

APPENDIX A  
MUNICIPALITY OF WEST HANTS MUNICIPAL  
PLANNING STRATEGY AND BY LAW

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## **1.0 BACKGROUND**

The Municipality of the District of West Hants is a primarily rural municipality bordered by the Municipalities of East Hants, Kings, Chester, the Halifax Regional Municipality and the Town of Hantsport. Development is concentrated around the Town of Windsor in Three Mile Plains and Falmouth, and in communities near Highway 101. The "Municipality of the District of West Hants Municipal Planning Strategy" (the Strategy) provides the framework to guide growth and development in West Hants. The Strategy sets out Council's intentions for future development and provides criteria for Council and planning staff to consider in evaluating development proposals. Together with the "Land Use By-law" and the "Subdivision By-law", the Strategy controls future land use and development in West Hants. The Strategy may be amended to accommodate changing conditions and must be reviewed from time to time to ensure that the policies meet the changing needs of the Municipality.

Based on the Strategy the proposed Project would be considered a "Large Wind Farm". It is the policy of Council to consider the development of permanent or long-term installations of large wind turbines or wind farms outside the Growth Centre, Village and Hamlet designations through development agreement (Municipality of West Hants 2008a).

The Municipal Zoning Maps (Schedule A) provided in support of the Strategy and By-law indicate that the Project site falls in a "General Resource" zone, which permits wind energy facilities, subject to a Development Agreement, as well as several setbacks and guidelines as outlined in the Strategy and By-law. Application for a Development Agreement is made to the Municipality through the West Hants Municipal Office (or the Planning Department). The Planning Department prepares a report on the application for the Planning Advisory Committee (PAC), the committee of Council which considers planning matters. The PAC will review the application and report to ensure the proposed development complies with the policies of the Strategy and the Land Use By-law. The PAC meets once per month to review such proposals.

The following sections provide an overview of the policies outlined in the Strategy and By-law, which are applicable to the proposed Project, and should not be considered a substitute for the full text versions of these documents.

## **2.0 MUNICIPAL PLANNING STRATEGY POLICIES FOR WIND TURBINES**

### Section 4.22: Wind Turbines

Council wishes to encourage the use of technologies that reduce dependence on non-renewable resources and do not contribute to greenhouse gas emissions. Wind energy systems are a clean, renewable source of electric power. Residential-scale wind turbines will be permitted in most zones, subject to lot size, setback and height requirements.

Utility-scale wind turbines have a rated production capacity greater than 100 kW. Much larger than those used for residential energy generation, utility-scale turbines may have towers ranging from 165 to 400 feet (50 to 120 meters) in height. These large wind turbines may be used in wind farms, where a number of turbines feed electricity directly into the utility grid, or as stand-alone installations.

As Council wishes to facilitate the development of wind energy systems, the installation of exploration or test turbines will be treated as a temporary use and permitted as-of-right outside of the Growth Centres, Village and Hamlets subject to setbacks, minimum lot size standards, and requirements for removal within specified time limits. More permanent installations, including the establishment of wind farms, will be considered only by development agreement. Where these facilities have a production rating of two megawatts or more, they are also subject to the Nova Scotia Environmental Assessment Regulations as a Class I Undertaking. Most wind farms also require a federal Environmental Assessment under the Canadian Environmental Assessment Act.

***Policy 4.22.1***

It shall be the intention of Council to include provisions in the Land Use By-law distinguishing between small wind turbines for residential or small business use, which are intended primarily to reduce on-site consumption of utility power, and large or utility-scale wind turbines with a production capacity greater than 100 kW.

***Policy 4.22.2***

It shall be the intention of Council to include standards in the Land Use By-law for the development of small wind turbines including minimum lot size, setback, height and similar requirements to ensure public safety and minimize the potential for land use conflicts.

***Policy 4.22.3***

It shall be the intention of Council to include standards in the Land Use By-law for the temporary establishment of large wind turbines for exploration or test purposes outside the Growth Centre, Village and Hamlet designations, including requirements for removal within specified time limits.

***Policy 4.22.4***

It shall be the policy of Council to consider the development of permanent or long-term installations of large wind turbines or wind farms outside the Growth Centre, Village and Hamlet designations by development agreement, having regard to the following:

- (a) any required provincial and/or federal government environmental assessment processes have been completed;
- (b) adequate separation distances are maintained from adjacent land uses to minimize impacts of noise and shadow and to ensure public safety;
- (c) the development is not visually intrusive in the landscape, taking into account the location and distance from which it is visible, and the significance and sensitivity of the landscape, topography, vegetation and built form in the surrounding area;
- (d) safe roadway access can be provided;
- (e) any other matter which may be addressed in a development agreement; and
- (f) Policy 16.3.1.

**Section 16.3: Land Use By-law Amendments and Development Agreements**

Changes to the Land Use By-law-whether map amendments (rezoning) or text amendments-may be considered by Council provided they are in conformity with the Municipal Planning Strategy. Should Council consider amending the Land Use By-law, it must fully examine the implications of

the change and the amendment must comply with all other legal requirements as set out in the Municipal Government Act.

A development agreement is a legal agreement between Council and a property owner. In such agreements, a wide range of factors may be addressed that go beyond what may be considered under standard zoning. Development agreements provide an opportunity for Council to exercise a greater degree of control over many aspects of a development proposal such as use, design, architectural detail, hours of operation and other matters of concern to adjacent landowners. Development agreements also can provide a greater degree of flexibility to the developer. A development agreement is binding upon a property until the agreement is discharged by Council.

#### *Policy 16.3.1*

In considering development agreements and amendments to the West Hants Land Use By-law, in addition to the criteria set out in various policies of this Strategy, Council shall consider:

- (a) whether the proposal is considered premature or inappropriate in terms of:
  - (i) the adequacy of sewer and water services;
  - (ii) the adequacy of school facilities;
  - (iii) the adequacy of fire protection;
  - (iv) the adequacy of road networks adjacent to, or leading to the development; and
  - (v) the financial capacity of the Municipality to absorb any costs relating to the development.
- (b) whether the development is serviced, or capable of being serviced, by a potable water supply and either central sewer or an approved on-site sewage disposal system;
- (c) the suitability with any aspect relative to the movement of auto, rail and pedestrian traffic;
- (d) the adequacy of the dimensions and shape of the lot for the intended use;
- (e) the pattern of development which the proposal might create;
- (f) the suitability of the area in terms of steepness of grade, soil and geological conditions, location of water courses or wetlands, and susceptibility of flooding;
- (g) whether the proposal meets the requirements of the appropriate provincial or federal agencies as well as whether it conforms to all other relevant municipal by-laws and regulations; and
- (h) any other matter required by relevant policies of this Strategy.

Source: Municipality of West Hants, 2008a.

### **3.0 OVERVIEW OF LAND-USE BY-LAW**

The following is an overview of the regulations in the By-law that, along with the General Provisions and Zoning boundaries, are directly applicable to the proposed Project.

#### **Section 2.0 Administration**

##### *2.1 Administration*

This By-law shall be administered by the Development Officer appointed by Council.

## **2.2 Inspection**

The Council, by any duly authorized officer or servant, shall have the right to enter at all reasonable times into or upon any property within the Municipality for the purpose of an inspection necessary in connection with the administration of this By-law.

## **2.3 Licenses, Permits and Compliance with Other By-laws**

- (a) Nothing in this By-law shall exempt any person from complying with the requirements of any other By-law of the Municipality or from obtaining any license, permission, permit, authority or approval required by any other By-law of the Municipality or any act or regulation of the Province of Nova Scotia or the Government of Canada.
- (b) Where the provisions of this By-law conflict with those of any other By-law of the Municipality or any act or regulation of the Province or the Government of Canada, the higher or more stringent provision shall prevail.

## **2.4 Development Permit**

- (a) Unless otherwise stated in this By-law, no person shall use any land or erect, alter or use any building or structure in the Municipality without first obtaining a development permit from the Development Officer.
- (b) The Development Officer shall only issue a development permit in conformance with this By-law or a duly executed and approved development agreement.
- (c) A development permit issued after the coming into force of this By-law shall automatically expire 12 months from the date issued if the development has not commenced. A development permit issued before the coming into force of this By-law shall automatically expire 12 months from the effective date of this By-law if the development has not commenced.
- (d) The Development Officer may revoke a development permit where information provided on the application is found to be inaccurate.

## **2.6 Application for a Development Permit**

- (a) Every application for a development permit shall be accompanied by a sketch or plan drawn to an appropriate scale and showing:
  - (i) the shape and dimensions of the lot to be used;
  - (ii) the dimensions and height of the building or structure proposed to be erected and its distance from the lot boundaries;
  - (iii) the distance from the lot boundaries and size of every building or structure already erected on the lot; and
  - (iv) the proposed location and dimensions of any parking space, loading space, driveway, and landscaped area.
- (b) In addition to the requirements of subsection (a), every application for a development permit shall show:
  - (i) the existing and proposed use of the lot and any building or structure; and
  - (ii) any other information the Development Officer deems necessary to determine whether or not the proposed development conforms to the requirements of this By-law.

