



June, 2011

CELEBRATING
50
YEARS
in 2010

NEXTERA ENERGY CANADA, ULC SUMMERHAVEN WIND ENERGY CENTRE APPLICATION FOR A RENEWABLE ENERGY APPROVAL

Project Description Report

Submitted to:
Director, Ministry of Environment
2 St. Clair West, Floor 12A
Toronto, Ontario
M4V 1L5

REPORT



A world of
capabilities
delivered locally

Report Number: 10-1151-0035

Distribution:

Ministry of Environment - 1 copy
NextEra Energy Canada, ULC - 3 copies
Air Energy TCI Inc. - 2 copies
Golder Associates Ltd. - 2 copies





Table of Contents

1.0 INTRODUCTION..... 1

1.1 Project Summary2

1.2 Project and Project Description Report Version History..... 3

1.2.1 Project Location 5

1.2.2 Project Layout6

1.3 Contacts 7

1.3.1 Project Proponent 7

1.3.2 Proponent Renewable Energy Approval (REA) Team 7

1.4 Authorizations and Permits Required 7

1.5 Federal Involvement 9

2.0 PROJECT INFORMATION 9

2.1 Energy Sources 9

2.2 Project Components 9

2.3 Renewable Energy Generation Facility Classes 10

2.4 Project Activities 10

2.4.1 Major Project Phases and Schedule Milestones 10

2.4.2 Pre-Construction Phase 11

2.4.3 Construction Phase 11

2.4.4 Operations Phase 17

2.4.5 Decommissioning Phase..... 18

2.4.5.1 Toxic/Hazardous Materials 20

2.4.5.2 Solid, Liquid or Gaseous Wastes..... 20

2.5 Future Phases of Development 21

2.6 Nameplate Capacity 21

2.7 Land Ownership..... 21

3.0 DESCRIPTION OF POTENTIAL ENVIRONMENTAL EFFECTS 22

3.1 Heritage and Archaeological Resources..... 22

3.2 Natural Heritage and Water 23



SUMMERHAVEN PROJECT DESCRIPTION

3.2.1	Records Review and Site Investigations	24
3.2.2	Species of Conservation Concern	28
3.2.3	Screening of Environmental Effects	29
3.2.3.1	Site Preparation and Construction	29
3.2.3.2	Operations	31
3.2.3.3	Decommissioning	31
3.2.4	Air, Odour and Dust	32
3.2.4.1	Site Preparation and Construction	32
3.2.4.2	Operations	33
3.2.4.3	Decommissioning	33
3.2.5	Noise	33
3.2.5.1	Site Preparation and Construction	33
3.2.5.2	Operations	34
3.2.5.3	Decommissioning	34
3.2.6	Land Use and Resources	34
3.2.6.1	Past Land Uses	34
3.2.6.2	Current Land Uses	34
3.2.6.3	Local Businesses and Facilities	35
3.2.6.4	Natural Resources	35
3.2.6.5	Recreation Areas	36
3.2.6.6	Visual Landscape	36
3.2.7	Provincial and Local Infrastructure	36
3.2.7.1	Telecommunications	37
3.2.7.2	Areas Protected under Provincial Plans and Policies	37
4.0	REFERENCES	38

TABLES

Table 1: Project Description Requirements and Location in the Report	1
Table 2: Federal Authorizations and Permits	8
Table 3: Ontario Permits and Approvals	8
Table 4: Municipal Authorizations and Permits	9



SUMMERHAVEN PROJECT DESCRIPTION

Table 5: Major Project Phases and Scheduling Milestones.....	10
Table 6: General Description of Project Construction Activities	13
Table 7: General Description of Project Decommissioning Activities	20
Table 8: Known Natural Features in Vicinity of the Project Location	26

FIGURES

Figure 1

Project Area

Figure 2

Project Area Land Use

APPENDICES

APPENDIX A

Letter from the Ministry of Energy and Infrastructure

APPENDIX B

Legal Description of Project Lands



1.0 INTRODUCTION

This Project Description Report (the Report) has been prepared to provide information to the public, Aboriginal communities, municipalities and local authorities regarding the proposed Summerhaven Wind Energy Centre (the Project). The Report is a required component of an Application for a Renewable Energy Approval (REA Application) under Ontario Regulation (O. Reg.) 359/09¹ made under the *Environmental Protection Act (EPA)*.

This Report has been prepared in accordance with O. Reg. 359/09 and Technical Bulletin One: Guidance for preparing the Project Description Report (MOE, 2010a). Table 1 summarizes information to be included in the Report based on Table 1 of O. Reg. 359/09 and directs readers to the associated section(s) of this document.

Table 1: Project Description Requirements and Location in the Report

Requirement per O. Reg. 359/09	Report section where information can be found
Description of any energy sources to be used to generate electricity at the renewable energy generation facility.	See Section 2.1
Description of the facilities, equipment or technology that will be used to convert the renewable energy source or any other energy source to electricity.	See Section 2.2
Description of the class of the renewable energy generation facility.	Class 4 wind facility; see Section 2.3
Description of the activities that will be engaged in as part of the renewable energy project.	See Section 2.4
Description of the nameplate capacity of the renewable energy generation facility.	131.04 MW; see Section 2.7
Description of the ownership of the land on which the project location is to be situated.	See Section 2.8
Description of any negative environmental effects that may result from engaging in the project.	See Section 3.0
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 m of the project location.	See Project Area map, Figure 1 (end of Report)

Additional information about the Project can currently be found in the Construction Plan Report (Golder, 2011a), Decommissioning Plan Report (Golder, 2011b), and Design and Operations Report (Golder, 2011c). A description of the Site Plan design is provided in the Design and Operations Report. As it is broadly applicable to all of the REA Reports, and to avoid redundancy, the Site Plan diagram has been provided as a stand-alone document (the Site Plan Report).

¹ As amended by O. Reg. 521/10 which came into force on January 1, 2011.



Technical studies associated with the REA Application requirements were initiated in 2007 and extended into 2010. Additional information about the Project and results of technical studies and assessments of negative environmental effects are available in the following reports:

- Wind Turbine Specifications Report (Golder, 2011d);
- Natural Heritage Assessment Report (Golder, 2011e);
- Stage 1 Archaeological Assessment Report (Golder, 2010a);
- Heritage Assessment Report (Golder, 2011j);
- Noise Study Report (Golder, 2011f);
- Water Assessment Report (Golder, 2011g);
- Site Plan Report (Golder, 2011h); and
- Consultation Report (Golder, 2011i).

Stage 2, Stage 3 and Stage 4 Archaeological Assessment Reports are not required as part of the REA Application for this Project, (see Appendix A for letter from the Ministry of Energy and Infrastructure dated June 14, 2010) and are typically not publically available documents due to the confidential nature of the content. Stage 2, Stage 3 and Stage 4 Archaeological Assessment Reports will, however, be made available to the Ministry of Tourism and Culture (MTC) for review and their issuance of a Comment Letter in advance of construction, and hard copies of this information will be provided to Aboriginal communities with an interest in the Project, as identified by the Director, and as agreed to by individual Aboriginal communities.

1.1 Project Summary

The Project consists of the site preparation, construction, operation, and decommissioning of a 59 turbine wind generating facility with a total installed nameplate capacity of 131.04 MW. The Project will be owned and operated by NextEra Energy Canada, ULC (NextEra Energy Canada) and will be located in the vicinity of Nanticoke, Haldimand County, Ontario (Figure 1, end of Report). The Project lifespan from obtaining the REA Approval to the end of decommissioning is estimated to be 27 years.

Turbine towers will be constructed on a concrete foundation. Underground and overhead cables will interconnect individual turbines and eventually connect to the substation (see Site Plan Report). The operation of the wind turbines will be monitored remotely from a Project operations building located near the substation. Once tested and commissioned, the turbines will require scheduled visits for maintenance during the Operations Phase. Maintenance will include complete inspection of the turbine's components and the tower, functionality testing, replacement of worn parts, bolt tightening and lubrication of moving parts. Routine preventative maintenance activities will be completed as per manufacturer requirements.

The Project Area (Figure 1) encompasses approximately 22,583 ha of privately owned land parcels. Land use is predominantly cash-crop agriculture (i.e., farming for corn, soybeans, wheat), although some areas are pasture (predominantly for cattle) and several wooded areas are present. Selkirk Provincial Park and Haldimand



Conservation Area are located along the shore of Lake Erie south of the Project Area. The Grand River runs northeast of the Project Area and an Imperial Oil refinery is directly southwest.

The location of the Project was predicated by interest expressed by local landowners. Haldimand County is also attractive for wind development due to its proximity to Lake Erie, which results in favourable wind conditions for power production.

1.2 Project and Project Description Report Version History

The proposed Project is an amalgamation of two former Projects, namely the Air Energy TCI Inc (AET) “Nanticoke Wind Farm” and the NextEra Energy Canada, ULC (NextEra Energy Canada) “Summerhaven Wind Farm”. The amalgamated Project, which is the focus of this Report, is referred to as the “Summerhaven Wind Energy Centre” (the Project). To understand and appreciate the planning, environmental assessment and consultation related processes completed for the Project, an understanding of the Project history of the former Nanticoke and Summerhaven Wind Farms is beneficial.

The former Nanticoke Wind Farm was first contemplated by AET in 2006 as a potential 10 MW Ontario Power Authority Standard Offer Site. However, distribution grid (<50kV) constraints limited development opportunities for a small wind farm, and AET decided to consider the possibility of a larger project which would connect to the existing transmission voltage lines that exceed 50 kV. Thus, in early 2008, AET began optioning land within the larger area near Nanticoke, Ontario. In October 2008, AET submitted a Notice of Commencement (NOC) and a draft of this Report (now referred to as Draft Report Version 1) for Nanticoke Wind Farm (Golder, 2008). In addition to posting the Draft Report Version 1 on AET’s website and providing Draft Report Version 1 to Municipal, Provincial and Federal agencies, the NOC and Draft Report Version 1 were sent to three different Aboriginal communities which included those provided on a list obtained by AET from Indian and Northern Affairs Canada and the Ministry of Aboriginal Affairs. Both the October 2008 NOC and Draft Report Version 1 were written to meet the requirements of O. Reg. 116/01, which was the primary legislation applicable to undertaking an environmental assessment of an Ontario wind power project at that time.

Along a somewhat parallel timeline (starting in 2007), NextEra Energy Canada began making lease agreements with several landowners in the Nanticoke area and was pursuing planning of the NextEra Energy Canada Summerhaven Wind Energy Centre. A Notice of Commencement under O. Reg. 116/01 was first published in local newspapers by NextEra Energy Canada in June, 2009.

In 2009, during the period in which the former Nanticoke Wind Farm and former Summerhaven Wind Farm were being planned by AET and NextEra Energy Canada, respectively, the regulatory requirements for renewable energy projects in Ontario changed significantly. The passing of the *Green Energy and Green Economy Act*, made several changes to various existing Acts and Regulations, and created the new O. Reg. 359/09 (Government of Ontario, 2009; MOE, 2009). This stimulated new legal requirements for wind power projects, and changes in the format and content of the Project Description Report. Due to the new regulatory approval process and revisions to the Project Area relative to that shown in the 2008 Draft Report Version 1, AET issued a second draft of the Project Description Report (Draft Report Version 2) to the Director of the Environmental Assessment and Approvals Branch (the Director) in October 2009 (Golder, 2009). Coincident with this



SUMMERHAVEN PROJECT DESCRIPTION

submission, a request was made by AET to the Director to review Draft Report Version 2 and provide a list of Aboriginal communities with which to engage, as required under O. Reg. 359/09.

In November 2009, AET sold all rights to the former Nanticoke Wind Farm Project to NextEra Energy Canada; effectively transferring ownership of the Project. NextEra Energy Canada subsequently submitted an application to the Ontario Power Authority Feed-In Tariff Program (FIT program) on November 30, 2009. At this point the AET “Nanticoke Wind Farm” and the NextEra Energy Canada “Summerhaven Wind Farm” effectively were merged and became one single Project. Details regarding the sale of the Nanticoke Wind Farm by AET to NextEra Energy Canada were communicated in a letter dated December 7, 2009 which was sent to stakeholders, landowners, Haldimand County, agencies and each of the Aboriginal Communities that AET and NextEra had previously been communicating with and that had an interest in the Project. An invitation to the first Open House for the Project was mailed to key stakeholders and assessed landowners on November 17, 2009, with a copy of Draft Report Version 2 posted to the AET website (www.nantocokewindfarm.com). Notification that the FIT program application submitted by NextEra Energy Canada had been accepted was received by NextEra Energy Canada on April 19, 2010.

As outlined in this Report and for purposes of the REA Application, NextEra Energy Canada is now the sole Project proponent and will be the owner and operator of the Summerhaven Wind Energy Centre. AET continues to work with NextEra Energy Canada to develop the Project, maintain communications with landowners which were part of the Nanticoke Wind Farm, and complete work required to obtain an REA Approval.

During the period following Draft Report Version 2 and information requests being sent to the Director, NextEra Energy Canada continued to consult with the Public, Haldimand County, agencies, stakeholders and the aforementioned Aboriginal communities. A general description of content for the Project Description Report was released in a Technical Bulletin by the MOE dated March 2010, resulting in further changes to the Report content requested by MOE. These expectations can be found in the draft document posted for comment to the Environmental Registry March 1, 2010 and entitled Technical Bulletin One Guidance for preparing the Project Description Report as part of an application under O. Reg. 359/09 (MOE, 2010a). Draft Report Version 3 was subsequently made available to the Public, Haldimand County, agencies and the Aboriginal communities that NextEra Energy Canada had been consulting with on October 5, 2010. A list of Aboriginal communities was received by NextEra Energy Canada on October 25, 2010 from MOE and this list included four additional Aboriginal communities (MOE, 2010b). Following receipt of the list and subsequent discussions with MOE, the additional Aboriginal communities were provided with copies of Draft Report Version 3 and were engaged in this regard by NextEra Energy Canada.

Relative to Draft Report Version 2, Draft Report Version 3 contained a revised Project boundary and substantially revised Project layout. The layout revisions and changes to the Project Location were deemed necessary by NextEra Energy Canada to address the potential for cumulative noise effects with the Capital Power Nanticoke and Port Dover Wind Farm, which at the time, contained land parcels interspersed with the NextEra Energy Canada Project. In order to reduce the geographical interspersed of the two projects, NextEra Energy Canada and Capital Power reached an agreement in principal to exchange certain landowner agreements, which resulted in two revised, more distinct projects, each of which was modelled to be individually and cumulatively noise compliant using the agreed to designs of each project. Information about the Capital Power wind farm can be found at <http://www.capitalpower.com/Consultation/Pages/DoverNanticoke.aspx>. Draft



Report Version 3 and Site Plan Report Draft Version 1 (Golder, 2010c) also contained two substation options (Options 1 and 2) and two transmission line options (Option A and B) that were being considered.

