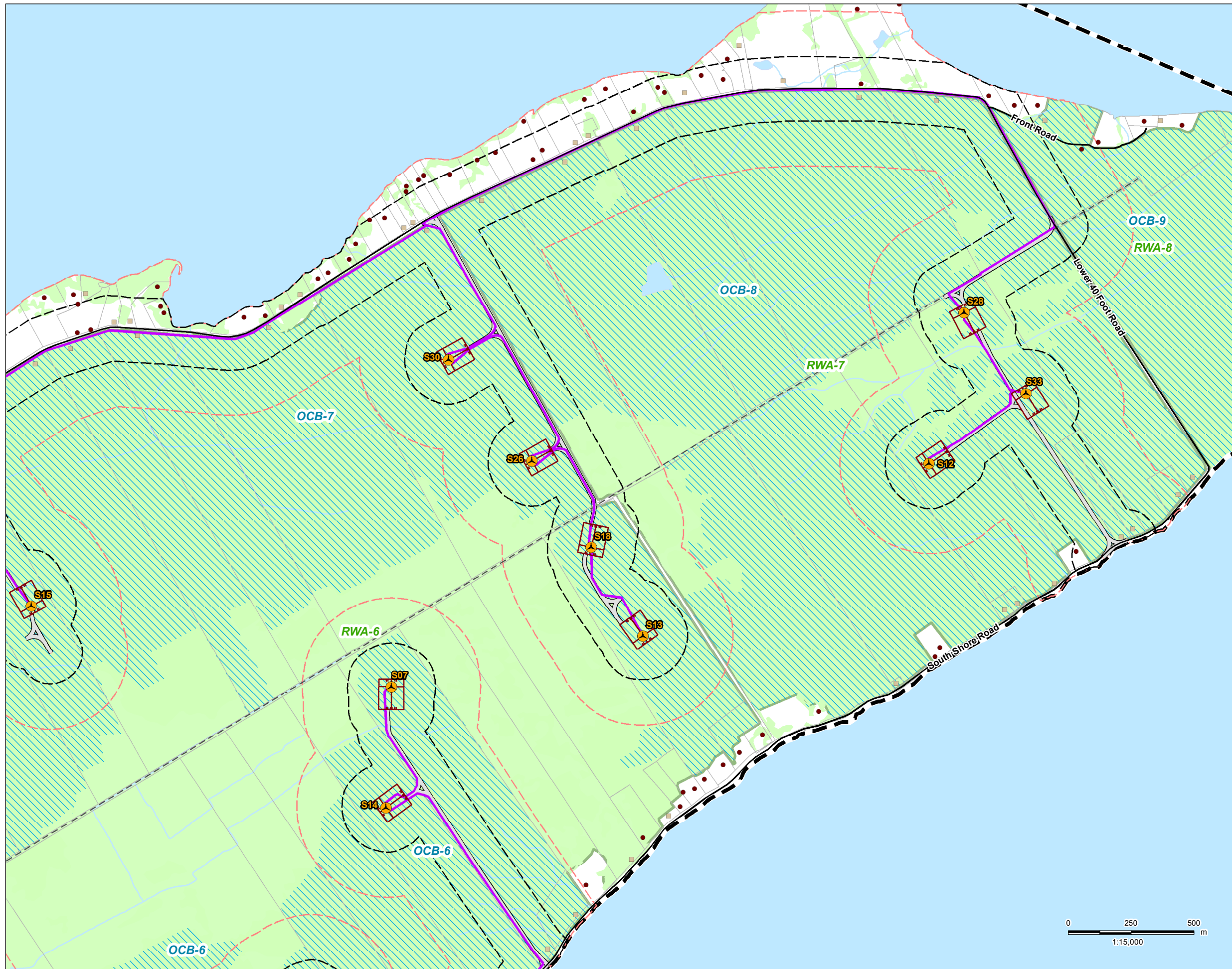
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AMHERST ISLAND WIND ENERGY PROJECT

Figure No.
4.2

Title

Significant Open Country Breeding Bird & Raptor Wintering Areas



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
- Turbine
- Met Tower (Potential Location)
- Substation (Potential Location)
- Access Road
- Collector Lines
- Submarine Cable Path
- Laydown Area and Crane Path
- Operation and Maintenance Building (Potential Location)
- Potential Culvert Location
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- Constructible Area
- Mainland Dock (Potential Location)
- Island Dock
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- Storage Shed
- Transmission Lines**
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- Mainland Option 2
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- Land Use**
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- Raptor Wintering Area (RWA)

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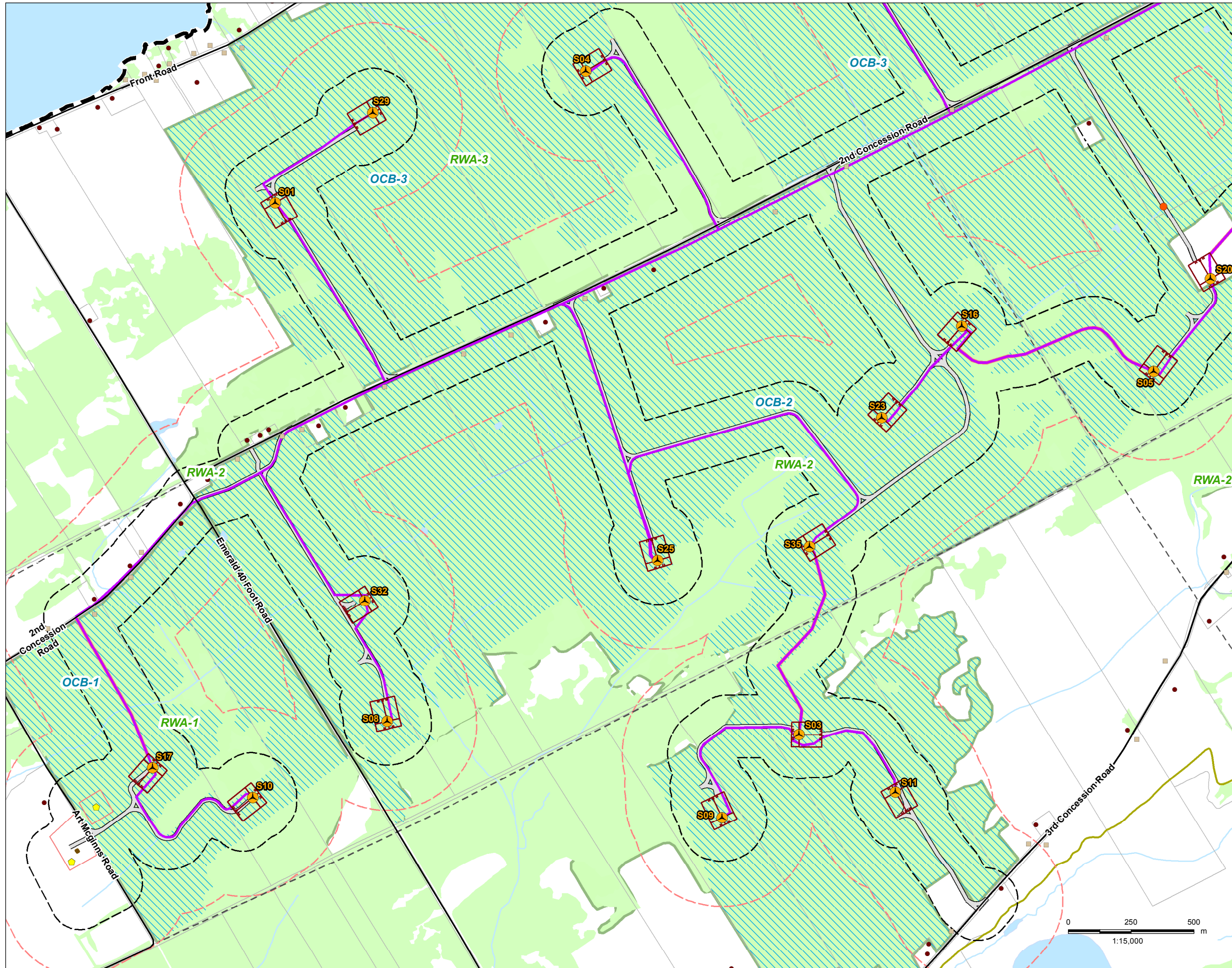
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Figure No.
4.3

Title
Significant Open Country Breeding Bird & Raptor Wintering Areas

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Revised: 2013-11-20 By: pworsell



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
- Turbine
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- Collector Lines
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- Property Boundary
- Open Country Breeding Bird Area (OCB)
- Raptor Wintering Area (RWA)

