



Grand Bend Wind Farm
Project Description Draft Report

**Grand Bend Wind Limited Partnership,
c/o Northland Power Inc.**



NEEGAN BURNSIDE

August 2012

**Grand Bend Wind Farm
Project Description Draft Report**

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Prepared for:

Grand Bend Wind Limited Partnership

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Record of Revisions

Revision	Date	Description
0	January 30, 2012	Initial Submission to MOE
0	February 2012	Submission to Municipalities and Aboriginal Communities
1	August 27, 2012	Initial Draft Submission to Municipal and Aboriginal Communities as well as Selected Government Agencies

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1.0 Introduction

1.1 Project Overview

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

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

Under O.Reg. 359/09, a Project Description Report (“PDR”) must be prepared as part of the application package. The PDR is intended to provide an overview of the project and act as the central document in the Renewable Energy Approval application.

The Project Description Report is intended to be revised and updated throughout the Renewable Energy Approval process. Please refer to Record of Revisions table at the front of this document for revision references.

1.2 Project Description Report Requirements

This Project Description Report has been prepared in accordance with O.Reg. 359/09 and the guidance provided in Chapter 4 of the Technical Guide to Renewable Energy Approvals (MOE, 2011). Project Description Reports are required to include the information listed below in **Table 1.1**.

Table 1.1 Project Description Report Requirements

Content		Report Section Reference
1.	Any energy sources to be used to generate electricity at the renewable energy generation facility	2.3
2.	The facilities, equipment or technology that will be used to convert the renewable energy source or any other energy source to electricity.	3.1 and Appendix A
3.	If applicable, the class of the renewable energy generation facility.	2.3
4.	The activities that will be engaged in as part of the renewable energy project.	3.2
5.	The nameplate capacity of the renewable energy generation facility.	2.3
6.	The ownership of the land on which the project location is to be situated.	3.4 and Appendix C
7.	If the person proposing to engage in the project does not own the land on which the project location is to be situated, a description of the permissions that are required to access the land and whether they have been obtained.	3.4
8.	Any negative environmental effects that may result from engaging in the project.	4.0
9.	An unbound, well-marked, legible and reproducible map that is an appropriate size to fit on a 215 mm by 280 mm page, showing the project location and the land within 300 metres of the project location.	Appendix A

2.0 General Information

2.1 Name of Project and Applicant

The project and applicant name are provided in **Table 2.1**

Table 2.1 Project and Applicant Name

Name of Project	Grand Bend Wind Farm
Name of Applicant	Grand Bend Wind Limited Partnership c/o Northland Power Inc.

Northland Power Inc. (“Northland”) develops and operates clean and green power generation projects, mainly in the provinces of Ontario, Quebec and Saskatchewan. Since its inception in 1987, Northland has developed facilities generating a total of approximately 1,004 MW of electricity.

Northland Power was founded on the belief that clean and green energy is vital to the future of our planet. Construction and operational practices are engineered to meet the highest environmental standards, even in jurisdictions where lower standards are legislated. In addition, Northland makes ongoing investments in its host communities to ensure they remain vibrant, healthy places to live.

Additional information including a copy of this Project Description Report can be found on Northland’s website at: <http://grandbend.northlandpower.ca/>

2.2 Project Location

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

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

The preferred transmission line route is along Sararas/Rodgerville Road to Line 17, Road 183 and connecting to the 230 kV Hydro One transmission line just south of the

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Seaforth Transformer Station ("TS"). A transformer location and storage building areas are indicated as well.

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

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

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

A detailed map of the Project Location and its vicinity is presented in **Appendix A, Figures 2a-2s.**

2.3 Energy Source, Nameplate Capacity and Facility Class

Project information is presented in **Table 2.2.**

Table 2.2 Energy Source, Nameplate Capacity and Facility Class

Energy Source	Wind
Nameplate Capacity	100 MW
Facility Class	Class 4, Wind Facility

Wind turbines capture kinetic energy in wind which is converted into electricity. Wind turbines are comprised of four basic parts:

- foundation;
- tower;
- blades; and,
- nacelle.

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As wind moves over the turbine's blades it causes "lift". This lift force causes the blade assembly to rotate. The rotational energy resulting from the movement of the blades is converted in the nacelle to useable 60 Hz electricity.

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

A Feed-in Tariff ("FIT") Contract has been awarded for the project by the Ontario Power Authority ("OPA") (FIT Contract # "F-002178-WIN-130-601).

2.4 Contact Information

Applicant

The Applicant for the project is Grand Bend Wind Limited Partnership c/o Northland Power Inc. ("Northland"). The principle contact is:

Name: Jim Mulvale, P.Eng., Manager, Environmental, Health and Safety
Company: Northland Power Inc.
Address: 30 St. Clair Avenue West, 12th Floor
Toronto, ON M4A 3A1
Email: jim.mulvale@northlandpower.ca
Telephone: (647) 288-1272

Consultant

Neegan Burnside Ltd. ("Neegan Burnside") was retained by Northland as the lead project consultant. Neegan Burnside is a majority owned Aboriginal firm providing engineering and environmental consulting services.

The principle project consultant representing the applicant is:

Name: Lyle Parsons, B.E.S., Project Manager
Company: Neegan Burnside Ltd.
Address: 292 Speedvale Avenue West, Unit 20
Guelph, ON N1H 1C4
Email: lyle.parsons@neeganburnside.com
Telephone: (519) 925-1790

The project specific e-mail address and telephone hotline for this project is as follows:
grandbendwind@northlandpower.ca
1-800-696-8093

2.5 Other Approvals/Authorizations Required

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

Potential approvals are listed in **Table 2.3**.

Table 2.3 Other Project Approvals

Permit/Authorization	Responsible Agency	Description
Federal		
Aeronautical Obstruction Clearance	Transport Canada-Aviation Division	Turbine lighting
Land Use Clearance	NavCanada	Aeronautical safety related to airports and flight approach/take-off areas
Provincial		
Endangered Species Act Permit	Ministry of Natural Resources ("MNR")	Permit is required if there is potential to harm species at risk or their habitat.
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
Customer Impact Assessment	Hydro One Networks Inc. ("HONI")	Integration of project with Hydro One and effects to customers
Connection Cost Recovery Agreement	HONI	Recovery of costs to grid operator of changes to allow connection
System Impact Assessment	IESO	Integration of project with IESO-controlled transmission system
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
Highway Entrance Permit	MTO	Entrance permit for new or upgraded road entrances onto a provincial highway Interference or obstruction of the highway

Permit/Authorization	Responsible Agency	Description
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
Municipal		
Building Permit for turbines	Municipality of Bluewater; Municipality of Huron South	Compliance with building codes
Plumbing and Septic Permits	Municipality of Bluewater; Municipality of Huron South	Compliance with building codes
Municipal Consent-agreement on the use of municipal road allowances	Municipality of Bluewater; Municipality of Huron South; Municipality of Huron East; County of Huron; Municipality of West Perth; and, Perth County	Required for use of municipal road allowances for collection and transmission line siting.
Drainage Act	Municipality of Bluewater; Municipality of Huron South; County of Huron	Required for alterations to municipal drains.
Entrance Permit	Municipality of Bluewater; Municipality of Huron South; County of Huron	Access road entrances/exits from county and lower-tier municipal roads
Shared Use Agreement	Municipality of Bluewater; Municipality of Huron South; Municipality of Huron East; County of Huron; Municipality of West Perth; and, Perth County	Shared use of poles in Municipal road allowance

Permit/Authorization	Responsible Agency	Description
Traffic Management Plan	Municipality of Bluewater; Municipality of Huron South; Municipality of Huron East; County of Huron; Municipality of West Perth; and, Perth County	Adherence to road safety and suitability, including adherence to load restrictions on municipal roads
Cost Recovery Agreement	Municipality of Bluewater; Municipality of Huron South; Municipality of Huron East; County of Huron; Municipality of West Perth; and, Perth County	To recover internal municipal costs in connection with the Project such as: building permits, road repairs, etc.
Oversize/Overweight Load Transportation Permit	Municipality of Bluewater; Municipality of Huron South; Municipality of Huron East; County of Huron; Municipality of West Perth; and, Perth County	Transportation of heavy and/or large items on county and lower-tier municipal roads
Road Condition Survey	Municipality of Bluewater; Municipality of Huron South; County of Huron	Assessment of pre and post construction conditions of roads to be used for material delivery and construction equipment movement
Sign Permit	Municipality of Bluewater; Municipality of Huron South; Municipality of Huron East; County of Huron; Municipality of West Perth; and, Perth County	As necessary

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Permit/Authorization	Responsible Agency	Description
Demolition Permit	Municipality of Bluewater; Municipality of Huron South; Municipality of Huron East; County of Huron; Municipality of West Perth; and, Perth County	If required prior to the demolition of the Project
Other Agencies		
Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses Permit	Ausable Bayfield Conservation Authority/Upper Thames Conservation Authority	Work within floodplains, water crossings, river or stream valleys, hazardous lands and within or adjacent to wetlands.

2.6 Federal Involvement

Federal authorizations and clearances are noted in **Table 2.3**. This Project may trigger a federal Environmental Assessment (CEAA Screening) under the *Canadian Environmental Assessment Act* as federal funding may be provided. Federal agencies will be contacted during the consultation process to confirm federal involvement.

3.0 Project Information

3.1 Facility Components

3.1.1 Wind Turbine Generators

The project is proposed to consist of approximately 48 turbines with a total electricity generation capacity of 100 MW. Several turbine types were considered, including the following:

- Siemens SWT-2.3-113;
- GE;
- Gamesa;
- Enercon; and,
- Vestas.

At present the Siemens SWT-2.3-113 is the preferred turbine platform. Different models on this platform will be used. Please see the Turbine Specification Report under a separate cover for additional details. Nominal specifications of this turbine platform are presented in **Table 3.1**. Subject to availability and costing, an alternative turbine type may be considered.

Table 3.1 Siemens SWT-2.3-113 Specifications

Manufacturer	Siemens
Model	SWT-2.3-113
Nameplate Capacity	2.3 MW
Hub Height	99.5 m
Blade Length	55 m
Rotor diameter	113 m
Rotor sweep area	10,000 m ²
Speed Range	6-13 rpm
Nominal Noise Level	100-105 dBA variable
Frequency	60 Hz

The turbines consist of tower foundations, towers, rotor blades and nacelle which houses the gearbox/electrical generator components. Additional specifications from the manufacturer are provided in **Appendix B**.

Turbine coordinates based on the preliminary layout are presented in **Appendix C**. Turbine locations are subject to change as additional information becomes available.

3.1.2 Electrical Facility Components

The project will also include the following components:

- Step-up transformers adjacent to each turbine at the base of the tower;
- 36 kV electrical collector lines from each turbine to the nearest municipal road right-of-way ("ROW");
- 36 kV electrical collector lines to be located within municipal ROWs and connecting to the transformer substation;
- 230 KV transmission line from the transformer substation to the existing 230 kV Hydro One transmission system east of the Project Study Area; and,
- Switchyard at the 230 KV Hydro One power grid south of the Seaforth Transformer Station location.

3.1.3 Transformer Substation

A 73 m x 54 m (approx. size) transformer substation will be constructed at the location shown on **Figure 2e**.

3.1.4 Service Building

A service and parts storage building is proposed close the transformer location. An alternative location for this building is also under consideration. The building will be approximately 50' x 120' and include a parking area as shown on **Figure 2e**. This building will be serviced with water/wastewater (well and septic).

3.1.5 Turbine Access Roads

Existing provincial and municipal roads will be used to transport project-related components, equipment and personnel to the Study Area during construction and as required during operation. The Project would be situated exclusively on privately owned land and municipal road allowances. Access to these lands will be required for installation and operation of the wind turbines and lease agreements have previously been signed with each of the landowners involved. Some agricultural laneways are present in the vicinity of the Project and will be utilized where possible. New laneways will be constructed as required and in consultation with landowners to provide access to the individual turbine sites. Construction access laneways will be approximately 5 to 11 m wide during construction. Permanent access laneways may be reduced in size to approximately 5 m wide with the exception of entrances off municipal roads and all turning areas which require wider turning radii.

3.1.6 Water Crossings

Where underground collector lines cross watercourses or other sensitive natural areas, the buried collection lines will be installed using directional drill techniques at a sufficient depth below the watercourse to prevent any possibility of accidental damage due to dredging or over excavation. If required, signs indicating the presence and location of the cables will also be placed on either side of the watercourse or other areas involved. All water crossings will require permit approval from the Ausable Bayfield Conservation Authority and/or the Upper Thames Conservation Authority. The final configuration and route for the collector lines will be determined as part of the REA process. All temporary crossings would comply with the DFO's Ontario Operation Statement '*Temporary Stream Crossings*' where possible.

3.1.7 Temporary Construction Facilities

Lands to be temporarily used during the construction of the Project include staging areas for access roads and underground cable construction, delivery truck turnaround areas, staging areas at each turbine location, and crane laydown areas. Any temporary structures used during construction will not be serviced with electrical or water hook-ups, and will be placed within delineated construction work areas.

The existing land use at all Project areas is agricultural. Following construction activities, all locations will be restored to pre-impact conditions. Restoration work will start following installation of the wind turbine and removal of all construction materials and equipment from each turbine site.

Turbine Staging Areas – At this time, plans are for turbine components to be delivered directly to the staging areas for each turbine. The components will be temporarily stored within these staging areas until assembled. Turbine staging areas will be initiated in conjunction with turbine assembly, and will be rehabilitated to pre-construction condition following the end of the construction phase. Turbine staging areas would be actively used to varying degrees during all construction activities at the specific turbine site areas.

Access Road Staging Areas - A staging area will be required for construction of the access road.

Delivery Truck Turnaround Areas - These turnaround areas will be the same width as access roads, with additional space as required for turning radii, and will be constructed in the same manner. There is a similar turnaround requirement for staging areas.

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Access Road Entrances - Access road entrances require a wider turning radius for construction/delivery vehicles.

Crane Laydown Areas – An area will be identified within which crane components will be assembled.

Crane Pads - Crane pads will consist of gravel pads on which the construction crane will sit. A crane pad would be located at each turbine location at the end of each access road to be used during turbine assembly. Pads will generally be constructed at the same time as the access roads. Gravel will be removed subsequent to construction and land beneath will be rehabilitated as required.

3.2 Project Activities

Project activities will generally include:

- Project approvals;
- Construction;
- Operation and maintenance; and,
- Decommissioning (or re-powering).

A preliminary schedule of Project Activities is presented in **Table 3.2**.

Table 3.2 Project Schedule

Project Activity	Anticipated Schedule
Issue First Draft Project Description Report	January 2012
REA Technical Studies	Ongoing 2011 through 2012
Public Information Centre #1 (four locations)	April 2012
Issue Draft REA Reports to the Public	September 2012
Public Information Centre #2	November-December 2012
REA Submission	January/February 2013
Additional Permitting and Approvals Completed	Ongoing 2012 through 2013
Start of Construction	September 2013
Commercial Operation Date ("COD")	December 2014
Project Operation	2014- 2025
New Contract or Decommissioning	Approximately 20 years after COD

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A detailed list of project activities associated with construction, operation and new contract/decommissioning is presented in **Table 3.3**.

Table 3.3 Project Activities

Phase	Project Activities
Construction Phase	<p>Turbine Sites:</p> <ul style="list-style-type: none"> • Survey; • Geotechnical (preconstruction); • Delineation of temporary work areas; • Completion of necessary site clearing and grading; • Construction of access roads, including installation of culverts and agricultural drainage system modifications where required; • Component transportation to work areas; • Installation of crane pads; • Installation of tower foundations; • Tower/turbine erection; • Connection of wind turbines to electrical collection system; • Remediation of temporary work areas; • Completion of permanent access roads and decommissioning of portions of temporary access roads; and. • Site landscaping (final grading, topsoil replacement, fence installation, tile drain repairs, etc.)
	<p>Collection System:</p> <ul style="list-style-type: none"> • ROW clearing, as required; • Installation of 36 kV electrical collection system within private land easements and municipal ROWs; and, • Step-up transformer substation and operations building.
	<p>Transmission Line and Interconnection:</p> <ul style="list-style-type: none"> • ROW clearing, as required; • Installation of transmission lines; • Installation of switch gear at connection point with Hydro One transmission line (provincial grid); and, • Commissioning of the project.

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Phase	Project Activities
Operation and Maintenance Phase	Turbine Sites: <ul style="list-style-type: none"> • Periodic vehicle access for maintenance; • Remote condition monitoring and meter calibrations; and, • Grounds keeping.
	Collection System: <ul style="list-style-type: none"> • Testing and maintenance of electrical equipment.
	Transmission Line: <ul style="list-style-type: none"> • Ongoing clearing of vegetation within ROW; • Testing and maintenance of electrical equipment; and, • Maintenance and replacement of transmission components, as required.
Decommissioning Phase	Turbine Sites: <ul style="list-style-type: none"> • Removal of tower and turbine infrastructure; • Removal of foundation to not less than three feet below grade; • Turbine site grading and rehabilitation (dependent on new proposed use); and, • Removal of all waste from the site.
	Access Roads: <ul style="list-style-type: none"> • Access roads will be left at landowner's request or graded to restore topography and soils (to the extent possible) and vegetated (dependent on new proposed use).
	Collection Lines: <ul style="list-style-type: none"> • Removal of collection lines and restoration of terrain.
	Transmission Line and Transformer Substation: <ul style="list-style-type: none"> • Removal of transmission line and conductors; • Removal of transformer substation components; • Removal of switch gear at connection point; • Removal of poles; and, • Removal of all waste from the site.

3.3 Map of Project Location

Draft project layout maps are presented in **Appendix A, Figures 2a-2s**. The layout was developed based on:

- Results of wind resource data;
- Site access;
- Existing land use;
- Environmental and socio-economic information;
- Results from the preliminary noise assessment;

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- Interconnection feasibility; and,
- REA setback requirements.

The layout presented is considered to be draft and is subject to revisions based on input received from government agencies, aboriginal communities, the public and landowners through the REA consultation process as well as additional environmental data collected during field studies.

3.4 Land Ownership

The project will be located predominantly on private and municipal lands (private lands are predominantly in active agricultural use) as described below.

Portions of the project located on private lands include:

- Turbines;
- Temporary and permanent access roads;
- Turbine construction areas;
- Electrical collector system;
- Operation and maintenance building;
- Transformer sub-station; and,
- Connection switchyard

Portions of the project located on municipal lands include:

- Electrical collection and transmission lines within provincial and municipal ROWs; and,
- Electrical collection and transmission line construction areas.

The legal descriptions of land parcels on which the project will be located are presented in **Appendix D**.

The permissions that are required to access the land have been obtained by the project proponent in the form of land lease agreements.

4.0 Potential Negative Environmental Effects

Potential negative effects associated with the project are identified in the sections below. As the REA process progresses, each potential effect will be studied in greater detail to identify the significance, magnitude and duration of each effect. Mitigation will be developed to minimize effects to the extent possible. Finally, a post-construction monitoring program will be developed to identify and address any unexpected impacts that may result from the project.