Relative to Draft Report Version 3, Draft Report Version 4 contained a modified Project layout, based on consultation with the Public, agencies and Aboriginal communities, and which included only the preferred substation and transmission line option (substation Option 1 and transmission line A).

This Report contains updates to the design in consideration of comments received from and consultation with the MNR on their reviews of the Natural Heritage Assessment Report and the discussion of potential environmental effects, which are summarized in this Report and other REA reports. The design related modifications are depicted on the Site Plan figure and described in the Site Plan Report (Golder, 2011h). Readers of this Report (i.e. the Project Description Report) are to be aware that Draft Versions 1, 2, 3 and 4 of the Project Description Report are now outdated and information contained within any prior versions is considered superseded by this Report version.

1.2.1 Project Location

The Project Location is defined by O. Reg. 359/09 as:

when used in relation to a renewable energy project, 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;

In practice, the Project Location boundaries are defined based on the greater of:

- The outer extent of the Project infrastructure (e.g., turbines, turbine blades, road edges, cable line routes, etc.); or
- The outer extent of ground disturbance created in constructing or decommissioning the Project.

The proposed Project Area, as shown in Figure 1, includes the Project Location. The use of municipal right-of-ways is being proposed for locating the poles and overhead electrical cables. Access roads and the remainder of the collector system cables will be located underground on private lands. The transforming substation will also be located on private land.

The Project Location will be located in the vicinity of the community of Nanticoke, in the Municipality of Haldimand County, in the province of Ontario, Canada (see Figure 1). Haldimand County is located on the north shore of Lake Erie, between Norfolk County, Six Nations of the Grand River Territory, the County of Brant, the City of Hamilton and the Niagara Region (Haldimand County, 2006). Agriculture is the primary land use in the area and is considered fundamental to the economic base and rural lifestyle of the County. The preservation of agricultural lands is emphasized in the Haldimand County Official Plan (OP) (Haldimand County, 2006).

The southwestern portion of the Project Area is located within the Industrial Influence Area as delineated in Schedule A.2 of the Haldimand County Official Plan (Haldimand County, 2006). This Industrial Park contains the Nanticoke Generating Station, one of the world's largest coal-fired power generating plants with a capacity of approximately 4,000 MW (OPA, 2006). The purpose of the Industrial Influence Area is to ensure that



development of major industrial and industrial designations is continued, as the focal point for large scale and heavy manufacturing uses within the area. This includes protecting industrial uses from incompatible land uses which would detract from their ability to operate effectively.

Wind farms are congruent with the goals of the Haldimand County OP in terms of conservation of agricultural practices and stimulating new economic investment and creation of a green economy. Haldimand County's OP and economic strategic direction specifically encourage harnessing wind energy resources through the development of wind energy systems for electricity production, as a source of renewable energy for the economic benefit of the County and the Province of Ontario.

1.2.2 Project Layout

The most suitable locations for turbines and infrastructure were determined through analysis of various design scenarios utilizing parcels that have land owner agreements in place. Since commencing planning for the Project, NextEra Energy Canada has produced several preliminary design scenarios as landowner agreements have been made and additional knowledge regarding the Project Area has been acquired.

The following are key site considerations taken into account for development of the Project layout:

- Minimum noise setback from non-participating vacant lots and non-participating noise receptors of 550 m;
- Predicted noise limits not exceeding 40.0 dBA at non-participating receptors;
- Siting of turbines 30 m or greater from waterbodies. For any siting of the Project Location within 120 m of a waterbody, an environmental impact study was conducted as a component of the REA Application (see Water Assessment Report);
- Minimum setback from turbine base to non-participating property lot lines of 80 m (turbine hub height) or consistent with Property Line Setback Assessment Report (IBI Group, 2011);
- Minimum setback from turbine base to public roads of 60 m (blade length + 10 m);
- Wind conditions in the Project Area have been assessed since 2008 using meteorological towers installed previously by NextEra Energy Canada and AET;
- Site topography;
- Minimizing disturbance to existing land uses with emphasis on agricultural operations;
- Avoiding potential interference with existing radio and telecommunications infrastructure;
- Wake effects between turbines;
- Clustering turbines to reduce collection system costs and volume of overhead or underground cabling;
- Adherence to O. Reg. 359/09 setbacks from significant natural features (woodlots, watercourses, etc.) or completion of an Environmental Impact Study (see Natural Heritage Assessment Report); and
- Access to existing or proposed transmission infrastructure.



1.3 Contacts

1.3.1 Project Proponent

The Summerhaven Wind Energy Centre (the Project) is being proposed by NextEra Energy Canada, ULC (NextEra Energy Canada), formerly known as FPLE Canadian Wind, ULC. NextEra Energy Canada is a wholly owned subsidiary of NextEra Energy Resources, itself part of NextEra Energy Inc. (NYSE: NEE), a Fortune 200 company and one of North America's largest wind energy owners and operators.

NextEra Energy Resources has over 18,800 MW of generation capacity including over 9,500 wind turbines operating across North America. Canadian wind farms currently owned and operated by NextEra Energy Canada include Pubnico Point (30.6 MW) in Nova Scotia, Mount Copper (54 MW) and Mount Miller (54 MW) in Quebec, and Ghost Pine (81.6 MW) in Alberta.

The headquarters for NextEra Energy Canada is located in Burlington, Ontario. The NextEra Energy Canada contact for the Project is:

Thomas Bird, Environmental Services Project Manager
NextEra Energy Canada, ULC
5500 North Service Rd., Suite 205
Burlington, Ontario, L7L 6W6
Phone: 905-335-4904
Fax: 905-335-5731
Email: Thomas.bird@nexteraenergy.com

1.3.2 Proponent Renewable Energy Approval (REA) Team

NextEra Energy Canada has retained Golder Associates Ltd. (Golder) to conduct several of the technical studies and write the REA Application. Contact information for the Golder Project Manager is:

Jeff Wright
Summerhaven Wind Energy Centre REA Project Manager
Golder Associates Ltd.
2390 Argentia Road
Mississauga, Ontario, L5N 5Z7
Phone: (905) 567-4444
Fax: (905) 567-6561
E-mail: jawright@golder.com

1.4 Authorizations and Permits Required

It is not anticipated that the Project will require a Federal environmental assessment at this juncture as no triggers of the *Canadian Environmental Assessment Act* (CEAA) have occurred. However, a number of permits and authorizations, listed in Table 2, will be obtained, if required.



SUMMERHAVEN PROJECT DESCRIPTION

Table 2: Federal Authorizations and Permits

Permit Authorization	Administering Agency	Rationale
Aeronautical Obstruction Clearance	Transport Canada - Aviation Division	Turbine Marking & Lighting
Land-Use Clearance	NAV Canada	Notice to Airmen
Navigational Clearance	Transport Canada - Marine Division	Crossing a Navigable Watercourse
<i>Fisheries Act</i>	Fisheries and Oceans Canada	Fisheries Act Authorization

In addition, the Project may require additional provincial approvals, presented in Table 3.

Table 3: Ontario Permits and Approvals

Permit / Approval	Administering Agency	Rationale
Renewable Energy Approval Application - Ontario Regulation 359/09	Ministry of the Environment (MOE)	Electricity project approval
*Certificate of Approval – Air	MOE	Environmental noise emissions
*Archaeological Clearance	Ministry of Tourism and Culture (MTC)	Archaeological & heritage resources
Ontario Regulation 178/06 Regulation of development, interference with wetlands and alterations to shorelines and watercourses	Conservation Authority	Works within Regulation Limit of Regulation 178/06
Fill, Construction, & Alteration of Waterways	Conservation Authority / Ontario Ministry of Natural Resources (MNR)	Work within floodplains
* <i>Public Lands Act</i> work permit	MNR	Project may cross watercourses that are considered public lands
Encroachment Permit	MTO	Crossing of provincial highways
Land-Use Permit	MTO	Project works undertaken within 180m of an MTO controlled intersection
Commercial Access Permit	MTO	Ingress/egress from provincial highway
Change of Access & Heavy / Oversize Load Transportation Permit	MTO	Compliance with provincial highway traffic and road safety regulations
Leave-to-Construct	Ontario Energy Board (OEB)	Development of a high voltage (HV) transmission facility
Generator's Licence	OEB	Generator Operation Permit
Transmitter Licence	OEB	Transmission of electrical power to interconnect with provincial grid
Customer Impact Assessment	Hydro One	Evaluation of potential effects to existing electrical customers
System Impact Assessment	IESO	Potential effects of integrating the Project within provincial transmission system

*Permits covered under REA process.



SUMMERHAVEN PROJECT DESCRIPTION

In addition to the federal and provincial project requirements, the Project will require a number of municipal permits and approvals. Although the list may not be exhaustive, Table 4 shows a number of the permits and approvals that may be required prior to construction.

Table 4: Municipal Authorizations and Permits

Permit / Authorization	Administering Agency	Rationale
Entrance Permit	Haldimand County	Ingress/egress from Municipal roads
Building Permit	Haldimand County	Compliance with Ontario Building Code
Oversize/Overweight Permit	Haldimand County	Municipalities may accept ministry permits or issue their own for highways under their jurisdiction.

1.5 Federal Involvement

It is not anticipated that the Project will trigger a Federal environmental assessment. The list of potential federal permits and authorizations are presented in Table 2, above.

2.0 PROJECT INFORMATION

2.1 Energy Sources

Wind energy will be the sole energy source used to generate electricity by the Project.

2.2 Project Components

Specific components of the Project may be refined as the Project evolves, however the major components are listed below as follows:

- Fifty-eight (58) 2.221 MW Siemens 101 and one (1) 2.221 MW Siemens 93 wind turbine generators;
- Wind turbine foundations;
- 0.69/34.5 kV pad-mounted step up transformers;
- Gravel access roads;
- 34.5 kV buried and overhead collection lines and ancillaries;
- 34.5/230 kV transforming substation and transmission line to connect to the Hydro One interconnection facility on their 230 kV transmission line;
- An operations building;
- Laydown areas and temporary construction workspaces; and
- Meteorological towers.



Additional detail on the Project components listed above is provided in the Wind Turbine Specifications Report, Construction Plan Report, and the Design and Operations Report, which form part of the Project's REA Application, and in the Site Plan. Where possible, Project infrastructure was located to minimize the number of water crossings. The Water Assessment Report, provides details on the proposed water crossings and associated mitigation measures.

The following sections provide a summary of the Project activities throughout the life of the Project, namely construction, operations, and decommissioning. Additional detail regarding Project activities is provided in the reports that are part of the Project's REA Application, as listed above.

2.3 Renewable Energy Generation Facility Classes

The Project is a Class 4 wind facility with a generation capacity of 131.04 MW.

2.4 Project Activities

The activities for the pre-construction, construction, operation and decommissioning phases of the Project, as well as the consideration of future phases of the Project are described below. A detailed analysis of the environmental and cultural/archaeological effects of the Project and the significance of any residual effects were completed as part of the REA submission.

2.4.1 Major Project Phases and Schedule Milestones

Table 5 provides the details of the currently projected starting dates for Project pre-construction, construction, commissioning, operations and decommissioning activities. The construction schedule has been designed to account for minor delays that could result from an extended regulatory process, delayed equipment arrival, and adverse weather conditions.

Table 5: Major Project Phases and Scheduling Milestones

Pre-construction	Construction	Commissioning	Operations	Decommissioning or Repowering
2007 to Spring 2012	Spring 2012 to Fall 2012	November 2012	December 2012 to November 2038	December 2038

The wind turbines are estimated to be operational for approximately 25 years with decommissioning or repowering to begin in 2038. Barring routine scheduled maintenance, the turbines are expected to be operational 24 hours a day, 7 days a week, assuming appropriate wind conditions.



2.4.2 Pre-Construction Phase

During the Pre-construction Phase of the Project, the primary activities include the optioning of lands, preliminary engineering, geotechnical assessment and site surveys of the final turbine locations, procurement of turbine and substation equipment, and permitting and detailed design. NextEra Energy Canada has continued to communicate with and engage landowners in the development of the site plans for the Project.

As previously discussed, the REA process is the primary approval requirement involved in the Pre-construction Phase of the Project. For the permits and authorizations listed in Section 1.3, NextEra Energy Canada will work directly with the necessary federal, provincial, and municipal authorities to ensure all requirements are met. NextEra Energy Canada will continue to work closely with Project engineers, environmental and cultural specialists, as well as local landowners and Aboriginal communities during the development of the Project.

2.4.3 Construction Phase

During the Construction Phase of the Project the following works will be undertaken:

- Upgrading of existing access roads and watercourse crossings where necessary, and the construction of new permanent or temporary access roads to the turbine locations;
- Preparation and establishment of temporary site facilities;
- Excavation for turbine foundations;
- Concrete pouring to establish turbine foundations;
- Site grading as necessary; and
- Construction of equipment compounds and hard standing areas.

The main construction activities are expected to include:

- Surveying to locate the access roads, crane pads, turbines, electrical lines and the substation;
- Earthworks for the foundations, hard standings and access roads;
- Construction of access roads;
- The fixing of formwork and reinforcement for the foundations;
- Potential installation of a temporary concrete batching plant;
- Placing of ready mixed concrete for the foundations;
- Back-filling and compacting around the foundations;
- Construction of the substation, operations building, security fence and site compound;
- Completion of hard standing areas and landscaping;
- Burying cables between the turbine locations and the on-site substation; and



- Erection of wind turbines.

Table 6 provides a description of the Project Construction Phase by component and construction activity.

During pre-construction activities, minor excavation and drilling during geotechnical studies will result in small amounts of material being obtained via core samples. The core samples and subsurface properties will be used to finalize the turbine foundation design parameters and predict turbine foundation dewatering requirements, if any.

Early during the construction process, after infrastructure locations have been surveyed, new access roads will be built. Access roads have most often been placed near the edge of lot lines to minimize disturbance to agricultural activities, though shorter sections of access to and between turbines were required to avoid numerous crane tear-downs. During construction, access roads will accommodate the delivery of the Siemens 101 and 93 turbine components. Excavation during the Construction Phase will be more extensive in order to construct the turbine foundations, pad-mounted transformers and the transformer substation, construct a foundation for the Operations building, install underground electrical cables, overhead transmission line poles and additional met tower pads.