Notes

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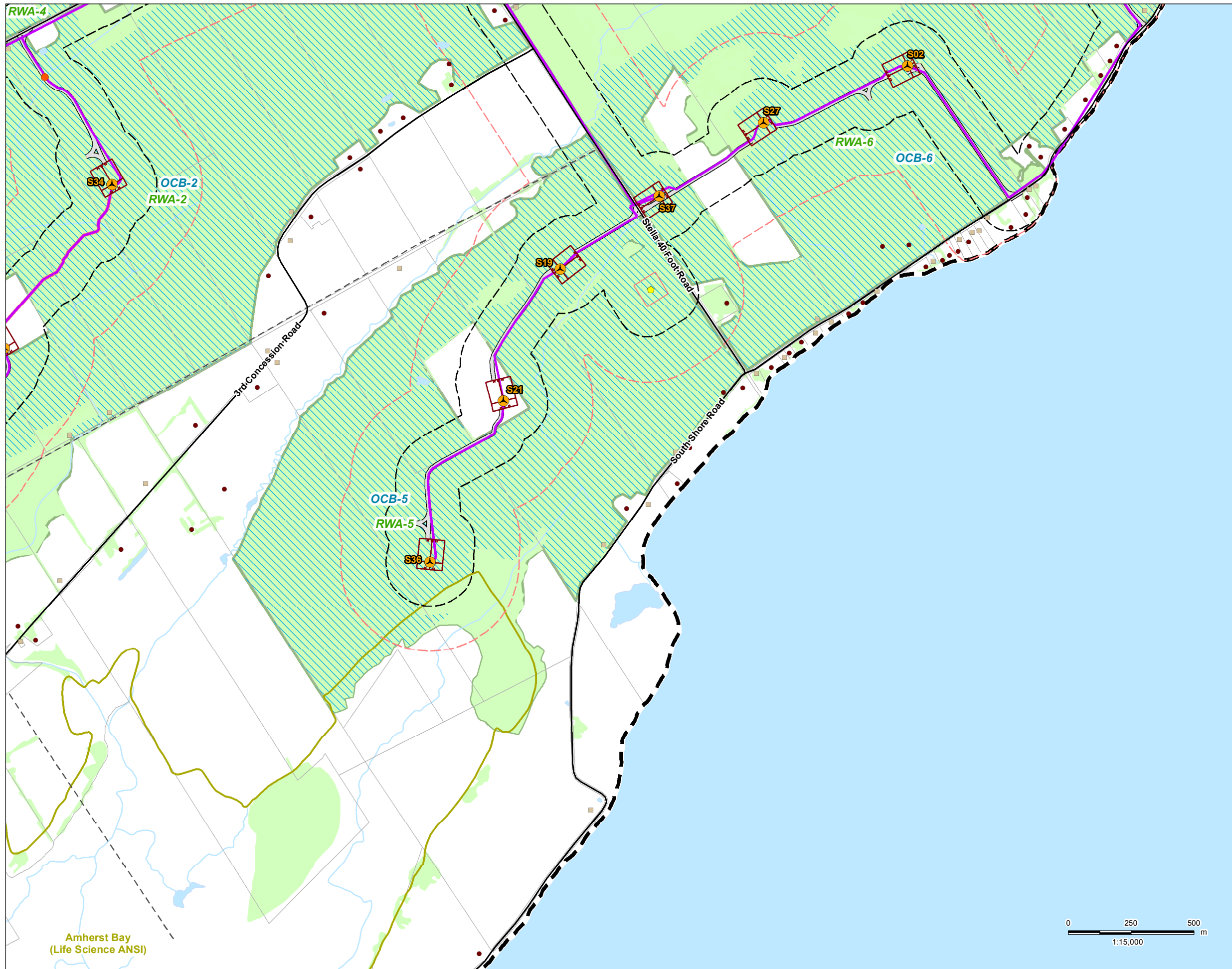
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AMHERST ISLAND WIND ENERGY PROJECT

Figure No.
4.4

Title

Significant Open Country Breeding Bird & Raptor Wintering Areas



Legend

- Project Study Area
- 300m Zone of Investigation
- 120m Zone of Investigation
- Project Components**
 - Turbine
 - Met Tower (Potential Location)
 - Substation (Potential Location)
 - Access Road
 - Collector Lines
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- Notes**
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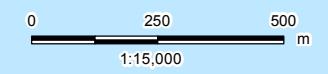
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Figure No.
4.5

Title
Significant Open Country Breeding Bird & Raptor Wintering Areas



Appendix B

Summary of Potential Environmental Effects and the Environmental Effects Monitoring Plan

Appendix B1: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
Heritage and Archaeological Resources					
Protected Properties and Heritage Resources	<ul style="list-style-type: none"> 24 built heritages resources and four cultural heritage landscapes (CHL) have been identified within the Project Study Area. Potential negative effects to 8 of the built heritage resources and three of the CHL. Three protected properties are located within the Project Study Area; potential negative impacts include damage or destruction of protected features and direct or indirect obstruction of significant views. 	<ul style="list-style-type: none"> Minimize potential impacts to protected properties and heritage resources. Avoid the use of protected properties and heritage resources. 	<ul style="list-style-type: none"> Avoid construction within a 50 m bufferzone of identified heritage resources and protected properties. Prior to construction a construction assessment will be completed for individual buildings and buildings and resources within cultural heritage landscapes identified in the Heritage Assessment and Protected Properties Reports. The assessment will be conducted by a qualified vibration analyst who has experience conducting construction assessments to determine vibration impacts for similar buildings and resources. If within 50m bufferzone, document stone walls along Front Road, at the Pentland Cemetery and at the intersection of Emerald 40 Foot Road and Second Concession Road. Prior to construction within 50 m bufferzone of the Trinity United Church and Neilson's Store, recommended that maximum acceptable vibration or PPV levels for each building be determined by a qualified engineer. 	<ul style="list-style-type: none"> Monitor construction activities to ensure PPV levels are not exceeded. Cease construction activities if PPV levels are exceeded and reassess solution to ensure compliance with PPV levels. Assess stone walls along Front Road, at the Pentland Cemetery and at the intersection of Emerald 40 Foot Road and Second Concession Road, periodically to ensure no damage is occurring. Evaluate stone wall following construction ensure no damage has occurred. Any damage to the stone wall should be repaired immediately following construction activities. 	<ul style="list-style-type: none"> Following mitigation strategies will minimize net effects.
Archaeological Resources (including both marine and land resources)	<ul style="list-style-type: none"> Encounter non-documented archaeological resources during construction activities such as excavation and component installation. 	<ul style="list-style-type: none"> Minimize potential for disturbance. 	<ul style="list-style-type: none"> All work within the vicinity of a significant archaeological find would be suspended and a Ministry of Tourism and Culture archaeologist and aboriginal communities would be contacted. Recommendations from the marine archaeological assessment included; <ul style="list-style-type: none"> Avoid the Skiff Wreck site and apply a 100 m buffer surrounding the wreck. Avoid the unidentified timber feature with a minimum buffer of 40 m. Avoid the North Amherst Wreck with a buffer of 100 m. 	<ul style="list-style-type: none"> In the event that human remains are encountered or suspected of being encountered before or during construction, all work would stop immediately. Notification would then be made to the Ontario Provincial Police or local police. 	<ul style="list-style-type: none"> No net effects are anticipated to known archaeological resources during construction.
Natural Heritage Resources					
Significant Wetlands	<ul style="list-style-type: none"> Two Provincially Significant Wetlands were identified within 120 m of the Project Location. 18 unevaluated wetlands within 120 of the Project Location are treated as significant for the NHA. No direct loss of significant wetland habitat or function. Degradation of wetland through dust, erosion and/or sedimentation. Changes in surface water flow patterns which impacts vegetation growth. Contamination through accidental spills. Increased run-off during precipitation events. New edge creation by vegetation removal close to wetlands. 	<ul style="list-style-type: none"> Minimize potential impacts to significant wetlands. No direct loss of significant wetland habitat. Minimize dust generation, prevent erosion and sedimentation. Maintain existing surface water flow patterns. Manage the risk of accidental spills. Avoid encroachment into significant wetlands. 	<ul style="list-style-type: none"> No wetland encroachment is permitted. Implementation of a sediment and erosion protection plan. The construction contractor will ensure that no construction disturbance occurs beyond the staked limits and that sensitive areas adjacent to the work areas are not disturbed. The boundaries of all wetlands within 30 m of the proposed construction area will be flagged / staked in the field by a qualified ecologist prior to construction to assist with the demarcation of the construction area, to ensure construction activities avoid these sensitive areas, and to assist with the proper field installation of E&S controls. Workers will be warned not to trespass beyond the boundary of the marked area. Silt barriers (e.g., fencing) will be erected along the edge of wetland boundary. Storage of fuel and activities with the potential to cause contamination will occur in properly protected and sealed areas. In the event of an accidental spill, the MOE Spills Action 	<ul style="list-style-type: none"> Check silt fencing along the periphery of significant wetlands daily when construction activities occur within the immediate vicinity of significant woodlands and when inclement weather is anticipated (i.e. rain events). Ongoing monitoring of access roads within 30 m of significant wetlands when construction activities occur within the vicinity. Check that seed grows in areas of disturbance within one growing season. Upon completion of grading or installation of culverts and after rain event ensure that surface water drainage patterns are consistent with drainage patterns that occurred before grading. A detailed Construction Emergency Response and Communications Plan will be prepared by the construction contractor which will contain procedures for spill contingency and response plans, spill response training, notification procedures, and necessary cleanup materials and equipment. 	<ul style="list-style-type: none"> Short-term, temporary in duration and mitigable through the use of standard site control measures.