A key component of the REA process is the establishment of common setbacks for all renewable energy facilities in the Province. The Project was designed to meet the mandatory setbacks within O. Reg. 359/09 in all cases. Within the regulation there are some setbacks for which studies that identify potential negative environmental effects and mitigation measures can be conducted in lieu of meeting the setback requirements. In some instances in the proposed design, Project components are proposed within the defined setbacks. In these instances, additional assessments have been conducted.

Potential negative effects, proposed mitigation measures and additional studies proposed in the near future have been summarized in **Tables 4.1-4.6**.

Table 4.1 Environmental Effects Monitoring Plan – Environmental Impact Study General Features

Project Activity	Potential Effects (D=Direct) (I=Indirect)	Mitigation Strategy	Residual Effect (magnitude/frequency/duration)	Performance Objective	Monitoring Plan and Contingency Measures
Site Preparation	<ul style="list-style-type: none"> Limited vegetation removal (D). 	<ul style="list-style-type: none"> No project components will be located directly within any natural significant features boundaries. Vegetated buffers will be left in place to the extent possible. A Tree Preservation Plan will be developed during the detailed design phase in order to identify trees which may need to be removed or trimmed during construction of the transmission line. Trees requiring removal will be replaced at a ratio determined through the Tree Preservation Plan based on the age, size, species and health of the tree. The Tree Preservation Plan will also include recommendations for minor adjustments to utility pole locations in order to minimize tree loss to the extent possible. Time vegetation removal to avoid periods of habitat use where possible especially during breeding bird season for migratory birds (May 1-July 30) undertaking active nest surveys if clearing of vegetation must take place during breeding bird season. Any cleared areas will be re-vegetated using a native seed mix where appropriate. 	<ul style="list-style-type: none"> Duration is expected to be moderate (10-15 years until replacement trees have matured); however magnitude, frequency and geographic scope are very limited. No residual effect anticipated. 	<ul style="list-style-type: none"> Minimal vegetation removal for installation of utility poles only. 	<ul style="list-style-type: none"> Undertake monthly site inspections during the Site Preparation stage to ensure that only specified trees are removed and that remaining trees are not damaged during construction activities. If active nests are found in an area where vegetation must be cleared, construction activities will be suspended during breeding bird period. Replacement trees will be monitored for one year to ensure at least 80% survival. Additional trees will be planted if survival rate is lower.
All Construction and Decommissioning Activities	<ul style="list-style-type: none"> Accidental encroachment of equipment, stockpiles etc. into natural areas (I). 	<ul style="list-style-type: none"> All work zones should be delineated with silt fencing and be clearly marked to indicate that no work should occur outside the fenced area. 	<ul style="list-style-type: none"> Limited duration, frequency, geographic extent. No residual effect anticipated. 	<ul style="list-style-type: none"> No disturbance to natural areas. 	<ul style="list-style-type: none"> An Environmental Inspector will perform regular inspection to ensure that mitigation is implemented.
All Construction and Decommissioning Activities	<ul style="list-style-type: none"> Potential soil compaction (D). 	<ul style="list-style-type: none"> Heavy equipment and material stockpiles will be limited to fenced construction areas. Temporary construction staging areas and construction roads which have been compacted will be rehabilitated upon completion of construction. 	<ul style="list-style-type: none"> Limited duration, frequency, geographic extent. No residual effect anticipated. 	<ul style="list-style-type: none"> Minimize soil compaction to the extent possible. Rehabilitate any compacted soils within temporary construction areas. 	<ul style="list-style-type: none"> An Environmental Inspector will perform regular inspection to ensure that equipment and stockpiles do not extend beyond construction areas. Northland and the contractor will work with participating landowners to ensure that soils in construction areas are rehabilitated to pre-construction conditions.
All Construction and Decommissioning Activities	<ul style="list-style-type: none"> Mortality of wildlife inadvertently moving through construction zones (I). 	<ul style="list-style-type: none"> Silt fencing will be properly installed and maintained around work zones will also act to kept wildlife out of work areas. Construction traffic will be restricted to day time hours. Speed limit signage will be posted along construction travel routes to ensure that construction vehicles respect appropriate speeds. 	<ul style="list-style-type: none"> Limited duration, frequency, geographic extent. No residual effect anticipated. 	<ul style="list-style-type: none"> No wildlife mortality. 	<ul style="list-style-type: none"> An Environmental Inspector will regularly monitor fenced areas to ensure that fencing is properly keyed/toed in to the ground to ensure that wildlife cannot gain access under fenced area. If wildlife inadvertently moves into a construction area, the Environmental Inspector will move the species outside of the work area, if possible, using gloves and a bucket or plastic tub, as appropriate. If any species at risk are encountered that are not identified on relevant permits, all work will cease within the immediate work area and the Ministry of Natural Resources will be contacted.
Installation and removal of 36 kV collector lines, 230 kV transmission line,	<ul style="list-style-type: none"> Sediment and erosion impacts associated with open cuts/trenching and directional drilling/punch and bore activities (I). 	<ul style="list-style-type: none"> Implementation of the erosion and sediment control measures will conform to industry best management practices and recognized standard specifications such as Ontario Provincial Standards Specifications (OPSS). Sediment and erosion control measures will be implemented 	<ul style="list-style-type: none"> Limited duration, frequency, geographic extent. No residual effect anticipated. 	<ul style="list-style-type: none"> No erosion and sediment impacts on wildlife habitats. 	<ul style="list-style-type: none"> A plan for addressing impacts associated with "frac-out" during directional drilling will be prepared in accordance with the Operational Statement. Erosion and sediment control measures will be regularly inspected to ensure they are functioning

Project Activity	Potential Effects (D=Direct) (I=Indirect)	Mitigation Strategy	Residual Effect (magnitude/frequency/duration)	Performance Objective	Monitoring Plan and Contingency Measures
communication lines		<p>prior to construction and maintained during the construction phase to prevent the escape of sediment from work zones:</p> <ul style="list-style-type: none"> All sediment and erosion control measures will be inspected prior to construction and maintained during the construction phase to prevent entry of sediment into natural features; If the sediment and erosion control measures are not functioning properly, no further work will occur until the sediment and/or erosion problem is addresses; All disturbed areas of the construction site will be stabilized immediately and re-vegetated as soon as conditions allow; and, Sediment and erosion control measures will be left in place until all areas of the construction site have been stabilized. Directional drilling will be undertaken in accordance with the Department of Fisheries and Oceans' Operational Statement. Directional drilling and/or punch and bore operations will be designed with launching and receiving pits that will minimize tree loss and disturbance of natural vegetation wherever possible. 			<p>and are maintained as required.</p> <ul style="list-style-type: none"> If erosion and sediment control measures are not functioning properly, alternative measures will be implemented and prioritized above other construction activities.
Site Restoration	<ul style="list-style-type: none"> Introduction of invasive species into natural areas (I). 	<ul style="list-style-type: none"> All disturbed areas of the construction site will be re-vegetated as soon as conditions allow. Where re-vegetation is required in the municipal road allowance, as a result of transmission line installation, standard roadside seed mixes, which do not contain invasive species, will be used. 	<ul style="list-style-type: none"> Limited duration, frequency, geographic extent. No residual effect anticipated. 	<ul style="list-style-type: none"> No introduction of invasive species. 	<ul style="list-style-type: none"> An Environmental Inspector will perform regular inspection to ensure that mitigation is implemented. If extensive invasion of non-native species is identified as a result of the Project, contingency measures may include an applicable herbicide application. An herbicide application plan will be developed as required.
Turbine assembly	<ul style="list-style-type: none"> Effects on groundwater levels/seepage areas and wetlands due to dewatering for construction of turbine foundations (I). 	<ul style="list-style-type: none"> Any discharge from dewatering will be outlet to a vegetated area at least 30 metres from a habitat area utilizing a sediment filter bag. 	<ul style="list-style-type: none"> Limited duration, frequency, geographic extent. No residual effect anticipated. 	<ul style="list-style-type: none"> No effect on groundwater levels. 	<ul style="list-style-type: none"> An Environmental Inspector should be on-site during any dewatering within 120 metres of natural features. The Inspector should ensure that the filter bag is working appropriately and ensure that no sediment is entering habitat areas. In the event of sediment discharge, all operations should stop immediately until the problem can be resolved. If significant changes in water levels/seepage areas are noted, operations should cease until water levels recover.
All Construction and Decommissioning Activities	<ul style="list-style-type: none"> Spills from equipment fueling, oiling, greasing of project components (I). 	<ul style="list-style-type: none"> All materials and equipment used for the purpose of site preparation and project construction shall be operated and stored in a manner that prevents any deleterious substances (petroleum produces, silt, etc.) from entering natural features: Any stockpiled materials will be stored and stabilized away from the feature; Refueling and maintenance of construction equipment should occur a minimum of 30 metres from a natural feature; and, Hazardous material transportation and application will occur in designated areas according to operational procedures. Proper spill containment equipment will be used and maintained on site. 	<ul style="list-style-type: none"> Limited duration, frequency, geographic extent. No residual effect anticipated. 	<ul style="list-style-type: none"> Minimize potential for indirect effects from accidental spills. 	<ul style="list-style-type: none"> As appropriate, spills will be reported to the MOE Spills Action Centre.

Project Activity	Potential Effects (D=Direct) (I=Indirect)	Mitigation Strategy	Residual Effect (magnitude/frequency/duration)	Performance Objective	Monitoring Plan and Contingency Measures
All Construction and Decommissioning Activities	<ul style="list-style-type: none"> Impacts of construction noise on wildlife (I). 	<ul style="list-style-type: none"> Environmental noise will be reduced through the standard operating practices. A traffic plan will be developed and implemented by the Construction Contractor. Work within 120 metres of Amphibian Breeding Habitats (GCSWH-ABH) will not occur after dusk during the breeding season (April, May and June). Work within 120 metres of bird habitats (GCSWH-WRN, GCSWH-WASBB, GCSWH-WNA, GCSWH-WSSA) will not occur in the early morning hours (between dawn and 1.5 hours after dawn) during the breeding season (May 15-July 30). 	<ul style="list-style-type: none"> Limited duration, frequency, geographic extent. No residual effect anticipated. 	<ul style="list-style-type: none"> Minimize effects of noise. 	<ul style="list-style-type: none"> The Environmental Inspector will ensure that all operational plans and construction timing associated with noise reduction are being followed.
All Construction and Decommissioning Activities	<ul style="list-style-type: none"> Dust effects on wildlife habitat (I). 	<ul style="list-style-type: none"> As appropriate, dust from the work areas will be controlled through suppressants (e.g. water). 	<ul style="list-style-type: none"> Limited duration, frequency, geographic extent. No residual effect anticipated. 	<ul style="list-style-type: none"> Minimize effects from dust on wildlife habitats. 	<ul style="list-style-type: none"> Dust emissions will be monitored daily during construction to ensure dust control watering frequency and rates are adequate.

Table 4.2 Environmental Effects Monitoring Plan – Environmental Impact Study Significant Features

Affected Environmental Feature(s)	Project Activity	Potential Effects (D=Direct) (I=Indirect) Potential effect on the size, diversity, health, connectivity, functionality and resilience of the natural feature.	Mitigation Strategy	Residual Effect (magnitude/frequency/duration)	Performance Objective	Monitoring Plan and Contingency Measures
CONSTRUCTION AND DECOMMISSIONING						
All Significant Features Significant Valleylands V-001 Significant Wetlands WE-027, WE-029 Significant Woodlands W-004, W-012, W-013, W-014, W-020, W-021, W-023, W-026, W-029, W-030, W-031, W-034, W-036, W-037, W-039, W-041, W-042, W-053, W-067, W-079, W-081, W-086, W-088, W-093, W-094, W-099, W-102, W-104, W-118, W-123, W-127, W-128 Turtle Nesting Areas TNA-003 Deer Yarding Areas DYA-001 DYA-002 Amphibian Breeding Habitat ABH-007	<ul style="list-style-type: none"> All Construction and Decommissioning Activities 	<ul style="list-style-type: none"> General construction and decommissioning effects. Refer to effects listed under Generalized Significant Wildlife Habitat. 	<ul style="list-style-type: none"> Refer to mitigation listed under Generalized Significant Wildlife Habitat. 	<ul style="list-style-type: none"> Refer to Residual Effects listed under Generalized Significant Wildlife Habitat. 	<ul style="list-style-type: none"> Refer to Performance Objectives listed under Generalized Significant Wildlife Habitat. 	<ul style="list-style-type: none"> Refer to monitoring and contingency measures listed under Generalized Significant Wildlife Habitat.
Significant Valleylands V-001	Installation and removal of 230 kV transmission line and communication lines	<ul style="list-style-type: none"> Slope failure, erosion or slumping during work in and around slope areas (I). The effects identified above could have an effect on the health (water quality) of the watercourse within the valley as well as on the health of the forested areas within the valley. 	<ul style="list-style-type: none"> The detailed design and construction plan for this area will include a geotechnical assessment that will outline specific mitigation for work on sloped areas. A permit from the Ausable Bayfield Conservation Authority will be required for work in this area. All conditions of the permit will be met. 	<ul style="list-style-type: none"> Limited duration, frequency, geographic extent. No residual effect anticipated. 	<ul style="list-style-type: none"> No slope failure, erosion or slumping. No decrease in health, functionality and stability of the valleyland. 	<ul style="list-style-type: none"> Erosion and slope stability measures will be regularly inspected to ensure they are functioning and are maintained as required.
Significant Woodlands W-04, W-020, W-21, W-23, W-026, W-29, W-30, W-31, W-34, W-036, W-37,	<ul style="list-style-type: none"> Construction and removal of access roads adjacent to the following woodlands: W-053 (access road to T-16); 	<ul style="list-style-type: none"> Inadvertent loss of, or disturbance to, vegetation along the edge of woodlands during construction of adjacent access roads and below ground collector lines (I). The effects identified above could have 	<ul style="list-style-type: none"> Access road and collector lines will be no closer than the dripline of each woodland edge. Below ground collector lines will be located within the gravel road 	<ul style="list-style-type: none"> Limited duration, frequency, geographic extent. No residual effect anticipated. 	<ul style="list-style-type: none"> No disturbance to woodlots. 	<ul style="list-style-type: none"> Silt fencing and tree hoarding will be installed along the dripline and monitored by an Environmental Inspector.

Affected Environmental Feature(s)	Project Activity	Potential Effects (D=Direct) (I=Indirect) Potential effect on the size, diversity, health, connectivity, functionality and resilience of the natural feature.	Mitigation Strategy	Residual Effect (magnitude/frequency/duration)	Performance Objective	Monitoring Plan and Contingency Measures
W-042, W-053,	<ul style="list-style-type: none"> W-042 (access road to T-18); W-036 (access road to T-25 and T-28); W-026 (access road to T-31); and, W-020 (access road to T-40). Installation of 36kV collector lines adjacent to the following woodlands: W-04 and W-037 (collector line along Sararas Road); W-029, W-030, W-034, W-031 (collector line along Shipka Road); W-023 and W-026 along Schadeview Road; W-020 along Turnbull's Road; and, W-021 along the field edge between T-37 and T-39. 	<p>minor effect on the size of woodlands and their function in providing edge habitat for a variety of species including Red-headed woodpecker (Special Concern species).</p>	<p>shoulder and will not extend into wooded areas.</p> <ul style="list-style-type: none"> Additional, taller tree protection fencing (tree hoarding) should be installed in these areas to protect tree limbs from equipment in adjacent areas. Any tree roots which extend into the construction area should be cut and re-packed into soil to avoid desiccation. Vegetation along the woodland edges should be surveyed for rare species by biologist prior to removal (see mitigation for Species of Conservation Concern). 			
Significant Wetlands WE-027, WE-029	<ul style="list-style-type: none"> Installation and removal of 230 kV transmission line and communication lines 	<ul style="list-style-type: none"> Inadvertent loss of, or disturbance to, vegetation within the wetlands (I). Movement of exposed sediment into the wetlands (I). The effects identified above could have minor effect on the size of wetlands and on the function of the wetland as surface water storage. 	<ul style="list-style-type: none"> Two options for mitigation may be used: <ul style="list-style-type: none"> The transmission line may be located on the opposite side of the road from these wetlands. In this case, mitigation will include: <ul style="list-style-type: none"> Clearly demarcating wetlands and ensuring the equipment and material stockpiles do not encroach into the wetland in the opposite ROW. The transmission line may be directionally drilled below ground under the wetlands. In this case, mitigation measures will include: <ul style="list-style-type: none"> Entrance and exit pits will be at least 30 metres from the edge of the wetland; and, Sediment and erosion controls will be used around the entrance and exit pits. 	<ul style="list-style-type: none"> May be residual effect associated with frac-out during directional drilling. Likelihood is low, limited duration, frequency and geographic extent. 	<ul style="list-style-type: none"> No vegetation loss or disturbance associated with sediment and erosion on Provincially Significant Wetlands. 	<ul style="list-style-type: none"> An Environmental Inspector will regularly monitor operations to ensure that activities do not encroach into wetland areas. If directional drilling is used, an Environmental Inspector will be on-site during drilling activities. A plan to address potential frac-out will be developed and activated by the Environmental Inspector if required.