(c) Where the Development Officer is unable to determine whether the proposed development conforms to this By-law, the Development Officer may require that the plans submitted under subsection (a) be based upon a survey certified and stamped by a Nova Scotia Land Surveyor.

### ***2.7 Signature of Applicant***

The application for a development permit shall be signed by the registered owner of the lot or by the owner's agent duly authorized in writing to act for the owner.

### ***2.8 Advertising and Notification Costs***

- (a) Where an application is made to amend this By-law or to enter into or amend a development agreement, the applicant shall deposit with the Municipal Clerk at the time of application an amount estimated by the Municipal Clerk to be sufficient to pay the costs of any advertising and notification required.
- (b) If the amount paid under subsection (a) is not sufficient to cover the actual costs incurred, the applicant shall pay the additional amount required within 30 days of remittance of an invoice. If the amount paid exceeds the actual costs incurred, the Municipal Clerk shall refund the excess amount.

### ***2.9 Notice to Property Owners***

- (a) When an application has been received to amend this By-law for a site-specific purpose, enter into a development agreement, or amend a development agreement, all property owners within 300 ft (91.44 m) of the subject property shall be notified of the application by the Municipal Clerk.
- (b) The notice referred to in subsection (a) shall be in addition to the advertisement for public hearing required under the Municipal Government Act and shall be delivered, by regular mail prior to the public hearing, to all assessed property owners as shown on the current assessment roll in use by the Municipality at the time of the notification.

### ***2.10 Effective Date***

- (a) This By-law shall take effect upon the date of publication of the notice advertising the approval of the new By-law.
- (b) The adoption of this By-law repeals any previous Land Use By-laws adopted by the Municipality.

## **Wind Turbines**

### **5.51**

Small wind turbines shall be permitted subject to the following:

- (a) not more than one turbine shall be permitted per lot except where the lot is at least 2 acres (0.81 ha) in area;
- (b) turbines with towers under 50 ft (15.24 m) in height shall be permitted in any zone provided the lot is at least 0.5 acres (0.20 ha) in area;
- (c) turbines with towers 50 ft (15.24 m) in height or greater shall be permitted only in zones

outside the Growth Centre designation provided the lot is at least 1 acre (0.40 ha) in area;

(d) the minimum setback from any lot line for the tower shall be the greater of:

(i) the minimum yard requirement for a main building; or

(ii) the height of the tower plus the distance from the top of the tower to the highest extended tip of the rotor blades;

(e) the minimum setback for the tower from any dwelling on the same lot shall be the height of the tower plus the distance from the top of the tower to the highest extended tip of the rotor blades;

(f) the minimum setback for the tower from any dwelling on an adjacent lot shall be 200 ft (60.96 m);

(g) no ladder or permanent tower access device shall be located less than 12 ft (3.66 m) above grade;

(h) there shall be no restriction on the height of the tower provided the property owner has received Aeronautical Clearance approval from Transport Canada.

#### **5.52**

For the purposes of Section 5.51 (b) and (c), height shall be measured as the distance above grade of the fixed portion of the tower, excluding the wind turbine itself.

#### **5.53**

The erection of a single large wind turbine for exploration or test purposes shall be permitted subject to the following:

(a) the turbine shall not remain in place for more than two years;

(b) turbines shall be permitted only in zones outside the Growth Centre, Village and Hamlet designations provided the lot is at least 10 acres (4.05 ha) in area; and

(c) the requirements of Section 5.51 (d), (e), (f) and (g).

### **Section 6.0: Development Agreements**

#### ***6.1 Developments to be considered by Development Agreement***

The following developments may be considered only by development agreement in accordance with the Municipal Government Act and the Municipal Planning Strategy:

##### **General**

(x) institutional uses in any designation in accordance with Policy 13.1.2 of the Municipal Planning Strategy;

(y) Recreation Commercial uses in any designation, except the Village Core, in accordance with Policy 13.3.2 of the Municipal Planning Strategy;

(z) non-conforming uses in accordance with Policy 16.8.2 of the Municipal Planning Strategy; and

(aa) permanent or long-term installations of large wind turbines or wind farms outside the Growth Centre, Village and Hamlet designations in accordance with Policy 4.22.4 of the Municipal Planning Strategy.

### Section 35: Definitions

**Wind Farm** means an array of two or more large wind turbines connected directly to the utility grid;

**Wind Turbine** includes a windmill used for pumping water and a wind energy conversion system consisting of a wind turbine, a tower and associated control or conversion electronics;

(a) **Small Wind Turbine** means a wind turbine which has a rated capacity of not more than 100 kW and which is intended primarily to reduce on-site consumption of utility power;

(b) **Large Wind Turbine** means a wind turbine with a production capacity greater than 100 kW;

Source: Municipality of the District of West Hants, 2008b.

### 3.0 References

Municipality of the District of West Hants 2008a. As amended 2012. *Municipality of the District of West Hants Municipal Planning Strategy*. Retrieved from <http://www.westhants.ca/planning.html>

Municipality of the District of West Hants. 2008b. As amended April 6, 2012. *Municipality of the District of West Hants Land Use By-Law*. Retrieved from <http://www.westhants.ca/planning-documents.html>



**APPLICATION FORM FOR  
LAND USE BY-LAW AMENDMENT OR DEVELOPMENT AGREEMENT**

MUNICIPALITY OF THE DISTRICT OF WEST HANTS



*Ram's Head Lady Slipper*

**Planning Department**

Phone: 798-6900      Fax: 798-8553  
76 Morison Drive, Windsor-West Hants Industrial Park

An amendment to the West Hants Land Use By-Law (LUB) can be in two forms: (i) an amendment to the zoning map, more commonly called a rezoning; or (ii) an amendment to the text of the by-law, which is a change in the wording of the by-law, perhaps to allow a new use in a zone, or to change the requirements of a particular zone.

A development agreement is a legal agreement between Council and a property owner which sets out the type and form of development which will be permitted on a property, as well as requirements such as landscaping, screening, parking, building size, hours of operation, and the like. Similar to a mortgage, a development agreement is registered against the title to the property and runs with the land regardless of changes in ownership. Development agreements are more flexible than traditional zoning and may allow Council to authorize a use which otherwise would not be permitted. They can only be used, however, when there is a specific policy in the Municipal Planning Strategy (MPS) which authorizes them. The Municipal Planning Strategy for West Hants has identified several types of development which can only occur through development agreements; for example, apartment buildings in excess of three storeys, manufactured home parks, large format retail stores, and a variety of other uses.

Application for a Land Use By-law amendment or a development agreement is made to the Municipality through the West Hants Municipal Office (or the Planning Department). The Planning Department prepares a report on the application for the Planning Advisory Committee (PAC), the committee of Council which considers planning matters. This committee meets once per month.

The Planning Department's report evaluates the application to determine whether it complies with the policies of the Municipal Planning Strategy. The MPS sets out issues which must be addressed when considering development agreements or amendments to the Land Use By-law. These issues include the potential impacts of the proposal on water supply, sewage disposal, schools, roads and traffic, neighbouring uses, and costs to the Municipality. In addition, the proposed amendment or development agreement must be examined for compliance with various Municipal by-laws including the Land Use By-law, as well as with requirements of federal and provincial agencies. All of these issues must be addressed by the Planning Department in its report, by the Planning Advisory Committee, and ultimately by West Hants Municipal Council, the only body with the authority to make a decision. The Planning Department's report contains a recommendation on whether or not to approve the application, based on policies of the MPS. PAC reviews the report, considers and discusses the issues and makes a recommendation to Council; this recommendation may be the same as that of the Planning Department, or it may differ, depending on how the PAC views the issues and the impact of the amendment/development agreement.

If PAC's recommendation is to approve the request, the matter proceeds to first reading by Council. This is an approval in principle, following which a public hearing date is set. Council is not bound by the first reading when it comes time to make the final decision at second reading. The *Municipal Government Act* provides that Council cannot approve the amendment without first holding a public hearing. It can, however, deny the application without holding a public hearing. If a public hearing is scheduled, two notices must be published in the local newspaper, *The Hants Journal*, with the first notice appearing at least 14 days before the date of the public hearing. All property owners within 300 feet of the property subject to the rezoning must be notified of the hearing by mail. At the public hearing, Council considers the application, the report and recommendation of the Planning Department, the recommendation of the PAC, and written or oral presentations made at the hearing from interested persons who may either support or oppose the application. Following the public hearing, Council gives second reading to the amendment and a decision is made. The decision may be made at the same meeting as the public hearing or at a subsequent meeting. Like the PAC, Council meets only once per month. If Council approves the application, a notice of approval must be published in the *Hants Journal*. Council's decision may be appealed to the Nova Scotia Utility and Review Board within 14 days of the publication of this notice. If Council refuses to approve the application, the applicant has the right to appeal to the Nova Scotia Utility and Review Board within 14 days of receiving written notice of the refusal.