The hauling of fill from outside of the Project Area is generally not anticipated as it can typically be obtained from the excavations noted above and then used elsewhere. Aggregate resources for site access roads and turbine foundation construction will be sourced from local suppliers and delivered directly to the area where it will be used to the extent possible.

The transport routes for bringing materials and components to the site will be planned in consultation with Haldimand County. A Traffic Management Plan (TMP) will be created by the selected construction contractor, in conjunction with Haldimand County and the Ministry of Transportation (MTO), to minimize traffic disruptions, maintain public and worker safety and mitigate damage to roads. For more details on the TMP, refer to Section 2.2.3 in the Construction Plan Report.

Typical construction equipment to be used for construction of the turbine, operations building, substation sites, roads and buried cables includes tracked bulldozers, excavators, tippers and dumpers, and mobile cranes for general use. Large cranes will be used for the tower section, turbine and blade erection. Various truck and trailer combinations will be used to transport the turbine and substation components to the site. Concrete pumps will be used to construct the turbine foundations, and three cranes will be used to erect the turbine towers, nacelle, hub, blade, etc. Additional vehicles will be used for personnel and small equipment transport to and within the site.

Temporary Project facilities will include portable trailers for office accommodation, a rest/eating and First Aid area for staff, and storage trailers or temporary storage containers for equipment. Washroom facilities will be provided either in the office trailer or by portable toilets. Turbine components may be delivered to the turbine location and a storage area for the components may be required depending upon manufacturer's delivery schedule. This will be determined during contractual negotiations with the manufacturer. During the construction period there will be controlled access to the Project site. Prior to commissioning, portable generators may be used to provide backfeed power for commissioning before connecting to the grid.



SUMMERHAVEN PROJECT DESCRIPTION

A temporary concrete batching plant may be considered if the required quantities of material cannot be sourced locally. Gravel to construct the access roads will be sourced from local suppliers. On completion of the construction work, temporary facilities will be removed and the respective areas will be returned to their original state. Temporary storage areas around each turbine will be approximately 1360 m², around the construction field offices and temporary storage area approximately 4.3 ha, around the Point of Interconnect (POI) and switchyard area approximately 2 ha, and around the substation approximately 5.2 ha.

The installation of the collection system cabling and overhead transmission line is expected to be completed over a 2 – 3 month period. Most cabling on farm lands will be trenched to minimize loss of arable lands that could otherwise occur by having to work around overhead poles.

Consistent with O. Reg. 359/09, effects on natural heritage and water will be considered through a combination of a records review, site investigation and evaluation of significance. Consultation with Fisheries and Oceans Canada (DFO), the Ontario Ministry of Natural Resources (MNR), the Long Point Region Conservation Authority (LPRCA) and the Ministry of Environment (MOE) has been ongoing. The MNR has reviewed the Natural Heritage Assessment Report and provided written confirmation. The MOE will review the Water Assessment Report as a requirement of the REA Application under O. Reg. 359/09.

To the extent practical, the Project design maintains riparian setbacks that are associated with warm, cool or coldwater fisheries or the LPRCA Regulation Limit boundaries associated with O. Reg. 178/06. Where watercourse crossings for underground cables are required, crossings will be constructed following an approved DFO Ontario Operational Statement such that a Project review by DFO will typically be unnecessary. Where new access road crossings or crossing upgrades can not be completed following an Operational Statement, a *Fisheries Act* authorization or letter of advice from DFO, via LPRCA may be required. Whether or not a *Fisheries Act* authorization will be required is dependent on the crossing technique, mitigation employed and sensitivity of fish and fish habitat present, as determined by DFO and LPRCA, however based on initial discussions with LPRCA it is not anticipated that an Authorization under the Fisheries Act will be required. NextEra Energy Canada is currently consulting with DFO and LPRCA in this regard.

Further details on Project construction activities are contained in the Construction Plan Report and Table 6 below.

Table 6: General Description of Project Construction Activities

Project Component and Activity	Description
Surveying and geotechnical investigations	<p>The boundaries of the construction areas, including turbine sites, crane pads, transforming substation and operations building site, switchyard area, access and collector system routes, transmission line routes, and temporary workspaces will be staked.</p> <p>All existing buried infrastructure, such as pipelines and cables, will be located and marked by private contractors who will be responsible for locates using the Ontario One Call service.</p> <p>Identified significant archaeological and heritage resources within the Project Area will also be marked, and fencing will be erected, where appropriate, to avoid</p>



SUMMERHAVEN PROJECT DESCRIPTION

Project Component and Activity	Description
	<p>damage to these resources.</p> <p>Geotechnical information will be gathered from a truck-mounted drill rig that will drill boreholes at predetermined sampling locations.</p>
Land clearing	<p>The Project will be located primarily on properties that are under active agriculture and are already mostly cleared of natural vegetation.</p> <p>On all construction sites, the topsoil (and subsoil, where necessary) will be removed and temporarily stockpiled. Soil management will be incorporated into this process to facilitate site reclamation.</p> <p>Minimal removal of vegetation will be required to prepare the site for the construction of access roads, collector systems, substation, and other ancillary facilities. Negligible vegetation cutting or clearing will occur within any Significant Natural Features as identified in the Natural Heritage Assessment Report.</p>
Access roads	<p>The Project Area will be accessed via existing road right-of-ways, and will not require the construction of any permanent paved roads. For transportation of construction equipment, minor modifications to existing roads may be required. Any damages to existing roads will be repaired.</p> <p>There will be two access road widths (7.3 m and 11 m) where the larger width will be required for any access roads used by track-mounted/crawler cranes for turbine assembly and installation. In most cases the access roads will share routing with the connection cables.</p> <p>Access roads for use during construction will be built using tracked bulldozers and backhoes to strip topsoil and subsoil, as required, and the addition of a compacted gravel to create an even travel surface. Culverts, tiling or other drainage structures may be required to maintain adequate site drainage. Overhead cable lines will cross 24 waterbodies, and access new access roads will cross four waterbodies. Proposed water crossings are summarized in the Water Assessment Report.</p> <p>Following construction, access roads will continue to be used for maintenance activities at the turbines.</p>
Temporary storage/laydown areas	<p>Temporary storage/laydown areas around turbines, the substation, the switchyard area, and the centralized construction field offices and temporary storage area will be cleared using trucks, graders, tracked bulldozers and backhoes. Topsoil and subsoil will be stripped, as required, to create an even work surface. If these construction disturbance sites are close to watercourse(s) then erosion control measures will be implemented.</p>



SUMMERHAVEN PROJECT DESCRIPTION

Project Component and Activity	Description
Turbine foundations	<p>Turbine foundations will be constructed using ferro-concrete, formwork and rebar. The excavation for the turbine base will be approximately 20 m x 20 m x 3.5 m to accommodate the foundation depth and tower turbine inserts. Some excavation material will be stockpiled for future backfilling.</p> <p>Formwork and rebar will be installed to construct the foundation and concrete pumps or elevators will be used to place the concrete. Formwork will be struck after 24 hours and the excavated area will be back filled and compressed such that only the tower base portion of the foundation is left above ground.</p> <p>During foundation installation, a concrete transformer pad will also be installed at each turbine site. Construction of each pad mounted transformer will involve excavation, soil storage, installation of a grounding grid, concrete pad, transformer, and electrical connections.</p>
Turbine assembly and installation	<p>The wind turbine tower normally consists of multiple sections that are assembled on the site and will be erected using three cranes (one large crane and two assist cranes). The large crane is able to move between turbine sites but will require disassembly to move along roadways. The large crane, with a capacity of 400 tonnes or greater, will be used for the highest lifts.</p> <p>The nacelle and its components will be lifted into place on the tower. Once the three blades are attached to nose cones on the ground, the assembled rotor will be lifted and attached to the nacelle. In some circumstances a single blade lifting technique may be utilized where space or high wind constraints prevent the blade and nose cone assembly from being lifted in one piece.</p>
Collector system	<p>The on-site collector system will be a combination of overhead and underground, 34.5 kV standard utility cable, between turbines and to the Project substation. The cable routes will primarily follow the access routes described in the final Project design or directly between turbines in some cases where this is more practical.</p> <p>Overhead 230 kV transmission line will be installed on wooden, steel or, concrete reinforced monopoles. Poles will be installed using a truck mounted auger device and a crane to a typical depth of 4 to 5 m below grade. A boom truck is then used to ensure the poles are ready to accept conductors. Finally, cable reel trucks are used to string cables in place.</p> <p>A combination of ploughing and trenching will be used to install underground cables, depending on terrain. Soil management will be incorporated into this process to facilitate site reclamation.</p> <p>Horizontal directional drilling or punch and bore crossings have been proposed for certain crossings that are either <10m from a waterbody or natural feature or are in</p>



SUMMERHAVEN PROJECT DESCRIPTION

Project Component and Activity	Description
	<p>the natural feature and directional drilling or a punch /bore crossing is appropriate to reduce negative environmental effects. Where directional drilling or punch and bore crossings are proposed, erosion control mechanisms will be implemented at the drill entry and exit locations and any excavated material will be managed to ensure that potential effects are mitigated.</p> <p>Where appropriate, high voltage warning markers will be installed, such as in locations where underground cables cross public roads or are situated in multi use servicing corridors.</p>
Transforming substation and switchyard area	<p>Substation equipment will include an isolation switch, a circuit breaker, a step-up power transformer, distribution switch-gear, instrument transformers, grounding, and revenue metering. The substation will be located on privately lands held through a lease arrangement. The operations building will be attached to the substation and is discussed in the next section of the table.</p> <p>Substation grounding will meet the Ontario Electrical Safety Code, and high voltage warning cable markers will be installed, where required. A secondary containment system will be installed around transformers to reduce the potential for contamination of the environment in the even of a leak.</p> <p>The transforming substation will be connected (using overhead transmission lines) to the main 230 kV Hydro One transmission line via a switchyard area. The switchyard area will contain a Project switching station and a Hydro One Networks Inc. (HONI) switching station. The HONI switching station will include three separate buildings and will connect to the main N1M circuit via two 230 kV tap egresses.</p>
Operations building	<p>The operations building will be located on privately held lands and will include a small office, washroom, mess facilities, storage areas and associated parking.</p> <p>The primary purpose of the operations building is to monitor the day-to-day operation of the Project and to provide any required support to Project maintenance. All municipal and provincial standards will be followed in the construction of the operations building.</p>
Meteorological towers	<p>Assessment of meteorological conditions and wind resources requires permanent meteorological stations to be established. Three meteorological towers were installed previously by NextEra Energy Canada and AET, but stations used for pre-development wind resourcing studies are insufficient for long term monitoring during Project Operations.</p> <p>Four additional meteorological towers (wind measurement masts) will be constructed in the south-east of the Project Area. There will be two Field</p>



SUMMERHAVEN PROJECT DESCRIPTION

Project Component and Activity	Description
	Permanent Meteorological Towers (FPMTs) and two SCADA Meteorological Towers (SMTs). SMT2 and SMT4 (see Site Plan Report) will be connected to the SCADA system which connects the individual turbines, substation, and meteorological towers to the operations building.
Clean-up	Construction debris will be collected and disposed of at approved locations. All equipment and vehicles will be removed from the construction area. If spills occurred during construction, affected areas will be cleaned-up as required.
Land reclamation	Temporary workspace, lay-down and other disturbed areas have the topsoil replaced and recontoured. The disturbed areas (including trenches and plough seams) will be re-seeded during appropriate conditions for germination (as seasonality allows).
Wind turbine commissioning	<p>Turbine commissioning will occur once all the wind turbines in a given collector circuit have been fully installed and may take place in sequential order prior to the planned Commercial Operation of the Project. Portable generators may be used to provide backfeed power for commissioning prior to being connected to the power grid.</p> <p>The commissioning will necessitate testing and inspection of electrical, mechanical, and communications operability. A detailed set of operating instructions must be followed in order to connect with the electrical grid.</p>

2.4.4 Operations Phase

Operation is expected to begin in late 2012. The Operations Phase will be approximately 25 years. During operations the operations building will require full time staff to operate and maintain the Project. This staff will include a site supervisor and windsmiths, which are technicians that perform turbine maintenance.

The turbines will require scheduled visits for maintenance during the operational phase, such as changing oil, cleaning and lubricating gearboxes and replacing worn parts. Routine preventative maintenance activities will be scheduled as required in accordance with manufacturer requirements. Visits will involve removing the wind turbine from service and having windsmiths ascend the tower to carry out maintenance activities. Spill prevention best practices utilized during the Construction Phase will also be implemented during operational maintenance. If unscheduled maintenance of a turbine is required (i.e., component failure), then the turbine will be taken out of service until the component repair has been completed. If the unscheduled maintenance requires the replacement of a major component (i.e., gearbox) then the use of large equipment may be required.

Light 4x4 trucks, vehicles, and ATVs may be used to access the towers. Larger trucks and cranes may be required periodically for larger repairs, but this is expected to occur infrequently.



Accidental spills of oils will largely be contained by the turbine tower and associated concrete containment curbs. Additional mitigation measures for accidental spills are provided in the Design and Operations Report, Construction Plan Report and Decommissioning Plan Report.

In order to monitor subsystems within each turbine and the local wind conditions, a comprehensive control system is installed on each turbine, and networked to the local operator and to NextEra Energy Canada's central operations centre, which is manned around the clock. The operations building will be notified if an event occurs that is outside of a turbine's normal operating range and a turbine is shut down. Each turbine is connected to the control and communication building via a communications network, and if necessary the control and communication building can control turbines. As a backup plan, turbines can be controlled remotely from the central operations centre.

An important aspect of the safe and efficient operation of the Project will be the use of meteorological data. Operations decisions based on this data include: turbine shut down under icy or extreme weather, and cut-in and cut-out wind speed.

2.4.5 Decommissioning Phase

At the end of its operational life, the wind turbine structures will be removed to the base of the foundation and the foundations will be backfilled with earth to a depth that can be utilized as farm land. Access track removal will be dependent on the requirements of the landowner. Areas of land will be reseeded where appropriate. Decommissioning procedures will be similar, but in reverse order to those carried out in the construction phase.

Items to be dismantled and removed shall include:

- Turbines (hubs, nacelles, blades, towers);
- Turbine foundations (to be levelled and covered with clean top soil to return the surface as close as possible to its original state);
- Pad-mounted step up transformers;
- Access roads (dependent upon agreement and desire of landowner and the location of such roads);
- Overhead collection lines;
- Transforming substation;
- Operations building;
- Meteorological towers;
- Removal of contaminated soil, if any, caused by the wind farm; and
- All equipment subject to the decommissioning plan will be removed or recycled, where possible, within industry accepted standards.