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Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			Centre will be contacted and emergency spill procedures implemented immediately. <ul style="list-style-type: none"> As appropriate, and prior to construction, the limits of vegetation clearing will be staked in the field. Dust suppression methods (i.e. watering) will be implemented as required. Re-vegetate disturbed areas as soon as construction activity within the disturbed areas is complete. All maintenance activities, vehicle refueling or washing and chemical storage will be located more than 30m from wetlands. Where possible, and as appropriate, access roads will be constructed at or near existing grade to maintain surface flow contributions to wetlands. Limit changes in land contours to ensure natural drainage patterns are maintained. Where new access roads cross existing drainage features, design will include culverts or other appropriate structures of sufficient size to accommodate flow. Erosion and sediment control measures will be installed to minimize erosion impacts to significant natural features. 		
Areas of Natural and Scientific Interest	<ul style="list-style-type: none"> The Amherst Bay Life Science ANSI is located within 120 m of the Project Location. Indirect impacts such as dust generation, sedimentation and erosion. Potential for accidental spills. Vegetation clearing. 	<ul style="list-style-type: none"> Minimize disturbance to ANSI. Manage the risk of accidental spills. 	<ul style="list-style-type: none"> Implement sediment and erosion control measures (e.g. perimeter silt fencing, mud mats, check dams and sediment bags). Erect silt barriers (e.g. fencing) along wetland and woodland community edges located within 30 m of construction areas. Where culverts are proposed within 30 m of a significant natural feature, enhanced sediment and erosion control measures (i.e. straw bales, double rows of sediment fencing, check dams) will be installed. In the event of an accidental spill, the MOE Spills Action Centre will be contacted and emergency spill procedures implemented immediately. 	<ul style="list-style-type: none"> Erosion and Sediment controls will be installed prior to construction and will be maintained during construction to ensure their effectiveness at protecting the adjacent significant natural features. A detailed Construction Emergency Response and Communications Plan will be prepared by the construction contractor which will contain procedures for spill contingency and response plans, spill response training, notification procedures, and necessary cleanup materials and equipment. 	<ul style="list-style-type: none"> Short-term, temporary in duration and mitigable through the use of standard site control measures.
Valleylands	<ul style="list-style-type: none"> As no valleylands were identified, there are no anticipated impacts. 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> None
Significant Woodlands	<ul style="list-style-type: none"> 15 significant woodlands are located within 120 m of the Project Location. Three significant woodlands are within the Project Location. Minimal amount of proposed tree removal. Indirect impacts such as dust generation, sedimentation, and erosion from construction activities. Removal of vegetation resulting in loss of species diversity, fragmenting available habitat, introduction or spread of invasive species, and temporary disruption to movement of wildlife. Loss of woodland habitat. Accidental damage to root zones. Accidental damage to trees or damage to limbs. Contamination through accidental spills during construction. 	<ul style="list-style-type: none"> Remove minimal amount of woodland. Prevent damage to the root zones. Prevent accidental damage to trees or damage to limbs. Minimize dust generation, prevent sedimentation and erosion. Manage the risk of accidental spills. 	<ul style="list-style-type: none"> Clearly delineate work area using a barrier such as a silt fence or stakes. Workers will be advised not to trespass beyond the boundary of the marked area. Erect silt fencing to prevent sedimentation within critical root zones Implement a sedimentation and erosion control plan. Any issues should be resolved in a timely fashion. Implement dust suppression (i.e. watering) on access roads as required. Re-vegetate disturbed areas as soon as construction activity within the disturbed areas is complete. All maintenance activities, vehicle refueling or washing and chemical storage will be located more than 30m from significant woodlands. Implement infiltration (i.e. minimize paved surfaces and design roads to promote infiltration) techniques to the maximum extent possible to avoid changes in soil 	<ul style="list-style-type: none"> Check silt fencing along the periphery of significant woodlands daily when construction activities occur within the immediate vicinity of significant woodlands and when inclement weather is anticipated (i.e. rain events). Check silt fencing along the limits of construction through Woodland 9 daily when construction activities occur within the immediate vicinity. Monitor access roads within 30 m of significant woodlands on an ongoing basis when construction activities are in the immediate vicinity of woodlands. After seeding an area, check that the seed grows in areas of disturbance within one growing season. Any tree limbs or root zones that are accidentally damaged by construction activities 	<ul style="list-style-type: none"> Short-term, temporary in duration and mitigable through the use of standard site control measures.

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Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			moisture and compaction. <ul style="list-style-type: none"> Erosion and sediment control measures will be installed to minimize erosion impacts to significant natural features. 	will be pruned using proper arboricultural techniques. <ul style="list-style-type: none"> Any build-up of sediment beyond the silt fence will be cleaned up and removed to avoid risk of further spread of sediment. Increase frequency of dust suppression measures. Replant areas where seed does not grow to ensure vegetation establishes within the growing season. Keep emergency spill kits on site. Implement MOE spill action plan if necessary. Dispose of waste material by authorized and approved offsite vendors. A detailed Construction Emergency Response and Communications Plan will be prepared by the construction contractor which will contain procedures for spill contingency and response plans, spill response training, notification procedures, and necessary cleanup materials and equipment. 	
Provincial Parks and Conservation Reserves	<ul style="list-style-type: none"> As no Provincial Parks and Conservation Reserves were identified, there are no anticipated impacts 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> None
Significant Wildlife and Wildlife Habitat (includes birds, bats, amphibians and other wildlife)	<ul style="list-style-type: none"> Significant wildlife habitat within 120 m of the Project Location includes Raptor Wintering Area, Turtle Overwintering Area, Migratory Landbird Stopover Area, Old Growth Forest, Amphibian Breeding, Marsh Breeding Birds, Woodland Area-Sensitive Breeding Bird Habitat, Open Country Breeding Bird Habitat and Short-eared Owl Habitat and Shrub/Early Successional Bird Breeding Habitat. Loss of habitat. Disturbance due to increased traffic and noise. Disturbance or disruption of breeding birds. Dust generation, sedimentation and erosion during construction. Disturbance or direct removal of vegetation. Contamination through accidental spills during construction or operation. Woodland degradation due to dust or siltation. Wetland degradation due to dust, siltation or accidental spill. 	<ul style="list-style-type: none"> Habitat compensation measures. Prevent habitat avoidance/ disturbance caused by noise and dust generation. Minimize dust generation and siltation, prevent sedimentation and erosion. Manage the risk of accidental spills. Avoid harm to breeding birds or damage to nests. Limit vegetation clearing in grassland habitat. Minimize disturbance to wildlife and wildlife habitat. 	<ul style="list-style-type: none"> Development of a management strategy with agencies, interested landowners and other interested parties to implement some of the recommendations provided in the Owl Woods Management Plan (Ecological Services 2011). The boundaries of the limit of construction within grassland habitat will be delineated and flagged / staked in the field by a qualified ecologist prior to construction to assist with the demarcation of the construction area, to ensure construction activities do not encroach beyond the limited construction area. Avoid construction activities during sensitive periods (i.e. the breeding season). Minimal alteration to surface water drainage patterns and installation of culverts as required to maintain flows. Limit tree clearing in hedgerows to maintain perch and roost sites. Implement dust suppression (i.e. watering) on access roads as required. Best management practices such as silt fencing, will be employed to minimize negative impacts on wildlife habitats and species that use them. Silt fencing will occur where buildable areas are located within 30 m of significant wildlife habitat. Implement wetland mitigation measures in turtle overwintering areas. Where possible, and as appropriate, access roads should be constructed at or near existing grade. No refuelling or maintenance of vehicles in, or adjacent to the feature. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. The boundaries of the amphibian breeding habitat at AB4 	<ul style="list-style-type: none"> Check the limits of construction through significant grassland habitat daily when construction activities are ongoing in grassland habitat. Ongoing monitoring of access roads during construction. Implement wetland monitoring measures in turtle overwintering areas. Should vegetation clearing be required during the breeding bird season, prior to construction, surveys will be undertaken to identify the presence/absence of nesting birds. If a nest is located, a designated buffer will be marked off to ensure no construction activity will be allowed while the nest is active. Monitoring of Short-eared Owl behavior by qualified biologist bi-weekly during construction activities throughout the breeding season in proximity to nesting territories. Check silt fencing along the periphery of significant shrub/early successional feature to make sure it is fully functional daily when construction activities occur within the immediate vicinity and when inclement weather is anticipated (i.e. rain events). Monitor access roads within 30 m of woodlands ongoing during construction activities in the immediate vicinity. Increase frequency of dust suppression measures Any limbs or root zones that are accidentally damaged by construction activities will be 	<ul style="list-style-type: none"> Limited removal of vegetation. Disturbance impacts will be temporary and short-term in duration. Direct loss of a relatively small amount of habitat.