The process for a development agreement application is the same as for a land use by-law amendment except that first reading by Council is not required.

An amendment to the Land Use By-law generally takes at least three to four months to complete once the Municipal Government Act's requirements for appeal periods and advertising have been fulfilled, monthly meetings of both PAC and Council have been held, and the publishing schedule of a local weekly newspaper has been accommodated. Development agreements may be more complex, requiring a longer time for completion.

The applicant is required to deposit with the Municipality of West Hants a fee of \$600 which must accompany the completed application form for the amendment/development agreement. This fee is intended to cover the costs of advertising. After advertising, if the amount deposited is insufficient, the applicant is responsible for any additional costs. A development agreement is subject to an additional fee to cover the cost of registering the document at the Registry of Deeds.

**APPLICATION FORM FOR  
LAND USE BY-LAW AMENDMENT OR DEVELOPMENT AGREEMENT**

Letter of Explanation to Applicants:

1. Complete and submit the attached application to the Municipal Office, 76 Morison Drive, Windsor or mail to:  

West Hants Planning Department  
Municipality of West Hants  
P.O. Box 3000  
Windsor, NS  
B0N 2T0
2. A \$600.00 application fee must accompany this form.
3. If the cost of advertising exceeds the \$600.00 application fee, the applicant will be invoiced accordingly.
4. Where outstanding information required to complete the application form is not provided within four months of initial submission by the applicant, then the application will be automatically considered void and the application fee lost. In light of this, please read this form in its entirety and ensure that all information requested has been forwarded correctly before signing this application.
5. It is advisable to discuss your application with Planning Department staff and familiarize yourself with the Municipal Planning Strategy and Land Use By-law. In this way, your case can be processed with a minimal degree of possible delay and conflict. Copies of the Land Use By-law and Municipal Planning Strategy are available from the Municipal Office or the Planning Department for your perusal and/or purchase, or online at [www.westhants.ca](http://www.westhants.ca).
6. If you have any questions, do not hesitate to contact the Planning Department at 798-6900.

**MUNICIPALITY OF WEST HANTS APPLICATION FORM FOR  
LAND USE BY-LAW AMENDMENT OR DEVELOPMENT AGREEMENT**

1. (a) Name of Applicant \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

Telephone (Residence) \_\_\_\_\_ (Business) \_\_\_\_\_

email: \_\_\_\_\_

(b) Name of Property Owner (if different from above)

Address \_\_\_\_\_

\_\_\_\_\_

Telephone (Residence) \_\_\_\_\_ (Business) \_\_\_\_\_

(c) If the applicant is not the owner of all lands involved in the application, then please have the owner(s) complete the following authorization:

I (We) \_\_\_\_\_

The owner(s) of the property known as:

\_\_\_\_\_

civic address or lot number and PID (if available)

hereby authorize \_\_\_\_\_

to make application on my (our) behalf to the Municipality of the District of West Hants for a Land Use By-law amendment/development agreement as set out in this application.

\_\_\_\_\_

SIGNATURE(S)

2. The subject property is located at:

\_\_\_\_\_

civic address or lot number and PID (if available)

If property does not have a designated civic address, please attach a plot plan to indicate the location of property).

3. Existing use(s) of subject property - (please specify below)

\_\_\_\_\_

Existing use(s) of abutting properties:

\_\_\_\_\_

4. (a) Are Municipal Services available? (please check the appropriate space below)

(i) Water \_\_\_\_\_ Connected \_\_\_\_\_

(ii) Sanitary Sewers \_\_\_\_\_ Connected \_\_\_\_\_

(iii) Storm Sewers \_\_\_\_\_

(b) If municipal water supply and sanitary sewers are not available has the subject property been approved by the Department of Environment for an on-site sewage disposal system?

Yes \_\_\_\_\_ No \_\_\_\_\_

(c) Does the subject property abut a public street?

Yes \_\_\_\_\_ No \_\_\_\_\_

(d) Existing Land Use By-law zoning of the subject property.

\_\_\_\_\_

Proposed Land Use By-law zoning of subject property.

\_\_\_\_\_

Existing Municipal Planning Strategy designation of subject property.

\_\_\_\_\_

5. Give a general explanation of the proposal.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## ADDITIONAL SUBMISSIONS

The following information may be required to complete your application. Please consult with the Planning Department to determine which, if any, of the following items should be submitted:

- ☐ Site Plan, drawn to scale, showing the area and dimensions of the property, the location and dimensions of existing and proposed buildings, driveways, parking areas, landscaping, etc.
- ☐ Plan of Subdivision.
- ☐ Building plans and architectural elevation drawings of any proposed structure.
- ☐ Legal description of the subject property (required for Development Agreement application).
- ☐ Proposed Servicing Plan.

\*\*\*\*\*

## DECLARATION

I certify that all the above statements and attachments are true and accurate.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

Signature: \_\_\_\_\_

APPENDIX B  
ENVIRONMENTAL PROTECTION PLAN SUGGESTED  
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APPENDIX C  
HUMAN HEALTH AND WIND FARMS – A LITERATURE  
REVIEW

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In support of the Environmental Assessment (EA) for the Ellershouse Wind Farm, a review was completed of current available literature on the potential effects on human health related to wind energy. Several key health-related issues were identified, and Project-specific studies were completed to address shadow flicker and (audible) sound. Details of these studies are provided in Section 11.0 of the “Environmental Assessment Registration Document”.

The following sections provide additional background information on the potential effects of electromagnetic fields (EMFs), air quality, ice throw/shedding and infrasound on human health.

#### Electromagnetic Fields

Electromagnetic fields (EMFs) are a type of energy that occurs naturally and is also created through the use of electrical appliances and equipment (i.e. cell phone usage, radio towers, etc.) (City of Toronto 2011). EMFs are not unique to wind energy projects; EMF is part of our modern lives. Health Canada has stated that while there may be health concerns associated with low levels of EMF, use of electricity and electrical appliances exposes residents constantly to EMFs at extremely low frequencies (Rod and Heiger-Bernays 2012). A guidebook to Wind Energy Development was produced in 2011 and identified transmission lines, wind turbine generators, generator transformers and underground cables as the four potential sources of EMFs as a result of wind farm operations (Canadian Wind Energy Association [CanWEA] 2011). The guidebook goes on to suggest that EMF exposure is not significant due to low emission levels produced by wind farm operations and indicates that generator transformers likely generate the highest levels of EMFs. Similar conclusions have been made by Health Canada and the World Health Organization (Chief Medical Officer of Health of Ontario 2010).

In 2007, a study was completed to assess the possible effects of EMFs on human health. The study concluded that there is little evidence to support the theory that EMFs cause long term health issues (Scientific Committee on Emerging and Newly Identified Health Risks 2007). As well, a study led by the National Institute of Environmental Health Sciences assessed scientific evidence spanning over six years, to determine whether exposure to EMF could result in a potential risk to human health. Results indicated that there were no consistent patterns of biological effects with animals or with cells (Electric and Magnetic Fields Research and Public Information Dissemination Program 2002).

Health Canada states that “research has shown that EMFs from electrical devices and power lines can cause weak electric currents to flow through the human body. However, these currents are much smaller than those produced naturally by your brain, nerves and heart, and are not associated with any known health risks” (Health Canada 2010). Health Canada goes on to state that EMFs are strongest when close to the source so that at greater distances, the strength of the field fades rapidly and humans need not engage in specific actions to minimize risk including those who are located just outside the boundaries of power line corridors (Health Canada 2010).

#### Air Quality

The development and construction phases of a wind energy project may affect local air quality by increasing air borne dust associated with on-site equipment, and vehicles. Emissions from vehicles and equipment can also contribute to a reduction in local air quality.

The American Wind Energy Association (AWEA) states that the generation of electricity from the wind does not result in any air emissions (AWEA 2010). Similarly, the US Environmental Protection Agency (EPA) recognizes that the emissions associated with wind technology are negligible because no fuels are combusted. Therefore, wind energy production offsets more polluting forms of energy generation and can actually improve air quality and our health.

#### Ice Throw and Ice Shedding

Under appropriate temperature and humidity conditions, ice can build up on the rotor blades, nacelle and tower of a wind turbine, which can lead to two types of risk:

- ice fragments dislodge and are shed from the rotor of the operating turbine due to aerodynamic and centrifugal forces; and
- ice fragments dislodge from the structure and fall to the ground when it is shut down or idling without power production (CanWEA 2007).

