RENEWABLE ENERGY APPROVAL

PROJECT DESIGN CHANGE SUMMARY REPORT

ERNESTOWN WIND PARK

JUNE 2013

GL Garrad Hassan

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RENEWABLE ENERGY APPROVAL APPLICATION – PROJECT DESIGN CHANGE SUMMARY REPORT

ERNESTOWN WIND PARK, ONTARIO

Client	Ernestown Windpark Inc., as general partner of Ernestown Windpark LP
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REVISION HISTORY

Issue	Issue Date	Summary
A	6 June 2013	Initial issue for review

TABLE OF CONTENTS

1 PREAMBLE

Ernestown Windpark Inc., as general partner of Ernestown Windpark LP (the "Client") is proposing to develop the Ernestown Wind Park (the "Project") which is subject to Ontario Regulation 359/09 (Renewable Energy Approvals (REA) [1] under Part V.0.1 of the Ontario Environmental Protection Act (EPA)) and Regulation 521/10 [2]. Ernestown Windpark Inc., as general partner of Ernestown Winpark LP (the "Proponent"), was awarded a FIT Contract for this Project in April 2010, and is seeking a REA from the Ontario Ministry of the Environment (MOE).

Subsequent to the public release of the Project's REA reports in July 2012, the Project design has been altered with respect to the turbine technology that is to be used. Description of and rationale for this change is presented herein, as are the implications that this change is anticipated to have on the Noise Impact Assessment (NIA), Property Line Setback Assessment, Turbine Specification Report, Archaeological Assessments, and Natural Heritage Assessments.

This Project Design Change Summary Report has been prepared in accordance with Chapter 10, Section 3 of MOE's "Technical Guide to Renewable Energy Approvals" [3].

2 DESCRIPTION OF PROJECT

2.1 Project Name and Project Proponent

The name of the Project is Ernestown Wind Park (hereafter referred to as "the Project"); Ernestown Windpark Inc., as general partner of Ernestown Windpark LP is the Project Proponent (the "Proponent").

2.2 General Project Description

The Proponent is proposing to develop a class 4 wind energy generation facility named Ernestown Wind Park (the Project), located in the Loyalist Township, Ontario, to generate clean renewable energy for connection to the public grid. This Project will promote long-term, low-impact energy that will complement Ontario's goals of clean and sustainable electricity generation, while promoting economic growth in the rural community [4].

On 1 July 2012 amendments to O.Reg 359/09 went into effect. These amendments included transition provisions which allowed for projects such as this one to opt into following the new regulations or to remain under the previous process based on outlined criteria. Ernestown Wind Park opted to follow the 1 July 2012 amended regulations.

The Project is located on privately owned land, municipally zoned as agricultural and industrial and involves construction, operation and decommissioning of five Enercon E82 2.0 MW wind turbines for a total nameplate capacity of 10MW. The Project requires the construction of new access roads to the turbine sites and a new 44 kV overhead electrical connection line, which will connect to an existing distribution line located along Taylor Kidd Boulevard by way of a new switching station.