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Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			<p>should be delineated and flagged / staked in the field by a qualified ecologist accurately demark where erosion and siltation controls should be installed.</p> <ul style="list-style-type: none"> Limited encroachment into the marsh breeding bird habitat and area-sensitive breeding bird habitat. Complete vegetation removal outside of the breeding bird and Short-eared Owl breeding season March 1st to July 31st. Restricted construction activities in proximity to potential Short-eared Owl breeding territories. Erect silt fencing to prevent sedimentation. Implement a sedimentation and erosion control plan. Any issues should be resolved in a timely fashion. All maintenance activities, vehicle refueling or washing and chemical storage will be located more than 30m from significant woodlands. Erosion and sediment control measures will be installed to minimize erosion impacts to significant natural features. Rehabilitation of access roads back to grassland after decommissioning, in consultation with the landowners. See mitigation measures under 'Significant Wetland'. See mitigation measures under 'Significant Woodland'. 	<p>pruned using proper arboricultural techniques</p> <ul style="list-style-type: none"> Restoration of damaged or degraded wetland habitat, which may involve reseeding with a native wetland seed mix. Where Short-eared Owl territories have been identified in the same year as construction, weekly monitoring will be undertaken to measure potential avoidance behaviours, with weekly reports of findings to MNR. See monitoring measures under 'Significant Wetland' See monitoring measures under 'Significant Woodland'. 	
<p>Vegetation (not considered as part of a significant natural feature)</p>	<ul style="list-style-type: none"> Removal of vascular plants and portions of plant communities in hedgerows and the municipal road allowance. 	<ul style="list-style-type: none"> Minimize disturbance to natural features. Manage the risk of accidental spills. 	<ul style="list-style-type: none"> As appropriate and prior to construction, the limits of the vegetation clearing will be staked in the field. The Construction Contractor will ensure no construction disturbance occurs beyond the staked limits and that edges of sensitive areas adjacent to the work areas are not disturbed. To the extent practical, tree and/or brush clearing and grassland removal will be completed prior to, or after, the core nesting season for breeding birds (May 1 to July 31). Should clearing be required during the breeding bird season, prior to construction, surveys will be undertaken by a qualified biologist to identify the presence/absence of nesting birds or breeding habitat. Prior to the start of construction activity, the topsoil/seedbank will be stripped and preserved; material will be reapplied in suitable rehabilitation areas post construction. Excavated soil from crane pads will be reused on site, as feasible. Temporary laydown areas will be returned to pre-construction conditions. Following construction, topsoil in areas of temporary disturbance will be replaced/restored. Any accidentally damaged trees should be pruned through the implementation of proper arboricultural techniques. No vehicle traffic on exposed soils, and no heavy machinery traffic on slopes. Re-vegetate temporary access roads or crane paths to pre-construction conditions as soon as possible. Maintain existing vegetation buffers around water bodies. Develop a spill response plan, train staff on appropriate procedures, and keep emergency spill kits on site. Dispose of waste material by authorized and approved 	<ul style="list-style-type: none"> Regular monitoring of the limits of clearing to ensure the objective of minimal disturbance. Post-construction monitoring to ensure re-vegetated areas are functioning properly. Additional replanting/restoration in the event that previous works were unsuccessful. In terms of accidental spills or releases to the environment, standard containment facilities and emergency response materials would be maintained on-site as required. As appropriate, spills would be reported immediately to the MOE Spills Action Centre. Reseeded areas will be monitored for one year to ensure regeneration success. A detailed Construction Emergency Response and Communications Plan will be prepared by the construction contractor which will contain procedures for spill contingency and response plans, spill response training, notification procedures, and necessary cleanup materials and equipment. 	<ul style="list-style-type: none"> Implementation of mitigation measures ensure anticipated adverse effects are minimized or avoided during construction.

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Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			<ul style="list-style-type: none"> offsite vendors. Implement infiltration techniques to the maximum extent possible. Design roads to promote infiltration. Minimize grading activities to maintain existing drainage patterns, to the fullest extent possible. Control rate and timing of water pumping, and restrict taking of water during periods of extreme low flow. Implementation of storm water discharge best management practices. 		
Water Bodies and Aquatic Resources					
Groundwater	<ul style="list-style-type: none"> Potential for dewatering in proposed construction areas for foundations, transformer pads, underground collector lines, data cabling and transmission lines. Potential contamination from accidental spills. Groundwater interference to local private and/or municipal water well supplies (quantity and quality), function of identified groundwater discharge features (e.g., wetland, watercourses), and the rate, quality of, and location that pumped water is released back into the environment. 	<ul style="list-style-type: none"> Manage the risk of accidental spills. No groundwater interference. 	<ul style="list-style-type: none"> If groundwater is encountered during excavations, good construction practices will be used, such as minimizing the length of time that the excavation is open and monitoring seepage into the excavation. Should pumping be required to dewater excavated areas, water will be directed into the nearest drain or spread across the buildable area and appropriate energy dissipation techniques will be used to reduce the potential for erosion and scouring. Discharge piping will be free of leaks and will be properly anchored to prevent bouncing and snaking during surging. Seepage area to be used for dewatering will be clearly marked with flagging and/or snow-fencing prior to work commencing During site preparation, silt fencing will be included to retain sediments on site so they do not enter any significant natural feature. All sediment control structures will be inspected regularly, and repaired/maintained as necessary. All water pumped during dewatering activities will be directed away from significant natural features and not directly into wetlands. The use of sediments bags (or filter rings) will be used as appropriate to filter out suspended sediment prior to discharge. If water is required for the batch plant in excess of 50,000l/day a PTTW will be obtained from the MOE. 	<ul style="list-style-type: none"> The rate of discharge will be monitored to ensure no erosion or flooding occurs. If energy dissipation measures are found to be inadequate, the rate of dewatering will be reduced or ceased until satisfactory mitigation measures are in place. In terms of accidental spills or releases to the environment, standard containment facilities and emergency response materials would be maintained on-site as required. Refuelling, equipment maintenance, and other potentially contaminating activities would occur in designated areas, and as appropriate spills would be reported immediately to the MOE Spills Action Centre. A detailed Construction Emergency Response and Communications Plan will be prepared by the construction contractor which will contain procedures for spill contingency and response plans, spill response training, notification procedures, and necessary cleanup materials and equipment. If water is required for the the batch plant in excess of 50,000l/day a PTTW will be obtained from the MOE. 	<ul style="list-style-type: none"> It is anticipated any potential effects would be short term in nature and have little to no effect on groundwater quality and adjacent private water wells.
Surface Water, Fish, and Fish Habitat ¹	<ul style="list-style-type: none"> Short-term increase in turbidity from runoff and soil erosion. Water quality and habitat disturbance effects to aquatic habitat. Potential impacts related to the installation and maintenance of culvert crossings, including disturbance to aquatic biota and habitat during installation, permanent enclosure of portions of a watercourse, loss of bed material within the length of the culvert, and changes to riparian vegetation within road allowance. Excavations, grading and other construction activities could affect fish and fish habitat, including gamefish/ 	<ul style="list-style-type: none"> Manage the risk of accidental spills. No erosion or sedimentation 	<ul style="list-style-type: none"> No wind turbines have been located within 30 m of the average annual high water mark of a lake or a permanent or intermittent watercourse. All materials and equipment for site preparation and Project construction shall be operated and stored in a manner that prevents any deleterious substance from entering the water. Sediment and erosion control measures should be implemented prior to construction and maintained during the construction phase. Culverts would be designed and installed such that there is no restriction of flows through the culvert Collector line crossing will be completed via horizontal directional drill activities to avoid disturbance of the 	<ul style="list-style-type: none"> As appropriate, an Environmental Monitor Construction Contractor representative would be on-site during installation of Project components that could potentially affect aquatic habitats to ensure compliance with specifications, site plans and permits. The Environmental Monitor should ensure that bank, bed and floodplain conditions are restored to pre-construction conditions, where possible, following completion of the construction activities. Environmental monitoring following spring run-off the year after construction (first year of 	<ul style="list-style-type: none"> Net effects are anticipated to be minor and short lived.