SUMMERHAVEN PROJECT DESCRIPTION

Well-designed and constructed wind energy facilities may be operated for decades. Individual wind turbines are expected to perform for 20 years without significant repair or replacement. Transformer facilities, underground cables, substation and operation facilities are designed for at least a 50 year life span. Individual wind turbines may be replaced or repaired as their useful life comes to an end, or if more efficient and cost-effective technology becomes available.

Upon a decision to decommission a single wind turbine or the entire wind farm, all equipment above ground, including towers, nacelles, transformers and controllers will be removed. Wind turbines that are operational and have market value would be carefully removed using a crane, essentially in a reverse process to assembly and installation. The resale value of such equipment would cover the cost of removal in such a case.

Wind turbines that are no longer operational may also be removed by crane, but with less attention to preserving individual components or to labelling and storing them. Inoperative wind turbines have high salvage value: steel and copper components are easily recycled and there exists a ready market for such materials. The remaining materials are primarily fibreglass and plastic that may be sold to recycling facilities or crushed and deposited in landfill sites.

Other above-ground equipment of the Project, including transformers and wiring, has a ready market in either used equipment sales or in salvage. Transformers will simply be removed and sold while wiring will be removed and sold to metal salvage companies.

Wind turbine foundations are composed of ferro-concrete. Where foundations must be removed, standard demolition practices will be employed to remove the foundations to a depth that is well below active agricultural activity or depths with potential for future erosion and exposure (approximately 1 m below grade). Resulting material will be removed for appropriate disposal. Underground cabling will be cut at connector points, capped and buried to 1 m below grade.

Wind energy facilities do not use or produce harmful waste products; therefore, there is no need for concern about residual toxic chemicals or exhaust products. Aside from normal recovery of lubricants from the gearbox and yaw mechanism, decommissioning activities are not required for waste. Lubricants will not contain any PCBs.

Following decommissioning activities, the sub-grade material and topsoil from all affected agricultural areas will be de-compacted and restored to a density and depth consistent with the surrounding fields. The affected areas will be inspected, thoroughly cleaned, and all debris will be removed. All disturbed soil surfaces within agricultural fields will be seeded with a seed mix agreed upon with the landowner in order to maintain consistency with the surrounding agricultural uses. All other disturbed areas will be restored to a condition and forage density reasonably similar to original (pre-construction) conditions. In all areas, restoration shall include, as reasonably required, levelling, terracing, mulching, and any other steps required preventing soil erosion.

All decommissioning activities will be carried out in accordance with applicable regulations and guidelines at the time of decommissioning. Table 7 provides a summary of Project decommissioning activities.



Table 7: General Description of Project Decommissioning Activities

Project Component and Activity	Description
Rotor, generator and tower disassembly, substation, and operations building removal	The rotor, generator and towers would be disassembled using a crane and removed from the site for re-use, reconditioning or disposal using a flatbed truck. The substation and operations building will be demolished.
Access roads	NextEra Energy Canada will either remove roads and restore land to the pre-construction end land use as agreed to with individual landowners or leave access roads in place if a specific agreement with the landowner has been made.
Removal of concrete turbine foundation	The foundations will be removed to a depth of at least 1 m and filled with subsoil to rebuild the grade. Topsoil will be placed over the area to approximate depth of adjacent ground and the area seeded, depending on the land use at the time and the preference of the landowner.
Decommissioning of buried and overhead collection lines	Buried electrical lines will be cut, capped off and left in place. Due to their inert material, there are no anticipated negative effects on the environment, cultivation practices, and soil. Overhead collection lines that are not shared with Haldimand County Hydro will be dismantled and removed.

2.4.5.1 Toxic/Hazardous Materials

There is very little material that could be classified as toxic or hazardous that is used in constructing and operating a wind farm site. Toxic or hazardous materials to be used on-site during construction and the Operations Phase include oils, fuel and lubricants that will be used on-site in construction equipment and for maintenance of the turbine facilities. Only minor amounts of these materials will be generated and the small quantities will be disposed of through conventional waste-oil and hazardous waste disposal streams.

Small quantities of non-hazardous waste, such as plastics, will be generated and disposed of through the local landfill and recycling facilities where appropriate. Wastes will be disposed of locally in accordance with local procedures for management of conventional waste-oil and hazardous waste streams. A licensed contractor will remove special waste such as oily rags and oil from the service of turbines. All non-hazardous waste will be disposed of at the local waste facilities at the local landfill. Materials that are able to be recycled and reused will be stored temporarily on-site prior to reuse and recycling.

2.4.5.2 Solid, Liquid or Gaseous Wastes

Wind projects, by their nature, do not produce much waste. The waste streams produced from ongoing maintenance of the Project include the lubricant and hydraulic oils for the maintenance of the turbines, pad-mounted transformers and the transformer/substation.



The operations building will include permanent toilet facilities that will be designed and constructed in accordance with required regulations. Portable toilets will be utilized during the Construction Phase and a licensed contractor will be responsible for waste removal.

2.5 Future Phases of Development

There is no future development being proposed within this REA Application. The potential for additional turbines may exist, but at this time it appears that cumulative noise limits could constrain future development, depending on the specific sites chosen and other companies that may begin operations. If NextEra Energy Canada determines they wish to construct additional turbines beyond that applied for in this REA Application, a separate Renewable Energy Approval may be required.

2.6 Nameplate Capacity

The nameplate power capacity of the Project will be 131.04 MW generated by 58 Siemens SWT-2.221-101 and one Siemens SWT-2.221-93 wind turbine generators.

2.7 Land Ownership

The Project components will reside primarily within portions of privately owned land parcels with some cables interconnecting turbines being placed in public road allowances. NextEra Energy Canada has secured License and Option Agreements on private lands deemed to be sufficient to construct and operate the Project, with the exception of one land parcel that is currently being confirmed. Consultation regarding use agreements in County road allowances is ongoing.

The legal description of Project lands situated on privately owned lands is included in Appendix B.



3.0 DESCRIPTION OF POTENTIAL ENVIRONMENTAL EFFECTS

This section provides a summary of potential environmental effects that may result from engaging in the Project. Following the requirements of O. Reg. 359/09, these effects have been assessed and reported in the REA Application.

The creation of O. Reg. 359/09 was envisioned by the Province to result in a streamlined process of assessment for renewable energy projects, including wind projects. This process has resulted in a focussed assessment that concentrates on aspects of renewable energy projects that require management in order to ensure that adverse environmental effects are mitigated to the extent possible.

In accordance with the requirements of O. Reg. 359/09, the environmental effects outlined in this report address the following environmental considerations:

- Heritage and archaeological resources;
- Natural heritage features;
- Water bodies;
- Noise;
- Air, odour, dust; and
- Provincial and Local Infrastructure.

3.1 Heritage and Archaeological Resources

Background studies and site visits for heritage and for archaeological resources (Stage 1 Archaeological Assessment) were completed, and identified potentially significant archaeological resources within the Project Area. An MTC Comments Letter for Stage 1 Archaeological Assessment for the Project was received from the MTC on September 21, 2010 (MTC, 2010). Following this background research, additional heritage resources field site investigations were completed and Stage 2, Stage 3 and Stage 4 Archaeological Assessments are ongoing. Aboriginal observers have been and will continue to accompany Golder archaeology crews during Stage 2, Stage 3 and Stage 4 field assessments.

For identified archaeological resources, the following mitigation measures were used:

- Identification of archaeological resources, location of findspots;
- Preservation in-situ, requiring changes to Project design;
- Removal and preservation; and
- Further assessment (i.e., Stage 3 Archaeological Assessment).

Results of the heritage and archaeological assessments will be summarized in the Heritage Assessment Report and the Stage 2 Archaeological Assessment Report. A letter from the MOE dated June 14, 2010 advised that MOE will accept a REA application for the Project in advance of the proponent (NextEra Energy Canada) having



completed a Stage 2 Archaeological Assessment (see Appendix A). The exemption from submitting the Stage 2 Archaeology Assessment prior to submission of the REA Application is on the basis that the conditions detailed in the letter are met. The Heritage Assessment Report was submitted to the MTC for approval and comments were received on November 17, 2010. Requested changes to the Heritage Assessment Report included a short explanation/methodology for the boundaries of the study area, and a comprehensive Heritage Impact Assessment for the Hoover Log House. A revised Heritage Assessment Report that addressed these comments was submitted to the MTC for approval on December 17, 2010 and a Comment Letter was received on January 10, 2011. The Comment Letter indicated that based on the submitted Heritage Assessment Report the MTC is satisfied with the heritage assessment. Following changes to the Project Location subsequent to receiving the Comment Letter, these changes were communicated to MTC and confirmation was received from MTC on June 1, 2011 that the layout changes would not affect the recommendations of the Heritage Assessment or change the comments that the MTC has previously provided.

3.2 Natural Heritage and Water

Under O. Reg. 359/09 a natural heritage assessment and water assessment is required if natural features or waterbodies are within a prescribed distance (typically 120m) of the Project Location. Where natural features are within the prescribed distance from the Project Location are known or evaluated to be significant an environmental impact study is required to assess if any significant negative environmental effects could occur after the mitigation is implemented. If no Project infrastructure or Project activities are proposed within the prescribed distance between the Project Location and natural feature or waterbody, as outlined in O. Reg. 359/09, then accordingly, neither a Natural Heritage Assessment Report nor a Water Assessment Report (or EIS) would be required.

The Project layout was developed to minimize effects on natural heritage and water by maintaining the O. Reg. 359/09 120 m, 50 m or 30 m separation distances between the Project Location and the natural feature or waterbody, to the extent possible. As a result of other environmental and design constraints and a desire to minimize effects to agricultural use, several Project components needed to be sited closer than these limits. Site investigations of these features to determine if they are significant features have been completed and are summarized in the Natural Heritage Assessment Report and Water Assessment Report. Based on the Project design, the Project Location is within O. Reg. 359/09 separation distances of the following natural heritage or water features:

- Crossing, or within 120 m of 9 significant valleylands as defined by O. Reg. 359/09;
- Within 120m of 62 significant woodlands and;
- Within 120 m of seven significant wildlife habitat types; and
- Crossing, or within 120 m of 24 water bodies, as defined by O. Reg. 359/09.

The Natural Heritage Assessment Report and Water Assessment Report identifies and assesses effects on significant natural features and waterbodies, respectively. The assessment is based on the boundaries and attributes of these features as determined during the records review, site investigations and evaluation of



SUMMERHAVEN PROJECT DESCRIPTION

significance. For significant natural features, an environmental impact study and report section of the Natural Heritage Assessment Report is conducted

Significance of natural features was determined using criteria in the Significant Wildlife Habitat Technical Guide (MNR, 2000), the Natural Heritage Reference Manual (MNR, 1999) and other manuals and guidance documents available from MNR (as modified from time to time) and through consultation with the MNR. Where the Project Location was in or within 120m of the boundary of assessed significant natural heritage features, additional effects assessments were undertaken, mitigation measures were outlined, and environmental effects monitoring plans were developed. Plausible effects, mitigation measures proposed, and monitoring and contingency measures are discussed in the Natural Heritage Assessment Report and Water Assessment Report and in the Design and Operations Report, the Construction Plan Report and the Decommissioning Plan Report.

A draft Natural Heritage Assessment Report, (Golder 2010d), including outcomes of the records review, site investigations and evaluation of significance, was provided for public, agency and Aboriginal communities 60 days prior to the final open house as required by O. Reg. 359/09. This draft was subsequently updated based on comments from MNR and incorporates additional comments received as the result of the public consultation and Aboriginal engagement processes. The following sections outline some of existing conditions in the study area and potential negative environmental effects which have the potential to occur based on our current knowledge of the Project Area from work completed to the date of this Report.

3.2.1 Records Review and Site Investigations

Mapped boundaries of known Areas of Natural and Scientific Interest (ANSIs), Provincially Significant Wetlands (PSWs) and other wetlands have been requested and received from Land Information Ontario (LIO) and the MNR. Additional natural heritage data (e.g., species at risk records) were requested and received from the MNR. The LPRCA was contacted and they provided Regulation Limit boundaries (hazard lands, floodplains, valley features) and additional fisheries information. Haldimand County was also contacted and they provided data and map layers corresponding to their designated natural heritage sites found on their Official Plan (OP) schedules. Online data and information was also obtained from websites of the Ontario Breeding Birds Atlas (OBBA), the Ontario Herpetological Society (OHA), the Natural Heritage Information Centre (NHIC), the Butterfly Atlas, the Odonata Atlas, Haldimand County, the Important Bird Areas (IBAs), Carolinian Canada, Norfolk Field Naturalists, and Bird Studies Canada (BSC).

Using high resolution aerial imagery, vegetation communities and their boundaries were identified following protocols outlined in the Ecological Land Classification (ELC) for Southern Ontario Manual (Lee, *et al.*, 1998). For those features and vegetation communities within O. Reg. 359/09 setback limits, vegetation community boundaries and ELC classifications were subsequently field verified, and modified if necessary.

Natural heritage site investigations have been ongoing since 2008 and include area-based surveys throughout the Project Location and site specific surveys of features located within O. Reg. 359/09 setback limits. The survey areas, number of sampling sites, types of surveys and approaches have been adjusted where deemed necessary to address changes in the Project design, changes in regulatory expectations and approval processes, changes in approved sampling procedures and guidelines, and advances in science and the scientific communities' understanding of potential effects to natural heritage features and biota from wind



SUMMERHAVEN PROJECT DESCRIPTION

projects. All data collected has been retained by Golder, and site specific data for natural features within 120m of Project components are presented in the Natural Heritage Assessment Report and Water Assessment Report. Area-based survey data for birds has been included based on proximity and relevance in assessing effects to birds associated with the Project Location.

Birds and bats have been documented to be susceptible to mortality caused by collisions with rotating turbine blades and recent research suggests that bats are also susceptible to barotraumas from low-pressure areas behind blade tips. Area-based natural heritage surveys completed include multi-season bird surveys and fall bat migration surveys, the latter of which were required under O. Reg. 116/01 but are no longer required by MNR under revised bat guidelines released in draft in 2010. As a result of changes within O. Reg. 359/09 and subsequent guidance documents for bats released by MNR, a determination of candidate and significant bat maternity roosts was undertaken in 2010 and included in the significant wildlife habitat sections of the Natural Heritage Assessment Report.