Affected Environmental Feature(s)	Project Activity	Potential Effects (D=Direct) (I=Indirect) Potential effect on the size, diversity, health, connectivity, functionality and resilience of the natural feature.	Mitigation Strategy	Residual Effect (magnitude/frequency/duration)	Performance Objective	Monitoring Plan and Contingency Measures
Significant Turtle Nesting and Amphibian Breeding Habitat ABH-007 TNA-002	All Construction and Decommissioning Activities	<ul style="list-style-type: none"> Accidental mortality due to wildlife moving through the construction zone (I). The effect identified above may affect individual animals but unlikely to affect population health or resiliency. No effect on habitat functionality. 	<ul style="list-style-type: none"> During construction wildlife fencing (sediment fencing) will be installed around all work areas within 120 metres of these habitats prior to any earth movement, stockpiling or other activities on the site. Fencing must be keyed in correctly and monitored for proper installation and maintenance by the Environmental Inspector. 	<ul style="list-style-type: none"> Limited duration, frequency, geographic extent. No residual effect anticipated. 	<ul style="list-style-type: none"> No accidental mortality. No reduced amphibian breeding due to noise impacts. 	<ul style="list-style-type: none"> The Environmental Inspector should be on-site for daily inspections of wildlife fencing for signs of turtles accessing the construction zone. This should occur in the work zone associated with T-40, its access road and all associated components during the period between March and October when turtles are active. If any turtles are found within the work zone, the Environmental Inspector should relocate them to the nearest habitat area outside of the work zone. When relocating snapping turtles, care should be taken to avoid injury by wearing gloves and placing turtles into a bucket or large plastic tub for relocation. Sediment/wildlife fencing within 120 metres of Amphibian Breeding Habitat (ABH-007) should also be inspected by the Environmental Inspector at least once a week during the breeding season.
Amphibian Breeding Habitat ABH-007	Construction of turbines T-21, T-22, T-23, T-24 and T-25, their access roads and all associated components	<ul style="list-style-type: none"> Inhibition of amphibian breeding patterns and reproductive success due to disruptions of breeding calling patterns from turbine noise (I). The effect identified above could affect the size and diversity of the amphibian population in this pond. 	<ul style="list-style-type: none"> Construction of turbines T-21, T-22, T-23, T-24 and T-25, their access roads and all associated components should not occur after dusk during the breeding season (April, May and June). 	<ul style="list-style-type: none"> Limited duration, frequency, geographic extent. No residual effect anticipated. 	<ul style="list-style-type: none"> No significant decrease in amphibian populations. 	<ul style="list-style-type: none"> Contractor and Environmental Inspector to monitor work schedules to ensure that no work occurs within the restricted timing window.
OPERATION						
Significant Woodlands W-39, W-79, W-81, W-86, W-88, W-93, W-94, W-99, W-102, W-123, W-128	Operation of the 230 kV overhead transmission line	<ul style="list-style-type: none"> Fires or electrical outages from transmission line arcing to nearby trees and vegetation (I). The effect identified above could affect the size, health and ecological diversity of woodlands. 	<ul style="list-style-type: none"> The transmission line will be maintained to comply with the tree and vegetation clearance requirements of the North American Electricity Reliability Corporation (NERC). 	<ul style="list-style-type: none"> Likelihood of effect very limited and only expected to occur as an accidental occurrence. No residual effects anticipated. 	<ul style="list-style-type: none"> No fires or power outages as a result of tree or vegetation arcing with transmission line. 	<ul style="list-style-type: none"> If a transmission line fire or power outage occurs, the operations and maintenance staff will implement the Emergency Response Plan.
Amphibian Breeding Habitat ABH-007	Wind Turbine Operation	<ul style="list-style-type: none"> Inhibition of amphibian breeding patterns and reproductive success due to disruptions of breeding calling patterns from turbine noise (I). The effect identified above could affect the size and diversity of the amphibian population in this pond. 	<ul style="list-style-type: none"> Strategy to site turbines outside of habitat. 	<ul style="list-style-type: none"> Duration of the effect could be experienced throughout entire operating period of the turbines. Effect most significant during spring breeding season. Potential for residual effects exists. 	<ul style="list-style-type: none"> Minimize impacts to amphibian breeding. Baseline amphibian calling index to be maintained at three for both spring peeper and green frog. 	<ul style="list-style-type: none"> Conduct an Amphibian Monitoring Program for two years following construction of the wind farm. Amphibian surveys to be undertaken in accordance with Marsh Monitoring Program Manual (Bird Studies Canada, 1994). Surveys will be conducted between one-half hour after sunset and midnight during each of the following three periods: <ul style="list-style-type: none"> April 15-30; May 15-30; and,

Affected Environmental Feature(s)	Project Activity	Potential Effects (D=Direct) (I=Indirect) Potential effect on the size, diversity, health, connectivity, functionality and resilience of the natural feature.	Mitigation Strategy	Residual Effect (magnitude/frequency/duration)	Performance Objective	Monitoring Plan and Contingency Measures
						<ul style="list-style-type: none"> - June 15-30. Contingency measures may include additional monitoring to determine cause of decline, possible turbine shut-down or blade feathering during breeding season. Additional two years of monitoring if significant effects are observed.
All Significant Features Significant Valleylands V-001 Significant Wetlands WE-027, WE-029 Significant Woodlands W-004, W-012, W-013, W-014, W-020, W-021, W-023, W-026, W-029, W-030, W-031, W-034, W-036, W-037, W-039, W-041, W-042, W-053, W-067, W-079, W-081, W-086, W-088, W-093, W-094, W-099, W-102, W-104, W-118, W-123, W-127, W-128 Turtle Nesting Areas TNA-003 Deer Yarding Areas DYA-001 DYA-002 Amphibian Breeding Habitat ABH-007	Planned and Unplanned Maintenance	<ul style="list-style-type: none"> Maintenance activities may have impacts associated with spills and the accidental release of hazardous materials. General effects such as those described under listed under Generalized Significant Wildlife Habitat may occur if earth movement is required. Refer to effects listed under Generalized Significant Wildlife Habitat. Maintenance activities are not anticipated to affect size, diversity, health, connectivity or function of natural features. 	<ul style="list-style-type: none"> Procedures will be in place for the handling of hazardous materials, disposal of waste and management of dust and noise. Any maintenance requiring earth movement will use the same mitigation measures described under Generalized Significant Wildlife Habitat. 	<ul style="list-style-type: none"> Refer to Residual Effects listed under Generalized Significant Wildlife Habitat. No residual effect anticipated. 	<ul style="list-style-type: none"> Refer to Performance Objectives listed under Generalized Significant Wildlife Habitat. 	<ul style="list-style-type: none"> Refer to monitoring and contingency measures listed under Generalized Significant Wildlife Habitat.

Table 4.3 Environmental Effects Monitoring Plan – Environmental Impact Study Wetlands Treated as Significant

Affected Environmental Feature(s)	Project Activity	Potential Effects (D=Direct) (I=Indirect) Potential effect on the size, diversity, health, connectivity, functionality and resilience of the natural feature.	Mitigation Strategy	Residual Effect (magnitude/frequency/duration)	Performance Objective	Monitoring Plan and Contingency Measures
CONSTRUCTION AND DECOMMISSIONING						
Wetlands Treated as Significant WE-001, WE-002, WE-008, WE-010, WE-011, WE-012, WE-013, WE-014, WE-015, WE-016, WE-017, WE-020, WE-022, WE-026, WE-030, WE-031, WE-032, WE-033, WE-034, WE-035, WE-037, WE-038,	All Construction and Decommissioning Activities	<ul style="list-style-type: none"> General construction and decommissioning effects. Refer to effects listed under Generalized Significant Wildlife Habitat. 	<ul style="list-style-type: none"> Refer to mitigation listed under Generalized Significant Wildlife Habitat. 	<ul style="list-style-type: none"> Refer to Residual Effects listed under Generalized Significant Wildlife Habitat. No residual effect anticipated. 	<ul style="list-style-type: none"> Refer to Performance Objectives listed under Generalized Significant Wildlife Habitat. 	<ul style="list-style-type: none"> Refer to monitoring and contingency measures listed under Generalized Significant Wildlife Habitat.
Wetlands Treated as Significant WE-013, WE-014, WE-015, WE-017, WE-020, WE-022, WE-026, WE-031, WE-038	Installation of 230 kV transmission line and communication lines	<ul style="list-style-type: none"> Minor loss of vegetation within the wetlands (D). Movement of exposed sediment into the wetlands (I). The effects identified above could have minor effect on the size of wetlands and on the function of the wetland as surface water storage and flood control. 	<ul style="list-style-type: none"> Two options for mitigation may be used: <ul style="list-style-type: none"> The transmission line may be located on the opposite side of the road from these wetlands. In this case, mitigation will include: <ul style="list-style-type: none"> Clearly demarcating wetlands and ensuring the equipment and material stockpiles do not encroach into the wetland in the opposite ROW. The transmission line may be directionally drilled below ground under the wetlands. In this case, mitigation measures will include: <ul style="list-style-type: none"> Entrance and exit pits will be at least 30 metres from the edge of the wetland; and, Sediment and erosion controls will be used around the entrance and exit pits. 	<ul style="list-style-type: none"> May be residual effect associated with frac-out during directional drilling. Likelihood is low, limited duration, frequency and geographic extent. No residual effect anticipated. 	<ul style="list-style-type: none"> No vegetation loss or disturbance associated with sediment and erosion on Provincially Significant Wetlands. 	<ul style="list-style-type: none"> An Environmental Inspector will regularly monitor operations to ensure that activities do not encroach into wetland areas. If directional drilling is used, an Environmental Inspector will be on-site during drilling activities. A plan to address potential frac-out will be developed and activated by the Environmental Inspector if required.

Affected Environmental Feature(s)	Project Activity	Potential Effects (D=Direct) (I=Indirect) Potential effect on the size, diversity, health, connectivity, functionality and resilience of the natural feature.	Mitigation Strategy	Residual Effect (magnitude/frequency/duration)	Performance Objective	Monitoring Plan and Contingency Measures
Wetlands Treated as Significant WE-001, WE-002, WE-008, WE-010, WE-011,	Turbine Assembly	<ul style="list-style-type: none"> Localized effects on wetland water levels due to dewatering for construction of turbine foundations (I). Water from the dewatering process could be outlet into a wetland causing scour within the wetland and deposition of sediment from the pumped water (I). The effects identified above could affect habitat for aquatic species if standing water is drawn down. Sedimentation could affect wetland functions associated with surface water storage and flood control. 	<ul style="list-style-type: none"> Dewatering will be minimized to the extent possible. Any discharge from dewatering will be outlet to a vegetated area at least 30 metres from a wetland utilizing a sediment filter bag. 	<ul style="list-style-type: none"> Limited duration, frequency, geographic extent. No residual effect anticipated. 	<ul style="list-style-type: none"> No effect on wetland water levels. No sediment discharge into wetlands. 	<ul style="list-style-type: none"> An Environmental Inspector should be on-site during any dewatering within 120 metres of wetlands. The Inspector should ensure that the filter bag is working appropriately and ensure that no sediment is entering wetland areas. In the event of sediment discharge, all operations should stop immediately until the problem can be resolved. Although no effects on water levels is anticipated, the Environmental Inspector should also monitor water levels in the vicinity of dewatering activities during the dewatering process. If significant changes in water levels are noted, operations should cease until water levels recover.
OPERATION						
Wetlands Treated as Significant WE-001, WE-002, WE-008, WE-010, WE-011, WE-012, WE-013, WE-014, WE-015, WE-016, WE-017, WE-020, WE-022, WE-026, WE-030, WE-031, WE-032, WE-033, WE-034, WE-035, WE-037, WE-038,	Planned and Unplanned Maintenance	<ul style="list-style-type: none"> Maintenance activities may have impacts associated with spills and the accidental release of hazardous materials. General effects such as those described under listed under Generalized Significant Wildlife Habitat may occur if earth movement is required. Refer to effects listed under Generalized Significant Wildlife Habitat. Maintenance activities are not anticipated to affect size, diversity, health, connectivity or function of wetlands. 	<ul style="list-style-type: none"> Procedures will be in place for the handling of hazardous materials, disposal of waste and management of dust and noise. Any maintenance requiring earth movement will use the same mitigation measures described under Generalized Significant Wildlife Habitat. 	<ul style="list-style-type: none"> Refer to Residual Effects listed under Generalized Significant Wildlife Habitat. No residual effect anticipated. 	<ul style="list-style-type: none"> Refer to Performance Objectives listed under Generalized Significant Wildlife Habitat. 	<ul style="list-style-type: none"> Refer to monitoring and contingency measures listed under Generalized Significant Wildlife Habitat.

Table 4.4 Environmental Effects Monitoring Plan – Environmental Impact Study Features Treated as Significant

Affected Environmental Feature(s)	Project Activity	Potential Effects (D=Direct) (I=Indirect) Potential effect on the size, diversity, health, connectivity, functionality and resilience of the natural feature.	Mitigation Strategy	Residual Effect (magnitude/frequency/duration)	Performance Objective	Monitoring Plan and Contingency Measures
CONSTRUCTION AND DECOMMISSIONING						
Wildlife Habitat Treated as Significant Bat Maternal Colonies BMC-001, BMC-002, BMC-003, BMC-004, BMC-005, BMC-006, BMC-007, BMC-008, BMC-009, BMC-010. Turtle Wintering Area TWA-003. Habitat of Species of Conservation Concern SCC-001, SCC-002, SCC-003, SCC-004, SCC-005, SCC-006, SCC-007, SCC-008, SCC-009, SCC-010, SCC-011, SCC-012, SCC-013.	All Construction and Decommissioning Activities	<ul style="list-style-type: none"> General construction and decommissioning effects. Refer to effects listed under Generalized Significant Wildlife Habitat. 	<ul style="list-style-type: none"> Undertake Habitat Use Study prior to construction to confirm significance. Apply mitigation measures listed under Generalized Candidate Significant Wildlife Habitat in the case that habitats are significant. 	<ul style="list-style-type: none"> Limited duration, frequency, geographic extent. No residual effect anticipated. 	<ul style="list-style-type: none"> Minimize impacts. 	<ul style="list-style-type: none"> In the case that habitats are significant, refer to monitoring and contingency measures listed under Generalized Candidate Significant Wildlife Habitat.
Species of Conservation Concern SCC-001, SCC-002, SCC-003, SCC-004, SCC-005, SCC-006, SCC-007, SCC-008, SCC-009, SCC-010, SCC-011, SCC-012, SCC-013	Site Preparation All Decommissioning Activities	<ul style="list-style-type: none"> No SCC anticipated within work zones; however, small number of unanticipated individuals may be present outside of identified habitat areas and may require removal (I). The effect identified above may affect individuals but no effect anticipated at the population scale. 	<ul style="list-style-type: none"> If a species is identified within a work zone during Habitat Use Studies, the qualified biologist undertaking surveys, in conjunction with the Environmental Inspector, will determine whether the species can be protected in situ or whether it can be re-located/transplanted to an alternative location away from construction activities. 	<ul style="list-style-type: none"> Likelihood of encountering individuals is minimal. Magnitude of effect on population size and health is minimal. Limited frequency. No residual effect anticipated. 	<ul style="list-style-type: none"> No net loss of species of conservation concern. 	<ul style="list-style-type: none"> If a species cannot be successfully transplanted (e.g. a mature tree), replacement trees will be planted of the same species at a 2:1 ratio. Transplants and replacement trees will be monitored for one year to ensure 80% survival rate. To the extent that this 80% survival rate isn't met additional specimens will be replanted.
OPERATION						
Bat Maternal Colonies BMC-001, BMC-002, BMC-003, BMC-004, BMC-005, BMC-006, BMC-007, BMC-008, BMC-009, BMC-010	Turbine Operation	<ul style="list-style-type: none"> Impacts due to collisions with turbine blades during operation (D). The effect identified above has the potential to affect the population size and health if collisions occur during maternal roosting periods and if mortality exceeds 10 bats/turbine/year. 	<ul style="list-style-type: none"> Refer to mitigation provided in the EEMP for birds and bats. 	<ul style="list-style-type: none"> Refer to the EEMP for birds and bats. 	<ul style="list-style-type: none"> Refer to the EEMP for birds and bats. 	<ul style="list-style-type: none"> Refer to the EEMP for birds and bats.

Affected Environmental Feature(s)	Project Activity	Potential Effects (D=Direct) (I=Indirect) Potential effect on the size, diversity, health, connectivity, functionality and resilience of the natural feature.	Mitigation Strategy	Residual Effect (magnitude/frequency/duration)	Performance Objective	Monitoring Plan and Contingency Measures
<p>Wildlife Habitat Treated as Significant</p> <p>Bat Maternal Colonies BMC-001, BMC-002, BMC-003, BMC-004, BMC-005, BMC-006, BMC-007, BMC-008, BMC-009, BMC-010</p> <p>Turtle Wintering Area TWA-003</p> <p>Habitat of Species of Conservation Concern SCC-001, SCC-002, SCC-003, SCC-004, SCC-005, SCC-006, SCC-007, SCC-008, SCC-009, SCC-010, SCC-011, SCC-012, SCC-013</p>	<p>Planned and Unplanned Maintenance</p>	<ul style="list-style-type: none"> Maintenance activities may have impacts associated with spills and the accidental release of hazardous materials. General effects such as those described under listed under Generalized Significant Wildlife Habitat may occur if earth movement is required. Refer to effects listed under Generalized Significant Wildlife Habitat. Maintenance activities are not anticipated to affect size, diversity, health, connectivity or function of wildlife habitats. 	<ul style="list-style-type: none"> Procedures will be in place for the handling of hazardous materials, disposal of waste and management of dust and noise. Any maintenance requiring earth movement will use the same mitigation measures described under Generalized Significant Wildlife Habitat. 	<ul style="list-style-type: none"> Refer to Residual Effects listed under Generalized Significant Wildlife Habitat. No residual effect anticipated. 	<ul style="list-style-type: none"> Refer to Performance Objectives listed under Generalized Significant Wildlife Habitat. 	<ul style="list-style-type: none"> Refer to monitoring and contingency measures listed under Generalized Significant Wildlife Habitat.

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Table 4.5 Environmental Effects Monitoring Plan – Water Assessment and Water Body Features

Affected Environmental Feature(s)	Project Phase	Potential Effects	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures
<p>Aquatic Species and Aquatic Habitat</p> <p>Watercourse Crossings:</p> <p>CR-013, CR-018, CR-023, CR-031, CR-032, CR-041</p>	Construction Decommissioning	<ul style="list-style-type: none"> Potential direct effects to aquatic habitat quality from sedimentation during construction activities (i.e. culverts for access roads). Effects to riparian vegetation during construction Effects to fish during in-water works Potential failure of slopes – impacts to bed/banks of stream during culvert construction. 	<ul style="list-style-type: none"> Minimize indirect effects from dust, sedimentation and erosion. Minimize direct effects to fish and fish habitat during construction 	<ul style="list-style-type: none"> Erosion and sediment control measures (i.e., silt fence, straw bales, wooden stakes, sand bags, filters, pumps, snow fencing) will be installed and will be maintained during the construction work phase and until the site has been stabilized. Implementation of the erosion and sediment control measures will conform to industry best management practices and recognized standard specifications such as Ontario Provincial Standards Specifications (OPSS). Minimize footprint for culvert crossings at access roads. Culvert construction will take place outside fish and fish habitat timing windows, and will be designed and installed according to the requirements of the Ausable Bayfield Conservation Authority. Directional drilling and/or punch and bore operations will be designed with launching and receiving pits with appropriate setbacks from watercourses wherever possible. Dewatering from open excavations will take place on tile-drained agricultural land to promote infiltration and settling of suspended solids prior to entering a watercourse. Fish salvage will be conducted by a qualified biologist under a Scientific Collection Permit from MNR and all fish captured within the work area will be released downstream unharmed. Operational Statements (OS) provided by DFO will be used where appropriate to ensure that no impact to fish and fish habitat will occur during construction (i.e., punch and bore, directional drilling, open-cut watercourse crossings and isolated dam and pump). 	<ul style="list-style-type: none"> Regular weekly site inspection will occur by designated Environmental Inspector for sediment and erosion control measures. Severe weather conditions may require additional site visits depending on the proximity of the watercourse. The level of monitoring and reporting would be based on the severity of the spill and may be discussed with the MOE Spills Action Center and MNR. <p>Contingency Measures</p> <ul style="list-style-type: none"> Environmental Inspector will be responsible for “stop works” if mitigation measures are not incorporated into the construction activities or performance objectives are not achieved Changes to the mitigation measures to best suit the current conditions will be adopted to achieve overall performance objective.
Aquatic Species and Aquatic Habitat	Construction Operation Decommissioning	<ul style="list-style-type: none"> Potential contamination from accidental spills. 	<ul style="list-style-type: none"> Minimize potential for indirect effects from accidental spills. 	<ul style="list-style-type: none"> Hazardous material transportation and application will occur in designated areas according to operational procedures. Proper spill containment equipment will be used and maintained on site. No fuelling within 30 metres of any watercourse. No fuel storage within 30 metres of any watercourse. A spill containment kit will be available during construction for every location that heavy equipment is operated. 	<ul style="list-style-type: none"> Regular site inspections will occur by designated Environmental Inspectors for in-water works and work adjacent to sensitive areas. The level of monitoring and reporting would be based on the severity of the spill and may be discussed with the MOE Spills Action Center and MNR. <p>Contingency Measures</p> <ul style="list-style-type: none"> Additional sediment and erosion control measure (silt fence, erosion control blankets, etc.) will be on site a ready for use if original measures are not suitable Refer to Spill Contingency Plan. Contaminated soil will be removed and disposed of at an approved facility.
Surface Water/Soils	Construction Operation Decommissioning	<ul style="list-style-type: none"> Short-term degradation of soil/water quality and fisheries habitat due to accidental spills or releases. 	<ul style="list-style-type: none"> Minimize indirect effects from dust, sedimentation and erosion. Minimize potential for indirect effects from accidental spills. 	<ul style="list-style-type: none"> Erosion and sediment control measures (i.e., silt fence, straw bales, wooden stakes, sand bags, filters, pumps, snow fencing) will be installed and will be maintained during the construction work phase and until the site has been stabilized. Implementation of the erosion and sediment control measures will conform to industry best management practices and recognized standard specifications such as Ontario Provincial Standards Specifications (OPSS). Culvert construction will take place outside fish and fish habitat timing windows, and will be designed and installed according to the requirements of the Ausable Bayfield Conservation Authority. Directional drilling and/or punch and bore operations will be designed with launching and receiving pits with appropriate setbacks from watercourses wherever possible. Dewatering from open excavations will take place on tile-drained agricultural land to 	<ul style="list-style-type: none"> Regular site inspection will occur by designated Environmental Inspectors. The level of monitoring and reporting would be based on the severity of the occurrence and may be discussed with the MOE Spills Action Center and MNR. <p>Contingency Measures</p> <ul style="list-style-type: none"> Contaminated soil will be removed and disposed of at an approved facility.