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Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
	<p>sportfish and their habitat.</p> <ul style="list-style-type: none"> Erosion and sedimentation from site disturbance and dewatering. Collapse of the punch or bore hold from under the stream. Disturbance of riparian vegetation, stream banks and bottom substrates. Disruption of sensitive fish life stages. Introduction of deleterious substances. Potential for accidental spills. Construction and installation of docks affecting fish habitat. 		<p>surface water body.</p> <ul style="list-style-type: none"> Applicable DFO Operational Statements to be followed to protect fish and fish habitat. All in-water work would be completed with MNR should have regard for in-water construction timing windows. Erect silt fence before grading begins (along water body edges located within 30 m of construction work areas). Direct runoff via swales and erosion control berms (where necessary). Install temporary rock check dams in swales where appropriate to help attenuate flows, reduce erosive velocities, and encourage sediment deposition. Immediately stabilize all disturbed areas not subject to construction activities within 30 days. Possible mitigation measures for dock construction: <ul style="list-style-type: none"> Measures listed in the DFO Operational Statement for Dock Construction Follow MNR in-water construction timing windows Work from barges where possible Shoreline restoration plan Sediment and erosion control Protection of water quality during construction Fish removal plan (for drilling of piles, construction of hydraulic lifts, etc.) Mitigation measures if trenching occurs: <ul style="list-style-type: none"> Clamshell armouring of cable to protect cable in shallow water and minimize trenching. Follow DFO Blasting Guidelines (if applicable) Follow MNR in-water construction timing windows Backfill trench using native materials Work from barges where possible Shoreline restoration plan Restoration of work area (removal of work platforms if required) Sediment control Protection of water quality during construction Fish removal plan Mitigation measures for directional drilling: <ul style="list-style-type: none"> Measures listed in the DFO Operational Statement for High-Pressure Directional Drilling Follow MNR in-water construction timing windows Isolation of the exit location for the protection of water quality and control of drilling fluids (sediment control silt curtain) Restoration of any in-water work areas Restoration of shoreline Sediment control 	<p>operations) should occur.</p> <ul style="list-style-type: none"> If siltation to a watercourse occurs, related construction activities should cease immediately until the situation is rectified. Inspection of the erosion and sediment controls at least weekly and during and immediately following after each significant rainfall events or weekly, whichever is more frequent. Erosion and sediment control measures to remain securely installed until all areas of the construction site have been permanent vegetation measures are successful and areas are stabilized. Additional monitoring requirements as may be identified in Conservation Authority permits. Conditions for approval in compensation strategies and/or permits from Fisheries and Oceans Canada and/or CRCA, as applicable, will be followed and would likely include conditions of approval such as construction and post-construction monitoring. A detailed Construction Emergency Response and Communications Plan will be prepared by the construction contractor which will contain procedures for spill contingency and response plans, spill response training, notification procedures, and necessary cleanup materials and equipment. 	
Air Quality and Environmental Noise					
Air Emissions	<ul style="list-style-type: none"> Emissions from construction activities, including equipment and vehicles, temporary concrete batching facilities and vehicles.. 	<ul style="list-style-type: none"> Minimize duration and magnitude of emissions. Minimize disturbance to 	<ul style="list-style-type: none"> Using multi-passenger vehicles to the extent practical. Avoid idling vehicles. Complete an Emissions Summary and Dispersion 	<ul style="list-style-type: none"> Adherence to Complaint Response Protocol. All vehicles identified through the monitoring program that fail to meet the minimum emission 	<ul style="list-style-type: none"> Any net effects are expected to be short-term in

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Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
		existing land uses.	Modeling (ESDM) Report for the temporary concrete batching facility. <ul style="list-style-type: none"> Equipment and vehicles would be maintained in good working order with functioning mufflers and emission control systems as available. Meet the emissions requirements of the MOE and/or MTO. 	standards would be repaired immediately or replaced as soon as practical. <ul style="list-style-type: none"> 	duration and highly localized.
Dust and Odour Emissions	<ul style="list-style-type: none"> Dust emissions from construction activities and high winds. 	<ul style="list-style-type: none"> Minimize disturbance to existing land uses. 	<ul style="list-style-type: none"> Applying dust suppressants (e.g. water, calcium chloride). Maintain adequate control of dust on sites in close proximity to residences. Enforce speed limits for trucks on site as appropriate. Re-vegetate exposed soils as soon as possible. As appropriate, protect stockpiles of friable material with a barrier or windscreen. Consult with local authorities prior to application of dust suppressants (i.e water) on public access roads. Ensure dust generation is monitored and controlled in areas of sensitive land use. Ensure MOE Environmental Compliance Approval (ECA) is in place 	<ul style="list-style-type: none"> Adherence to Complaint Response Protocol. Adherence to conditions of ECA. 	<ul style="list-style-type: none"> Short-term and localized.
Environmental Noise	<ul style="list-style-type: none"> Noise emitted from construction equipment and activities such as excavation, drilling, and operation of construction vehicles and temporary concrete batching facility. 	<ul style="list-style-type: none"> Minimize noise emissions to a reasonable extent Noise levels arising from equipment to be compliant with sound levels established by the MOE and municipal by-laws (if applicable). 	<ul style="list-style-type: none"> All engines associated with maintenance equipment would be equipped with mufflers and/or silencers in accordance with MOE and/or MTO guidelines and regulations. Complete an Emissions Summary and Dispersion Modeling (ESDM) Report for the temporary concrete batching facility. To the greatest extent possible, activities that could create excessive noise would be restricted to construction daytime hours . Equipment and vehicles would be maintained in good working condition to limit engine noise. Avoid idling of vehicles. The Construction Contractor would be required to use noise abatement equipment, in good working order, on all heavy machinery used on the Project. Construction will take place generally during regular construction hours. Extended hours may be needed for safety reasons or to meet other project commitments. Ensure MOE Environmental Compliance Approval (ECA) is in place 	<ul style="list-style-type: none"> Adherence to Complaint Response Protocol. If construction activities that might cause excessive noise must be completed outside of normal time frames discussion and authorization from the Township will be required pertaining to these unplanned circumstances. In addition, adjacent residents will be notified in advance as required. Adherence to conditions of ECA. 	<ul style="list-style-type: none"> Short-term in duration and temporary. Minimized through the implementation of good site practices, transportation planning, and communication with the Township and community.
Land Use and Socio-Economic Resources					
Existing Land Uses	<ul style="list-style-type: none"> Change in use from agricultural to renewable energy development on lands used during construction and operation. Lands not immediately effected by the Project will remain in their current land use. Adverse effects to artificial drainage. Soil erosion or crop loss on adjacent lands due to flooding as a result of temporary or permanent disruption to water flow. Encounter and disruption of contaminated soils. 	<ul style="list-style-type: none"> Minimize disturbance to agricultural lands and operations. Minimize land required for the Project. Avoid impacting artificial tile drains. Minimize disturbance to drainage patterns. Properly manage contaminated soils if 	<ul style="list-style-type: none"> Where possible, construct site Project infrastructure in such a way to minimize disturbances to existing agricultural lands and operations. Construction activities would be restricted to the delineated construction areas. Waste generated by the project to be deposited in facilities off Amherst Island. A wet soil shutdown practice would be implemented when agriculturally productive lands are impacted by heavy rainfalls. Following the completion of construction, as appropriate, 	<ul style="list-style-type: none"> Following the completion of construction, as appropriate, temporary workspaces would be graded and de-compacted (if required), the topsoil replaced, and the area left as close to pre-existing condition as possible.. An agricultural tile drainage contractor would carry out any re-alignment works as well as repair tiles and/or drains that may experience construction related damage. 	<ul style="list-style-type: none"> Any net effects are expected to be short-term until mitigation and corrective actions are completed. As appropriate, temporary construction areas would be rehabilitated following construction and restored to agricultural use.

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Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
		encountered.	<p>temporary workspaces would be graded and de-compacted (if required), the topsoil replaced, and the area left as close to pre-existing condition as possible.</p> <ul style="list-style-type: none"> • Silt fence and straw bales (or appropriate substitutes) would be installed where appropriate. • Topsoil salvage and/or replacement should be avoided during heavy precipitation or extremely windy conditions. • Silt control fencing should be installed, where identified, and maintained throughout construction and restoration until lands are fully stabilized. • Locations of crushed or severed tile drains would be recorded and flagged. • If a main drain, header tile, or large diameter tile is severed, a temporary repair should be made to maintain field drainage and prevent flooding of the work area and adjacent lands. • Severed tile drains that are not immediately repaired would be capped. After repair and prior to backfilling, the landowner would be invited to inspect the repair. • If flooding of adjacent agricultural land occurs as a result of a severed tile and subsequent soils are damaged or crops are lost, the impacted area would be rehabilitated as soon as possible. • • Where necessary, a qualified drainage tile contractor would be retained to identify reasonable drainage solutions. • Disruption to drainage ditches, culverts, field entrances, and fences would be repaired appropriately. • Communication with livestock owners regarding the need to erect temporary fencing around workspaces, installation of gates and/or to move the livestock to different fields for short periods of time. 		
Mineral, Aggregate, and Petroleum Resources	<ul style="list-style-type: none"> • No petroleum resources will be used on the Project Location. • As no potential effects are anticipated to existing mineral or aggregate resources, no mitigation measures are necessary. 	<ul style="list-style-type: none"> • No impacts to petroleum resources operations, existing minerals or aggregate resources. 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • No anticipated net effects.
Game and Fishery Resources	<ul style="list-style-type: none"> • Sensory disturbance to game species may occur due to noise from construction and decommissioning activities. 	<ul style="list-style-type: none"> • Minimize sensory disturbance to game and fishery resources. 	<ul style="list-style-type: none"> • Mitigation measures related to noise are outlined in 'Environmental Noise'. 	<ul style="list-style-type: none"> • Adherence to Complaint Response Protocol. 	<ul style="list-style-type: none"> • Construction noise is expected to be temporary and intermittent.
Provincial Plans, Policies, and Recreation Areas	<ul style="list-style-type: none"> • Possible interference with nearby recreational uses from traffic, dust and noise. 	<ul style="list-style-type: none"> • Minimize disturbance to recreational activities. 	<ul style="list-style-type: none"> • Mitigation measures related to noise are outlined in 'Environmental Noise'. • Mitigation measures related to dust are outlined in 'Dust and Odour Emissions'. • Mitigation measures related to traffic are outlined in 'Local Traffic'. 	<ul style="list-style-type: none"> • Adherence to Complaint Response Protocol. 	<ul style="list-style-type: none"> • Any adverse effects are anticipated to be short term and intermittent.
Local Traffic	<ul style="list-style-type: none"> • Short-term, localized disturbance to traffic patterns increases in traffic volume, and/or creation of potential traffic safety hazards. 	<ul style="list-style-type: none"> • Minimize disturbance to local traffic and ferry. 	<ul style="list-style-type: none"> • Implementation of a Traffic Management Plan from the Construction Contractor and discussions with Township. 	<ul style="list-style-type: none"> • Adherence to Complaint Response Protocol. • Communication with Township and community. 	<ul style="list-style-type: none"> • Temporary and intermittent.
Local Economy	<ul style="list-style-type: none"> • Potential increase in direct, indirect and induced employment. • Local economic benefits from land lease payments, local 	<ul style="list-style-type: none"> • Create positive effects on local economy. 	<ul style="list-style-type: none"> • To the extent possible, Windlectric would source required goods and services from qualified local suppliers. • Disruptions in the vicinity of local businesses would be 	<ul style="list-style-type: none"> • None required. 	<ul style="list-style-type: none"> • A positive net effect is anticipated on the local economy during