A variety of documents and information sources were reviewed to undertake the area based bird monitoring, determine important bird-related issues, and to identify use of natural features, habitats, or species occurrences that were relevant to the Project. Guidance regarding monitoring protocols and report contents was obtained from the following:

- Wind Turbines and Birds: A Guidance Document for Environmental Assessment. Final Report (EC, April 2007);
- Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds. Prepared by the Canadian Wildlife Service. Final Report, February 2007; and
- Kingsley, A. and B. Whittam. (2007). Wind Turbines and Birds: A Background Review for Environmental Assessment. Prepared for the Canadian Wildlife Service. Draft April 2, 2007.

The avian field work program was initiated in 2008 and included a site reconnaissance, winter bird surveys, fall migration surveys (including hawk and tundra swan surveys), breeding bird surveys and spring migration surveys. These surveys have been completed and results are provided in the Natural Heritage Assessment Report.

Bat monitoring to identify potential significant bat habitat, specifically roosting and maternity areas that may be present within 120 m of proposed turbines, was undertaken in June 2010. For habitats which were determined to be candidate bat roosts based on stand structure and potential roosting trees, evening monitoring included bat visual surveys at dusk supplemented with acoustics recordings.

Collectively, the bird and bat survey results allow for the determination of relative use within, and migration through, the Project Location during anticipated or previously documented higher use periods (e.g., migration, breeding). To an extent these area-based surveys also assist in the determination of potentially significant wildlife habitats and potential migration corridors.

With the release of O. Reg. 359/09, natural heritage assessments became much more targeted on determining potential habitat related effects to specified natural features based on their level of significance. O. Reg. 359/09 prohibits development within specified natural features and where the proponent wishes to locate Project components or cause ground disturbance within O. Reg. 359/09 setback limits, requires a determination of



SUMMERHAVEN PROJECT DESCRIPTION

significance and EIS to be completed if the feature is, or is predicted to be significant. The verification of significance is subject to MNR review and comment.

The site specific investigations focus on determining the composition, function, attributes and significance of natural features using provincial guidelines. Figures in the Site Plan Report and Natural Heritage Assessment Report show specified natural features and water bodies within the Project Area and highlights those portions of mapped natural heritage features that are within O. Reg. 359/09 setbacks from the Project components including disturbance area. Table 8 provides an overview of the known natural features and water bodies by designation or type and the number of occasions where the Project Location is situated within O. Reg. 359/09 setback limits from the Project components. The Site Plan Report and Table 8 are intended to provide a summary of the feature types, which are present in the Project Area, and their relative prevalence. For detailed results of the records review and area-based and site specific surveys of natural features and water features refer to the Natural Heritage Assessment Report and Water Assessment Report, respectively.

Table 8: Known Natural Features in Vicinity of the Project Location

Natural Feature Designation	Definition	Summary of natural features and water bodies within O. Reg. 359/09 setback limits from Project Location
ANSI – Earth Science (ANSI-ES)	An area designated by the MNR as having provincially or regionally significant representative geological features.	No features of this classification are within the disturbance area
ANSI – Life Science (ANSI-LS)	An area designated by the MNR as having provincially or regionally significant representative ecological features.	No features of this classification are within the disturbance area
Carolinian Canada Site (CC)	A natural area tracked by the MNR NHIC that was originally recognized by the Carolinian Canada program as having important natural heritage values representing the Carolinian life zone.	No features of this classification are within the disturbance area
Environmentally Sensitive Area (ESA)	The Haldimand County OP (2006) includes these areas that were originally designated for protection by the Region of Haldimand-Norfolk. Environmentally Sensitive Areas (ESAs) contain unusual or special features, as well as features which are representative of certain biological or landform phenomena. The designation was based on the feature meeting at least two of the criteria outlined in the Natural Areas and Wetlands Background Paper	Sandusk Creek Floodplain Woods



SUMMERHAVEN PROJECT DESCRIPTION

Natural Feature Designation	Definition	Summary of natural features and water bodies within O. Reg. 359/09 setback limits from Project Location
Environmentally Significant Site (ESS)	The Haldimand County OP (2006) includes these areas that were originally designated for protection by the Region of Haldimand-Norfolk. As with ESAs, Environmentally Significant Sites also contain unusual feature(s), as well as feature(s) which are representative of certain biological or landform phenomena; however, the designation is based on the feature meeting only one of the criteria outlined in the Natural Areas and Wetlands Background Paper	Sandusk Creek Floodplain Woods
Life Science Site (LSS)	Sites that are initially identified by municipalities as Environmentally Sensitive Areas that contain ecologically important natural features. The MNR NHIC refers to these areas as Life Science Sites and tracks them.	Sandusk Creek Floodplain Woods
Earth Science Site (ES Site)	An area recognized by the MNR as having geological features, but has not been officially designated as a provincial earth science ANSI.	No features of this classification are within the disturbance area
International Biological Program Site (IBP)	A site that is tracked by the MNR that was inventoried in the late 1960s and early 1970s under the International Biological Program.	No features of this classification are within the disturbance area
Non-Provincially Significant Wetland (non-PSW)	A wetland that has been evaluated by the MNR using the Ontario Wetland Evaluation System (OWES) and is recognized as having ecological significance, but not at a Provincial level.	SAC10 – Wetland
Provincially Significant Wetland (PSW)	A wetland that has been evaluated by the MNR using OWES and is recognized as having ecological significance at a Provincial level.	No features of this classification are within the disturbance area
Wetland (Northern and Coastal)	Any wetland that has been evaluated by the MNR using OWES and is recognized as having ecological significance. The official status is one of: non-PSW, PSW, “other” or “Unofficial”. Unofficial wetlands have been evaluated by the MNR using the OWES but have undergone complexing with other evaluated wetlands to form	No features of this classification are within the disturbance area



SUMMERHAVEN PROJECT DESCRIPTION

Natural Feature Designation	Definition	Summary of natural features and water bodies within O. Reg. 359/09 setback limits from Project Location
	a new official wetland.	
Provincial Park (historical, natural environment, nature reserve, recreational, waterway, wilderness)	A provincially-owned and managed park.	No features of this classification are within the disturbance area
Water bodies	<p>Includes a lake, a permanent stream, an intermittent stream and seepage area but does not include,</p> <ul style="list-style-type: none"> ■ grassed waterways; ■ temporary channels for surface drainage, such as furrows, or shallow channels that can be tilled and driven through; ■ rock chutes and spillways; ■ roadside ditches that do not contain a permanent or intermittent stream; ■ temporarily ponded areas that are normally farmed; ■ dugout ponds; or ■ artificial bodies of water intended for the storage, treatment or recirculation of runoff from farm animal yards, manure storage facilities and sites and outdoor confinement areas (MOE, 2009). 	<ul style="list-style-type: none"> ■ 24 water bodies are within 120m of the Project location ■

3.2.2 Species of Conservation Concern

Documented element occurrences of species of concern that are listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), on Schedule 1 of the *Species at Risk Act (SARA)* or in the *Endangered Species Act (ESA) and regulation*, were obtained from searches of the Natural Heritage Information



Centre (NHIC) and through requests for records and information from the MNR. Due to the size of the Project Location, there was a large number of element occurrences identified on NHIC, several of which were documented only as sensitive species. As the result of changes in the Project Area and location of Project components, the records review and status rankings were again checked in 2010. Additional details regarding element occurrences listed as sensitive species or other species of conservation concern were subsequently requested and received from the MNR in September 2010. A summary of species of conservation concern, their status, and overview of their habitat requirements is provided in the Natural Heritage Assessment Report.

3.2.3 Screening of Environmental Effects

The Project layout was developed in consideration of the constraints identified, with a desire to keep a 120m separation between natural features and waterbodies, and the Project Location, where feasible, and minimize residual effects to significant natural heritage features, functions and attributes, waterbodies and aquatic ecosystems. The following sections identify potential negative environment effects to natural heritage and water bodies that could be encountered during the Site Preparation and Construction, Operations and Decommissioning phases of a wind energy project.

3.2.3.1 Site Preparation and Construction

During the Site Preparation and Construction Phase, typical activities including land clearing, road construction, foundation construction, trenching and the interconnection between turbines and from the turbines to the substation. Transmission lines running between the substation and interconnect with the existing Hydro One 230 kV transmission line will also be installed on wooden, steel or concrete monopoles, the spacing for which is currently being determined. Collectively, these activities have the potential to affect natural features including aquatic and terrestrial habitats, individual species or specific life stages or activities (e.g., nesting birds).

The Project is situated in the jurisdictional area of the Long Point Region Conservation Authority (LPRCA). Within the Project Area, Sandusk Creek and Stoney Creek are the major drainages that flow south, draining into Lake Erie. Many of the watercourses in the study area are influenced by historic and present agricultural activities (straightened, field swales) though several of the larger main stem reaches possess permanently flowing channels that contain fish habitat and possess intact and well vegetated riparian zones. Site specific assessments of all water features that are depicted on Ontario Base Maps and that are situated within O. Reg. 359/09 setbacks from Project components have been conducted, the results of which are contained in the Water Assessment Report and Natural Heritage Assessment Report. In numerous cases, the first and second order watercourses as mapped do not meet the definition of a water body as contained in O. Reg. 359/09.

Land clearing and site grading near watercourses has the potential to increase sediment runoff, decrease bank stability, and alter riparian vegetation conditions affecting aquatic habitats. Where possible, and in consideration of other constraints, NextEra Energy Canada will maintain a 120 m setback from watercourses or will conduct an EIS that identifies potential negative environmental effects, provides mitigation measures and predicts the significance of residual effects to aquatic resources. NextEra Energy Canada is proposing to construct watercourse crossings following DFO approved Operational Statements, or will otherwise obtain a Letter of



SUMMERHAVEN PROJECT DESCRIPTION

Advice or Authorization as required under the *Fisheries Act*. Works within LPRCA Regulation Limits will require obtaining a permit under O. Reg. 178/06 prior to construction.

Dewatering for turbine foundation construction has the potential to temporarily alter the quantity or the flow of groundwater to a natural feature (watercourses, wetlands, other features with seasonal inundation). In addition, pumping of groundwater from the foundation excavation and subsequent release to a watercourse has the potential to introduce sediment to the watercourse and change watercourse hydrology and water temperature. A desktop review of groundwater elevation, including review of surficial geology mapping from MNR NRVIS database and MOE Water Well Records in the vicinity of the Project Area was completed. The desktop review indicated that the median depth to groundwater in and around the Project Area is 5.5 m below ground surface. This suggests that there is low potential that excavations during construction activities will intercept the water table and construction dewatering is not expected to exceed 50 m³ per day. For more information on dewatering, see the Construction Plan Report.

During the Site Preparation and Construction Phase, negative effects to surface or groundwater sources could also occur through accidental spills or releases of substances, which may be deleterious to the environment. Implementation of mitigation measures and best management practices associated with the use of construction equipment (i.e., contained re-fuelling areas away from water bodies and highly permeable soils) will reduce the chances of accidental spills of contaminants. The BMPs to be followed generally involve source control through good housekeeping, preventive maintenance, creation of a spill prevention and control plan, erosion and sediment control measures, employee training, and record keeping and reporting. Where possible, stormwater should also be prevented from running onto surfaces where pollutants can be picked up. Should a spill occur, spill kits will be in place and emergency procedures will be followed.

Construction adjacent to wetlands, designated areas and significant areas or significant wildlife habitats also has potential for direct or indirect loss, fragmentation or alteration of habitat for floral and faunal species protected by legislation. Consistent with O. Reg. 359/09, a Natural Heritage Assessment Report will be provided which identifies natural heritage features within O. Reg. 359/09 setback limits, assesses their predicted level of significance following MNR accepted procedures, provides mitigation measures to reduce potential negative effects and identifies the predicted level of significance of residual effects. Currently, most of the Project site preparation and construction activities occur on lands outside of the O. Reg. 359/09 limits. Where work is proposed within setback limits, the Project components are almost exclusively adjacent to natural features, and potential environmental effects are therefore considered indirect. No construction is being proposed within known significant habitats.

The noise associated with heavy machinery and construction activities could result in sensory disturbance and, under exceptional circumstances, habitat alienation, displacement, or desertion. This concern is particularly relevant for birds (desertion of nests, eggs, or young). However, the level of activity and noise may not be dissimilar from seasonal noise conditions at the site (e.g., agricultural machinery) and the timing of construction is therefore relevant in the effects assessment. The potential for sensory (visual and/ or aural) effects has also been reduced by following the principle of avoidance (e.g., avoid siting near wetlands and other important habitat) and implementing good planning practices (e.g., lighting and marking selection). With the implementation of these mitigation measures, no significant residual effects associated with sensory disturbance to other wildlife species are anticipated.



The creation of dust can coat vegetation in the Project Area. These effects will be minimized by employing mitigation measures and best management practices such as limiting vehicle speed and watering gravel roads, as necessary.

Mitigation by design, which is the preferred approach for this Project, recommends that project infrastructure should be located at an appropriate distance from significant natural heritage features to reduce residual effects, as may be determined through an EIS. Other mitigation techniques commonly employed when components are within, or in proximity to natural heritage features include tree protection fencing, equipment laydown exclusion fencing, silt fencing adjacent to watercourses/wetlands, nesting surveys prior to vegetation clearing and adherence to best management practices. A multitude of other guidance documents exist, which may be used to further reduce the magnitude, extent or duration of effects.

3.2.3.2 Operations

In general, turbine operations have the potential to displace some wildlife individuals as a result of sensory disturbance (visual and/or aural). If turbines are situated far too close to their habitats, turbine operations have the potential to displace birds, cause nest abandonment and stress, impart hazards along avian flight paths, and could result in reduced breeding success within the specific adjacent habitats present, when these habitats are being utilized. The hazard that wind turbines pose to birds varies substantially by season and by species, with spring and fall migration typically being the periods of highest risk for many species.

Bat mortality has been documented at operational wind development projects in southwestern Ontario and elsewhere. The mortalities have often been attributed to in-flight collisions with wind turbine blades or the tower structures and, more recently, to barotrauma (James and Coady, 2003). The risk that wind turbines pose to bats varies by season and species, with fall swarming and migration typically being the time of year posing the highest risk. Under current MNR Guidelines for bats, operational (post-construction) monitoring of bird and bat mortality using carcass searches, is required. Post-construction monitoring will consist of:

- Regular bird and bat mortality surveys around specific wind turbines;
- Monitoring of bird and bat carcass removal rate by scavengers (or other means); and
- Monitoring of searcher efficiency.

If tolerances for the number of observed bird or bat mortalities are exceeded the post-construction monitoring period may be extended and operational mitigation (reducing cut-in speeds of turbines or feathering of blades) may be necessary.

Other potential effects during the Operations Phase are quite limited and can be readily mitigated, but are discussed in the Design and Operations Report and Natural Heritage Assessment Report.

