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**Stantec**

**BROOKE-ALVINSTON WIND FARM  
WATER REPORT**

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Prepared for:

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## **1.0 Introduction**

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Zephyr Farms Limited (Zephyr Farms) is proposing to develop the Brooke-Alvinston Wind Farm (the Project) in the Township of Brooke-Alvinston, Lambton County, Ontario. The Project has been awarded a Power Purchase Agreement with the Ontario Power Authority (RESOP 11836). The basic components of the Project include four Samsung Heavy Industries 2.5 MW wind turbine generators for a total installed nameplate capacity of 10 MW, transformers at each turbine, electrical collector lines and fibre optic data lines, a switchyard with associated control room, a meteorological tower (met tower) and associated power and data cabling, and turbine access roads. The electrical transmission system would transport the electricity generated from each turbine to Hydro One Networks Inc.'s (HONI's) distribution network. The Project also includes interconnection equipment and installations specified by HONI. All Project components would be situated on private land and municipal road allowance.

Zephyr Farms has retained Stantec Consulting Ltd. (Stantec) to prepare a Renewable Energy Approval (REA) Application, as required under Ontario Regulation 359/09 - Renewable Energy Approvals under Part V.0.1 of the Act of the *Environmental Protection Act* (O. Reg. 359/09). According to subsection 6(3) of O.Reg.359/09, the Project is classified as a Class 4 Wind Facility and will follow the requirements identified in O.Reg.359/09 for such a facility.

This Water Report is one component of the REA Application for the Project, and has been prepared in accordance with O. Reg. 359/09.

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## **2.0 Records Review**

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A water records review was conducted according to Section 30(1) of O.Reg 359/09 and Ministry of Natural Resources (MNR) requirements. No information was available through the St. Clair Region Conservation Authority or the MNR (data request July 15, 2010) regarding fisheries and watercourses within the Project Study Area.

According to MNR mapping, there is one unnamed watercourse (Site A) within the 120 m Project Study Area. Further information on this potential watercourse was obtained during the site investigation (Section 3.0). A figure depicting the potential watercourse identified by MNR mapping and water bodies (as defined in O. Reg. 359/09) identified during on-site investigations is provided in Appendix A.

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## **3.0 Site Investigations**

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### **3.1 METHODS**

A site investigation was carried out according to Section 31 of O.Reg 359/09. The investigation was conducted from 10:00 am to 1:00 pm on July 26, 2010. Weather conditions were 29°C, with a slight southwest wind and 10% cloud cover. No precipitation occurred during the site investigation or within the previous 24 hours.

The purpose of the site investigation was to locate any mapped water bodies located within 120 m of the Project Location, and confirm if they were water bodies as defined in O. Reg. 359/09.

Potential water bodies were identified through a review of MNR mapping and aerial photographs of the site. While on site, the field crew utilized visual inspections to verify the presence or absence of potential water bodies and aquatic habitat. A map of water bodies and watercourses (as per MNR mapping) and setback distances are provided in Appendix A.

The presence or absence of water bodies within the Project Study Area was assessed using the definition provided in O. Reg. 359/09, and is as follows: "...a lake, a permanent stream, an intermittent stream and a seepage area but does not include, a) grassed waterways, b) temporary channels for surface drainage, such as furrows or shallow channels that can be tilled and driven through, c) rock chutes or spillways, d) roadside ditches that do not contain a permanent or intermittent stream, e) temporarily ponded areas that are normally farmed, f) dugout ponds, or g) 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".

### **3.2 RESULTS**

In the vicinity of Turbine WTG1 (Site A) there were two low depressions located immediately west of Ebenezer Road and approximately 320 m and 450 m south of Churchill Line. These depressions correspond with mapped MNR watercourses. Dry shallow depressions in pasture land were observed at this site. The depressions supported no vegetation immediately adjacent to the road; however grass was present in both depressions 30 m from the road. It appeared as though the depressions may contain pooling water during rain events. The south depression was visible for approximately 10 m east of Ebenezer Road. Field observations confirmed that there are no water bodies at this location. Site photos are provided in Appendix B, field notes from the site investigation are provided in Appendix C, and the names and qualifications of the field crew are provided in Appendix D.

In conclusion, no features were identified within the 120 m Project Study Area that met the definition of a water body as set out in O. Reg. 359/09.

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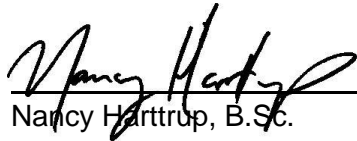
## **4.0 Signatures**

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The Brooke-Alvinston Farm Water Report has been prepared by Stantec Consulting Ltd. for Zephyr Farms Limited in accordance with O.Reg 359/09.

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

### **STANTEC CONSULTING LTD.**



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