Appendix B1: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Construction

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
	<ul style="list-style-type: none"> expenditures, municipal taxes, etc. Disruptions to local businesses. 		largely due to an increase in traffic, and would be short term and are not expected to affect use of these businesses.		construction of the Project.
Existing Infrastructure					
Provincial and Municipal Infrastructure	<ul style="list-style-type: none"> Abnormal wear on roads and/or requirements to upgrade some intersections. Interference with local utilities. May be instances during maintenance activities where excess loads would require special traffic planning. Authorization from the MTO or Township may be required 	<ul style="list-style-type: none"> Minimize disturbance to provincial, municipal, and other major infrastructure. 	<ul style="list-style-type: none"> Consultation with MTO regarding any necessary agreements related to use of roads for transportation of Project materials in addition to obtaining the required permits for use of provincial highways. Detailed plans or agreements regarding upgrades, maintenance and/or repairs of the local roads and road rights-of-way during construction will be developed with the Township An agreement would be developed for use of the municipal road allowance for routing of the collector lines. Where there are existing distribution lines within the municipal road allowance, Windlectric will work with the Hydro One Networks Inc. to develop shared pole user agreements (if reasonable to do so). Drains superintendents (or equivalent) from the Township will be requested to attend site visits and be part of the discussions with the Conservation Authorities during the <i>Fisheries Act</i> permitting process for the Project. Locate all utilities within municipal road allowances prior to construction. 	<ul style="list-style-type: none"> Pre and post construction road surveys will be conducted and Windlectric will be responsible for any required upgrades/repairs directly associated with Project construction as per agreement with the Township. Local roads would be restored to their pre-construction conditions to the satisfaction of local authorities as applicable to the agreement with Township. Some municipal roads requiring structural enhancement/upgrades may be left in their upgraded form if requested. Authorization will be obtained from the Township and/or MTO to implement road work activities once final transportation routes and requirements have been finalized. In the event that utilities within municipal road allowances are damaged as a result of the construction of the Project, Windlectric would rectify damages. Affected roadside ditches and drains would be repaired if required and monitored to ensure that they are functioning properly. 	<ul style="list-style-type: none"> Limited, short-term effect on infrastructure.
Navigable Waters	<ul style="list-style-type: none"> Temporary activity due to crossings. 	<ul style="list-style-type: none"> Avoid navigable waterways. Minimize length of disturbance to navigable waterways. 	<ul style="list-style-type: none"> Consultation with Transport Canada and permits (if required) will be obtained prior to construction. 	<ul style="list-style-type: none"> To be identified as part of any permits (if required). 	<ul style="list-style-type: none"> None
Telecommunication and Radar Systems	<ul style="list-style-type: none"> There are no anticipated significant effects to telecommunication/radar systems during the construction of the Project. 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> None
Aeronautical Systems	<ul style="list-style-type: none"> Aeronautical obstruction. 	<ul style="list-style-type: none"> Minimize potential hazard to low flying aircraft. 	<ul style="list-style-type: none"> Once the turbines are erected (and prior to operation), turbine lighting will conform to Transport Canada standards. Nav Canada would be responsible for updating all aeronautical charts with the turbine locations. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> No anticipated net effects to aeronautical systems.
Public Health and Safety					
Public Health and Safety	<ul style="list-style-type: none"> Increased traffic, limited dust emissions, general construction noise and unauthorized access of the public to the work sites. 	<ul style="list-style-type: none"> Ensure public health and safety. 	<ul style="list-style-type: none"> Implementing transportation planning and safety measures. Traffic Management Plan and a Health and Safety Plan would be prepared and implemented by the Construction Contractor. An Emergency Response and Communications Plan would be developed for the Project. See 'Dust & Odour Emissions' and 'Noise'. Land access would be controlled through signage and restricted to authorized personnel only. 	<ul style="list-style-type: none"> Consultation of the Emergency Response Plan with local emergency services personnel. Adherence to Complaint Response Protocol. 	<ul style="list-style-type: none"> With adherence to safety policies and procedures, there is minimal increased or new risk to public health and safety. Minimal increased or new risk to public health and safety.

Appendix B2: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
Heritage and Archaeological Resources					
Protected Properties and Heritage Resources	<ul style="list-style-type: none"> Disturbance to viewscape. 	<ul style="list-style-type: none"> Minimize potential for visual disturbance 	<ul style="list-style-type: none"> See 'Viewscape' Use of appropriate landscape design. 	<ul style="list-style-type: none"> Minimal. 	<ul style="list-style-type: none"> See 'Viewscape'
Archaeological Resources	<ul style="list-style-type: none"> There are no areas that would be excavated during the operation phase that would not have been previously assessed prior to construction; therefore no effects are anticipated to archaeological resources during operation. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
Natural Heritage Resources					
Significant Wetlands	<ul style="list-style-type: none"> Accidental chemical and/or fuel spills and contamination. Infrequent day to day use of the access roads and maintenance activities resulting in dust generation. 	<ul style="list-style-type: none"> Manage the risk of accidental spills. Minimize disturbance to wetlands. 	<ul style="list-style-type: none"> Mitigation measures for spills include: <ul style="list-style-type: none"> Standard containment facilities and emergency response materials (spill kits) will be maintained on-site as required. Refuelling, equipment maintenance, and other potentially contaminating activities will occur in designated areas. In the event of a potential discharge of fluids associated with Project operation, the operation and maintenance contractor will immediately stop work and rectify the accidental spill. Once the spill is under control the contractor will remove contaminated soil and dispose of it in accordance with the current appropriate provincial legislation, such as Ontario Regulation 347, the General – Waste Management Regulation. The Emergency Response Plan will contain procedures for spill contingency and response plans, spill response training, notification procedures, and necessary cleanup materials and equipment. As per s. 13 of the Environmental Protection Act, 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 should be reported to the MOE's Spills Action Centre. Other indirect effects to wetlands as a result of maintenance vehicle traffic and turbine operation are expected to be negligible and as a result, no mitigation is required. 	<ul style="list-style-type: none"> Detailed mitigation measures for the Project as provided in the <i>NHA/EIS</i> An Emergency Response and Communications Plan would be developed by Windlectric and/or the operation and maintenance contractor and would include protocols for the proper handling of material spills and associated procedures to be undertaken in the event of a spill. 	<ul style="list-style-type: none"> Minimized or avoided during operation.
Areas of Natural and Scientific Interest	<ul style="list-style-type: none"> Accidental spills and contamination. Infrequent day to day use of the access roads and maintenance activities resulting in dust generation. 	<ul style="list-style-type: none"> Manage the risk of accidental spills. Minimize disturbance to Areas of Natural and Scientific Interest (ANSI). 	<ul style="list-style-type: none"> See mitigation measures for spills under 'Significant Wetlands' Other indirect effects to ANSI as a result of maintenance vehicle traffic and turbine operation are expected to be negligible and as a result, no 	<ul style="list-style-type: none"> Detailed mitigation measures for the Project as provided in the <i>NHA/EIS</i> An Emergency Response and Communications Plan would be developed by Windlectric and/or the operation and maintenance contractor and 	<ul style="list-style-type: none"> Minimized or avoided during operation.