Affected Environmental Feature(s)	Project Phase	Potential Effects	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures
				promote infiltration and settling of suspended solids prior to entering a watercourse. <ul style="list-style-type: none"> Hazardous material transportation and application will occur in designated areas according to operational procedures. Proper spill containment equipment will be used and maintained on site. 	
Groundwater	Construction Operation Decommissioning	<ul style="list-style-type: none"> Potential direct impacts to groundwater quality and quantity due to water taking at Parts and Storage Building. Water quality impacts due to potential fuel and oil spills. Dewatering operations during construction are not expected to impact groundwater quantity or quality. Refer to the Construction Plan Report for further details. 	<ul style="list-style-type: none"> Minimize impacts to groundwater quality and quantity. No spills. 	<ul style="list-style-type: none"> Confirmation of water supply needs and capacity for the Part and Storage Building will be verified at the detailed design phase. If required, detailed design and implementation plans will include measures for water storage and/or water treatment. An Emergency Response and Communications Plan will be developed during detailed design to ensure proper mitigation and notification procedures are in place regarding groundwater quality during Project operation. 	<ul style="list-style-type: none"> Regular site inspection will occur by designated Environmental Inspectors. The level of monitoring and reporting would be based on the severity of the occurrence and may be discussed with the MOE Spills Action Center and MNR. <p>Contingency Measures</p> <ul style="list-style-type: none"> All spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of the prescribed regulatory levels would be reported to the MOE's Spills Action Centre.

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Table 4.6 Environmental Effects Monitoring Plan – Land Use and Socio-Economic Features

Affected Environmental Feature(s)	Project Phase	Potential Effects	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures
Provincial Land Use Plans	Construction, Operation, and Decommissioning	<ul style="list-style-type: none"> The Project is not protected under the Greenbelt Plan, Lake Simcoe Protection Plan, Niagara Escarpment Plan or Oak Ridges Moraine Conservation Plan. No impacts under provincial plans or policies are anticipated. 	N/A	N/A	N/A
Petroleum, Oil and Gas Resources	Construction, Operation, and Decommissioning	<ul style="list-style-type: none"> Fires and explosions from disturbance of existing oil and gas resources. Methane and sour gas releases from disturbance of existing oil and gas resources. 	<ul style="list-style-type: none"> No fires or explosions from existing oil and gas resources as a result of Project activities. No methane and sour gas releases from existing oil and gas resources as a result of Project activities. 	<ul style="list-style-type: none"> Project infrastructure has been sited with a clearance of over 75 metres from existing active wells. For Project infrastructure located within 75 metres of abandoned wells, a visual search will be conducted to confirm the condition of the abandoned well. If required, the abandoned well will be properly decommissioned prior to construction within 75 metres of the abandoned well. An engineer's report will be prepared outlining risks, mitigation, and emergency response procedures for wells within 75 metres of Project activities. 	<ul style="list-style-type: none"> Contingency Measures Existing well records indicate two abandoned wells are located within 75 metres of an access road and the transmission line. The wells have been decommissioned and are not likely to be affected by Project activities. If a fire, explosion, or release of sour gas occurs during Project activities, the Emergency Response Plan will be implemented.
Existing Land Uses - Agriculture and Rural Resources	Construction, Operation, and Decommissioning	<ul style="list-style-type: none"> Loss of lands required for the lease period and farming practices Potential impacts to drainage systems Potential impact from soil compaction Potential impact to crop production and yields 	<ul style="list-style-type: none"> Minimize disturbance to agricultural lands, drainage systems, soil compaction and crop production 	<ul style="list-style-type: none"> Siting of Project components in discussion with landowners. Compensation provided to the landowners who have Land Lease Agreements. Construction methods have been included that will avoid impacts to drainage systems and soil compaction thereby minimizing impacts to normal crop production and yields. 	<ul style="list-style-type: none"> During construction the Environmental Inspector will monitor the drainage and soil remediation measures to be implemented. A landowner complaint procedure will be established. Following construction all site areas will be monitored by qualified professionals for a two year period to ensure that drainage systems are functioning properly and normal crop production is not reduced. <p>Contingency Measures</p> <ul style="list-style-type: none"> Additional drainage system repairs as required Additional soil compaction relief measures as required. Crop compensation, if necessary, to landowners.
Game and Fisheries Resources	Construction, Operation, and Decommissioning	<ul style="list-style-type: none"> Disturbance to game species from noise and maintenance activities 	<ul style="list-style-type: none"> Minimize disturbance 	<ul style="list-style-type: none"> Keep equipment in good working condition and regularly maintained to minimize noise Minimize impacts to aquatic resources see protection and mitigation measures under water bodies and natural heritage. Schedule construction periods to avoid impacts 	<ul style="list-style-type: none"> Complaint response protocol will be followed
Provincial and Local Infrastructure and Local Traffic	Construction, Operation, and Decommissioning	<ul style="list-style-type: none"> Negligible increase in traffic during operational phases Traffic impacts during construction phases Impacts to structures (i.e. culverts, bridges, watermain, gas, sewers) due to construction traffic loading 	<ul style="list-style-type: none"> Minimize traffic disturbance Prevent damage to structures 	<ul style="list-style-type: none"> The Contractor will implement a traffic management plan Road user agreement anticipated with local municipalities Permits will be obtained for applicable oversize / overweight loads Public notification of non-conventional load movements (if required). Escort vehicles will be used as appropriate Roads will be maintained and any additional repairs necessary will be completed immediately following construction to pre-development conditions or better. 	<ul style="list-style-type: none"> Complaint response protocol will be followed Monitor road conditions weekly during construction and decommissioning Contingency Measures Road maintenance, repair crews and materials to be on standby for repairs as required.

Affected Environmental Feature(s)	Project Phase	Potential Effects	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures
Telecommunication Networks	Construction and Operation	<ul style="list-style-type: none"> Potential interference to communication systems, including radar, cellular and broadcasting systems 	<ul style="list-style-type: none"> Minimize disturbance 	<ul style="list-style-type: none"> Possible adjustment of turbine locations Curtailment of operations during selected periods Possible location adjustment of turbines, transmission or telecommunication systems or radar installation. 	<ul style="list-style-type: none"> Additional studies to confirm non interference Ongoing communication with impacted agencies to resolve any outstanding issues.
Aeronautical Systems	Construction and Operation	<ul style="list-style-type: none"> Aeronautical obstruction 	<ul style="list-style-type: none"> Minimize hazards 	<ul style="list-style-type: none"> Turbine lighting must conform to Transport Canada standards. 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 Consideration of radar detection system to eliminate night lights except when aircraft are in the vicinity of the wind farm. 	<ul style="list-style-type: none"> Routine maintenance and repair
Viewscape / Aesthetics	Construction and Operation	<ul style="list-style-type: none"> Change in viewscape as a result of Project infrastructure 	<ul style="list-style-type: none"> Minimize disturbance to viewscape 	<ul style="list-style-type: none"> Northland will consider a tree planting program in selected locations to assist local residents who wish to block views and shadow flicker effects of the wind farm from their properties. Many views of the wind farm cannot be mitigated and changes to the local viewscape cannot be avoided. 	<ul style="list-style-type: none"> A formal complaints procedure will be established. Communication links to service will be provided. Follow-up action and investigation as required.
Air, Odour, Dust	Construction, Operation, and Decommissioning	<ul style="list-style-type: none"> Air and dust emissions from operation and maintenance vehicles. No odour effects anticipated. 	<ul style="list-style-type: none"> Minimize emissions 	<ul style="list-style-type: none"> The Contractor would implement good site practices with regard to air which may include: <ul style="list-style-type: none"> Multi-passenger vehicles would be utilized to the extent practical; Company and contractor personnel would avoid idling of vehicles when not necessary; Equipment and vehicles would be turned off when not in use unless required for activities and/or effective operation of the equipment or vehicle; Equipment and vehicles would be maintained in good working order with functioning mufflers and emission control systems as available; All vehicles would be fitted with catalytic converters as required; The Contractor would implement good site practices with regard to dust which may include: <ul style="list-style-type: none"> Protecting stockpiles of friable material with a barrier; Dust suppression (e.g. water) of source areas; Covering loads of friable materials during transport. 	<ul style="list-style-type: none"> Complaint Response Protocol will be followed
Environmental Noise	Construction and Operation	<ul style="list-style-type: none"> Noise associated with the operation of turbines and transformer station (all turbines are expected to meet the 40 dBA limit for non-participating noise receptors); Noise emitted from operation/maintenance vehicles 	<ul style="list-style-type: none"> Minimize noise impacts to meet MOE standards 	<ul style="list-style-type: none"> Noise levels have been extensively modeled with performance standards established to meet MOE requirements at all facilities Turbines can be adjusted for noise, power levels and operational schedules An acoustical barrier will be supplied for the transformer station Construction equipment to be maintained with normal noise attenuation. Schedule construction work to minimize noise impacts. 	<ul style="list-style-type: none"> Noise levels will be monitored in the field as required Complaints protocol will be established with follow-up investigations and action, as required. <p>Contingency Measures</p> <ul style="list-style-type: none"> Adjustments to turbine noise levels and scheduled operations as required.
Public Safety – Turbine Blade and Structure Failure	Construction and Operation	<ul style="list-style-type: none"> Collapse of turbine tower and/or blade detachment 	<ul style="list-style-type: none"> No failure of components 	<ul style="list-style-type: none"> Adherence to setbacks from receptors Design, install, operate and maintain turbines according to applicable industry standards Use of lightning protection system 	<ul style="list-style-type: none"> Regular maintenance and monitoring activities Emergency Response Plan will be followed
Public Safety – Ice Fall and Shed	Operation	<ul style="list-style-type: none"> Accumulation of ice on turbine blades 	<ul style="list-style-type: none"> Limit ice accumulation 	<ul style="list-style-type: none"> Adherence to setbacks from receptors Design of turbine to reduce ice accumulation Automatic turbine shutdown due to weight imbalances 	<ul style="list-style-type: none"> Regular maintenance and monitoring activities Emergency Response Plan will be followed

Affected Environmental Feature(s)	Project Phase	Potential Effects	Performance Objective	Mitigation Strategy	Monitoring Plan and Contingency Measures
Public Safety – Stray Voltage and Infra Sound	Operation	<ul style="list-style-type: none"> Potential impacts on public health 	<ul style="list-style-type: none"> No stray voltage 	<ul style="list-style-type: none"> Electric and Magnetic Fields - the Project will operate within the range of voluntary standards in North America and as the potential effects themselves from Electric and Magnetic Fields remain inconclusive, no adverse effects on human health are expected from operation of the Project. Research to date has not shown any biological health effects at levels of Low Frequency Noise normally associated with operational turbines. Infrasound is generally much lower than Low Frequency Noise. Infrasonic levels created by wind turbines are often similar to the ambient levels prevalent in the natural environment due to wind. There is no evidence of adverse health effects caused by infrasound. 	<ul style="list-style-type: none"> Complaints Response Protocol will be followed
Public Safety – Extreme Weather Events	Construction, Operation, and Decommissioning	<ul style="list-style-type: none"> Potential damage to Project infrastructure 	<ul style="list-style-type: none"> No damage or structural failure 	<ul style="list-style-type: none"> Project components have been designed to withstand the effects from extreme events Design, install, operate and maintain turbines according to applicable industry standards Failsafe devices are capable of shutting down the turbine blades in the event of excessive wind conditions, imbalance or malfunction of other turbine components 	<ul style="list-style-type: none"> Regular maintenance and monitoring activities Emergency procedures and protocols to be established
Contaminated Lands – Disposal of wastes	Construction, Operation, and Decommissioning	<ul style="list-style-type: none"> Nuisance refuse dispersed to adjacent properties Potential contamination to soil, groundwater and/ or surface water resources on or off the Project site 	<ul style="list-style-type: none"> Proper disposal of waste materials 	<p>The Contractor would implement a site-specific waste collection and disposal management plan which may include site practices such as:</p> <ul style="list-style-type: none"> Systematic collection of waste and on-site storage in weather protected areas; All waste materials and recycling will be transported off site by private waste material collection contractors licensed with a Certificate of Approval – Waste Management System; Contractors will be required to remove excess materials from the site (such as extra cable, scrap metals, pallets, etc.); Appropriate handling and disposal of all wastes classes according to current provincial standards and guidelines; Disposal of contaminated material (if encountered) to a registered waste facility according to current regulatory standards; Labeling and proper storage of liquid wastes (e.g., used oil, drained hydraulic fluid, and used solvents) in a secure area that will ensure containment of the material in the event of a spill; Any spill that does occur, which could potentially cause an adverse environmental effect, should be reported to the MOE's Spills Action Centre (SAC); Prohibition of dumping or burying wastes within the Project areas; Should contaminated soil be encountered during the course of excavations the contaminated material will be disposed of in accordance with the current appropriate provincial legislation, specifically Ontario Regulation 153/04; Disposal of non-hazardous waste at a registered facility; Disposal of sanitary wastes will be the responsibility of the contracted third party and they will ensure disposal in accordance with appropriate legislation, standards and policies; and, Implementation of an on-going waste management program consisting of reduction, reuse and recycling of material. 	<ul style="list-style-type: none"> Monitoring by the Environmental Inspector to ensure compliance during construction and decommissioning phases. Routine staff waste management procedures and inspection during operational phases.

Draft Project Description Report
August 2012

5.0 Next Steps

This Project Description Report represents the initial step in the Renewable Energy Approval Process. This document will be used to solicit comments and questions from the public, government agencies and Aboriginal communities.

This document and any comments received forms the foundation for additional studies, layout changes and mitigation which will be developed as the project progresses. A revised Project Description Report will be issued at future project milestones and will be made available to the public.

Respectfully submitted,

Neegan Burnside Ltd.

Prepared by:

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Appendix A
Figures

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
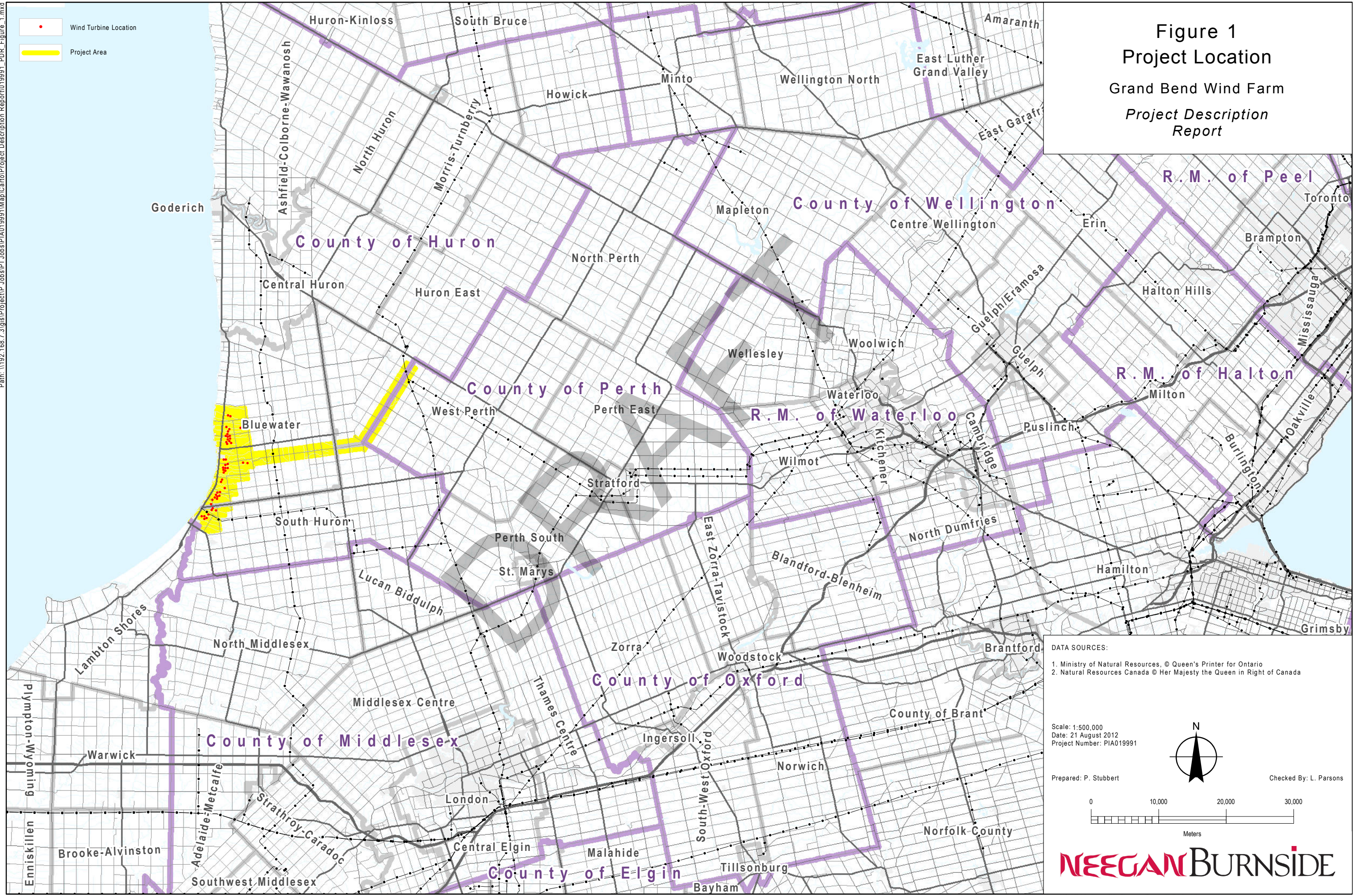
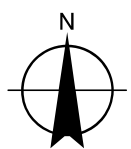
 Wind Turbine Location
 Project Area