Typically, modern wind turbines are equipped with mechanisms which shut down turbines when sufficient ice formed on the blades is detected by ice or vibrational sensors. Ice will most often fall from a turbine when it is stationary, because during an extreme weather event with very high winds, the turbine blades will be shut off. Ice throw from an operational blade would typically occur during start up when rotational speeds are low or if a failure of the control system occurs (Rod and Heiger-Bernays 2012).

The Massachusetts Department of Environmental Protection in collaboration with the Massachusetts Department of Public Health (Ellenbogen *et al.* 2012) recently convened a panel of independent experts to identify any documented or potential health impacts of risks that may be associated with exposure to wind turbines, and, specifically, to facilitate discussion of wind turbines and public health based on scientific findings. The Massachusetts Panel did a thorough review of risk from ice throw in 2012, which included analysis of the physics of ice throw to ascertain probable distance and comparison with a study completed in Finland from 2003 (Rod and Heiger-Bernays 2012). The Finnish study included a database review of recorded ice throw from wind turbines, which determined that recorded distances are typically less than 125 m from the base of the turbine (Seifert *et al.* 2003, as cited in Rod and Heiger-Bernays 2012). The Massachusetts Panel identified a simplified formula for calculating maximum ice throw operating turbine without ice control measures based on blade radius and hub height of a turbine. For a typical turbine, with a hub height of 80 m and blade radius of 40 m, the maximum distance of ice throw is 240 m (Ellenbogen *et al.* 2012, as cited in Rod and Heiger-Bernays 2012).

As part of a project prepared by the Finnish Meteorological Institute entitled “Wind Energy in Cold Climates (WECO)”, a set of safety guidelines for wind developments in ice prone areas was developed. A risk assessment methodology demonstrated that the risk of being struck by ice thrown from a turbine is diminishingly small at distances greater than approximately 250 m from the turbine in a climate where moderate icing occurs (Morgan *et al.* 1998). With proper setbacks and on-sight safety awareness, hazards are minimized (Colby 2008; Ellenbogen *et al.* 2012).

In 2007, Garrad Hassan was commissioned by the CanWEA to develop a risk assessment for ice throw from an operating turbine from perspective of public safety. The model employed for the

assessment was based on a large-scale wind turbine with a hub height of 80 m and rotor diameter of 80 m. The model result was a distance of 220 m for critical ice shed and that beyond 220 m, there is negligible risk of injury from ice throw. For ice shed from a non-operational turbine, the distance is typically under 50 m from turbine base (Hassan 2007, as cited in Rod and Heiger-Bernays 2012).

All sources reviewed by Rod and Heiger-Bernays (2012) in support of the 2012 Kings County review arrive at similar conclusions on safe distances with regards to ice throw. All conclude that risk is only present in relatively close proximity to the turbine during icing conditions.

Turbines for the proposed Project have been located almost 900 m from the nearest permanent/seasonal residence. Access to the site is provided initially by Hartville and Ellershouse roads which are paved public roads, and then via Hartville Quarry Road, a gravel road providing access to Hartville Quarry. The public roads in closest proximity to a turbine are Salmon Hole Dam Road, which is 1.0 km west of Turbine 1, and Williams Road, which is 1.2 km northeast of Turbine 3, therefore there is little to no risk associated with ice throw to the public using these roads. However, logging roads and trails exist throughout the site, which are frequently used by recreationists for snowmobiling, hunting and ATVing. The Project team is currently engaging with recreational groups and with the project insurer to determine a solution that would ensure continued safe use of the site by the various groups.

Turbine access roads are expected to be gated and used by on-site workers only for safety reasons, which will decrease the risk of injury from ice to nearby workers and recreationists. In addition, the following additional mitigation strategies can be implemented to lower or remove the risk of ice throw to persons at the site:

- physical and visual warnings (i.e. signs and fences) posted in proximity to turbines to warn individuals of the risk of ice shed and ice throw;
- restrict operational activities in the vicinity of the turbines during and immediately following an icing event;
- employ turbine deactivation mechanisms during periods of ice accumulation; and
- train operational staff of the risks associated with ice during certain conditions and restrict site access to trained site personnel (Rod and Heiger-Bernays 2012; Wahl and Giguere 2006).

## Infrasound

### *General Background - Sound*

Humans detect sound from changes in pressure that travel through the air and cause the eardrum and small bones of the middle ear to vibrate. The vibrations are transmitted to the inner ear where sensory hair cells then change the vibrations into nerve impulses, which travel to the brain where they are perceived and interpreted.

The magnitude (loudness) of sound is described as “pressure level”, “sound level” or “noise level” and is measured as decibels (dB). Typical sound levels, measured in decibels, are shown in Table A.

**Table A: Typical Sound Levels**

| Source         | Distance from Source |        | Sound Pressure Levels (dBA) |
|----------------|----------------------|--------|-----------------------------|
|                | feet                 | meters |                             |
| Freight train  | 100                  | 30     | 70                          |
| Vacuum Cleaner | 10                   | 3      | 70                          |
| Freeway        | 100                  | 30     | 70                          |
| Wind in trees  | 40                   | 12     | 55                          |
| Light traffic  | 100                  | 30     | 70                          |
| Average home   |                      |        | 50                          |
| Soft whisper   | 5                    | 2      | 30                          |
| Quiet bedroom  |                      |        | 20                          |

Source: AWEA 2010

The tonal quality or pitch of the sound is related to its frequency and is measure in hertz (Hz). The normal frequency range of sounds that humans can hear (known as audible sound) extends from about 20-50 Hz (a rumbling sound) up to high frequency of about 10,000-15,000 Hz (hissing sound) or even higher for some people. Humans generally hear best in the mid-frequency range of 500-4,000 Hz.

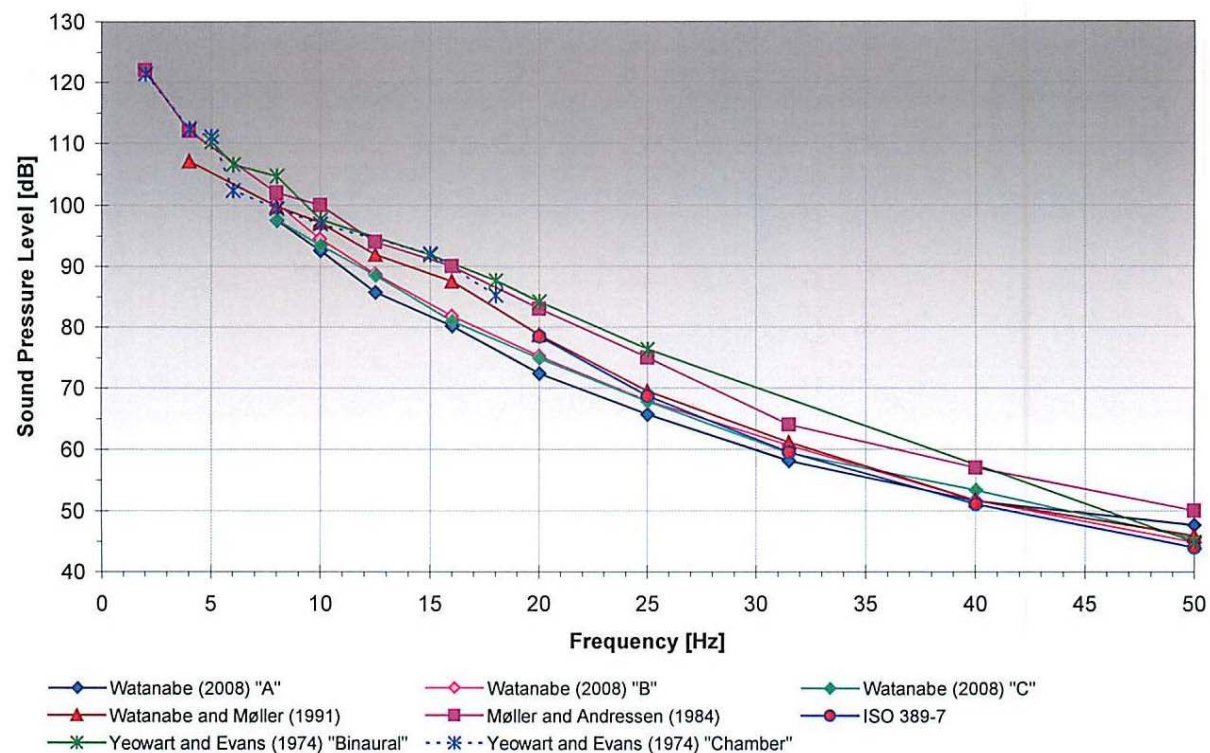
#### *General Background - Infrasound*

Infrasound is very low-frequency sound, that is typically defined as being between 1-20 Hz, which is below what human ears can normally hear. The impulsive noises that are described anecdotally as the “swish” and “thump” sounds from a wind turbine are broadband sounds that fall within the audible range and are not infrasound by definition (Rod and Heiger-Bernays 2012).