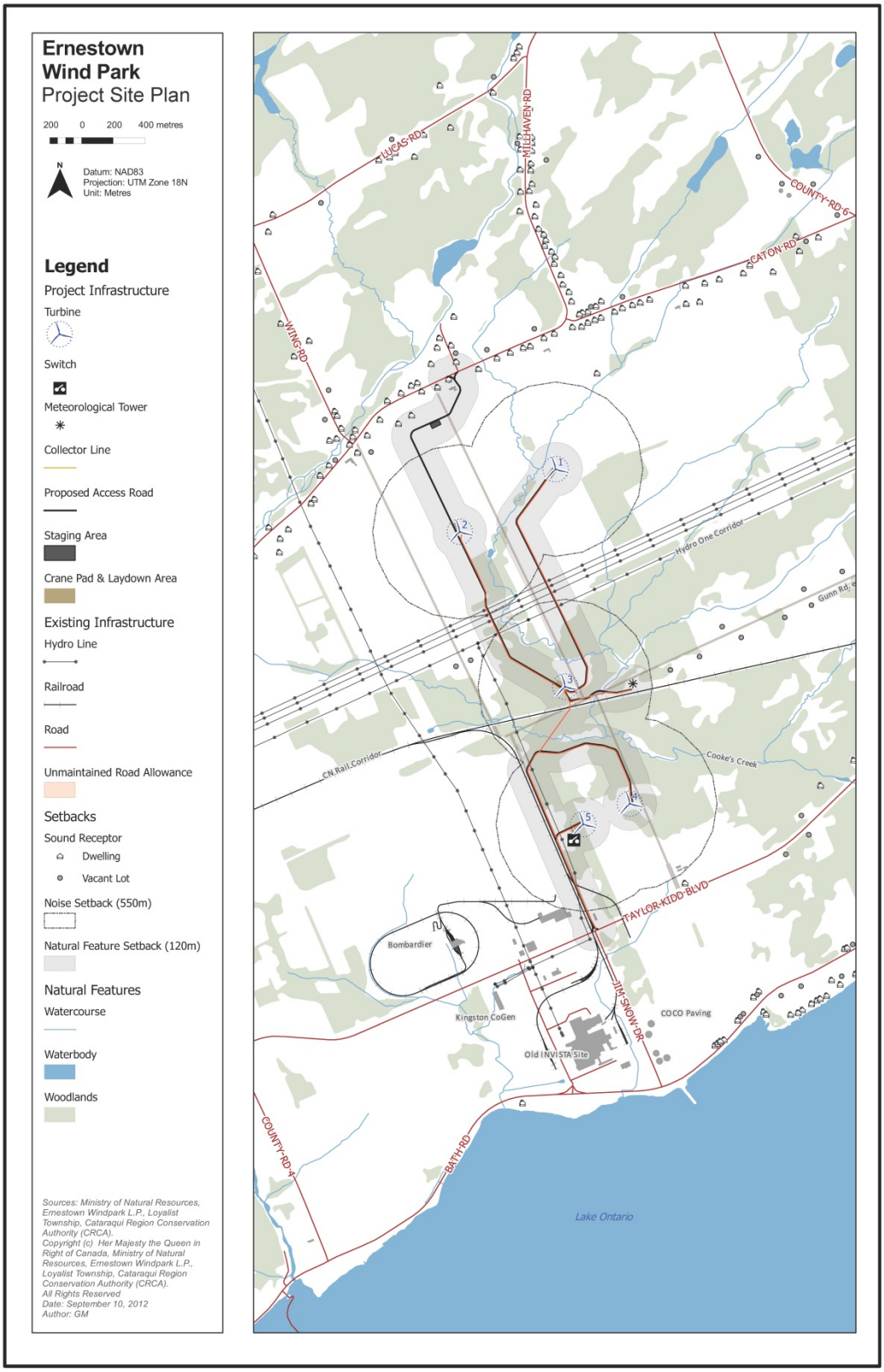

Figure 2-1: Project location and Site Plan

2.3 Description of the Energy Source, Nameplate Capacity, and Class of Facility

The wind turbine generators of the Project will convert wind energy into electricity to feed into the Hydro One distribution system. This Project is considered to be a Class 4 wind facility. The Project is proposed to consist of 5, 2.0 MW turbines with a total nameplate capacity of 10 MW.

2.4 Contact Information

2.4.1 Project Proponent

The Project Proponent is Ernestown Windpark Inc., as general partner of Ernestown Windpark LP. The primary contact for the Proponent for this Project is:

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Fax: 1-416-864-9568
Email: info@ernestownwind.com
Website: http://www.ernestownwind.com

2.4.2 Project Consultant

GL Garrad Hassan Canada, Inc. (hereafter referred to as "GL GH"), a member of the GL Group and part of the GL Garrad Hassan brand, has been retained to assist with some of the permitting requirements associated the REA application for the Ernestown Wind Park.

The Environmental and Permitting Services team of GL GH has completed mandates throughout Canada, the United States and in many other parts of the world. These mandates include permitting management, permit applications, environmental impact assessment, and various environmental studies for more than 15,000 MW of wind and solar projects.

GL GH's environmental team is composed of over 20 environmental professionals, including environmental impact specialists, planners, GIS, technicians and engineers.

GL GH has no equity stake in any device or project. This rule of operation is central to its philosophy, distinguishing it from many other players and underscoring its independence.

GL GH's contact information for this Project is as follows:

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Further information about GL GH can be found at: www.gl-garradhassan.com.