Figure 1
Project Location
 Grand Bend Wind Farm
Project Description Report



DATA SOURCES:
 1. Ministry of Natural Resources, © Queen's Printer for Ontario
 2. Natural Resources Canada © Her Majesty the Queen in Right of Canada

Scale: 1:500,000
 Date: 21 August 2012
 Project Number: PIA019991



Prepared: P. Stubbert Checked By: L. Parsons

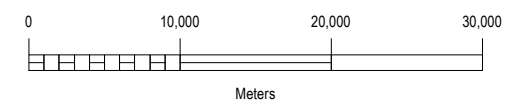



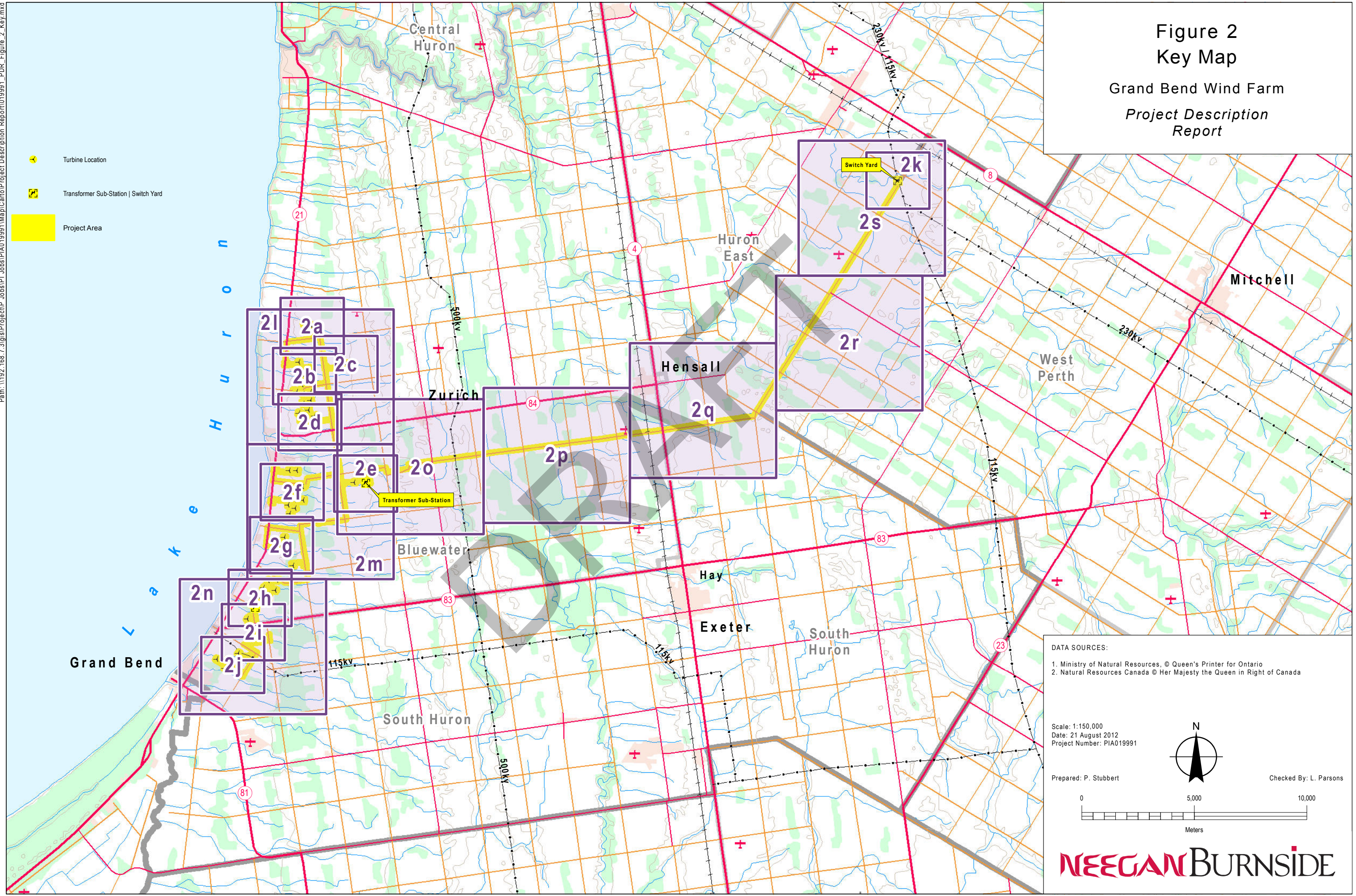


Figure 2 Key Map

Grand Bend Wind Farm
Project Description
Report

-  Turbine Location
-  Transformer Sub-Station | Switch Yard
-  Project Area



DATA SOURCES:
1. Ministry of Natural Resources, © Queen's Printer for Ontario
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Scale: 1:150,000
Date: 21 August 2012
Project Number: PIA019991

Prepared: P. Stubbart

Checked By: L. Parsons

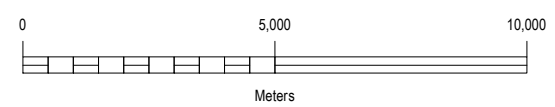
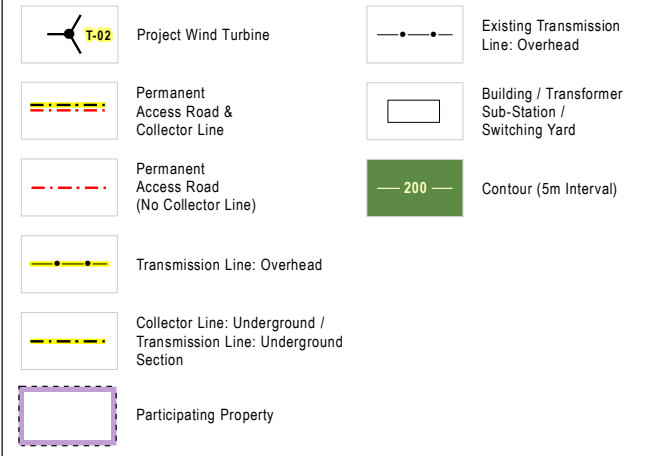




Figure 2a Project Layout

Grand Bend Wind Farm Project Description Report

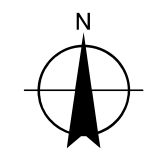


Siemens SWT-2.3-113 Turbine:
Base Diameter 4.2m | Hub Height 99.5m | Blade Length 55m

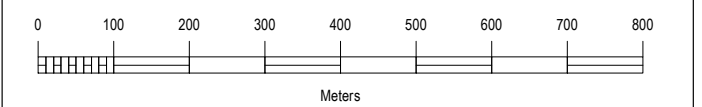
- NOTES:
- Reference the Figure 1 Key Map for location in the overall project area.
 - For details see the Draft REA documents.

- DATA SOURCES:
- County of Huron (including Imagery: 2010)
 - Ministry of Natural Resources, © Queen's Printer for Ontario
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Scale: 1:10,000
Date: 21 August 2012
Project Number: PIA019991



Prepared: P. Stubbart | Checked By: L. Parsons



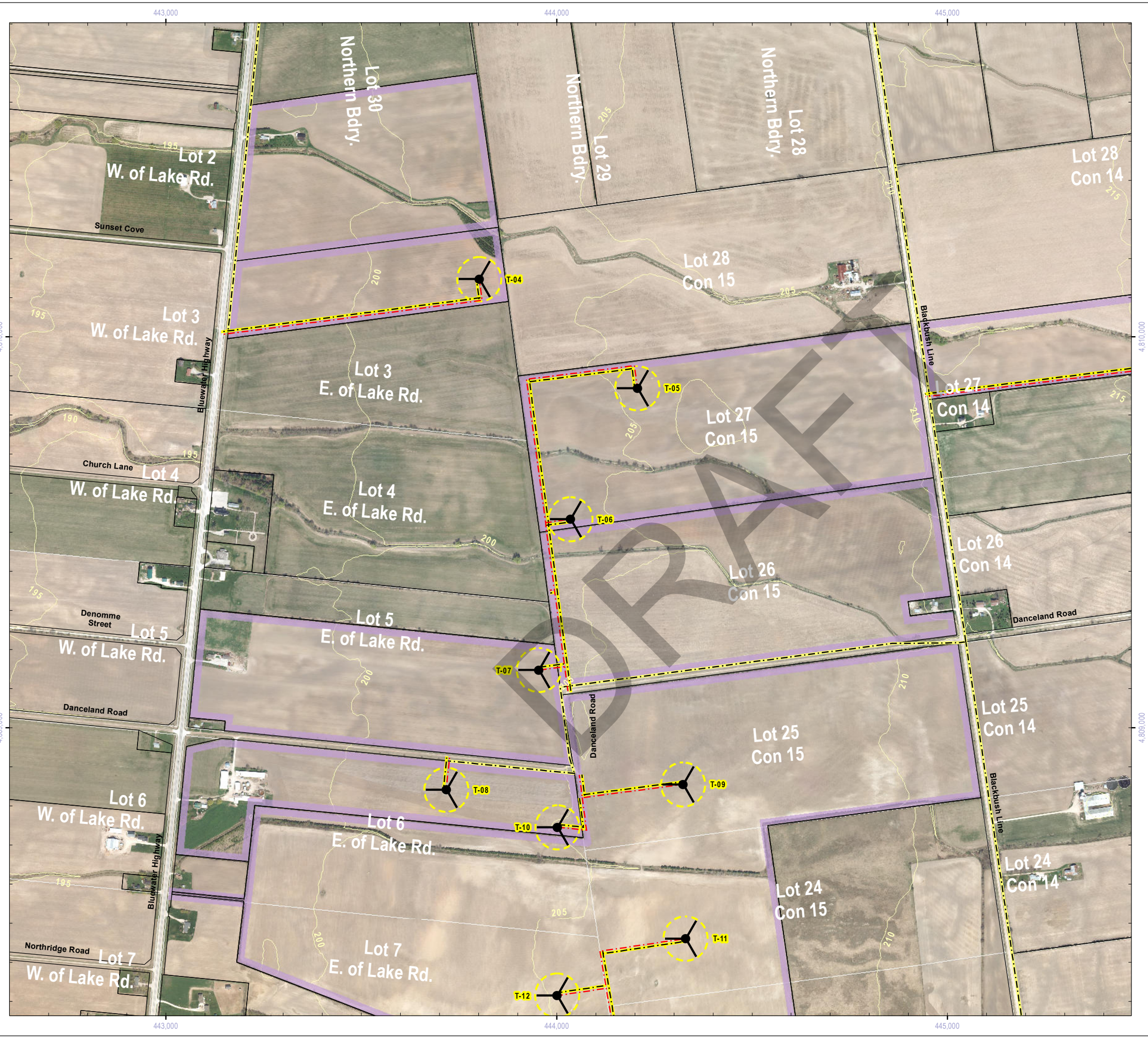


Figure 2b
Project Layout
 Grand Bend Wind Farm
 Project Description Report

	Project Wind Turbine		Existing Transmission Line: Overhead
	Permanent Access Road & Collector Line		Building / Transformer Sub-Station / Switching Yard
	Permanent Access Road (No Collector Line)		Contour (5m Interval)
	Transmission Line: Overhead		
	Collector Line: Underground / Transmission Line: Underground Section		
	Participating Property		

Siemens SWT-2.3-113 Turbine:
 Base Diameter 4.2m | Hub Height 99.5m | Blade Length 55m

- NOTES:
- Reference the Figure 1 Key Map for location in the overall project area.
 - For details see the Draft REA documents.

- DATA SOURCES:
- County of Huron (including Imagery: 2010)
 - Ministry of Natural Resources, © Queen's Printer for Ontario
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Scale: 1:10,000
 Date: 21 August 2012
 Project Number: PIA019991

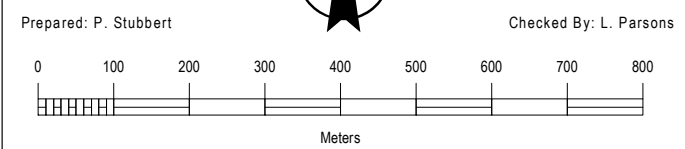
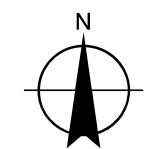




Figure 2c
Project Layout
 Grand Bend Wind Farm
 Project Description Report

	Project Wind Turbine		Existing Transmission Line: Overhead
	Permanent Access Road & Collector Line		Building / Transformer Sub-Station / Switching Yard
	Permanent Access Road (No Collector Line)		Contour (5m Interval)
	Transmission Line: Overhead		
	Collector Line: Underground / Transmission Line: Underground Section		
	Participating Property		

Siemens SWT-2.3-113 Turbine:
 Base Diameter 4.2m | Hub Height 99.5m | Blade Length 55m

- NOTES:
- Reference the Figure 1 Key Map for location in the overall project area.
 - For details see the Draft REA documents.

- DATA SOURCES:
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 Date: 21 August 2012
 Project Number: PIA019991

Prepared: P. Stubbart Checked By: L. Parsons



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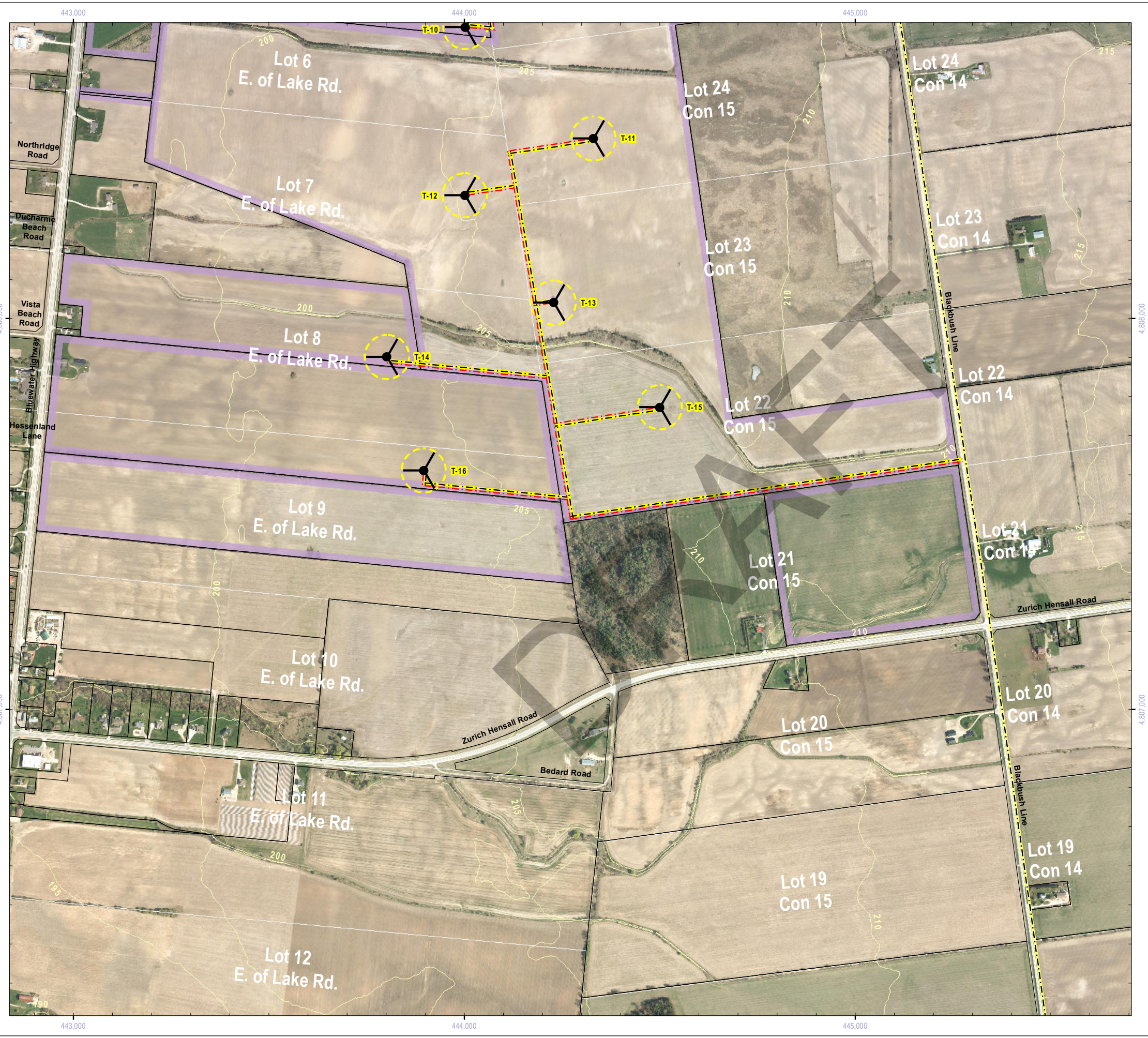


Figure 2d Project Layout

Grand Bend Wind Farm Project Description Report

	Project Wind Turbine		Existing Transmission Line: Overhead
	Permanent Access Road & Collector Line		Building / Transformer Sub-Station / Switching Yard
	Permanent Access Road (No Collector Line)		Contour (5m Interval)
	Transmission Line: Overhead		
	Collector Line: Underground / Transmission Line: Underground Section		
	Participating Property		

Siemens SWT-2.3-113 Turbine:
 Base Diameter 4.2m | Hub Height 99.5m | Blade Length 55m

NOTES:
 1. Reference the Figure 1 Key Map for location in the overall project area.
 2. For details see the Draft REA documents.