Infrasound is everywhere in the environment. It is emitted from natural sources (e.g. wind, rivers) and from artificial sources including road traffic, aircraft, and ventilation systems. The most common source of infrasound that humans encounter is vehicles (CMOH 2010). Like audible noise, ILFN from large-scale wind turbines attenuates over space as a function of site-specific characteristics (i.e., ground conditions, topography, vegetation), as well as climatic conditions (Rod and Heiger-Bernays 2012).

When evaluating potential effects of infrasound, it is important that these frequencies be discussed in the context of the sound pressure levels, or in other words, the loudness of the sound. For instance, very loud sounds at very low frequencies (i.e. 165 dB at 2 Hz, reducing to 145 dB at 20 Hz) may result in pain (Leventhall 2006) and infrasound has been shown to cause annoyance, when the sound level exceeds the threshold of hearing (i.e. the lowest sound levels that a listener can detect) (HGC 2010). Further, research shows that to be physically felt, infrasound must exceed 100–110 dB (Ellenbogen *et al.* 2012).

While there is some variation in the literature and between individual sensitivities, there is fairly good agreement on the level of the threshold of hearing among the various studies that have been completed (Figure 1).



**Figure 1: Threshold of Hearing Data from Various Papers (HGC 2010).**

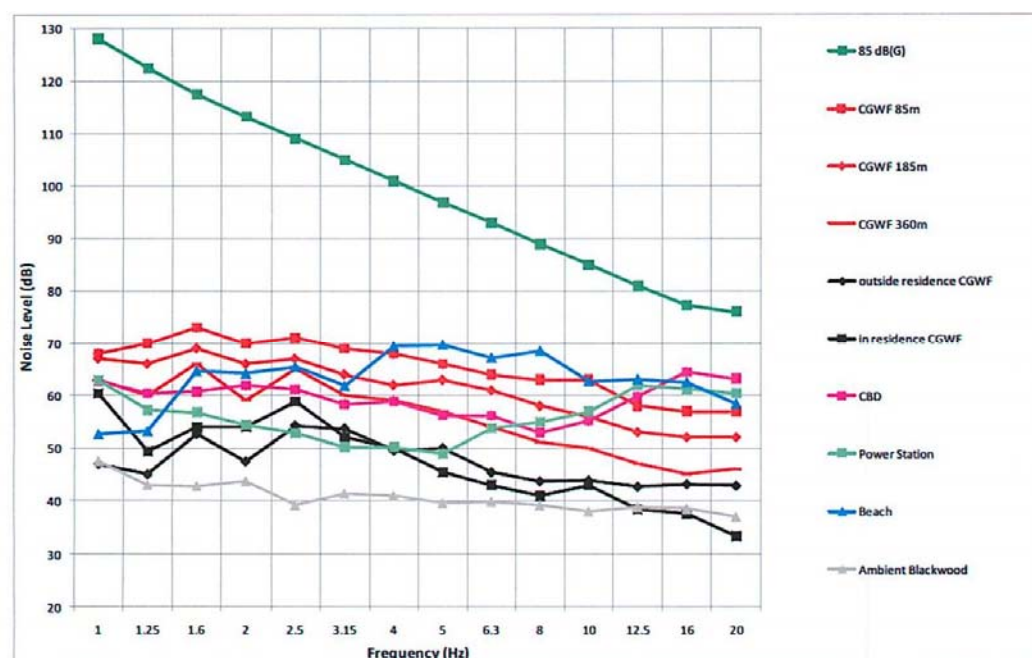
What these results show is that the lower the frequency of the sound, the louder the sound needs to be in order to be perceived.

#### *Measured Infrasound Levels*

In 2010, Sonus, an acoustic consulting firm based in South Australia, completed a study to measure infrasound produced by a range of natural and manmade sources using a methodology specifically designed to measure infrasound (Table B, Figure 2). The G-weighting network was applied to the measured infrasound pressure levels as it has been standardized to determine the human perception (i.e. threshold of hearing) and annoyance due to noise that lies within the infrasound frequency range. By comparison, when measuring audible sound levels, meters are usually equipped with weighting circuits to simulate the frequency response characteristics of the human ear. The A-weighting filter is normally used as it correlates well with the human perception of most sounds. Sound levels measured using the G and A-weighting filters are expressed as dBG and dBA, respectively.

**Table B: Measured Levels of Infrasound from Natural and Manmade Sources**

| Source   | Infrasound Level (dBG) |
|--|------------------------|
| Threshold of hearing   | 85 dBG                 |
| Wind Farm (360 m downwind) (CGWF)  | 61 dBG                 |
| 100 m downwind from wind farm (CBWF)   | 66 dBG                 |
| 200 m downwind from wind farm (CBWF)   | 63 dBG                 |
| Ambient infrasound (100 m from nearest turbine with negligible wind and no turbine operation) (CBWF) | 62 dBG                 |
| Inside a residence (fridge operating) (1200m from nearest turbine)                                   | 51 dBG                 |
| Outside a residence (1200m from nearest turbine)   | 58 dBG                 |
| Adjacent to the beach (25 m from high water mark)  | 75 dBG                 |
| Cliff face (250 m from the coastline)  | 69 dBG                 |
| Inland forest (8 km from the coastline)  | 57 dBG                 |
| Gas fired power station (350 m)  | 74 dBG                 |
| Business District (70 m from two major road corridors)   | 76 dBG                 |



Source: Sonus Pty Ltd 2010

**Figure 2: Summary of Measurement at the Clements Gap Wind Farm and Other Sources (Sonus Pty Ltd 2010)**

The results of the study indicate that while turbines do produce infrasound, levels are well below established levels that can be perceived by humans and are comparable to natural and urban sources that are common in the environment.

Another recent Australian report also measured levels of infrasound within typical environments in South Australia, with a particular focus on comparing wind farm environments to urban and rural environments away from wind farms. The study concluded that measured infrasound levels at rural locations both near to and away from wind farms were no higher than infrasound levels measured at



the urban locations (Figure 3). Human activity and traffic were the main sources of infrasound at urban locations, while localized wind conditions were found to be the main source of infrasound in rural locations. All measurements were below the levels that can be perceived by humans, with most by a significant margin (Evans *et al.* 2013).

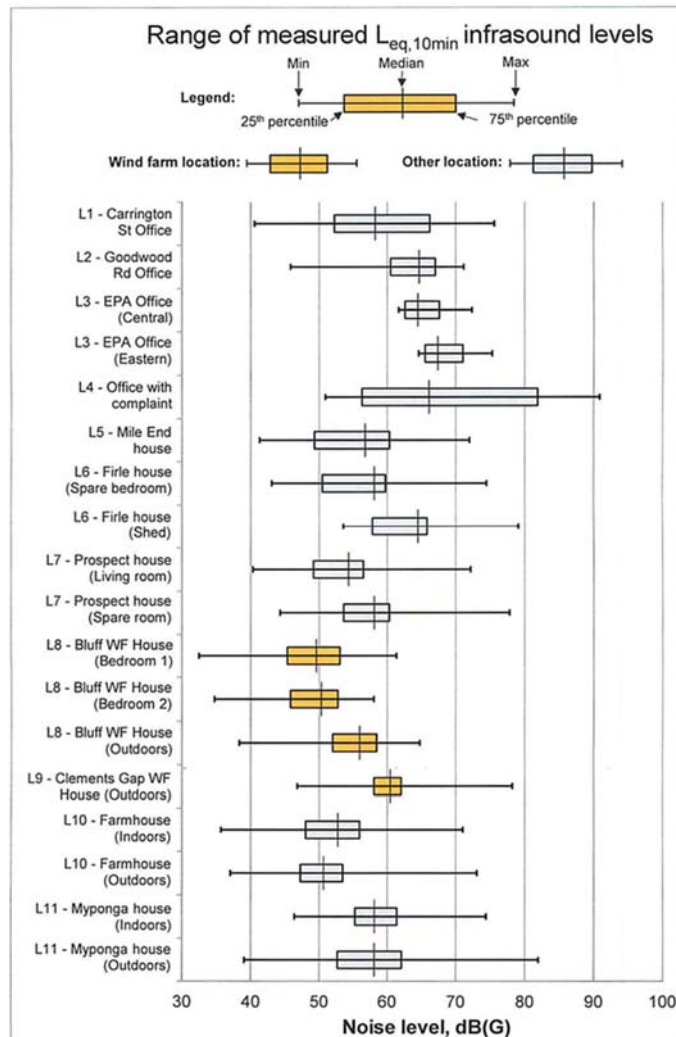
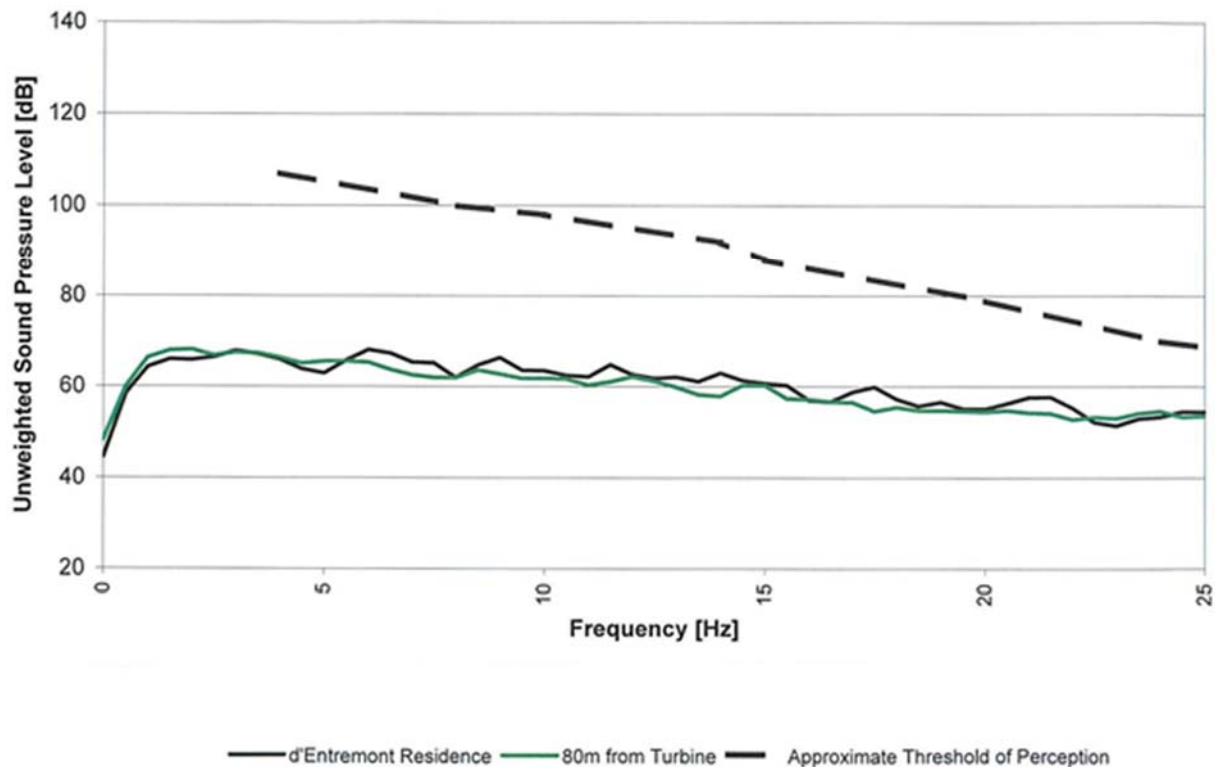