3.2.3.3 Decommissioning

Typical activities of decommissioning such as the removal of turbines, ancillary components, buildings, power lines, waste and site remediation typically have negligible effects on natural features, wildlife habitat or wildlife



species richness or abundance. It is anticipated that no lands, other than those originally cleared during construction, will be disturbed during decommissioning. Where these lands are disturbed, they can be rehabilitated to functional conditions using conventional techniques.

3.2.4 Air, Odour and Dust

3.2.4.1 Site Preparation and Construction

The land clearing, road construction/modification, delivery of equipment, foundation construction, tower and turbine assembly and installation, interconnection from turbines to substation activities associated with the site preparation and construction phase have the potential to increase fugitive dust emissions through the increased presence of construction and delivery vehicles and equipment and through the loss of vegetation.

Construction activities will lead to the emission products, including but not limited to, greenhouse gases (methane, CO₂), nitrogen dioxide, sulphur dioxide, and suspended particles from vehicles and machinery operation. These emissions will fluctuate through the various construction activities, with land clearing, road construction and maintenance, and foundation construction having the highest potential for emissions because of increased construction equipment activities during this time. In general these emissions will be local, and temporary.

The site preparation and construction activities will not involve the management or handling of odorous material. Therefore, there will not be any odour emissions from the construction phase other than localized odours from the combustion of diesel fuel associated with the operation of construction equipment. As this is a short-term localized effect and consistent with odours associated with the current operation of farm tractors, this is not deemed to be a significant negative effect.

The Construction Phase of the Project also has the potential to generate fugitive dust emissions, which act as an environmental nuisance. These will be highest during land clearing and other activities that involve significant levels of material handling (e.g., aggregate laydown for road construction, preparation for the installation of buried cables). Fugitive dust emissions will be managed by the implementation of Best Management Practices (BMPs), which will help reduce the potential for fugitive dust emissions and off-site movement.

A BMP plan for fugitive dust emissions will be implemented. This will help reduce the potential for fugitive dust emissions and also mitigate emissions. The main items included in the BMP plan are as follows:

- Implementation of a speed limit, which will lead to reduced disturbance of dust on paved and unpaved surfaces;
- Application of dust suppressants to unpaved areas (i.e., unpaved roads, storage piles), which may include the use of water. The frequency of application will be determined based on site conditions during the construction process, and will be adjusted based on climatic factors;
- Land clearing and heavy construction activities will be staged to reduce the opportunity of simultaneous operation of large dust generating equipment;
- Re-vegetation of cleared areas, as soon as is possible, and maintenance of the vegetation to ensure growth;



- If possible, the installation of wind fences in areas where they may be required; and
- The implementation of a complaint response program, whereby complaints received from the public are recorded and investigated. The investigations will be focused on determining the cause of the complaint and, if necessary, implementing mitigation measures to address the cause.

Vehicle and heavy equipment emissions will be managed by implementing specific mitigation measures, including:

- Ensuring the proper maintenance of all vehicles, to reduce the potential for abnormal operation and increases in emissions;
- Implementation of a speed limit; and
- Implementation of rules regarding idling of engines, to limit idling of vehicles as much as possible.

3.2.4.2 Operations

During the Project Operations Phase, maintenance activities have the potential to cause infrequent and short-term emissions typical to the operation of motorized vehicles. These emissions are expected to be considerably lower in magnitude than during the Site Preparation and Construction Phase. Fugitive dust emissions will be managed by the implementation of BMPs, which will help reduce the potential for dust generation. Minimal idling of maintenance vehicles will help to manage any emissions of greenhouse gases while reducing on-site vehicle speeds will reduce dust generation. Operation and maintenance activities are not anticipated to generate any odour emissions.

3.2.4.3 Decommissioning

Decommissioning activities are anticipated to result in similar effects on dust and emissions as during the Site Preparation and Construction Phase.

3.2.5 Noise

3.2.5.1 Site Preparation and Construction

During site preparation and construction, land clearing, road construction/modification, delivery of equipment, and the interconnection from turbines to the substation, there is the potential to affect noise levels due to the operation of heavy equipment. All activities will be undertaken as required by Haldimand County noise by-laws. All construction equipment will be kept in good repair and will not exceed the noise emissions as specified in MOE publication NPC-115. Through adherence to MOE noise guidelines, construction-related noise may be perceptible to nearby residents but will not represent a significant adverse effect.



3.2.5.2 Operations

The operation of wind turbines and the Project substation will generate noise. As required by O. Reg. 359/09 turbines will be located a minimum of 550 m from non-participating receptors (i.e., sensitive Points of Reception). Predictive modelling is provided in the Noise Study Report, and demonstrates that the operation of the Project complies with MOE noise guidelines. Through adherence to MOE noise guidelines as identified in O. Reg. 359/09, operations-related noise may be perceptible to nearby residents, but will not represent a significant adverse effect.

3.2.5.3 Decommissioning

Noise levels associated with Project decommissioning will be similar to those experienced during site preparation and construction and although they may be perceptible to nearby residents, they will not represent a significant adverse effect.

3.2.6 Land Use and Resources

This section describes past and current land uses and resources and the potential for negative effects on land uses and resources located within 300 m of the Project Area. This description includes information about local business and facilities, aggregate resources, landfill sites, petroleum wells, recreation areas and forest resources within this area.

A section in the Haldimand County Official Plan (2006) dedicated to the discussion of wind energy resources includes the following statement:

“Haldimand County supports the development of wind energy systems for electricity production as a source of renewable energy for the economic benefit of the County and the Province.”

3.2.6.1 Past Land Uses

Stage 1 and 2 Archaeological Assessments suggest that land uses have been predominantly agricultural since early European settlement in this area, with some resource extraction from the pits, quarries and wells in the area. Some areas within 300 m of the Project Area have also been used for residential (e.g., communities of Rainham Centre, Fisherville, Erie, Sandusk and Jarvis) land uses for many years. Some logging of the Project Area has also occurred as a past land use.

3.2.6.2 Current Land Uses

The Project will be located near the community of Nanticoke, Haldimand County, Ontario. The proposed Project Area encompasses approximately 22,583 ha of privately-owned, predominantly agricultural land. The Project layout map displays Canadian Land Inventory (CLI) land use data that demonstrate the predominance of cropland in the Project Area. Some productive woodlands, grazing and rangelands and some minor built-up areas (Rainham Centre, Fisherville, Erie, Sandusk and Jarvis) are also located across the Project Area. Some



aggregate pits or quarries are located in the Project Area and historic oil and gas wells are scattered across the area. Current land uses are outlined in the Haldimand County OP (2006) zoning by-laws.

The Haldimand County OP (2006) identifies the Project Area as being predominantly prime agricultural lands, with settlement areas within 300 m of the Project Area at Rainham Centre, Fisherville, Erie, Sandusk and Jarvis.

The loss of agricultural lands as a result of the Project represents a potential interaction between the Project and land use as a result of the construction of the turbines, access roads and other Project infrastructure. The use of construction equipment will follow field boundaries and existing tracks to minimize the disturbance to agricultural land.

3.2.6.3 Local Businesses and Facilities

Manufacturing and business services are the two most important employment sectors in Haldimand, each respectively employing approximately 18% and 14% of the experienced labour force 15 years and over (StatsCan, 2006). Agriculture employs approximately 8% of the experienced labour force 15 years and over (StatsCan, 2006). No major manufacturing or business services operations are located within 300 m of the Project Area; however, the agricultural sector is represented by the numerous farms near the Project Area. Three schools are identified in or near the Project Area (Rainham Central, Jarvis Christian and Jarvis Public). Three retirement homes are located in Jarvis and one health clinic is located in Fisherville. A portion of one airstrip has been identified within the Project Area (see Site Plan Report), and consultation has occurred to engage relevant stakeholders.

Although agricultural and possibly other business operations and three schools are located in or within 300 m of the Project Area, no effects of the Project are expected based on the adherence to O. Reg. 359/09 setbacks and/or constraint.

3.2.6.4 Natural Resources

Forested land holdings account for 3,800 ha of the total 4,770 ha of LPRCA lands (Lake Erie Source Protection Region Team, 2008). Forest resources and woodlots in the area provide services such as timber resources, maple syrup, outdoor recreation and education (Haldimand County, 2006). The LPRCA has developed a Forestry Management Plan to maintain the ecological sustainability of forests and associated natural features under LPRCA jurisdiction. The Haldimand County OP (2006) recognizes the importance of energy generating facilities, such as wind farms, and advises their construction to consider the protection of forest resources. Significant woodlots are identified in the Site Plan Report and Natural Heritage Assessment Report.

The locations of historic and existing oil and gas wells in the Project Area within 75m of well locations mapped by the Ontario Oil, Gas and Salt Resources (OGSR) Library have been considered and a petroleum resource assessment and engineer's report will be provided to MNR consistent with the Approval and Permitting Requirements Document (APRD). Information that was previously found in the October 2010 draft version of the Natural Heritage Assessment Report has been removed from the current Natural Heritage Assessment Report based on comments received from the MNR. Areas within the Project Area hold high potential for natural gas resources, especially in the east and west portions of the Project Area (Haldimand County, Schedule G, 2006).



Haldimand County has mineral aggregate deposits in the form of stone, gravel and sand (Haldimand County, 2006). There are currently no active pits or quarries overlapping with the Project Location.

Land used for agriculture is also a significant natural resource supporting Haldimand County's economic base within the Project Area (Haldimand County, 2006). Although the County OP (2006) recognizes the importance of wind energy facilities, the OP also ensures the protection of prime land used for agriculture in areas where proposed wind energy facilities may be constructed.

Interactions exist between the Project and these natural resources; however, the Project is not likely to have significant adverse effects on the current or future use or extraction of natural resources from the Project Area, based on the Project design and effects assessments completed.

3.2.6.5 Recreation Areas

The Lake Erie shoreline near the Project Area includes popular beaches such as Hickory Beach, Peacock Point, Sandy Cove, and Crescent Bay. No national or provincial parks or other wildlife areas are located within 300 m of the Project Area.

A potential visual interaction exists between the Project and the use and conservation of these lands. However, adherence to noise requirements and other constraint considerations to the extent possible, while meeting requirements of O. Reg. 359/09, will minimize the potential for adverse effects on recreation areas. Wind turbines are also not anticipated to affect residents' or visitors' use or enjoyment of the recreational resources. Accordingly, no adverse effect on recreation is expected to result from this Project.

3.2.6.6 Visual Landscape

O. Reg. 359/09 does not require the assessment of changes to the visual landscape, with the exception of protected properties. However, photomontages showing digitally modelled perspectives of the Project in relation to the existing viewscape have been created for consultation purposes. Selected observation points for individual photomontages were based on clusters of perceived sensitive receptors and vantage points. The photomontages will be used to communicate changes in the viewscape to stakeholders, Aboriginal communities, landowners and community members.

3.2.7 Provincial and Local Infrastructure

Figure 2 (end of Report) displays local and provincial roads and other key infrastructure in proximity to the Project Area. NextEra Energy Canada will consult with Haldimand County in order to determine potential effects that the Project may have on infrastructure. There is potential for effects on roads, traffic, underground infrastructure, and heritage resources. The potential for residual adverse effects will be minimized through meetings with Haldimand County staff.

The road capacity and local traffic could be affected during Construction and Decommissioning phases of the Project. The delivery of construction equipment and infrastructure, and construction of new access roads could



result in a temporary increase in slower moving traffic volume on local roads. The construction and/or decommissioning activities next to or in public road allowances could also result in temporary disruptions to the flow of traffic on some local roads. However, the changes in traffic volume are expected to be minimal and no appreciable change to traffic flow is anticipated as a result of the Project.

Transportation of heavy turbine components on local roads may result in minor damage to the roads. NextEra Energy Canada will consult with Haldimand County to ensure that road damage resulting from equipment delivery is avoided, where possible, and suitable mitigation and repair measures are in place. A survey to determine the roads/travel routes within the Project Area that are capable of accommodating the oversize vehicles and heavy loads associated with construction and decommissioning will be conducted in conjunction with Haldimand County prior to delivery of Project components and construction machinery. Given the availability of alternate routes, any required upgrading or other construction works are not likely to substantially affect traffic congestion or travel times.

The construction of new access roads and upgrading of existing local/rural roads (e.g., widening, installation of new culverts, and widening of turning radii between existing roads and new access roads) will require separate permit approvals outside of the REA process. Appropriate permits will be obtained from provincial and municipal agencies, including (but not limited to) the Ministry of Transportation (MTO) and Haldimand County.

If a road safety program is required by local governments (township or county) the construction contractor and/or turbine manufacturer will oversee the implementation of a road safety program during the detailed design phase, which may include measures such as signage, road closures, speed restrictions, truck lighting, load restrictions and equipment inspections.

3.2.7.1 Telecommunications

Electromagnetic interference represents a potential effect of the Project on telecommunications infrastructure near the Project Area. The Radio Advisory Board of Canada was consulted with regards to existing telecommunications services and the Project's potential to affect these services. Locations of existing telecommunications infrastructure and transmission paths were considered in the Project design, consistent with RABC requirements.

3.2.7.2 Areas Protected under Provincial Plans and Policies

The Project is not located in an area where the following plans or policies are applicable:

- Greenbelt Plan and *Greenbelt Act*;
- Oak Ridges Moraine Conservation Plan;
- Niagara Escarpment Plan; and
- Lake Simcoe Watershed Plan.



4.0 REFERENCES

- Golder Associates Ltd. 2010a. Stage 1 Archaeological Assessment Report. Prepared for: Ministry of Tourism and Culture and Ministry of the Environment.
- Golder Associates Ltd. 2010c. Site Plan Report, Version 1. Prepared for: Ministry of the Environment. October 5, 2010.
- Golder Associated Ltd. 2010d. Natural Heritage Assessment Report, Version 1. Prepared for: Ministry of Natural Resources. October 5, 2010.
- Golder Associates Ltd. 2011a. Construction Plan Report. Prepared for: Ministry of the Environment.
- Golder Associates Ltd. 2011b. Decommissioning Plan Report. Prepared for: Ministry of the Environment.
- Golder Associates Ltd. 2011c. Design and Operations Report. Prepared for: Ministry of the Environment.
- Golder Associates Ltd. 2011d. Wind Turbine Specifications Report. Prepared for: Ministry of the Environment.
- Golder Associates Ltd. 2011e. Natural Heritage Assessment Report. Prepared for: Ministry of Natural Resources and Ministry of the Environment.
- Golder Associates Ltd. 2011f. Noise Study Report. Prepared for: Ministry of the Environment.
- Golder Associates Ltd. 2011g. Water Assessment Report. Prepared for: Ministry of Natural Resources and Ministry of the Environment.
- Golder Associates Ltd. 2011h. Site Plan Report. Prepared for: Ministry of the Environment.
- Golder Associates Ltd. 2011i. Consultation Report. Prepared for: Ministry of the Environment.
- Golder Associates Ltd. 2011j. Heritage Assessment Report. Prepared for: Ministry of Tourism and Culture and Ministry of the Environment.
- Government of Ontario. 2009. Ontario Bill 150, *Green Energy and Green Economy Act*. May 14, 2009.
- IBI Group. 2011. Property Line Setback Assessment Report. Prepared for: Ministry of the Environment, April 2011.
- James, R.D. and G. Coady 2003. Exhibition Place Wind Turbine: Bird Monitoring Program in 2003. Report to Toronto Hydro Energy Services Inc. and WindAShare, December 2003.
- Lake Erie Source Protection Region Technical Team. 2008. Long Point Region Watershed Characterization Report. Long Point Region Conservation Authority. Version 2.0. January, 2008.
- Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. Ecological Land Classification for Southern Ontario: First Approximation and Its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.