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 Project Number: PIA019991

Prepared: P. Stubbert
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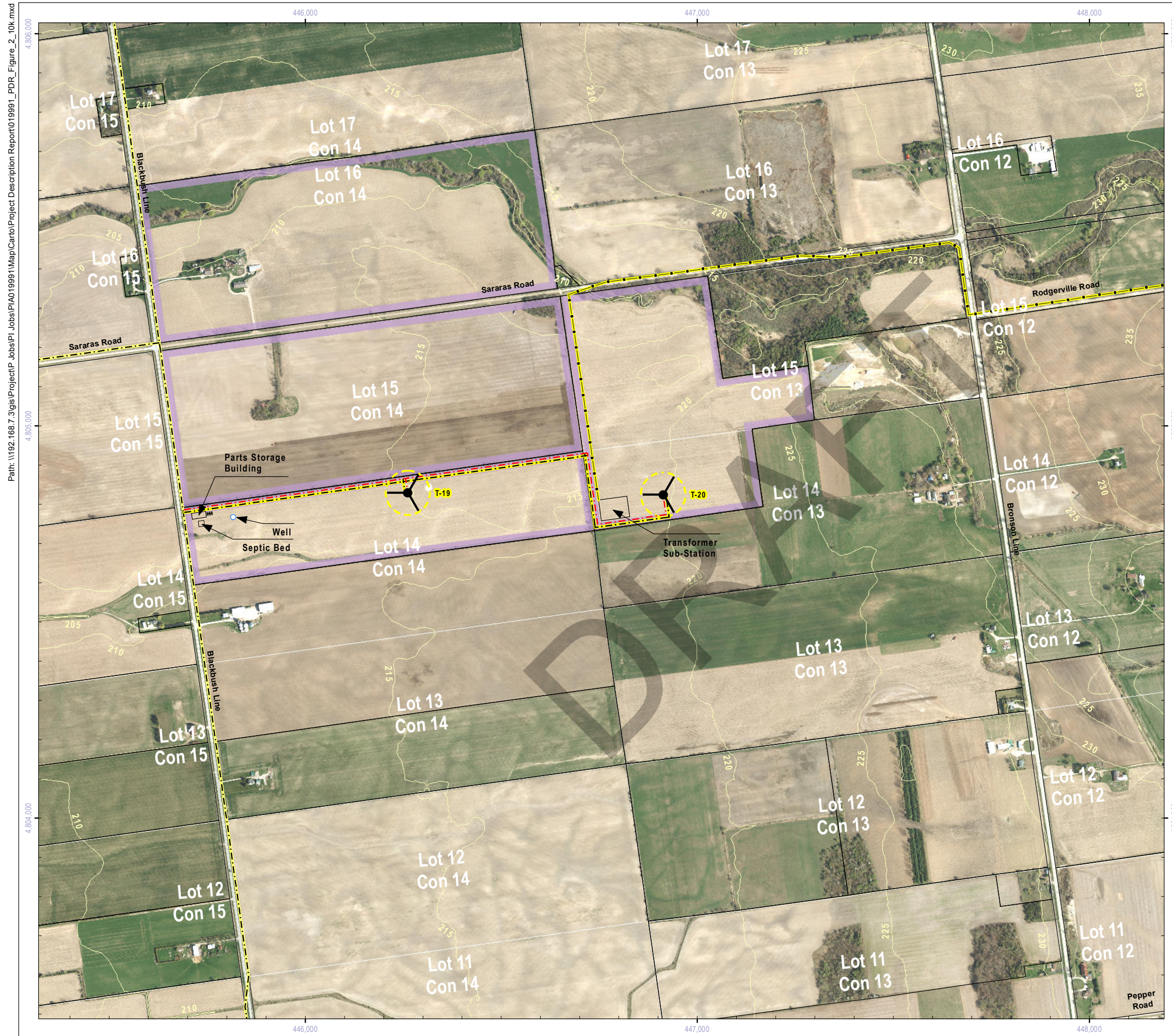


Figure 2e Project Layout

Grand Bend Wind Farm Project Description Report

	Project Wind Turbine		Existing Transmission Line: Overhead
	Permanent Access Road & Collector Line		Building / Transformer Sub-Station / Switching Yard
	Permanent Access Road (No Collector Line)		Contour (5m Interval)
	Transmission Line: Overhead		
	Collector Line: Underground / Transmission Line: Underground Section		
	Participating Property		

Siemens SWT-2.3-113 Turbine:
Base Diameter 4.2m | Hub Height 99.5m | Blade Length 55m

- NOTES:
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Prepared: P. Stubbart Checked By: L. Parsons

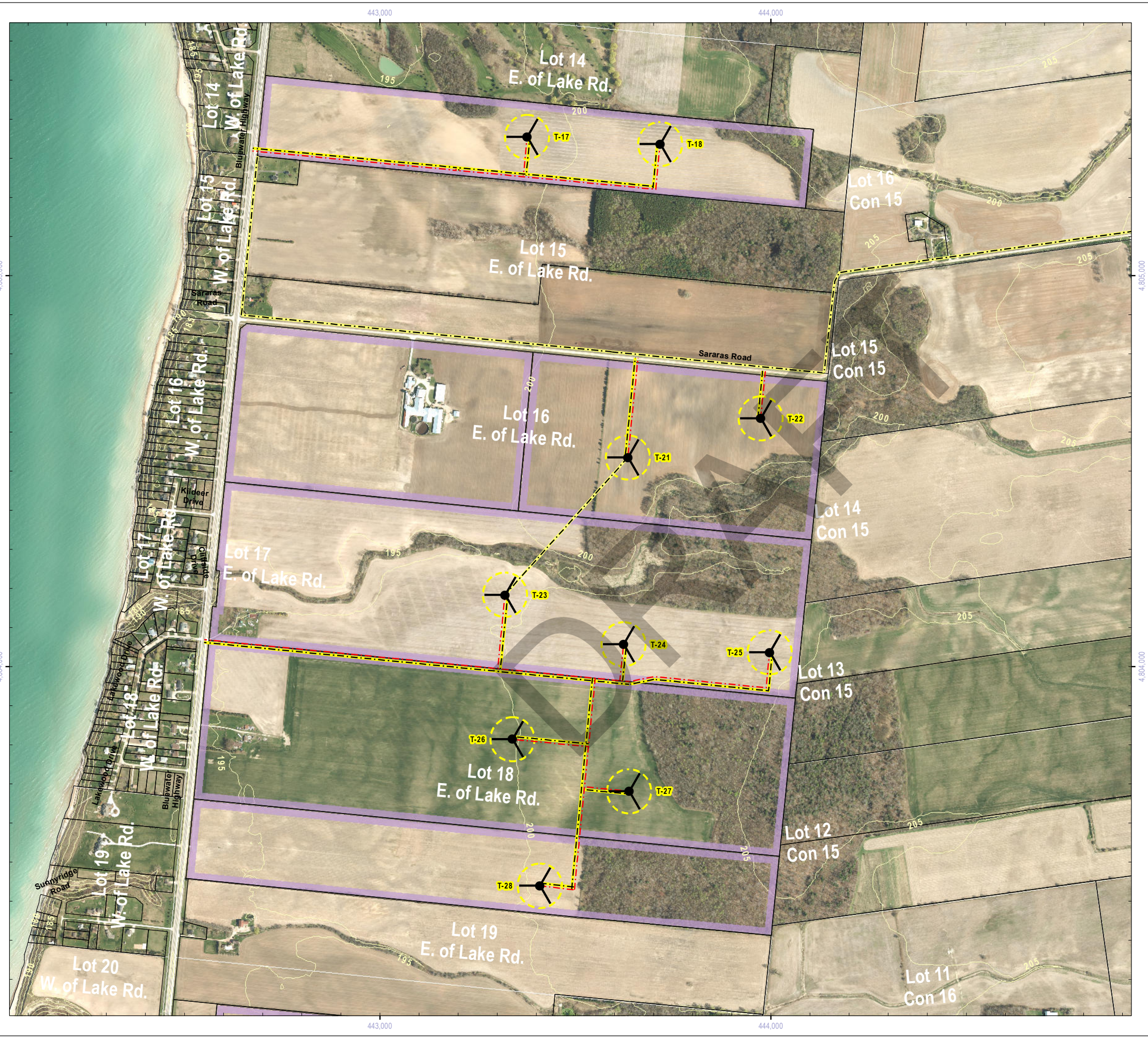


Figure 2f Project Layout

Grand Bend Wind Farm

Project Description Report

	Project Wind Turbine		Existing Transmission Line: Overhead
	Permanent Access Road & Collector Line		Building / Transformer Sub-Station / Switching Yard
	Permanent Access Road (No Collector Line)		Contour (5m Interval)
	Transmission Line: Overhead		
	Collector Line: Underground / Transmission Line: Underground Section		
	Participating Property		

Siemens SWT-2.3-113 Turbine:
Base Diameter 4.2m | Hub Height 99.5m | Blade Length 55m

- NOTES:
- Reference the Figure 1 Key Map for location in the overall project area.
 - For details see the Draft REA documents.

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Date: 21 August 2012
Project Number: PIA019991

Prepared: P. Stubbert Checked By: L. Parsons



Figure 2g Project Layout

Grand Bend Wind Farm Project Description Report

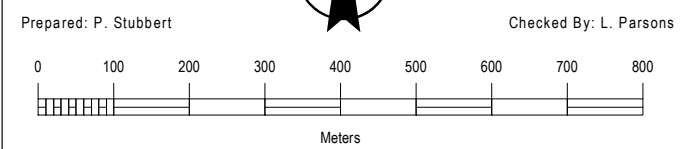
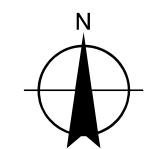
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	Permanent Access Road & Collector Line		Building / Transformer Sub-Station / Switching Yard
	Permanent Access Road (No Collector Line)		Contour (5m Interval)
	Transmission Line: Overhead		
	Collector Line: Underground / Transmission Line: Underground Section		
	Participating Property		

Siemens SWT-2.3-113 Turbine:
Base Diameter 4.2m | Hub Height 99.5m | Blade Length 55m

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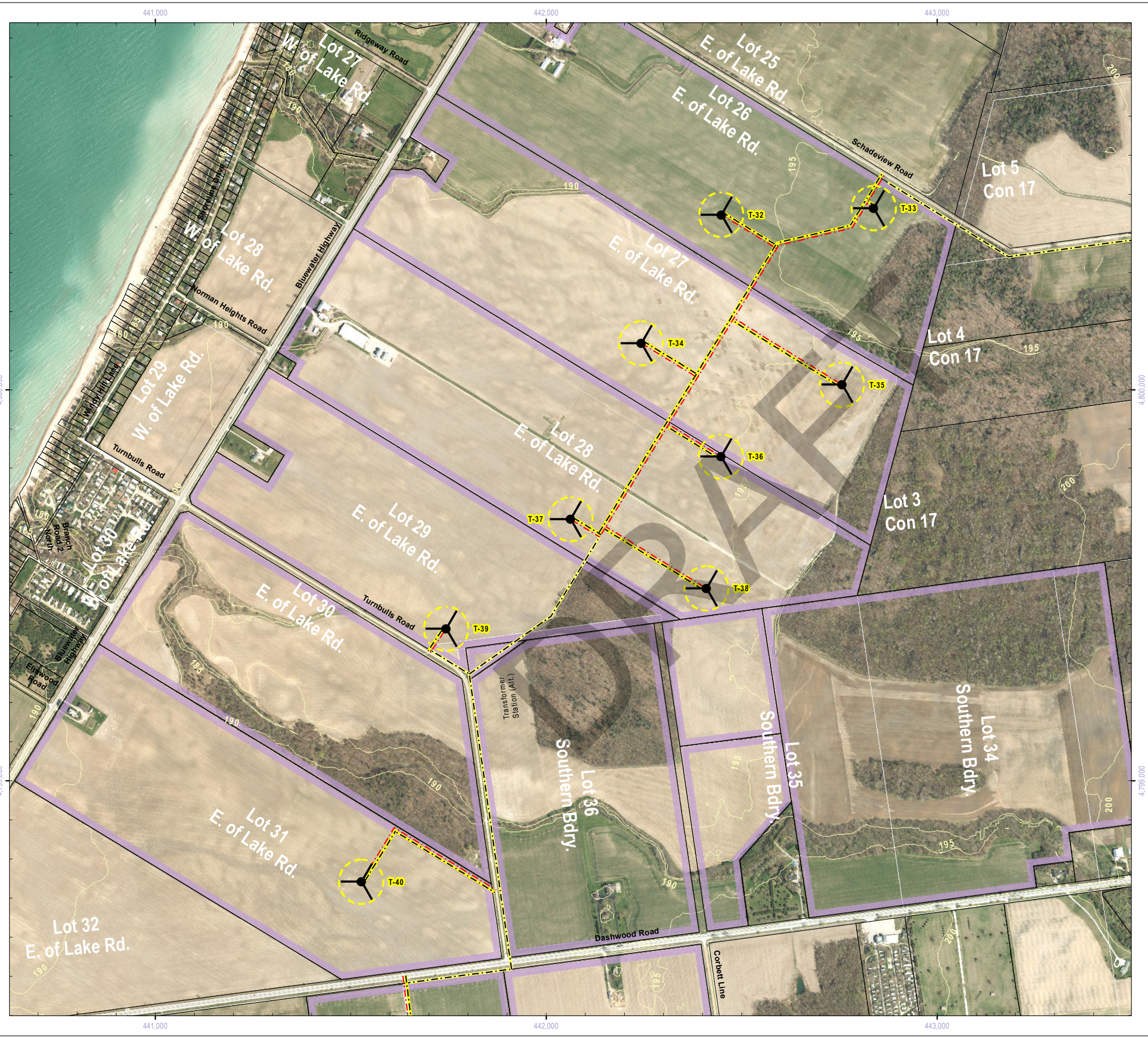


Figure 2h Project Layout

Grand Bend Wind Farm Project Description Report

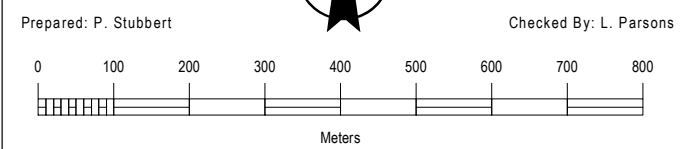
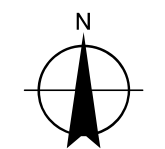
- | | | | |
|--|--|--|---|
| | Project Wind Turbine | | Existing Transmission Line: Overhead |
| | Permanent Access Road & Collector Line | | Building / Transformer Sub-Station / Switching Yard |
| | Permanent Access Road (No Collector Line) | | Contour (5m Interval) |
| | Transmission Line: Overhead | | |
| | Collector Line: Underground / Transmission Line: Underground Section | | |
| | Participating Property | | |

Siemens SWT-2.3-113 Turbine:
Base Diameter 4.2m | Hub Height 99.5m | Blade Length 55m

- NOTES:
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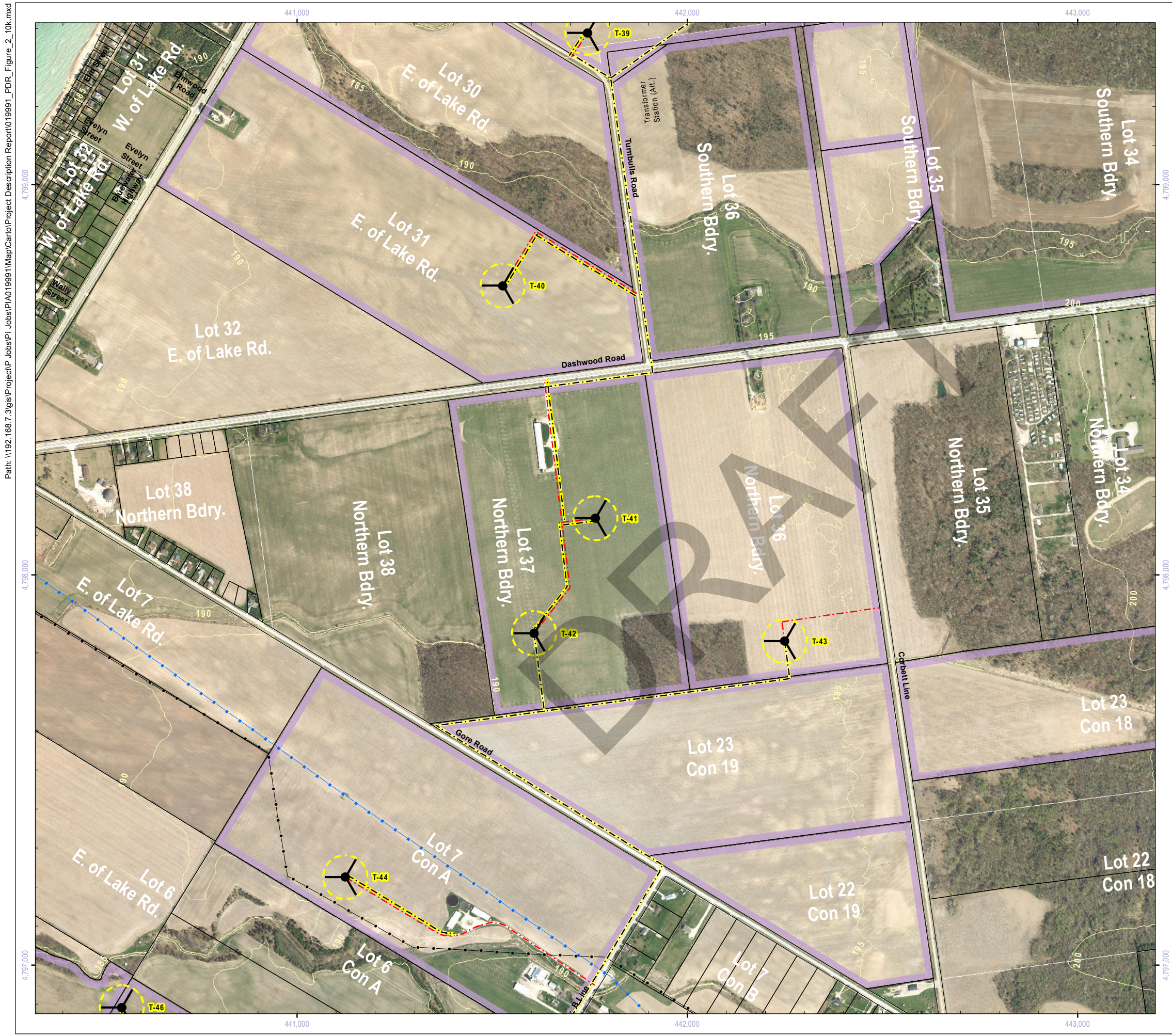


Figure 2i
Project Layout
 Grand Bend Wind Farm
 Project Description Report

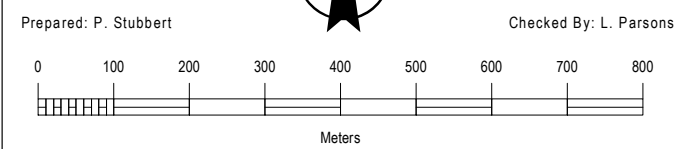
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	Permanent Access Road & Collector Line		Building / Transformer Sub-Station / Switching Yard
	Permanent Access Road (No Collector Line)		Contour (5m Interval)
	Transmission Line: Overhead		
	Collector Line: Underground / Transmission Line: Underground Section		
	Participating Property		

Siemens SWT-2.3-113 Turbine:
 Base Diameter 4.2m | Hub Height 99.5m | Blade Length 55m

- NOTES:
1. Reference the Figure 1 Key Map for location in the overall project area.
 2. For details see the Draft REA documents.