Appendix B2: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			mitigation is required.	would include protocols for the proper handling of material spills and associated procedures to be undertaken in the event of a spill.	
Valleylands	<ul style="list-style-type: none"> As no valleylands were identified, there are no anticipated impacts. 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> None
Significant Woodlands	<ul style="list-style-type: none"> Accidental spills and contamination. Infrequent day to day use of the access roads and maintenance activities resulting in dust generation. 	<ul style="list-style-type: none"> Manage the risk of accidental spills. Minimize disturbance to woodlands. 	<ul style="list-style-type: none"> See mitigation measures for spills under 'Significant Wetlands' Other indirect effects to ANSI as a result of maintenance vehicle traffic and turbine operation are expected to be negligible and as a result, no mitigation is required. 	<ul style="list-style-type: none"> See mitigation measures for spills under 'Significant Wetlands' 	<ul style="list-style-type: none"> See mitigation measures for spills under 'Significant Wetlands'
Provincial Parks and Conservation Reserves	<ul style="list-style-type: none"> As no Provincial Parks and Conservation Reserves were identified, there are no anticipated impacts. 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> None
Significant Wildlife and Wildlife Habitat (includes birds, bats, amphibians and other wildlife)	<ul style="list-style-type: none"> Possible avoidance or displacement of wildlife. Direct mortality of wildlife Sensory disturbance to wildlife. Accidental spills and contamination. Infrequent day to day use of the access roads and maintenance activities resulting in dust generation. 	<ul style="list-style-type: none"> Minimize disturbance to wildlife and wildlife habitat. 	<ul style="list-style-type: none"> Minimize maintenance vehicle traffic and human presence on access roads during grassland breeding bird season (May 1 to July 31). Turbine lighting must conform to Transport Canada standards. See mitigation measures for spills under 'Significant Wetlands' Other indirect effects to Significant Wildlife and Wildlife Habitat as a result of maintenance vehicle traffic and turbine operation are expected to be negligible and as a result, no mitigation is required. 	<ul style="list-style-type: none"> Post-construction monitoring in significant wildlife habitat and for mortality, as detailed in the Environmental Effects Monitoring Plan (Appendix D). Post-construction monitoring for disturbance will be conducted in all significant open country breeding habitat for a period of three years. An Emergency Response and Communications Plan would be developed by Windlectric and/or the Operation and Maintenance Contractor and would include protocols for the proper handling of material spills and associated procedures to be undertaken in the event of a spill. 	<ul style="list-style-type: none"> Minimized or avoided during operation.
Water Bodies and Aquatic Resources					
Groundwater	<ul style="list-style-type: none"> Accidental spills and contamination. No groundwater or surface water supplies are anticipated to be used for the facility. 	<ul style="list-style-type: none"> Manage the risk of accidental spills. No interference to surrounding private water wells or surface infrastructure. 	<ul style="list-style-type: none"> See mitigation measures for spills under 'Significant Wetlands' Above-ground potable and non-potable water tanks would service the operations and maintenance building, no water takings are required from local water sources. 	<ul style="list-style-type: none"> An Emergency Response and Communications Plan would be developed by Windlectric and/or the Operation and Maintenance Contractor and would include protocols for the proper handling of material spills and associated procedures to be undertaken in the event of a spill. 	<ul style="list-style-type: none"> Minimized or avoided during operation. No net effects are anticipated for water well usage (if one is required).
Surface Water, Fish, and Fish Habitat	<ul style="list-style-type: none"> Accidental spills and/or leaks. Erosion and sedimentation during maintenance activities. Submarine cables producing a weak magnetic field source. 	<ul style="list-style-type: none"> Manage the risk of accidental spills. Minimize the risk of erosion, and sediment transport. 	<ul style="list-style-type: none"> Any stockpiled materials should be stored and stabilized away from the water; Refuelling and maintenance of construction equipment should occur a minimum of 100 m from a water body; As appropriate, spills should be reported to the MOE Spills Action Centre; Any part of equipment entering the water should be free of fluid leaks and externally cleaned/degreased to prevent any deleterious substance from entering the water; and Only clean material, free of fine particulate matter should be placed in the water. Silt fencing and/or barriers should be used along all construction areas adjacent to natural areas; 	<ul style="list-style-type: none"> Environmental monitoring following spring run-off the first year of operations. An Emergency Response and Communications Plan would be developed by Windlectric and/or the operation and maintenance contractor and would include protocols for the proper handling of material spills and associated procedures to be undertaken in the event of a spill. Appropriate remedial measures may be completed as necessary and additional follow-up monitoring conducted as appropriate in the event of an accidental spill and/or leak. The level of monitoring and reporting should be based on the severity of the spill/leak and may 	<ul style="list-style-type: none"> Effects to surface water and water bodies would be both spatially and temporally limited to the maintenance activity. No significant negative effects are anticipated to surface water, water bodies and fish and fish habitat.

Appendix B2: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			<ul style="list-style-type: none"> No equipment should be permitted to enter any natural areas beyond the silt fencing during construction; All sediment and erosion control measures should be inspected at least weekly and during and immediately following rainfall events to ensure that they are functioning properly and are maintained and/or upgraded as required; Topsoil stockpiles should be sufficiently distant from watercourses to preclude sediment inputs due to erosion of stored soil materials; If the sediment and erosion control measures are not functioning properly, no further work should occur until the sediment and/or erosion problem is addressed; All disturbed areas of the construction site should be stabilized immediately and re-vegetated as soon as conditions allow; and Sediment and erosion control measures should be left in place until all areas of the construction site have been stabilized. While a number of species are reported to be capable of detecting changes in the Earth's magnetic field, the narrow linear feature of the field around the cable makes it unlikely that long distance navigation, migration, or major behavioural patterns of those species would be affected. 	<p>be discussed with the MOE (Spills Action Centre) and MNR.</p> <ul style="list-style-type: none"> If <i>Fisheries Act</i> approvals are required from DFO, some monitoring may be required including photographic records during construction and for two years after the completion of construction. To ensure survival of plantings and overall function of the installations. 	
Air Quality and Environmental Noise					
Air Emissions	<ul style="list-style-type: none"> Emissions from operation and maintenance activities, including equipment and vehicles. 	<ul style="list-style-type: none"> Minimize duration and magnitude of emissions. 	<ul style="list-style-type: none"> Operation staff would operate vehicles in a manner that reduces air emissions to the extent practical, including: <ul style="list-style-type: none"> Using multi-passenger vehicles to the extent practical Avoid idling vehicles Equipment and vehicles would be maintained in a manner that reduces air emissions, including: <ul style="list-style-type: none"> Using mufflers and emission control systems as available; Meet the emissions requirements of the MOE and/or MTO; 	<ul style="list-style-type: none"> Adherence to Complaint Response Protocol. All vehicles identified through the monitoring program that fail to meet the minimum emission standards would be repaired immediately or replaced as soon as practical. 	<ul style="list-style-type: none"> Any net effects are expected to be short-term in duration and highly localized.
Dust & Odour Emissions	<ul style="list-style-type: none"> Dust emissions from operation and maintenance vehicles and unpaved road surfaces exposed to wind. 	<ul style="list-style-type: none"> Minimize duration and magnitude of emissions. Minimize disturbance to existing land uses. 	<ul style="list-style-type: none"> Maintaining equipment in good running condition and in compliance with regulatory requirements. Dust suppression (e.g. water) of source areas as necessary. Covering loads of friable materials during transport. 	<ul style="list-style-type: none"> Adherence to Complaint Response Protocol. 	<ul style="list-style-type: none"> Any net effects are expected to be short-term in duration and highly localized.
Environmental Noise	<ul style="list-style-type: none"> Noise emitted from a turbine and/or transformers. Noise emitted from traffic and /or vehicles during maintenance activities. 	<ul style="list-style-type: none"> Noise at all non-participating receptors to meet MOE Noise Guidelines. 	<ul style="list-style-type: none"> Adherence to all noise setback requirements. All engines on vehicles associated with maintenance equipment would be equipped with mufflers and/or silencers in accordance with 	<ul style="list-style-type: none"> Routine facility maintenance to ensure infrastructure is operating properly and efficiently would be performed as required Adherence to Complaint Response Protocol. 	<ul style="list-style-type: none"> Application of the recommended mitigation measures during operations would

Appendix B2: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			<p>MOE and/or MTO guidelines and regulations.</p> <ul style="list-style-type: none"> Noise levels arising from maintenance equipment would also be compliant with sound levels established by the MOE. Routine maintenance to ensure Project infrastructure is operating properly and effectively. To the greatest extent possible, operations activities that could create excessive noise would be restricted to operation business hours. If maintenance activities that cause excessive noise must be carried out outside of these time frames, discussion and authorization from the Township will be required. A sound attenuation wall will also be constructed around three sides of the substation transformer to further attenuate noise produced by the Project. 		<p>limit noise emissions to the general vicinity of the turbine locations and substation property.</p> <ul style="list-style-type: none"> Given that the facility must comply with MOE environmental noise requirements, no significant net effects are anticipated. Any adverse net effects due to noise during maintenance activities are anticipated to be short-term in duration and intermittent.
Land Use and Socio-Economic Resources					
Existing Land Uses	<ul style="list-style-type: none"> Lands occupied by Project components would be removed from their present land-use. Minimal impacts to livestock are anticipated. Temporary limited increase in noise and dust levels during maintenance activities. Potential for minor increase in traffic during maintenance activities. 	<ul style="list-style-type: none"> Minimize disturbance to existing land uses. Minimize land required for the Project. Eliminate potential stray voltage. 	<ul style="list-style-type: none"> Operational and maintenance activities would be restricted to areas where Project components are located. Siting of turbines will comply with MOE guidelines. Landowners are being financially compensated for the lease of the private lands and thus offset the effect of removing the land from agricultural production. Siting of turbines and access roads is completed in consultation with the participating landowners. Siting of turbines, access roads, collector lines, and the transmission line in such a way as to minimize disturbances to existing agricultural operations. All electrical collector lines would be installed to meet the Ontario Electrical Safety Code and be certified by the Electrical Safety Authority. See 'Environmental Noise', 'Dust and Odour Emissions', and 'Local Traffic'. 	<ul style="list-style-type: none"> See 'Environmental Noise', 'Dust and Odour Emissions', and 'Local Traffic'. Adherence to Complaint Response Protocol. 	<ul style="list-style-type: none"> Short-term in duration, temporary, and highly localized Minimized through the implementation of good site practices, transportation planning, and communication with the community.
Mineral, Aggregate, and Petroleum Resources	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> None
Game And Fishery Resources	<ul style="list-style-type: none"> Sensory disturbance to game species from limited noise. Possible barriers to fish passage from improperly installed culverts. 	<ul style="list-style-type: none"> Minimize disturbance to game and fishery resources. 	<ul style="list-style-type: none"> Siting the Project outside of wetlands and naturally vegetated areas has largely precluded disturbance to local flora, small mammals and amphibians, natural habitat, and corridor functions. Routine maintenance to ensure equipment is operating properly and efficiently, thus limiting potential disturbance to game resources. Current agricultural, recreational and hunting 	<ul style="list-style-type: none"> None required. 	<ul style="list-style-type: none"> None