Figure 3: Range of Measured Infrasound Levels (Evans *et al.* 2013).

An investigation was also completed at a wind farm in Pubnico, Nova Scotia to, in part, evaluate infrasound levels at a residence within 330 m of the closest turbine (HGC 2006). Similar to other results from wind farms, infrasound levels were found to be well below the level of sound that can be perceived by humans, as shown in Figure 4.



**Figure 4: Infrasound Measurements at Pubnico Wind Farm (HGC 2006).**

#### *Infrasound and Health Concerns*

Concern about infrasound from wind turbines may have originated from the experience of neighbours of early wind turbine designs with downwind rotors (rotors downwind of the tower). In contrast, all modern utility scale wind turbines have upwind rotors that produce significantly lower infrasound emissions (Bastasch *et al.* 2006).

Several studies and panels have been assembled to evaluate the perceived health effects associated with wind turbines.

A scientific advisory panel with expertise in audiology, acoustics, occupational/environmental medicine, and public health was assembled by the wind industry in early 2009 to conduct a review of current literature available on the issue of perceived health effects of wind turbines (Colby *et al.* 2009). Following their review and analysis of the information, the panel reached consensus on the following conclusions:

- There is no evidence that the audible or sub-audible sounds emitted by wind turbines have any direct adverse physiological effects.
- The ground-borne vibrations from wind turbines are too weak to be detected by, or to affect, humans.
- The sounds emitted by wind turbines are not unique. There is no reason to believe, based on the levels and frequencies of the sounds and the panel's experience with sound exposures in occupational settings, that the sounds from wind turbines could plausibly have direct adverse health consequences.

The Chief Medical Officer of Health in Ontario also conducted a review of papers and reports (from 1970 to date) on wind turbines and health from scientific bibliographic databases, grey literature, and from a structured Internet search. The report concluded that “low frequency sound and infrasound from current generation upwind model turbines are well below the pressure sound levels at which known health effects occur. Further, there is no scientific evidence to date that vibration from low frequency wind turbine noise causes adverse health effects” (CMOH 2010).

The Massachusetts panel concluded that “measured levels of infrasound produced by modern upwind wind turbines at distances as close as 68 m are well below that required for non-auditory perception”. Further, the panel concluded that “the weight of the evidence suggests no association between noise from wind turbines and measures of psychological distress or mental health problems” (Ellenbogen *et al.* 2012).

## References

American Wind Energy Association. 2010. *Wind Turbines and Health*. Retrieved from [http://www.awea.org/learnabout/publications/upload/Wind-Turbines-and-Health-Factsheet\\_WP11.pdf](http://www.awea.org/learnabout/publications/upload/Wind-Turbines-and-Health-Factsheet_WP11.pdf).

Bastashe, M., Van Dam, J., Sondergaard, B., and A. Rogers. 2006. Wind Turbine Noise – An Overview. *Canadian Acoustics* 34 (2): 7-15.

Canadian Wind Energy Association. 2007. *Position on Setbacks for Large Scale Wind Turbines in Rural Areas (MOE Class 3) in Ontario*. p21. Retrieved from [http://www.manitoba.ca/iem/energy/wind/files/swea\\_position.pdf](http://www.manitoba.ca/iem/energy/wind/files/swea_position.pdf).

Canadian Wind Energy Association. 2011. *An Introduction to Wind Energy Development in Canada*. Ottawa, Ontario: CanWEA. Retrieved from <http://www.canwea.ca/pdf/canwea-sitingreport-e.pdf>

Chief Medical Officer of Health of Ontario. 2010. *Potential Health Impacts of Wind Turbines*. [Report]. Ontario Agency for Health Protection and Promotion. The Ministry of Health and Long-Term Care. Retrieved from [http://www.health.gov.on.ca/en/common/ministry/publications/reports/wind\\_turbine/wind\\_turbine.pdf](http://www.health.gov.on.ca/en/common/ministry/publications/reports/wind_turbine/wind_turbine.pdf).

City of Toronto. 2011. *Electromagnetic Fields*. Retrieved from <http://www.toronto.ca/health/emfs.htm>.

Colby, D. 2008. *The Health Impact of Wind Turbines: A Review of Current White, Grey, and Published Literature*. Chatam, Ontario: Chatam-Kent Public Health Unit. Retrieved from [http://www.wind-works.org/cms/fileadmin/user\\_upload/Files/Health\\_and\\_Wind\\_by\\_C-K\\_Health\\_Unit.pdf](http://www.wind-works.org/cms/fileadmin/user_upload/Files/Health_and_Wind_by_C-K_Health_Unit.pdf)

Colby, W. D., Dobie, R., Leventhall, G., Lipscomb, D.M., McCunney, R.J., Seilo, M.T. and B. Sondergaard. 2009. *Wind Turbine Sound and Health Effects. An Expert Panel Review*. Prepared for

American Wind Energy Association and Canadian Wind Energy Association. Retrieved from [http://www.awea.org/learnabout/publications/upload/awea\\_and\\_canwea\\_sound\\_white\\_paper.pdf](http://www.awea.org/learnabout/publications/upload/awea_and_canwea_sound_white_paper.pdf)

EDS Consulting. 2009. *Final Report to Manitoba Intergovernmental Affairs on Land Use Planning for Wind Energy Systems in Manitoba*. Retrieved from <http://www.gov.mb.ca/ia/plups/pdf/weq.pdf>

Electric and Magnetic Fields Research and Public Information Dissemination Program. 2002. *EMF Electric and Magnetic Fields Associated with the Use of Electric Power*. June 2002. Retrieved from <http://www.niehs.nih.gov/health/topics/agents/emf/>

Ellenbogen, Jeffrey; Grace, Sheryl; Heiger-Bernays, Wendy; Manwell, James; Mills, Dora; Sullivan, Kimberly; and Weisskopf. 2012. Wind Turbine Health Impact Study: Report of Independent Expert Panel. Prepared for Massachusetts Department of Environmental Protection and Massachusetts Department of Public Health.

Evans, T; Cooper, J; and Lenchine, V. 2013. Infrasound Levels Near Windfarms and in Other Environments. Prepared for the South Australia Environmental Protection Agency.