SUMMERHAVEN PROJECT DESCRIPTION

- Ministry of Energy and Infrastructure. 2010. Letter to Justin W. Rangooni, Ontario Policy Manager & Legal Counsel, CanWEA. Exemption from having completed the Stage 2 Archaeology Assessment prior to submission of the REA Application. June 14, 2010.
- Ministry of the Environment (MOE). 2007. Ontario Regulation 116/01. Electricity Projects of the *Environmental Assessment Act*.
- Ministry of the Environment (MOE). 2009. Ontario Regulation 359/09. Renewable Energy Approvals under Part V.0.1 of the Environmental Protection Act.
- Ministry of the Environment (MOE). 2010a. Technical Bulletin One: Guide to Preparing the Project Description Report. Queen's Printer for Ontario. PIBS 7436e. March 1, 2010.
- Ministry of the Environment (MOE). 2010b. Letter to Thomas Bird, Environmental Services Project Manager, NextEra Energy Canada. Director's Aboriginal Communities List – Summerhaven Wind Farm Project. October 25, 2010.
- Ministry of Tourism and Culture (MTC). 2010. Letter to Thomas Bird, Environmental Services Project Manager, NextEra Energy Canada. Summerhaven Wind Energy Centre, Geographic Township of Walpole and Rainham, Haldimand County, FIT-FCX557W, MTC File HD00520, PIF # P243-036-2009. September 21, 2010.
- Ontario Ministry of Natural Resources (MNR). 1999. Natural Heritage Reference Manual for Policy 2.3 of the Provincial Policy Statement. URL: <http://www.mnr.gov.on.ca/249080.pdf>. Accessed March 2010.
- Ontario Ministry of Natural Resources (MNR). 2000. Significant Wildlife Habitat: Technical Guide. URL: http://www.mnr.gov.on.ca/en/Business/FW/Publication/MNR_E001285P.html. Accessed March 2010.
- Ontario Ministry of Natural Resources (MNR). 2010. Ontario Ministry of Natural Resources, Natural Heritage Information Centre. URL: http://nhic.mnr.gov.on.ca/queries/areas_rep.cfm. Accessed March 2010.
- Ontario Power Authority (OPA). 2006. Ontario's Integrated Power System Plan: Scope and Overview. June 29, 2006. Ontario Power Authority, Toronto, ON. 37 pp.
- Statistics Canada (StatsCan). 2006. Community Profiles: Kincardine, Ontario (Municipality).



Report Signature Page

Handwritten signature of Jeff Wright in black ink.

Jeff Wright, R.P. Bio., A.Sc.T.
Project Manager

Handwritten signature of Anthony Ciccone in black ink.

Anthony Ciccone, Ph.D., P.Eng.
Project Director

JR/JW AC/

Golder, Golder Associates and the GA globe design are trademarks of Golder Associates Corporation

\\mis1-s-filesrv1\data\active\2010\1151\10-1151-0035 nextera - wind farm rea - nanticoke\4 - working rea reports\4 - pdr\version 5\2011-06-13 project description report.docx



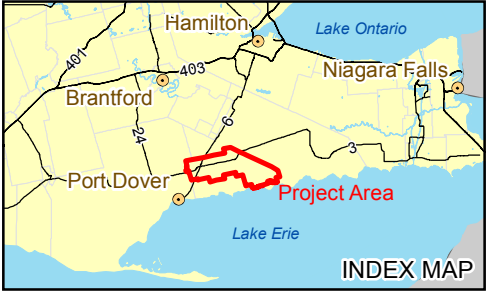
FIGURE 1

Project Area



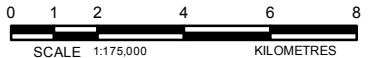
LEGEND

- Community
- Highway
- Major Road
- Local Road
- Water
- Project Area
- Project Location
- Wooded Area
- Haldimand Tract
- Provincial Park
- Conservation Area
- Municipal Boundary



REFERENCE

Base Data - MNR NRVIS, obtained 2004, CANMAP v2008.4
 Produced by Golder Associates Ltd under licence from
 Ontario Ministry of Natural Resources, © Queens Printer 2009
 Projection: UTM Datum: NAD 83 Coordinate System: UTM Zone 17



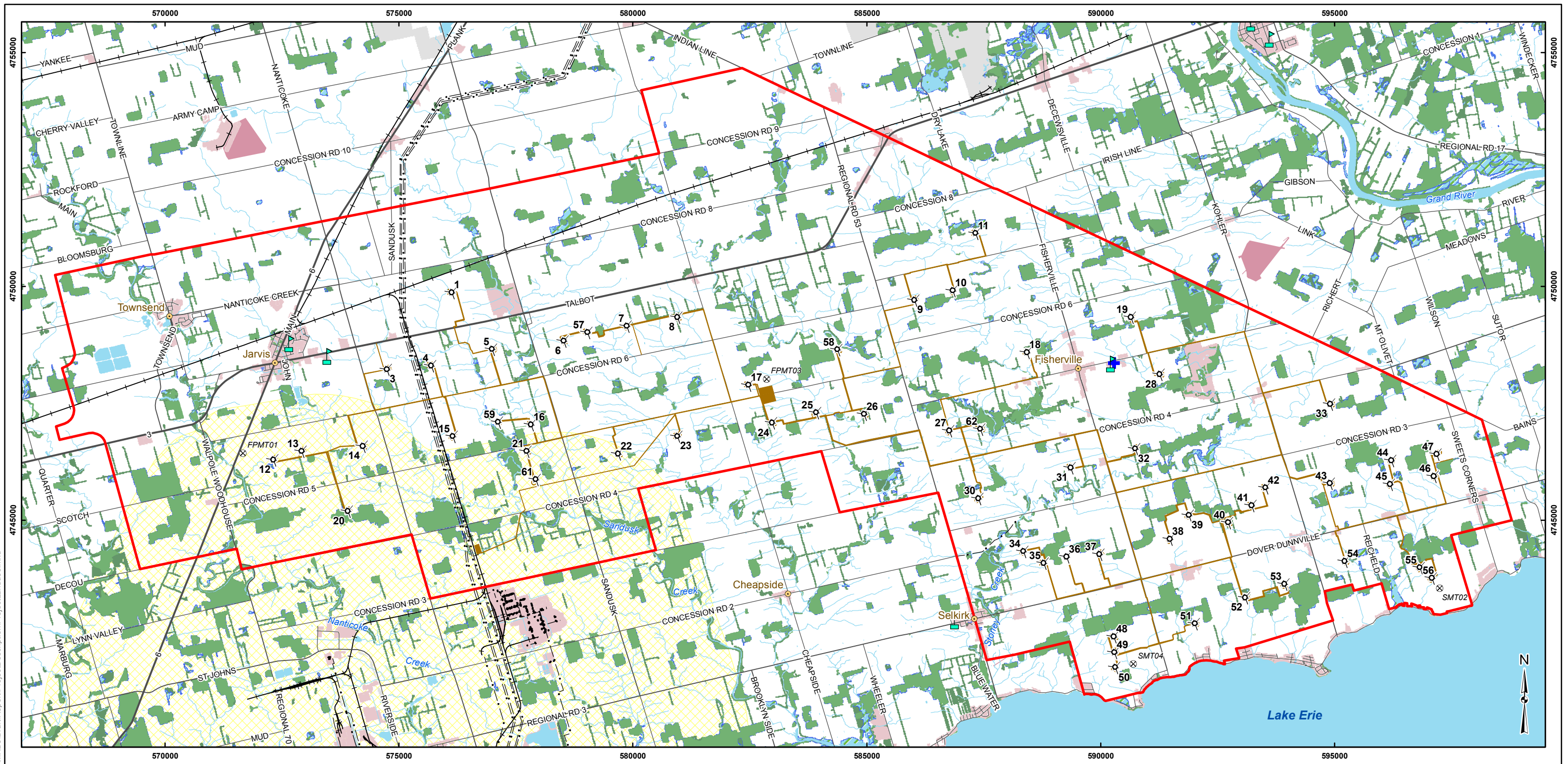
PROJECT		Summerhaven Wind Energy Centre	
TITLE		PROJECT AREA	
<p>Golder Associates Mississauga, Ontario</p>	PROJECT NO.	10-1151-0035	SCALE AS SHOWN
	DESIGN	PP 7 Apr. 2010	REV.
	GIS	BC 26 Sep. 2010	
	CHECK	PP 26 Sep. 2010	
	REVIEW	JW 26 Sep. 2010	

FIGURE: 1



FIGURE 2

Project Area Land Use



LEGEND

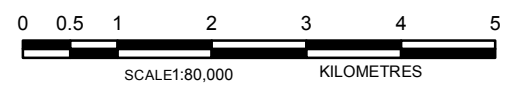
- Turbine
 - School
 - Health Care Facility
 - Meteorological Tower
 - Watercourse
 - Hydro One Transmission Line
 - Highway
 - Major Road
 - Local Road
 - Railway
 - Project Location
 - Project Area
 - Haldimand County Industrial Influence Area
- Land Use (SOLRIS / NRVIS)**
- Natural Area
 - Forest
 - Pit \ Quarry
 - Urban \ Industrial
 - Wetland
 - Water
 - Agriculture
 - Airport

REFERENCE

Base Data - MNR NRVIS, obtained 2004, CANMAP v2008.4
 Land Use - SOLRIS, 2000
 Produced by Golder Associates Ltd under licence from Ontario Ministry of Natural Resources, © Queens Printer 2010
 Projection: UTM Datum: NAD 83 Coordinate System: UTM Zone 17

NOTES:

1. All Project Location includes disturbance area
2. Turbines 2, 29 and 60 do not exist
3. Turbine 62 is a Siemens SWT-2.221-93 Low Noise wind turbine. All other turbines are Siemens SWT-2.221-101 Low Noise wind turbines.



PROJECT	Summerhaven Wind Energy Centre		
TITLE	PROJECT AREA LAND USE		
 Golder Associates Mississauga, Ontario	PROJECT NO. 10-1151-0035	SCALE AS SHOWN	REV.
	DESIGN JR 27 Aug. 2010		
	GIS BC 26 Sep. 2010		
	CHECK PP 26 Sep. 2010		
REVIEW JW 26 Sep. 2010			
FIGURE: 2			

G:\Projects\2010\10-1151-0035_NextEraNaticoke\Wind\GIS\MXDs\Draft\Report\Project\Description\ProjectLandUse.mxd



APPENDIX A

Letter from the Ministry of Energy and Infrastructure

**Ministry of Energy
and Infrastructure**

*Renewables and Energy Facilitation
Branch*

77 Grenville Street
9th Floor
Toronto ON M5S 1B3
Tel: (416) 212-6582
Fax: (416) 314-2175

**Ministère de l'Énergie
et de l'Infrastructure**

*Direction de la facilitation en matière
d'énergie renouvelable et d'énergie*

77, rue Grenville
9^e étage
Toronto ON M5S 1B3
Tél: (416) 212-6582
Télé.: (416) 314-2175



June 14, 2010

Justin W. Rangooni, LL.B

Ontario Policy Manager & Legal Counsel
Canadian Wind Energy Association
justinrangooni@canwea.ca

Dear Justin,

As follow up to our discussion and meeting on February 12, 2010, after careful review, the Ministry of the Environment (MOE) will provide the following renewable energy projects with a one-time exception detailed below based on the amount of environmental approval work completed to-date, the outcome of the Feed-in Tariff Launch Program contract awards, and the input and agreement of our colleagues at the Ministry of Tourism and Culture (MTC):

- FIT-FBN77QW: McLean's Mountain Wind L.P. (Northland Power) – McLean's Mountain Wind Farm 1
- FIT-FA8YIXK: McLean's Mountain Wind L.P. (Northland Power) – McLean's Mountain Wind Farm 3
- FIT-FAZ63MR: Capital Power GP Holdings Inc. – Port Dover and Nanticoke Wind Project
- FIT-FCX557W: Summerhaven Wind, LP (NextEra) – Summerhaven Wind Energy Centre
- FIT-FU99SSX: Conestogo Wind LP (NextEra) - Conestogo Wind Energy Centre
- FIT-FF91BT0: Invenergy Wind Canada ULC – Conestogo Wind Energy Centre 1
- FIT-FL69V8J: Invenergy Wind Canada ULC – Conestogo Wind Energy Centre 2
- FIT-FFI4GC2: Gilead Power Corporation – Ostrander Point Wind Energy Park
- FIT-F1T6SPV: Big Thunder Wind Park LP – Big Thunder Beta Windpark

Exception

MOE has advised that it will accept renewable energy approval (REA) applications for the above projects in advance of the proponents having completed a Stage 2 archaeological assessment. The conditions upon which this exception is being granted are as follows:

Conditions

The proponents must have completed a Stage 1 archaeological assessment and submitted to MTC a report prepared by a consultant archaeologist in accordance with the requirements of the *Ontario Heritage Act*. Once that report has been filed by MTC in the provincial register of reports pursuant to

s. 65.1(1) of the *Ontario Heritage Act*, MTC will provide a letter directly to each proponent. This letter will constitute its “written comments” in respect of archaeological assessments for purposes of s. 22(3)(a) of O. Reg. 359/09 made under the *Environmental Protection Act*.

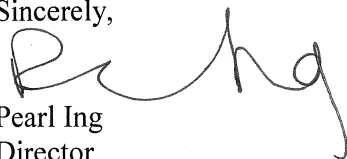
In accordance with s. 22(3) of O. Reg. 359/09, the proponent must include MTC’s letter, as well as a copy of the archaeological assessment report, in the REA application submitted to MOE in respect of each of these nine projects.