3 CHANGES TO PROJECT DESIGN

3.1 Design Change – Amended Turbine Technology

3.1.1 Description of Change

The Proponent has elected to develop the Project with the Enercon E82 (2.0 MW) versus the Enercon E92 (2.3 MW, modified to operate at 2.0 MW) turbine technology as previously made available for review through the REA process. All other Project infrastructure will remain the same as provided and discussed in the complete REA application package submitted to the MOE. This includes the collector system, meteorological tower, access roads, laydown areas, and switching station.

Table 3-1, 2, and 3 below provides a comparison between the E92 and E82 turbine technology.

Model	E82 2.0 MW	E92 2.0 MW
Rated power	2.0 MW	2.0 MW
Hub height	98 m	98 m
Rotor diameter	82 m	92 m
Rotor swept area	5,281 m^2	6,648 m^2
Rotational speed range	6 – 18 rpm	5 – 16 rpm
Number of blades	3	3
Cut-in wind speed	2 m/s	3 m/s
Cut-out wind speed	25 m/s	25 m/s
Nominal wind speed	12 m/s	11 m/s

Table 3-1: Turbine descriptions

Make and Model : Enercon E82 2.0										
Electrical Rating : 2.0 MW										
Hub Height (m) : 98 m										
Wind Shear Coefficient : 0.35, typical summer night time shear of the region										
	Octave Band Sound Power Level [dB]									
	Manufacturer's Emission Levels					Adjusted Emission Levels				
Wind Speed [m/s]	6	7	8	9	10	6	7	8	9	10
Frequency [Hz]										
63	113.5	113.8	112.6	112.7	112.9	113.8	113.8	113.8	113.8	113.8
125	108.6	109.7	109.8	110.6	110.8	109.7	109.7	109.7	109.7	109.7
250	102.2	103.6	104.0	103.6	102.9	103.6	103.6	103.6	103.6	103.6
500	99.2	101.4	101.5	101.3	100.6	101.4	101.4	101.4	101.4	101.4
1000	96.7	98.8	98.5	98.6	98.8	98.8	98.8	98.8	98.8	98.8
2000	89.2	91.8	92.1	92.2	93.6	91.8	91.8	91.8	91.8	91.8
4000	76.4	78.7	79.6	80.4	82.4	78.7	78.7	78.7	78.7	78.7
8000	78.5	80.0	76.0	75.8	76.6	80.0	80.0	80.0	80.0	80.0
A-weighted	101.6	103.5	103.5	103.5	103.5	103.5	103.5	103.5	103.5	103.5

Table 3-2: Wind turbine acoustic emission summary – E82

Make and Model : Enercon E92 2.0										
Electrical Rating : 2.0 MW										
Hub Height (m) : 98 m										
Wind Shear Coefficient : 0.35, typical summer night time shear of the region										
	Octave Band Sound Power Level [dB]									
	Manufacturer's Emission Levels, E82 2.3 MW					Adjusted Emission Levels, E92				
Wind Speed [m/s]	6	7	8	9	10	6	7	8	9	10
Frequency [Hz]										
63	111.1	111.7	111.8	112.8	113.2	112.6	112.6	112.6	112.6	112.6
125	106.7	108.9	109.3	110.7	110.7	110.2	110.2	110.2	110.2	110.2
250	100.6	102.8	103.2	102.9	102.3	104.0	104.0	104.0	104.0	104.0
500	98.9	100.8	101.4	100.5	99.7	102.2	102.2	102.2	102.2	102.2
1000	95.9	97.7	98.5	98.7	98.3	99.3	99.3	99.3	99.3	99.3
2000	87.8	90.2	91.0	92.6	92.8	91.8	91.8	91.8	91.8	91.8
4000	74.8	77.5	78.4	80.5	81.5	79.2	79.2	79.2	79.2	79.2
8000	76.5	75.5	74.5	74.5	76.3	75.3	75.3	75.3	75.3	75.3
A-weighted	100.6	102.6	103.2	103.3	102.9	104.0	104.0	104.0	104.0	104.0

Table 3-2: Wind turbine acoustic emission summary – E92

3.1.2 Rationale for Change

The Proponent is required to change turbine technology due to delays in the production timelines for the E92 that renders the turbine supplier unable to deliver the turbines in time to meet the Project schedule.

3.1.3 Noise Impact Assessment

The change in turbine technology does not have a negative effect on points of reception identified by the NIA, which is provided in Appendix A [5].The sound pressure level at all receptors has decreased compared to the results of the NIA issue D submitted to the MOE as part of the complete REA submission.