Health Canada. 2010. *It's your health fact sheet: Electric and Magnetic Fields at Extremely Low Frequencies*. Retrieved from [http://www.hc-sc.gc.ca/hl-vs/alt\\_formats/pdf/iyh-vsv/envIRON/magnet-eng.pdf](http://www.hc-sc.gc.ca/hl-vs/alt_formats/pdf/iyh-vsv/envIRON/magnet-eng.pdf).

Howe, Gastmeier, Chapnick Ltd. 2006. Environmental Noise Assessment Pubnico Point Wind Farm, Nova Scotia. Prepared for Natural Resources Canada.

Howe, Gastmeier, Chapnick Ltd. 2010. Low Frequency Noise and Infrasound Associated With Wind Turbine Generator Systems: A Literature Review. Prepared for the Ontario Ministry of the Environment.

Leventhall, G. 2006. Infrasound from Wind Turbines – Fact, Fiction or Deception. *Canadian Acoustics* 34(2): 29 - 36.

Morgan, C., Bossanyi, E., & H. Seifert. 1998. *Assessment of Safety Risks Arising From Wind Turbine Icing*. Retrieved from <http://www.renewwisconsin.org/wind/Toolbox-Fact%20Sheets/Assessment%20of%20risk%20due%20to%20ice.pdf>.

Office of the Deputy Prime Minister. 2004. *Planning for Renewable Energy: A Companion Guide to Planning Policy Statement 22*. Retrieved from [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/7779/147447.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7779/147447.pdf)

Oregon Health Authority. 2013. *Strategic Health Impact Assessment on Wind Energy Development in Oregon*. Prepared by the Public Health Division. Retrieved from [http://public.health.oregon.gov/HealthyEnvironments/TrackingAssessment/HealthImpactAssessment/Documents/Wnd%20Energy%20HIA/Wind%20HIA\\_Final.pdf](http://public.health.oregon.gov/HealthyEnvironments/TrackingAssessment/HealthImpactAssessment/Documents/Wnd%20Energy%20HIA/Wind%20HIA_Final.pdf)

Rod, J. and Heiger-Bernays, W. 2012. Municipality of the County of Kings. Health and Safety Impacts from Large-Scale Wind Turbines (P12-01). Final Report. May 2012.

Scientific Committee on Emerging and Newly Identified Health Risks. 2007. *Possible effects of Electromagnetic Fields (EMF) on Human Health*. European Commission, Health & Consumer Protection Directorate-General. Retrieved from [http://ec.europa.eu/health/ph\\_risk/committees/04\\_scenihR/docs/scenihR\\_o\\_007.pdf](http://ec.europa.eu/health/ph_risk/committees/04_scenihR/docs/scenihR_o_007.pdf)

Seifert, H., Westerhellweg, A., and J. Kroning. 2003. *Risk analysis of ice throw from wind turbines*. Retrieved from [http://www.nhsec.nh.gov/2006-01/documents/24\\_risk\\_analysis.pdf](http://www.nhsec.nh.gov/2006-01/documents/24_risk_analysis.pdf)

Sonus Pty Ltd. 2010. Infrasound Measurements from Wind Farms and Other Sources. Prepared for Pacific Hydro Pty Ltd.

The Society for Wind Vigilance. 2012. *Visual Heath Effects and Wind Turbines*. Retrieved from <http://www.windvigilance.com/about-adverse-health-effects/visual-health-effects-and-wind-turbines>.

The Weather Network. 2012. *Statistics, Lunenburg, NS*. Accessed on April 13, 2012 from <http://www.theweathernetwork.com/statistics/wind/cl8206240/cans0082>

Walh. D. and P. Giguere. 2006. *Ice Shedding and Ice Throw – Risk and Mitigation*. Retrieved from <http://www.windaction.org/documents/9922>.

## APPENDIX D

### WETLAND METHODOLOGY AND FIELD DATA TABLES

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### Wetlands and Watercourses in Nova Scotia

Wetlands in Nova Scotia are regulated by NSE under Section 105 of the *Environment Act*. Under the Act, wetlands are:

*Land referred to as a marsh, swamp, fen, or bog that either periodically or permanently has water table at, near, or above the land surface or that is saturated with water, and sustains aquatic processes as indicated by the presence of poorly drained soils, hydrophytic vegetation, and biological activities adapted to wet conditions.*

Watercourses are defined in the *Environment Act* as:

*Any creek, brook, stream, river, lake, pond, spring, lagoon, or any other natural body of water, and includes all the water in it, and also the bed and the shore (whether there is actually any water in it or not). It also includes all groundwater.*

Watercourses are defined in Halifax Regional Municipality (HRM) land use by-laws as:

*A lake, river, stream, ocean, or other natural body of water.*

### Delineation Methodology

In order for a wetland determination to be made, the following three criteria were assessed the field:

- Presence of hydrophytic (water loving) vegetation;
- Presence of hydrologic conditions that result in periods of flooding, ponding, or saturation during the growing season; and
- Presence of hydric soils (anaerobic conditions in upper part).

Although detailed data point analysis was not completed within the study areas, soil pits were completed frequently to confirm the presence/absence of wetland hydrology and hydric soils, as per the methodology below. A general vegetation survey was also completed within the wetlands to confirm hydrophytic vegetation.

#### Identification of Hydrophytic Vegetation

Hydrophytic vegetation is defined as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanent or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present (Environmental Laboratory 1987). Hydrophytic vegetation should be the dominant plant type in wetland habitat (Environmental Laboratory 1987).

## WETLAND DELINEATION IDENTIFICATION METHODOLOGY

Dominant plant species observed in each wetland were classified according to indicator status (probability of occurrence in wetlands), in accordance with the U.S. Fish and Wildlife Service (USFWS) National List of Vascular Plant Species that Occur in Wetlands: NE Region (Region 1) (Reed 1988). Please refer to Table 1 (below) for these classifications. These indicators are used as this region most closely resembles the flora of Nova Scotia and climate regime. Further relevant information was reviewed in Flora of Nova Scotia (Zinck, 1998).

**Table 1: Classification of Wetland-Associated Plant Species<sup>1</sup>**

| Plant Species Classification                           | Abbreviation <sup>2</sup> | Probability of Occurring in Wetland          |
|--|---------------------------|--|
| Obligate   | OBL                       | >99%   |
| Facultative Wetland                                    | FACW                      | 66-99%                                       |
| Facultative  | FAC                       | 33-66%                                       |
| Facultative Upland                                     | FACU                      | 1-33%  |
| Upland   | UPL                       | <1%  |
| No indicator status                                    | NI                        | Insufficient information to determine status |
| Plants That Are Not Listed<br>(assumed upland species) | NL                        | Does not occur in wetlands in any region.    |

<sup>1</sup> Source: Reed 1988

<sup>2</sup> A '+' or '-' symbol can be added to the classification to indicate greater or lesser probability, respectively, of occurrence in a wetland.

If the majority (greater than 50%) of the dominant vegetation at a data point is classified as obligate (OBL), facultative wetland (FACW), or facultative (FAC), then the location of the data point is considered to be dominated by hydrophytic vegetation.

### Identification of Hydric Soils

A hydric soil is a soil that has formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (USDA-NRCS 2010). Indicators of the presence of a hydric soil include soil colour (gleyed soils and soils with bright mottles and/or low matrix chroma), aquic or preaquic moisture regime, reducing soil conditions, sulfidic material (odour), soils listed on the hydric soils list, iron and manganese concretions, organic soils (histosols), histic epipedon, high organic content in surface layer in sandy soils, and organic streaking in sandy soils.

Soil pits were excavated to a maximum depth of 40 cm or refusal. The soil in each was then examined for hydric soil indicators. The matrix colour and mottle colour (if present) of the soil were determined using the Munsell Soil Colour Charts.

### Determination of Wetland Hydrology

Wetland habitat, by definition, either periodically or permanently, has a water table at, near, or above the land surface or that is saturated with water. To be classified as a wetland, a site should have at least one primary indicator or two secondary indicators of wetland hydrology, as shown in Table 2.



## WETLAND DELINEATION IDENTIFICATION METHODOLOGY

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**Table 2: Indicators of Wetland Hydrology**

| Examples of Primary Indicators        | Examples of Secondary Indicators          |
|---------------------------------------|---|
| Water marks                           | Oxidized Root Channels in the Upper 30 cm |
| Drift Lines                           | Local Soil Survey Data                    |
| Sediment Deposition                   | Dry season Water Table                    |
| Drainage Patterns                     | Stunted or Stressed Plants                |
| Water-stained leaves                  |   |
| Visual Observation of Saturated Soils |   |
| Visual Observation of Inundation      |   |

Wetland habitat is assessed for signs of hydrology, via visual observations across the area and through assessment of soil pits.

### References

Environmental Laboratory (1987), Corps of Engineers Wetlands Delineation Manual, US Army Corp of Engineers, 1987.