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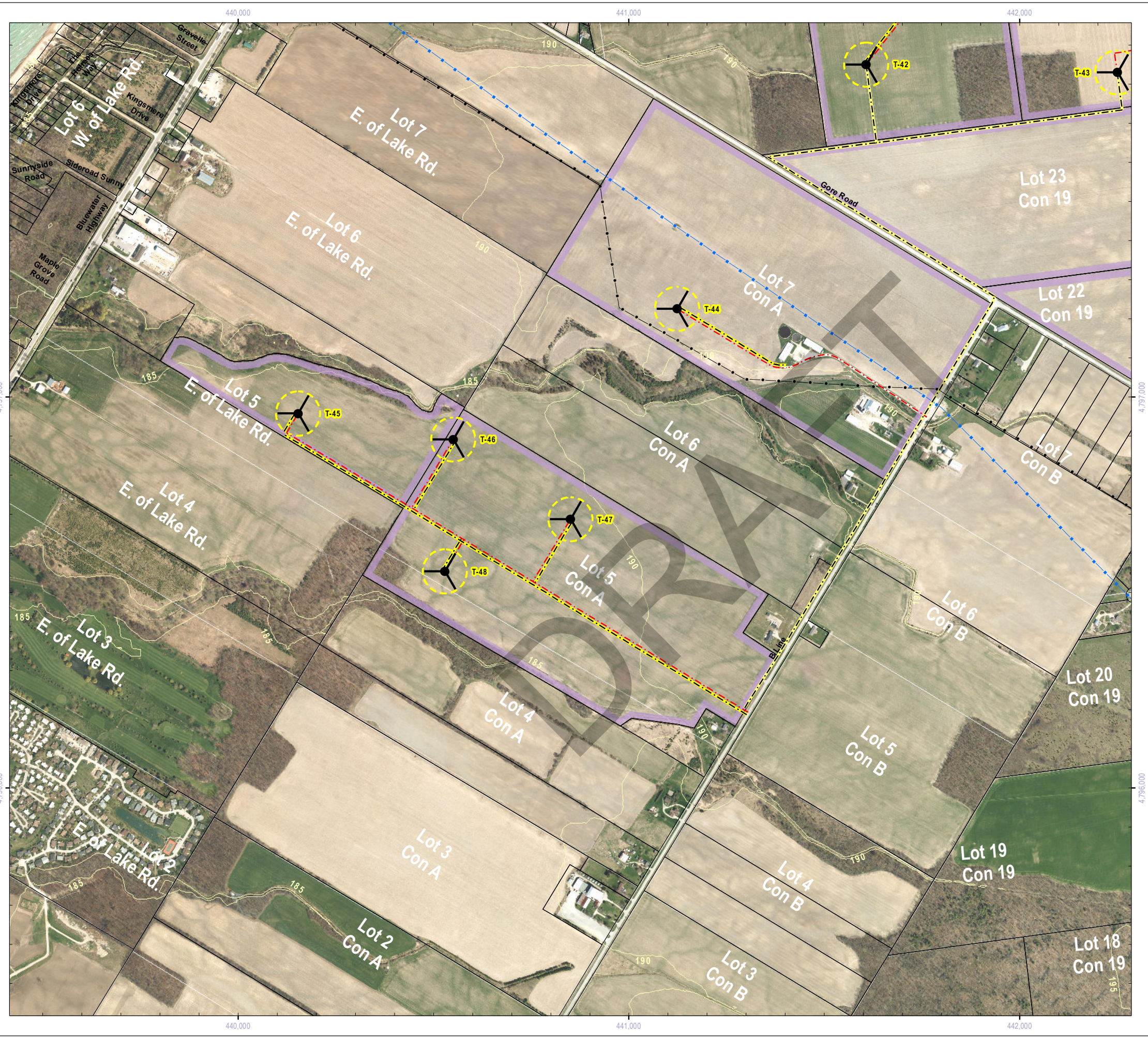


Figure 2j
Project Layout
 Grand Bend Wind Farm
 Project Description Report

	Project Wind Turbine		Existing Transmission Line: Overhead
	Permanent Access Road & Collector Line		Building / Transformer Sub-Station / Switching Yard
	Permanent Access Road (No Collector Line)		Contour (5m Interval)
	Transmission Line: Overhead		
	Collector Line: Underground / Transmission Line: Underground Section		
	Participating Property		

Siemens SWT-2.3-113 Turbine:
 Base Diameter 4.2m | Hub Height 99.5m | Blade Length 55m

- NOTES:
- Reference the Figure 1 Key Map for location in the overall project area.
 - For details see the Draft REA documents.

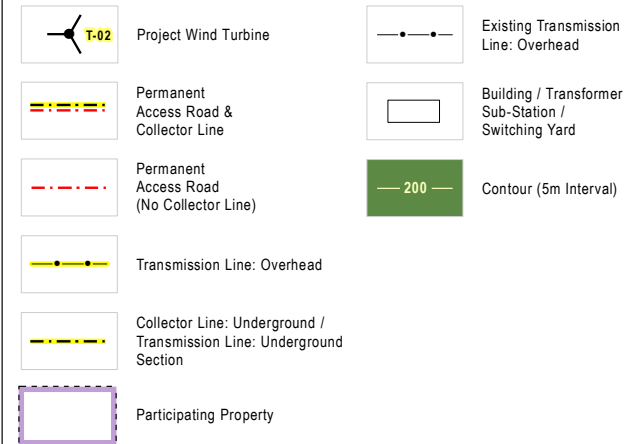
- DATA SOURCES:
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 Date: 21 August 2012
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Figure 2k
Project Layout
 Grand Bend Wind Farm
Project Description Report

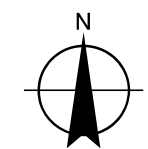


Siemens SWT-2.3-113 Turbine:
 Base Diameter 4.2m | Hub Height 99.5m | Blade Length 55m

- NOTES:
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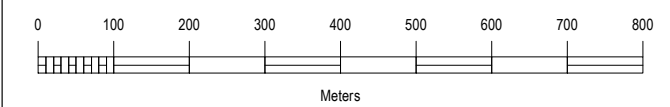









Figure 21
Project Layout
 Grand Bend Wind Farm
Project Description Report

-  Project Wind Turbine
-  Transmission Line: Overhead
-  Collector Line: Underground / Transmission Line: Underground Section
-  Transformer Sub-Station or Switch Yard
-  Existing Transmission Line: Overhead

NOTES:

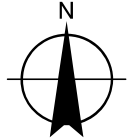
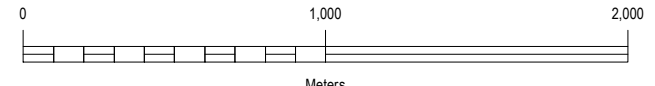
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- For details see the Draft REA documents.

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 Project Number: PIA019991

Prepared: P. Stubbart
 Checked By: L. Parsons






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Figure 2m Project Layout

Grand Bend Wind Farm

Project Description Report

-  Project Wind Turbine
-  Transmission Line: Overhead
-  Collector Line: Underground / Transmission Line: Underground Section
-  Transformer Sub-Station or Switch Yard
-  Existing Transmission Line: Overhead

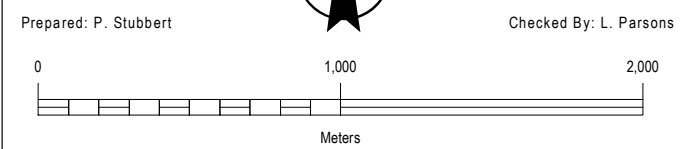
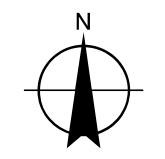
NOTES:

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- For details see the Draft REA documents.

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




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Figure 2n Project Layout

Grand Bend Wind Farm Project Description Report

-  Project Wind Turbine
-  Transmission Line: Overhead
-  Collector Line: Underground / Transmission Line: Underground Section
-  Transformer Sub-Station or Switch Yard
-  Existing Transmission Line: Overhead

NOTES:

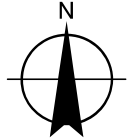
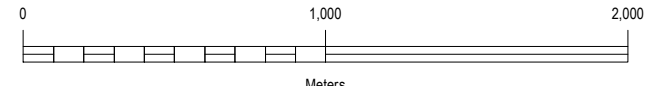
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Checked By: L. Parsons

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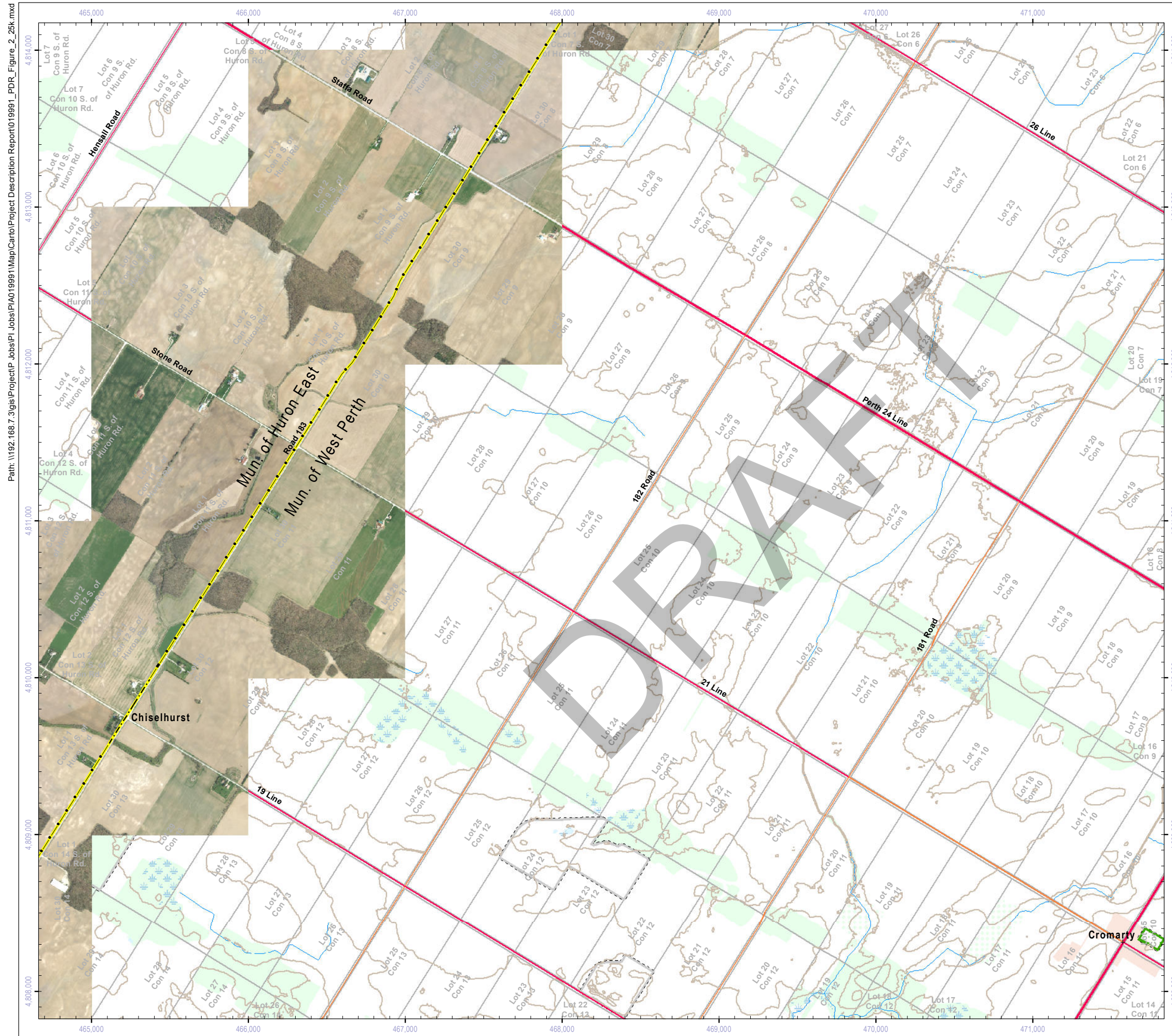







Figure 20
Project Layout
 Grand Bend Wind Farm
 Project Description Report

-  Project Wind Turbine
-  Transmission Line: Overhead
-  Collector Line: Underground / Transmission Line: Underground Section
-  Transformer Sub-Station or Switch Yard
-  Existing Transmission Line: Overhead

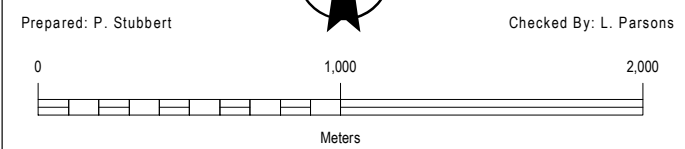
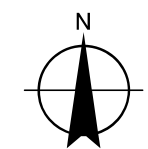
NOTES:

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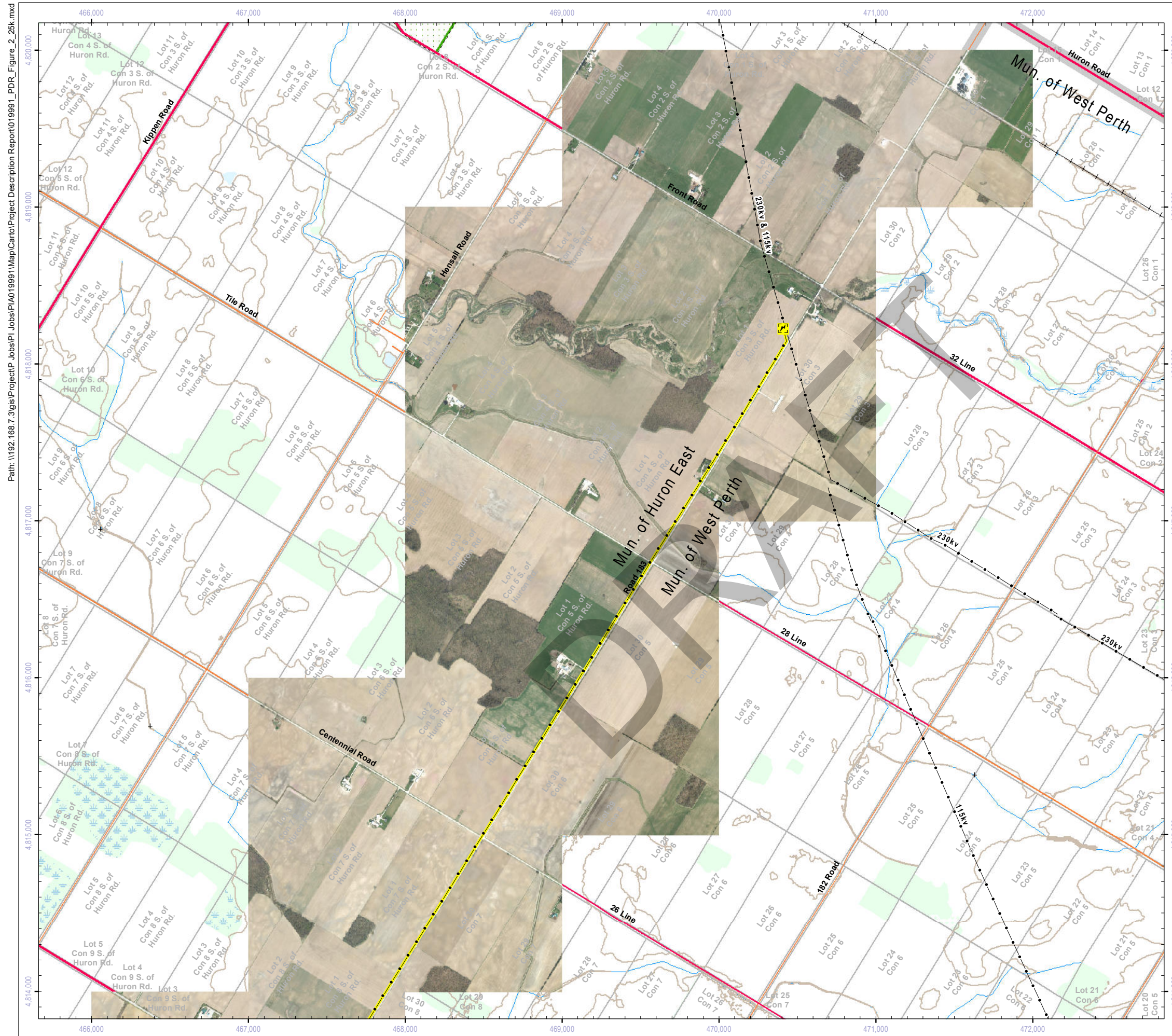







Figure 2p Project Layout

Grand Bend Wind Farm Project Description Report

-  Project Wind Turbine
-  Transmission Line: Overhead
-  Collector Line: Underground / Transmission Line: Underground Section
-  Transformer Sub-Station or Switch Yard
-  Existing Transmission Line: Overhead

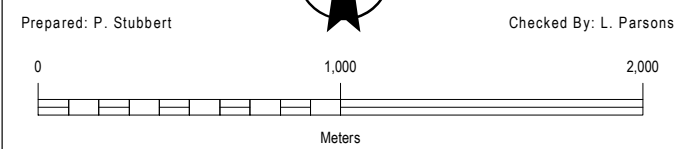
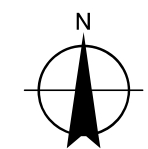
NOTES:

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


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Figure 2q
Project Layout
 Grand Bend Wind Farm
 Project Description Report

-  Project Wind Turbine
-  Transmission Line: Overhead
-  Collector Line: Underground / Transmission Line: Underground Section
-  Transformer Sub-Station or Switch Yard
-  Existing Transmission Line: Overhead

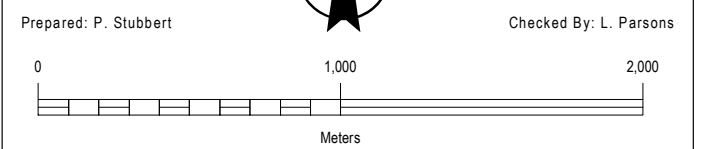
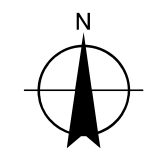
NOTES:

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Figure 2r Project Layout

Grand Bend Wind Farm Project Description Report

-  Project Wind Turbine
-  Transmission Line: Overhead
-  Collector Line: Underground / Transmission Line: Underground Section
-  Transformer Sub-Station or Switch Yard
-  Existing Transmission Line: Overhead