MTC’s letter to proponents will contain the recommendations made in the report from the consultant archaeologist. These recommendations may include, but are not limited to, the requirement that a Stage 2 archaeological assessment be completed, if recommended by the Stage 1 report, before construction of the renewable energy project begins. MOE has indicated that these recommendations will be incorporated as conditions in any approval issued by MOE in respect of the REA applications.

The “written comments” provided by MTC do not waive or otherwise affect any requirements under the *Ontario Heritage Act*, the REA regulation, or the Feed-in Tariff program. Proponents must still comply with any other obligations to which they are subject under the relevant statutes or programs. In exceptional circumstances, based on the comments from MTC, the public, municipalities and aboriginal communities, following the acceptance of the application, the MOE may require further archaeological assessment work to be completed before making a decision in respect of the application.

Should you have any questions, please contact Samira Viswanathan at the Renewable Energy Facilitation Office, Ministry of Energy and Infrastructure (samira.viswanathan@ontario.ca or 416-314-9481).

Sincerely,



Pearl Ing
Director
Renewables and Energy Efficiency Division
Ministry of Energy and Infrastructure



Mariflor Toneatto
Manager
Culture Programs Unit
Ministry of Tourism and Culture



Doris Dumais
Director
Environmental Approvals and Assessment Branch
Ministry of Environment



APPENDIX B

Legal Description of Project Lands



SUMMERHAVEN PROJECT DESCRIPTION

Legal Lot Descriptions

PT LT 23 CON 6 WALPOLE AS IN HC236335 & HC229499; HALDIMAND COUNTY

PT LT 2 CON 3 RAINHAM AS IN HC278373; HALDIMAND COUNTY

PT LT 9 CON 4 RAINHAM AS IN HC284383; S/T LIFE INTEREST IN HC68544; HALDIMAND COUNTY

PT LT 11-12 CON 6 WALPOLE AS IN HC291755 EXCEPT PT 1 18R6324; PT LT 12 CON 6 WALPOLE PT 1 18R4857 SAVE & EXCEPT PT 1 18R6578; HALDIMAND COUNTY

PT LT 10 CON 8 WALPOLE AS IN HC92654 S OF PT 4 18R5365; S/T INTEREST IN HC92654; HALDIMAND COUNTY

PT LT 11 CON 7 WALPOLE AS IN HC285022 EXCEPT PT 1 & 2 18R6337 S/T HC42430 & HC42429; HALDIMAND COUNTY

N 1/2 LT 21 CON 5 WALPOLE; HALDIMAND COUNTY

PT LT 1-2 CON 3 RAINHAM PT 1, 3 & 4 18R5389; S/T HC40402; HALDIMAND COUNTY

PT LT 15 CON 3 RAINHAM AS IN HC180535; HALDIMAND COUNTY

PT LT 8-9 CON 2 RAINHAM AS IN HC237388; HALDIMAND COUNTY

PT LT 4 CON 7 RAINHAM AS IN HC215433; HALDIMAND COUNTY

PT LT 8 CON 2 RAINHAM AS IN HC169517; HALDIMAND COUNTY

PT LT 10-11 CON 6 WALPOLE AS IN HC167531 S/T INTEREST IN HC167531; HALDIMAND COUNTY

PT LT 6 CON 6 WALPOLE AS IN HC252054; S/T INTEREST IN HC189901; HALDIMAND COUNTY

LT 16 CON 5 WALPOLE; SW 1/4 LT 17 CON 5 WALPOLE; PT LT 15 CON 5 WALPOLE AS IN HC116672; HALDIMAND COUNTY

S 1/2 LT 22 CON 5 WALPOLE EXCEPT PT 1 18R2301; HALDIMAND COUNTY

PT LT 11 CON 2 RAINHAM PT 1 18R5359 EXCEPT PT 1 18R5570; HALDIMAND COUNTY

PT LT 7 CON 3 RAINHAM AS IN HC248875; HALDIMAND COUNTY

PT LT 1 CON 4 RAINHAM; PT S1/2 LT 2 CON 4 RAINHAM AS IN HC207819; HALDIMAND COUNTY

PT LT 16 CON 7 WALPOLE AS IN HC232357; HALDIMAND COUNTY

PT LT 10 CON 1 RAINHAM AS IN HC244779; HALDIMAND COUNTY

PT LT 14 CON 2 RAINHAM AS IN HC203759; HALDIMAND COUNTY

S 1/2 LT 7 CON 3 RAINHAM; HALDIMAND COUNTY

PT LT 7-8 CON 2 RAINHAM PT 1 18R1804; HALDIMAND COUNTY

PT LT 19 CON 6 WALPOLE AS IN HC219573 S/T INTEREST IN HC219573; HALDIMAND COUNTY



SUMMERHAVEN PROJECT DESCRIPTION

Legal Lot Descriptions

PT LT 11 CON 5 WALPOLE AS IN HC150330 EXCEPT HC86879; HALDIMAND COUNTY

S 1/2 LT 13 CON 5 WALPOLE EXCEPT PT 5, HC78086; HALDIMAND COUNTY

PT LT 11-12 CON 1 RAINHAM AS IN HC179797 & HC197364; SAVE AND EXCEPT PT 1 18R6653; HALDIMAND COUNTY

PT LT 12 CON 2 RAINHAM AS IN HC220375; HALDIMAND COUNTY

PT LT 3 CON 2 RAINHAM AS IN HC66387; HALDIMAND COUNTY

PT LT 10 CON 7 WALPOLE AS IN HC217244 EXCEPT PT 1 HC202848 S/T HC42967; HALDIMAND COUNTY

PT LT 5-6 CON 1 RAINHAM AS IN HC213922 (SECONDLY & THIRDLY); S/T R7560; HALDIMAND COUNTY

SE 1/4 LT 14 CON 5 WALPOLE; HALDIMAND COUNTY

N 1/2 LT 22 CON 5 WALPOLE; HALDIMAND COUNTY

PT S1/2 LT 3 CON 4 RAINHAM AS IN HC247358; HALDIMAND COUNTY

PT LT 7-8 CON 1 RAINHAM AS IN HC189528; T/W HC189528; S/T INTEREST IN HC137946; S/T INTEREST IN HC124757; S/T HC141234; HALDIMAND COUNTY SUBJECT TO AN EASEMENT IN GROSS OVER PT LT 8 CON 1 RAINHAM PT 4 18R6682 AS IN CH20012

PT LT 11 CON 7 WALPOLE AS IN HC285022 EXCEPT PT 1 & 2 18R6337 S/T HC42430 & HC42429; HALDIMAND COUNTY

PT LT 17 CON 2 RAINHAM AS IN HC163865; HALDIMAND COUNTY

PT LT 14 CON 2 RAINHAM AS IN HC188924 EXCEPT PT 1 18R6351; HALDIMAND COUNTY

PT LT 1 CON 4 RAINHAM; PT S1/2 LT 2 CON 4 RAINHAM AS IN HC207819; HALDIMAND COUNTY

PT LT 7 CON 1 RAINHAM AS IN HC258640 N OF LAKESHORE RD; S/T HC141233; HALDIMAND COUNTY

S 1/2 LT 15 CON 5 WALPOLE S/T INTEREST IN HC208204; HALDIMAND COUNTY

PT LT 10 CON 1 RAINHAM PT 1 18R6689; HALDIMAND COUNTY

PT LT 1 CON 6 RAINHAM AS IN HC278139 EXCEPT HC78235; HALDIMAND COUNTY

PT LT 5 CON 6 WALPOLE AS IN HC189899; HALDIMAND COUNTY

PT LT 2-3 CON 6 WALPOLE AS IN HC270349; HALDIMAND COUNTY

PT LT 9 CON 5 RAINHAM AS IN HC270344; HALDIMAND COUNTY

PT LT 14 CON 7 WALPOLE AS IN HC284576 EXCEPT PT 1 18R6448 & PT 1 18R6358; S/T HC29401; HALDIMAND COUNTY

PT LT 18 CON 7 WALPOLE AS IN HC293498 EXCEPT PT 1 18R6362; S/T INTEREST IN HC296971; S/T HC96653; HALDIMAND COUNTY

PT LT 9-10 CON 4 WALPOLE PT 1 & 2 18R578 & PT 1 18R732; S/T HC274190; HALDIMAND COUNTY



SUMMERHAVEN PROJECT DESCRIPTION

Legal Lot Descriptions

PT LT 8-9 CON 5 RAINHAM AS IN HC190657; HALDIMAND COUNTY

PT LT 13-14 CON 1 RAINHAM AS IN HC174144; HALDIMAND COUNTY

PT LT 11-12 CON 5 WALPOLE AS IN HC147858; HALDIMAND COUNTY

PT LT 5 CON 6 WALPOLE AS IN HC263070; HALDIMAND COUNTY

PT N1/2 LT 2 CON 4 RAINHAM AS IN HC243074; HALDIMAND COUNTY

PT LT 5 CON 5 WALPOLE AS IN HC98601; HALDIMAND COUNTY

PT LT 9 CON 2 RAINHAM AS IN HC231354; HALDIMAND COUNTY

PT LT 9 CON 7 WALPOLE AS IN HC215724 EXCEPT PT 1 HC202848 S/T HC42427; S/T INTEREST IN HC215724; HALDIMAND COUNTY

PT LT 11-12 CON 2 RAINHAM AS IN HC230859; HALDIMAND COUNTY

PT S1/2 LT 10 CON 2 RAINHAM PT 1 18R4726 S/T DEBTS IN HC229515 S/T BENEFICIARIES INTEREST IN HC224716; HALDIMAND COUNTY

PT LT 14, 13 CON 7 WALPOLE PT 1 18R6448, AS IN HC285160; S/T HC29402; HALDIMAND COUNTY

PT LT 8 CON 3 RAINHAM AS IN HC132098; HALDIMAND COUNTY

PT LT 7-8 CON 7 WALPOLE PT 1 & 2 18R4380 S/T HC42730; HALDIMAND COUNTY

PT LT 2-3 CON 6 RAINHAM AS IN HC224090; HALDIMAND COUNTY

PT LT 4 CON 6 WALPOLE AS IN HC270351; HALDIMAND COUNTY

PT LT 4 CON 6 WALPOLE AS IN HC165581; HALDIMAND COUNTY

SW 1/4 LT 23 CON 5 WALPOLE EXCEPT PT 1 18R3615; HALDIMAND COUNTY

PT LT 12 CON 5 WALPOLE AS IN HC274910; HALDIMAND COUNTY

PT LT 3 CON 2 RAINHAM AS IN HC220162; S/T INTEREST IN HC220162; HALDIMAND COUNTY

E 1/2 OF S1/2 LT 2 CON 4 RAINHAM; HALDIMAND COUNTY

PT LT 15 CON 7 WALPOLE AS IN HC223413; HALDIMAND COUNTY

PT LT 16-17 CON 7 WALPOLE AS IN HC293499; HALDIMAND COUNTY

N 1/2 LT 14 CON 5 WALPOLE EXCEPT PT 1, 18R3954; HALDIMAND COUNTY

PT LT 7 CON 1 RAINHAM N OF LAKESHORE RD; HALDIMAND COUNTY; PT 1 18R6622; T/W EASEMENT OVER PT 2 18R6601 AS IN CH11493

PT LT 4-5 CON 1 RAINHAM AS IN HC273836 (SECONDLY, THIRDLY, FOURTHLY); S/T R7560; HALDIMAND COUNTY

PT LT 13 CON 2 RAINHAM AS IN HC67613; HALDIMAND COUNTY



SUMMERHAVEN PROJECT DESCRIPTION

Legal Lot Descriptions

PT LT 7 CON 7 WALPOLE AS IN HC277335 S/T HC42730 & HC42575; HALDIMAND COUNTY

PT LT 4 CON 2 RAINHAM AS IN HC273836 (FIRSTLY); HALDIMAND COUNTY

PT LT 2 CON 6 RAINHAM AS IN HC250149; S/T INTEREST IN HC250149; HALDIMAND COUNTY

PT LT 8-9 CON 6 WALPOLE AS IN HC224855; HALDIMAND COUNTY

PT LT 5 CON 5 RAINHAM AS IN HC156498; HALDIMAND COUNTY

PT S PT LT 5 CON 2 RAINHAM; PT LT 6 CON 2 RAINHAM AS IN HC257733 EXCEPT PT 1 18R5655; HALDIMAND COUNTY

PT LT 19-20 CON 5 WALPOLE PT 1 18R6107, PT 1 18R5813; HALDIMAND COUNTY

PT LT 5-6 CON 3 RAINHAM PT 1 18R4904 SAVE AND EXCEPT PT 1 18R6710; HALDIMAND COUNTY

PT LT 12 CON 5 WALPOLE AS IN HC274910; HALDIMAND COUNTY

PT LT 18 CON 2 RAINHAM PT 1 18R3146; HALDIMAND COUNTY

PT E1/2 LT 16 CON 1 RAINHAM AS IN HC214980 (FOURTHLY); S/T HC212291; HALDIMAND COUNTY

PT LT 16-17 CON 2 RAINHAM AS IN HC202929; HALDIMAND COUNTY

PT LT 15 CON 1 RAINHAM; PT W1/2 LT 16 CON 1 RAINHAM AS IN HC223583 EXCEPT PT 3 18R5037, PT 1 18R4643, PT 2 18R6278; T/W HC223583; HALDIMAND COUNTY

PT E1/2 LT 16 CON 1 RAINHAM AS IN HC240979 (FIRSTLY); HALDIMAND COUNTY

PT LT 16 CON 2 RAINHAM PT 1 18R6213 SAVE AND EXCEPT PT 1 18R6629; HALDIMAND COUNTY

PT LT 5-6 CON 1 RAINHAM AS IN HC213922 (SECONDLY & THIRDLY); S/T R7560; HALDIMAND COUNTY

W1/2 OF S1/2 LT 20 CON 6 WALPOLE; HALDIMAND COUNTY

PT LOT 18 CON 2 RAINHAM AS IN HC214980; HALDIMAND COUNTY

SW 1/4 LT 14 CON 5 WALPOLE EXCEPT PT 1, 18R1720; S/T INTEREST IN HC137908; HALDIMAND COUNTY

PT W1/2 LT 16 CON 1 RAINHAM PT 1 18R3593; HALDIMAND COUNTY *

* This land parcel is currently being confirmed.

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

Africa	+ 27 11 254 4800
Asia	+ 852 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

solutions@golder.com
www.golder.com

Golder Associates Ltd.
2390 Argentia Road
Mississauga, Ontario, L5N 5Z7
Canada
T: +1 (905) 567 4444