Appendix B2: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			<p>activities provide some disturbance. It is anticipated, similar to other wind projects, that game resources will adapt to the presence of operational turbines.</p> <ul style="list-style-type: none"> Hunting and other recreational uses will be permitted on lands occupied and adjacent to the Project (not withstanding private property restrictions). Culverts would be designed and installed such that there is no restriction of flows through the culvert. 		
Provincial Plans, Policies, and Recreation Areas	<ul style="list-style-type: none"> Possible interference with nearby recreational uses from traffic, dust and noise. 	<ul style="list-style-type: none"> Minimize disturbance to recreational activities. 	<ul style="list-style-type: none"> Mitigation measures related to noise are outlined in 'Environmental Noise'. Mitigation measures related to dust are outlined in 'Dust and Odour Emissions'. Mitigation measures related to traffic are outlined in 'Local Traffic'. 	<ul style="list-style-type: none"> Adherence to Complaint Response Protocol. 	<ul style="list-style-type: none"> Any adverse effects are anticipated to be short term and intermittent.
Local Traffic	<ul style="list-style-type: none"> Short-term, localized disturbance to traffic patterns, increases in traffic volume, and/or creation of potential traffic safety hazards. 	<ul style="list-style-type: none"> Minimize disturbance to local traffic. 	<ul style="list-style-type: none"> As appropriate, the Proponent would obtain relevant permits related to traffic planning. Follow the Traffic Management Plan used during Construction, as required during maintenance activities. 	<ul style="list-style-type: none"> Adherence to Complaint Response Protocol. Communication with Township and community. 	<ul style="list-style-type: none"> Temporary and intermittent.
Local Economy	<ul style="list-style-type: none"> Small increase in direct, indirect and induced employment over the operations period. Local economic benefits from land lease payments, local expenditures, municipal taxes, etc. 	<ul style="list-style-type: none"> Create positive effects on local economy. 	<ul style="list-style-type: none"> To the extent practicable required goods and services would be sourced from qualified local suppliers where these items are available in sufficient quantity and quality and at competitive prices. 	<ul style="list-style-type: none"> Adherence to the Complaint Response Protocol. 	<ul style="list-style-type: none"> A positive net effect is anticipated on the local economy during operation of the Project. Participating landowners would receive land payments based on agreements with the Proponent. Township has been offered a draft Community Vibrancy Agreement (which is currently being review by the Township). Existing businesses in the local communities could benefit from the demands of the Project workforce during operations.
Viewscape	<ul style="list-style-type: none"> Disruption to viewscape from siting of Project infrastructure. 	<ul style="list-style-type: none"> Minimize potential for visual disturbance. 	<ul style="list-style-type: none"> The operation and maintenance building construction and finishes would be chosen to be compatible with the rural setting of the General Project Area and other buildings in the locale. The substation and switching station may be surrounded by berms to mitigate the visual impact of the site. 	<ul style="list-style-type: none"> Adherence to Complaint Response Protocol. 	<ul style="list-style-type: none"> The changed visual landscape would be present during the life of the facility. Will be a net effect (either positive or negative based on

Appendix B2: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
			<ul style="list-style-type: none"> Consideration of fewer lights and exploration of lighting technologies, however the Project must remain compliant with Transport Canada requirements. Limited opportunities for potential mitigation strategies given the height of the wind turbines and met towers, and the landscape patterns. 		perceptions) due to the change in viewscape of the surrounding area.
Existing Infrastructure					
Provincial and Municipal Infrastructure	<ul style="list-style-type: none"> May be instances during maintenance activities where excess loads would require special traffic planning. See 'Local Traffic'. 	<ul style="list-style-type: none"> Minimize disturbance to provincial, municipal, and other major infrastructure. 	<ul style="list-style-type: none"> Necessary permits would be obtained. Consultation with Township regarding excess loads required during operation that have potential to damage municipal roads. 	<ul style="list-style-type: none"> See 'Local Traffic' Adherence to Complaint Response Protocol. 	<ul style="list-style-type: none"> Potential for damage due to excess loads required for maintenance activities cannot be totally disqualified. Limited, short-term effect on infrastructure.
Navigable Waters	<ul style="list-style-type: none"> Temporary activity due to crossings during maintenance activities. 	<ul style="list-style-type: none"> Avoid navigable waterways. Minimize length of disturbance to navigable waterways. 	<ul style="list-style-type: none"> Consultation with Transport Canada and permits (if required) will be obtained prior to construction. 	<ul style="list-style-type: none"> To be identified as part of any permits (if required). 	<ul style="list-style-type: none"> None
Telecommunication and Radar Systems	<ul style="list-style-type: none"> Potential to interfere with telecommunication and radar systems 	<ul style="list-style-type: none"> Minimize interference with radio, TV, or internet signals. Minimize interference with cellular telephone networks 	<ul style="list-style-type: none"> The Proponent has consulted with relevant agencies and licensed providers to identify any likely effects to telecommunication and radar systems. In the unlikely event that signal disruption is experienced, mitigation measures may include: <ul style="list-style-type: none"> Replacing the receiving antenna with one that has a better discrimination to the unwanted signals, Relocating either the transmitter or receiver, or Switching to an alternate means of receiving the information. 	<ul style="list-style-type: none"> The Proponent would review potential incidents of telecommunications interference on a case by case basis. Adherence to Complaint Response Protocol. 	<ul style="list-style-type: none"> Limited and short-term in duration.
Aeronautical Systems	<ul style="list-style-type: none"> Aeronautical obstruction. 	<ul style="list-style-type: none"> Minimize potential hazard to low flying aircraft. 	<ul style="list-style-type: none"> Turbine lighting must conform to Transport Canada standards. In order to reduce rural light pollution, lights would be selected with the minimal allowable flash duration, narrow beam, and would be synchronized. NAV Canada would be responsible for updating all aeronautical charts with the turbine locations promptly after Project approval. Low-level aircraft such as ultra-lights and crop dusters are to be familiar with the area they are flying over and are prohibited from night-time flights. 	<ul style="list-style-type: none"> Adherence to marking and lighting requirements of the Aerodrome Safety Branch of Transport Canada. Adherence to Complaint Response Protocol. 	<ul style="list-style-type: none"> No anticipated significant effects to aeronautical systems. Low-level aircrafts may need to re-route their flight paths or consult with Windlectric when spraying is to occur.

Appendix B2: Potential Environmental Effects and the Environmental Effects Monitoring Plan during Operation

Environmental Feature	Potential Effect	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures	Net Effects
Public Health and Safety					
Public Health and Safety	<ul style="list-style-type: none"> • Potential traffic safety hazards. • Turbine Blade and Structural Failure • Ice fall and shed • Extreme Weather Events 	<ul style="list-style-type: none"> • No structural failure of the turbines or ancillary equipment. • Limit potential for ice throw/shed to impact pedestrians • No structural failure of the turbines or Project equipment. 	<ul style="list-style-type: none"> • Implementation of an Emergency Response Plan. • Follow the Traffic Management Plan used during Construction, as required during maintenance activities. • Design, install, operate, and maintain turbines according to current applicable industry standards/certifications. • Turbine control systems are subjected to rigorous specification in the design standards for wind turbines (IEC 61400-1) and exhaustive analysis in the certification process. • Turbines with industry certification must have a safety system completely independent of the control system. In the event of a failure of one system, the other is designed to control the rotor speed. • Training and education of staff operating the control system. • Adherence to required setbacks. • Design of turbine tower reduces ice accumulation. • Automatic turbine shutdown due to weight imbalances. • Project components have been designed to withstand the effects from extreme events. • Design, install, operate, and maintain turbines according to applicable industry standards/certifications. • Turbines are designed to automatically shut down in the event of excessive wind conditions, imbalance, or malfunction of other turbine components. 	<ul style="list-style-type: none"> • Adherence to Complaint Response Protocol. • Failsafe devices are capable of shutting down the turbine blades in the event of excessive wind conditions, imbalance or malfunction of other turbine components. • Turbines would be monitored electronically twenty-four hours a day, seven-days a week, to allow operational changes to be noted and assessed quickly. • Turbine maintenance to ensure turbines are running properly and efficiently. • Inspections of turbines would occur after extreme weather events. 	<ul style="list-style-type: none"> • With adherence to safety policies and procedures, there is minimal increased or new risk to public health and safety