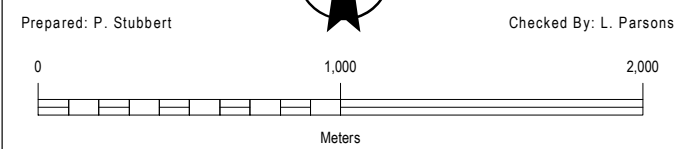
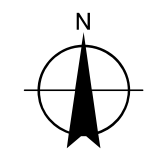
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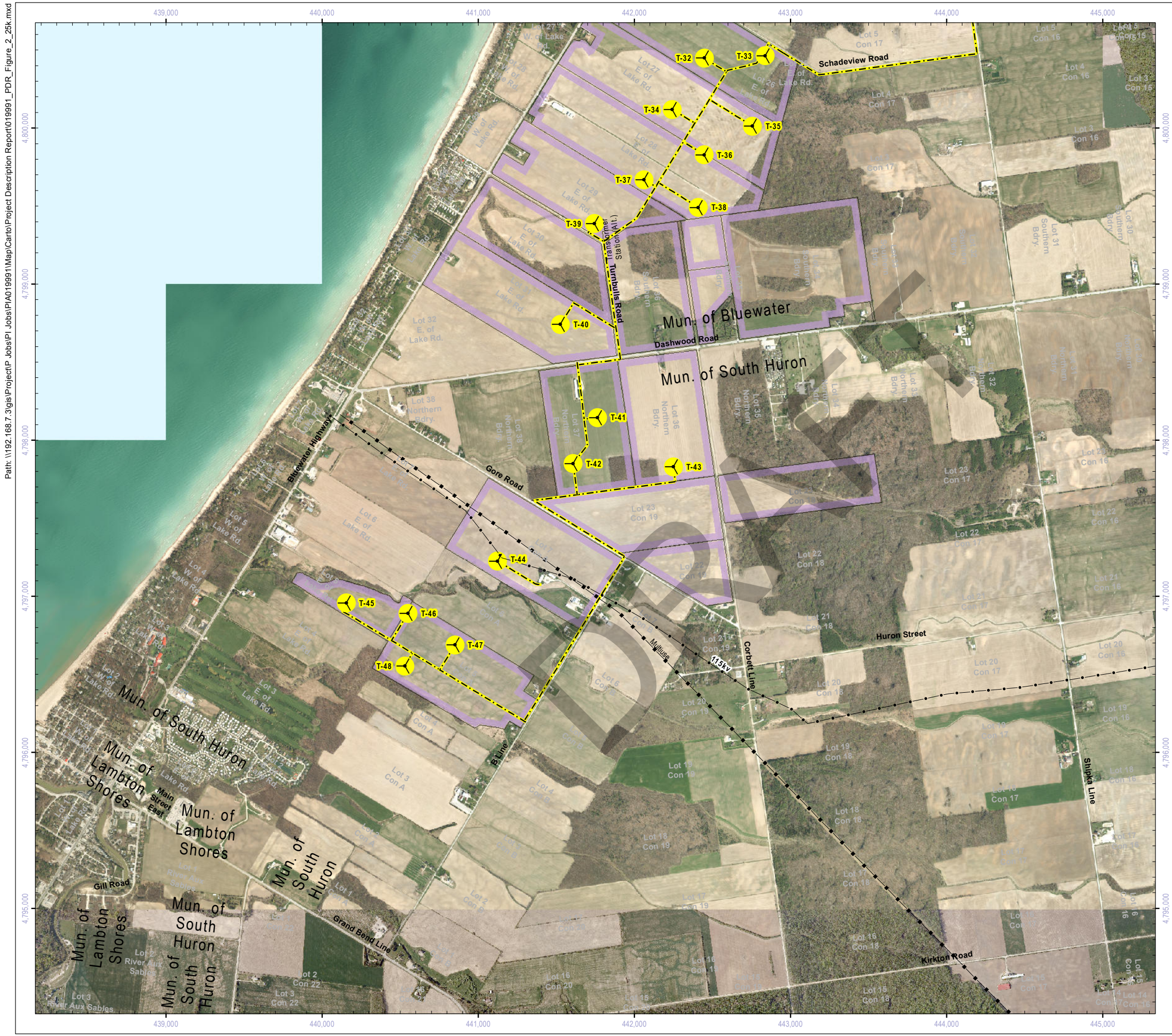







Figure 2s
Project Layout
 Grand Bend Wind Farm
Project Description Report

-  Project Wind Turbine
-  Transmission Line: Overhead
-  Collector Line: Underground / Transmission Line: Underground Section
-  Transformer Sub-Station or Switch Yard
-  Existing Transmission Line: Overhead

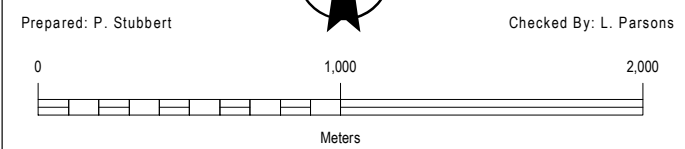
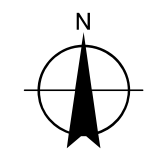
NOTES:

- Reference the Figure 1 Key Map for location in the overall project area.
- For details see the Draft REA documents.

DATA SOURCES:

- County of Huron (including Imagery: 2010)
- Ministry of Natural Resources, © Queen's Printer for Ontario
- Natural Resources Canada © Her Majesty the Queen in Right of Canada

Scale: 1:25,000
 Date: 21 August 2012
 Project Number: PIA019991



Path: \\192.168.7.3\gis\Project\PIA019991\Map\Carto\Project Description Report\019991_PDR_Figure_2_25k.mxd

Appendix B
Turbine Specifications

DRAFT



SIEMENS



SWT - 2.3 - 113

Turning moderate wind into maximum results

At the leading edge of evolution

The new Siemens SWT-2.3-113 wind turbine is the ultimate choice for low to moderate wind conditions. The revolutionary direct drive generator and the new, optimized Quantum Blade are paired to extract as much energy as possible from the wind.

Efficient. Quiet. Robust and reliable. The Siemens SWT-2.3-113 is the new benchmark wind turbine for low to medium wind speeds. As a result of more than 30 years of research and development, it is designed to harvest more energy out of moderate wind conditions than anyone thought possible.

Proven design

The SWT-2.3-113 is built around the same revolutionizing direct drive generator as the SWT-3.0-101. The direct drive turbine offers exceptional reliability and efficiency – with only 50% of the parts normally required for a conventional wind turbine. By using the same proven design and sharing the majority of components with its larger sibling, production costs and lead times can be kept down.

Unique aerodynamics

The Quantum Blade combines exceptional aerodynamic performance with patented manufacturing technology. Based on innovative aerodynamic solutions in the root and tip sections, the Quantum Blade offers maximum efficiency at low to medium wind speeds.

Maximum availability

Simplicity is the ultimate sophistication. With the simple and robust direct drive concept with 50% fewer parts, the SWT-2.3-113 wind turbine is designed for maximum availability. Furthermore, the spacious nacelle and the ergonomic working conditions facilitate serviceability and contribute to minimizing downtime for scheduled maintenance.

“

You cannot change the wind.
It may be strong, it may be light.
This leaves it up to us to extract
as much energy as we can from it.

Anne Schannong Vinther, Quality Engineer



Innovation for efficiency

Siemens direct drive technology and the new Quantum Blade represent groundbreaking wind turbine design and technology. The result of these two key innovations is a turbine with maximum efficiency and reliability, which helps to enable a solid return on investment.

Maximized performance with 50% fewer parts

The Siemens direct drive design incorporates a permanent magnet generator with fewer moving parts than ever before.

The simple permanent magnet design offers increased efficiency directly by minimizing energy losses and indirectly by reducing maintenance needs. The outer rotor arrangement leads to a more compact and lightweight generator, making transportation and installation easier and faster.

The B55 Quantum Blade

The new generation of Siemens wind turbine blades is lighter than previous designs but retains the superior

strength known from earlier generations of blades. Thanks to unique airfoils and redesigned tip and root sections, the blade offers superior performance at low to medium wind speeds. The root section uses Siemens "flatback" profiles to minimize root leakage and provide higher lift. The tip has also undergone a fine-tuning process to give enhanced lift and acoustic performance.

One-piece moulding

Like other Siemens blades, the new Quantum Blades are manufactured in Siemens proprietary IntegralBlade® process. Each blade is moulded in one single production step from fiberglass-reinforced epoxy resin, resulting in a stronger, lighter blade without any joints.



Lower noise

With a low 105 dB noise level, the SWT-2.3-113 is one of the quietest wind turbines on the market. As a result, this turbine type has an extremely high ratio of energy output per noise affected area, resulting in fewer disturbances to people and wildlife.

Superior grid compliance

The Siemens NetConverter® is designed for maximum flexibility in the turbine's response to voltage and frequency variations, fault ride-through capability and output adjustment. The advanced wind farm control system provides state-of-the-art fleet management.

Technical specification

Rotor

- Type: 3-bladed, horizontal axis
- Position: Upwind
- Diameter: 113 m
- Swept area: 10,000 m²
- Speed range: 6–13 rpm
- Power regulation: Pitch regulation with variable speed
- Rotor tilt: 6 degrees

Blade

- Type: Self-supporting
- Blade length: 55 m
- Tip chord: 0.63 m
- Root chord: 4.2 m
- Aerodynamic profile: NB 1-7, SWPNA1_XX12, FFAxxx
- Material: GRE
- Surface gloss: Semi-mat, <30 / ISO2813
- Surface colour: Light grey, RAL 7035

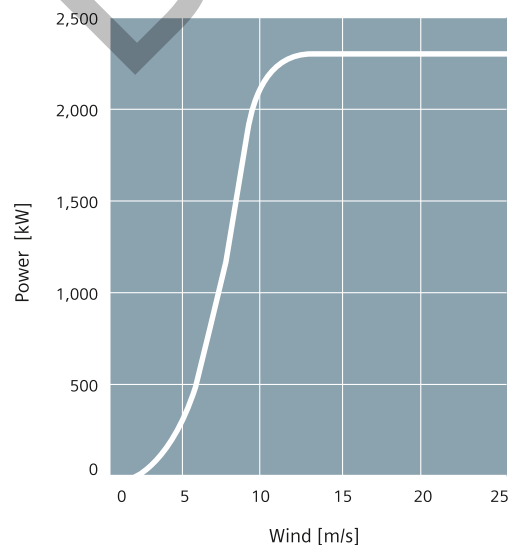
Aerodynamic brake

- Type: Full span pitching
- Activation: Active, hydraulic

Load-supporting parts

- Hub: Nodular cast iron
- Main shaft: Cast
- Nacelle bed plate: Cast

Sales power curve



Mechanical brake

- Type: Hydraulic disc brake
- Position: Generator rear end
- Number of callipers: 3

Canopy

- Type: Totally enclosed
- Surface gloss: Silk mat, 30–40 / ISO2813
- Colour: Light grey, RAL 7035

Generator

- Type: Synchronous, PMG
- Nominal power: 2,300 kW

Grid terminals (LV)

- Nominal power: 2,300 kW
- Voltage: 690 V
- Frequency: 50 Hz or 60 Hz

Yaw system

- Type: Active
- Yaw bearing: Externally geared
- Yaw drive: 8 (optional 10) electric gear motors
- Yaw brake: Passive friction brake

Controller

- Type: Microprocessor
- SCADA system: WPS
- Controller designation: SWTC, STC-1, SCS-1

Tower

- Type: Cylindrical and/or tapered tubular
- Hub height: 99.5 m or site-specific
- Corrosion protection: Painted
- Surface gloss: Silk mat, 30–40 / ISO2813
- Colour: Light grey, RAL 7035

Operational data

- Cut-in wind speed: 3 m/s
- Nominal power at: 12–13 m/s
- Cut-out wind speed: 25 m/s
- Maximum 3 s gust: 59.5 m/s (IEC version)

Weights (approximately)

- Rotor: 66,700 kg
- Nacelle: 73,000 kg
- Tower: Site-specific

1 Quantum Blade

- Unique design and manufacturing process
- IntegralBlade® one-piece moulding for maximum strength
- Optimized aerodynamics for low to medium wind conditions
- Increased length for higher energy yield
- Blade root – designed for minimized root leakage and increased lift

2 Direct drive generator

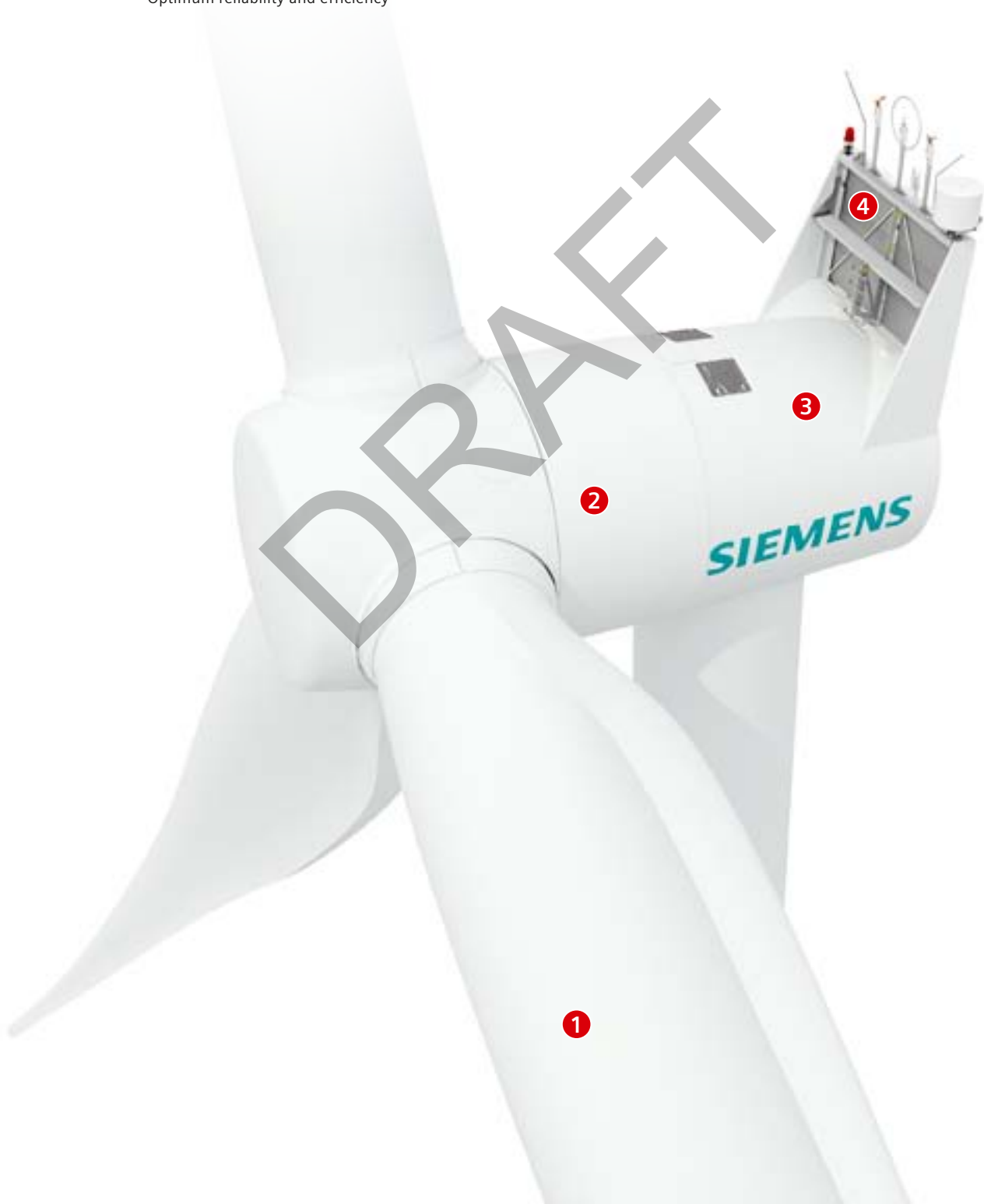
- Permanent magnet design
- Totally enclosed, easy to handle and lightweight design
- Optimum reliability and efficiency

3 Nacelle

- Solid, compact and lightweight structure
- Spacious, ergonomic design – maximum serviceability
- 50% fewer parts compared to geared turbines

4 Cooling

- Simple and robust LiquidLink® water cooling system
- Top-mounted passive cooling radiators
- High-efficient two-stage cooling as function of power



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The information in this document contains
general descriptions of the technical options
available, which may not apply in all cases.
The required technical options should therefore
be specified in the contract.

Appendix C
Turbine Coordinates

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Draft Project Description Report
August 2012

Table C1 Proposed Grand Bend Wind Farm Turbine Locations

Turbine Number	Easting	Northing
T-01	444036	4811878
T-02	444376	4811760
T-03	445882	4810067
T-04	443802	4810147
T-05	444206	4809869
T-06	444035	4809533
T-07	443954	4809147
T-08	443718	4808841
T-09	444323	4808855
T-10	444002	4808745
T-11	444330	4808461
T-12	444001	4808315
T-13	444228	4808041
T-14	443802	4807902
T-15	444500	4807773
T-16	443896	4807611
T-17	443376	4805355
T-18	443717	4805337
T-19	446261	4804829
T-20	446913	4804825
T-21	443635	4804535
T-22	443974	4804635
T-23	443320	4804183
T-24	443623	4804057
T-25	443997	4804036
T-26	443339	4803814
T-27	443638	4803681
T-28	443409	4803439
T-29	443154	4802383
T-30	443011	4802014
T-31	443540	4801110
T-32	442448	4800448
T-33	442838	4800465
T-34	442243	4800119
T-35	442757	4800013
T-36	442447	4799830
T-37	442062	4799669

Draft Project Description Report
August 2012

Turbine Number	Easting	Northing
T-38	442409	4799492
T-39	441744	4799389
T-40	441527	4798742
T-41	441764	4798145
T-42	441607	4797850
T-43	442249	4797830
T-44	441123	4797225
T-45	440154	4796958
T-46	440550	4796892
T-47	440850	4796687
T-48	440529	4796554

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**Appendix D
Legal Description of Participating
Properties**

DRAFT

Draft Project Description Report
August 2012

Table D1 Legal Description of Participating Properties

Turbine	Legal Description
T-01	CON S BDY LOT 28 PT LOT 29
T-02	CON S BDY LOT 28 PT LOT 29
T-03	CON 14 N PT LOT 27
T-04	CON LRE N PT LOT 3
T-05	CON 15 LOT 27
T-06	CON 15 LOT 27
T-07	CON LRE S PT LOT 5
T-08	CON LRE N PT LOT 6
T-09	CON 15 LOT 25 PT LOT 22 TO;24PT C LRE PT LOT 6 TO 8PT
T-10	CON LRE N PT LOT 6
T-11	CON 15 LOT 25 PT LOT 22 TO;24PT C LRE PT LOT 6 TO 8PT
T-12	CON 15 LOT 25 PT LOT 22 TO;24PT C LRE PT LOT 6 TO 8PT
T-13	CON 15 LOT 25 PT LOT 22 TO;24PT C LRE PT LOT 6 TO 8PT
T-14	CON LRE S PT LOT 8 N PT LOT;9
T-15	CON 15 LOT 25 PT LOT 22 TO;24PT C LRE PT LOT 6 TO 8PT
T-16	CON LRE S PT LOT 8 N PT LOT;9
T-17	CON LRE S PT LOT 14
T-18	CON LRE S PT LOT 14
T-19	CON 14 N PT LOT 14
T-20	CON 13 PT LOT 14 PT LOT 15;AS RP 22R1423 PART 1
T-21	CON LRE E PT LOT 16
T-22	CON LRE E PT LOT 16
T-23	CON LRE PT LOT 17
T-24	CON LRE PT LOT 17
T-25	CON LRE PT LOT 17
T-26	CON LRE PT LOT 18
T-27	CON LRE PT LOT 18
T-28	CON LRE N PT LOT 19
T-29	CON LRE PT LOT 21 N PT LOT;22
T-30	CON LRE PT LOT 22
T-31	CON 17 N PT LOT 6
T-32	CON LRE PT LOT 26
T-33	CON LRE PT LOT 26
T-34	CON LRE PT LOT 27
T-35	CON LRE PT LOT 27
T-36	CON LRE PT LOT 28

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Turbine	Legal Description
T-37	CON LRE PT LOT 28
T-38	CON LRE PT LOT 28
T-39	HAY CON LRE PT LOT 29 AND PT;RD ALLOW
T-40	CON LRE PT LOT 31
T-41	CON N BDY LOT 37
T-42	CON N BDY LOT 37
T-43	CON N BDY LOT 36
T-44	CON A LOT 7
T-45	CON LRE PT LOT 5 AS RP 22R;1730 PART 1 SUBJT TO;EASEMENT
T-46	CON A PT LOTS 4 AND 5 RP;22R1730 PART 1
T-47	CON A PT LOTS 4 AND 5 RP;22R1730 PART 1
T-48	CON A PT LOTS 4 AND 5 RP;22R1730 PART 1