3.1.4 Property Line Setback Assessment

all proposed turbine sites are located more than the length of the turbine blades plus 10 metres [6] to a property boundary. The closest non-participating property line is located 65.8 m from Turbine No. 4 (T4). The Proponent concludes that no adverse impacts to the lands which are not located within the Project Location but which are within 98 m (hub height) of T4 are anticipated. The Property Line Setback Report is provided in Appendix B.

3.1.5 Turbine Specification Report

A revised Turbine Specification Report was prepared for the Enercon E82 turbine technology [7] (see Appendix C).

3.1.6 Natural Heritage Assessments

Four Natural Heritage Assessment reports (Records Review, Site Investigation, Evaluation of Significance, and Environmental Impact Assessment) were completed in September 2012 by M.K. Ince and Associates Ltd [8]. All Natural Heritage Features within 120 m of the Project were reviewed and assessed in these reports. The Ministry of Natural Resources (MNR) had previously issued a written letter **Error! Reference source not found.** confirming that the Natural Heritage Features within 120 m of the Project Location have been adequately studied and effectively addressed through proposed mitigation measures. Subsequent to the above-described Project design change, and as per MOE requirements [3], the MNR was notified of the design change and the details thereof [10] (see Appendix D). At this time the MNR has not confirmed nor determined that the Project design change does not alter the conclusions drawn in the previously conducted Natural Heritage Assessments **Error! Reference source not found.**. However, as the Project design change has reduced the length of the turbine blade to be used and that the Project location has not been altered in any way, ,it is not anticipated that the MNR will require any additional field studies or revisions to the previously completed Natural Heritage Assessment reports.

3.1.7 Archaeological Assessments

Stage 1 and 2 Archaeological Assessments were completed by AMICK Consultants Limited in March 2012 [11]. The studies concluded that no additional archaeological investigations were required for the Project. The Ministry of Tourism, Culture, and Sport (MTCS) provided a confirmation letter, 1 March 2012 and that no additional archaeological studies were required for the Project [12].

Subsequent to the above-described Project design change and as per MOE requirements [3], the MTCS was duly notified of the design change and the details thereof [10] (see Appendix D). At this time the MTCS has not confirmed or determined that the Project design change does not alter the conclusions drawn in the previously conducted archaeological assessments. However, as the Project design change has not altered the Project location in anyway, it is not anticipated that the MTCS will require any additional studies or revisions to the previously completed Archaeological Assessments.

4 CONSULTATIONS

Pursuant to the above-described Project design changes and in accordance with MOE guidelines [3], the Proponent has engaged with the MOE to determine if any additional notification to the public, municipalities, and Aboriginal communities is required. Based on the review of this document the MOE will notify the Proponent if additional consultation is required.

6 REFERENCES

[1] Ontario Regulation 359/09, made under the *Environmental Protection Act*, Renewable Energy Approvals under Part 1.0 of the Act.

[2] Ontario Regulation 521/10, made under the *Environmental Protection Act,* Renewable Energy Approvals under Part 1.0 of the Act.

[3] Draft Technical Guide to Renewable Energy Approvals, Ontario Ministry of the Environment, 2012.

[4] ORTECH Environmental, 2 October 2012. Project Description Report – Ernestown Wind Park

[5] GL Garrad Hassan Canada Inc., June 2013. Ernestown Wind Park – Noise Impact Assessment

[6] Ernestown Windpark Inc. 4 June 2013. Ernestown Wind Park – Property Line Setback Report.

[7] ORTECH Environmental, 4 June 2013. Ernestown Wind Park – Revised Turbine Specifications Report

[8] M.K Ince and Associates Ltd. 28 September 2013. Ernestown Wind Park – Natural Heritage Assessment (Records Review, Site Investigation, Evaluation of Significance, and Environmental Impact Assessment)

[9] Ontario Ministry of Natural Resources. 1 October 2012. MNR Confirmation Letter – Ernestown Wind Park

[10] Ministry of Tourism and Culture and Sport and Ministry of Natural Resources Notification Letter, 3 June 2013.

[11] AMICK Consultants Limited. 29 March 2012. Stage 1 and 2 Archaeological Assessment – Ernestown Wind Park.

[12] Ministry of Tourism, Culture, and Sport. 1 March 2012