Reed. 1988. National List of Plant Species that Occur in Wetlands: NE Region (Region 1) U.S. Fish and Wildlife Service, Washington, DC.

USDA-NRCS. (United States Department of Agriculture- Natural Resources Conservation Service). 2010. *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils*. Version 7.0. 53 pp.

Zinck, M. 1998. *Rolands Flora of Nova Scotia*. Nimbus Publishing, Nova Scotia.

Environmental Laboratory. (1987). "Corps of Engineers wetlands delineation manual," [Technical Report Y-87-1](#), U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. NTIS No. AD A176 912 (Note: Appendix C information is outdated and must be obtained from regional Wetlands offices)

Table D1: Wetland Characteristics - Ellershouse Wind Farm

Project # 12-4583

| WETLAND ID | WETLAND TYPE      | LANDSCAPE POSITION | LANDFORM     | WATER FLOW                        | HYDRIC SOIL INDICATOR   | SURFACE/HYDROLOGIC CONDITIONS  | WETLAND BOUNDARY   | DOMINANT VEGETATION  |  |  | WATERCOURSE/WATER BODY PRESENT  |
|------------|-------------------|--------------------|--------------|-----------------------------------|-------------------------|--|--|--|--|--|---|
|            |                   |                    |              |                                   |                         |  |  | Herbs  | Shrubs   | Trees  |   |
| Wetland 1  | Treed swamp       | Terrene            | Basin        | Throughflow (ephemeral)           | S7: Dark surface        | 1) Saturated at surface<br>2) Drainage patterns  | Gentle to moderate   | flat-topped aster;<br>Canada goldenrod;<br>sensitive fern;<br>blackberry                           | speckled alder   | white birch  | Sourced in part by road-side drainage ditch. Drains ephemerally to the south.   |
| Wetland 2  | Treed swamp       | Terrene            | Basin        | Throughflow (ephemeral, inferred) | S7: Dark surface        | 1) Groundwater at 20 cm<br>2) Saturated at surface<br>3) Drainage patterns   | Gentle   | fringed sedge;<br>foul managress;<br>flat topped aster;<br>woolgrass;<br>soft rush;                | speckled alder;<br>gray birch;<br>yellow birch                 | yellow birch;<br>balsam fir                                | Sourced in part by drainage ditch, no outflow observed.   |
| Wetland 3  | Treed Swamp       | Terrene            | Basin        | Throughflow (ephemeral)           | S1: Sandy mucky mineral | 1) Intermittent surface water<br>2) Saturated surface  | Gentle to west;<br>moderate to east<br>along existing road | sensitive fern;<br>jewelweed; rice<br>cutgrass, aster sp.  | yellow birch; red<br>maple                                     | red maple  | Sourced by ditch drainage from south; extends to north  |
| Wetland 4  | Shrub Swamp       | Terrene            | Basin        | Throughflow (ephemeral, inferred) | F3: Depleted matrix     | 1) Saturated surface<br>2) Drainage patterns<br>3) Water stained leaves  | Gentle   | soft rush; royal fern;<br>rattlesnake managress;<br>sensitive fern; tussock<br>sedge; bedstraw sp. | speckled alder   | trembling aspen  | Sourced by ditch drainage from north; extends to east   |
| Wetland 5  | Treed swamp       | Terrene            | Basin        | Throughflow (ephemeral)           | A1: Histosol            | 1) Surface water<br>2) Groundwater at surface<br>3) Drainage patterns  | Moderate   | rice cutgrass;<br>fringed sedge;<br>sensitive fern   | speckled alder;<br>yellow birch;<br>steepelbush;<br>balsam fir | red maple;<br>balsam fir;<br>white birch;<br>yellow birch  | Sourced in part by road-side drainage ditch. Drains ephemerally to the north under the road via a culver.               |
| Wetland 6  | Shrub swamp       | Terrene            | Basin        | Outflow (inferred)                | A1: Histosol            | 1) Saturated at surface<br>2) Groundwater near surface   | Gentle to moderate   | Canada goldenrod;<br>fringed sedge;<br>sensitive fern  | yellow birch;<br>white birch;<br>red maple                     | None   | None observed.  |
| Wetland 7a | Treed swamp       | Terrene            | Sloped basin | Throughflow (ephemeral)           | A1: Histosol            | 1) Saturated at surface;<br>2) Draining surface water  | Gentle   | cinnamon fern;<br>rice cutgrass;<br>sensitive fern   | speckled alder;<br>yellow birch;<br>red maple                  | white birch;<br>balsam fir;<br>black spruce                | Sourced in part by road-side ditch. Drains ephemerally to the north.  |
| Wetland 7b | Treed swamp       | Terrene            | Sloped basin | Outflow (ephemeral)               | A2: Histic epidon       | 1) Saturated at surface;<br>2) Drainage patterns   | Gentle   | sensitive fern;<br>cinnamon fern;<br>New York fern;<br>bunchberry                                  | speckled alder;<br>balsam fir;<br>black spruce;<br>red maple   | balsam fir;<br>black spruce;<br>red maple;<br>yellow birch | Drains ephemerally into roadside drainage ditch.  |
| Wetland 8  | Shrub/Treed Swamp | Terrene            | Basin        | Throughflow (inferred)            | F3: Depleted matrix     | 1) Intermittent surface water<br>2) Saturated surface<br>3) Drainage patterns<br>4) Water stained leaves<br>5) Groundwater at 8 cm | Gentle to south;<br>moderate to east/northeast             | jewelweed; cinnamon<br>fern; unidentified grass<br>sp., bedstraw sp.                               | speckled alder   | red maple  | No surface inflow or outflow observed within assessment area; northern extent of wetland has been disturbed by forestry |
| Wetland 9  | Treed Swamp       | Terrene            | Slope        | Outflow                           | F6: Redox dark surface  | 1) Saturated surfaces<br>2) Water stained leaves   | Gentle   | rattlesnake managress;<br>fringed sedge, sensitive<br>fern, aster sp.                              | red maple; black<br>spruce                                     | black spruce   | Sourced by drainage down slope to north; no outflow observed within assessment area                                     |

APPENDIX E  
ACCDC AND PROJECT SITE PLANT LISTS

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Table E1: Short List of Rare Plant and Lichen Species Identified Within 100 km of the Project Site, Ellershouse Wind Farm

Project#12-4583

| Common Name                | Scientific Name                   | SARA Status | NS ESA Status | COSEWIC Status | NSDNR Status |
|----------------------------|-----------------------------------|-------------|---------------|----------------|--------------|
| A Hawthorn                 | <i>Crataegus robinsonii</i>       | Not Listed  | Not Listed    | Not Listed     | Undetermined |
| a Lemming Moss             | <i>Tetraplodon angustatus</i>     | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| a Pussytoes                | <i>Antennaria parlinii</i>        | Not Listed  | Not Listed    | Not Listed     | Red          |
| a Rosy Pussy-Toes          | <i>Antennaria rosea</i>           | Not Listed  | Not Listed    | Not Listed     | Red          |
| A Sedge                    | <i>Carex houghtoniana</i>         | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| a White Mountain Saxifrage | <i>Saxifraga paniculata</i>       | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Acadian Quillwort          | <i>Isoetes acadensis</i>          | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Adder's Tongue             | <i>Ophioglossum pusillum</i>      | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Alderleaf Buckthorn        | <i>Rhamnus alnifolia</i>          | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Alpine Blueberry           | <i>Vaccinium uliginosum</i>       | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| American Germander         | <i>Teucrium canadense</i>         | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| American Pennyroyal        | <i>Hedeoma pulegioides</i>        | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Appalachian Polypody       | <i>Polypodium appalachianum</i>   | Not Listed  | Not Listed    | Not Listed     | Undetermined |
| Bebb's Sedge               | <i>Carex bebbii</i>               | Not Listed  | Not Listed    | Not Listed     | Red          |
| Beck Water-Marigold        | <i>Megalodonta beckii</i>         | Not Listed  | Not Listed    | Not Listed     | Undetermined |
| Bentgrass                  | <i>Calamagrostis stricta</i>      | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Big-Leaf Marsh-Elder       | <i>Iva frutescens</i>             | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Bird's-Eye Primrose        | <i>Primula mistassinica</i>       | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Black Ash                  | <i>Fraxinus nigra</i>             | Not Listed  | Threatened    | Not Listed     | Yellow       |
| Black Sedge                | <i>Carex atratiformis</i>         | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Black Snake-Root           | <i>Sanicula odorata</i>           | Not Listed  | Not Listed    | Not Listed     | Red          |
| Black-Seed Plantain        | <i>Plantago rugelii</i>           | Not Listed  | Not Listed    | Not Listed     | Undetermined |
| Blue Cohosh                | <i>Caulophyllum thalictroides</i> | Not Listed  | Not Listed    | Not Listed     | Red          |
| Blunt-Fruited Sweet-Cicely | <i>Osmorhiza depauperata</i>      | Not Listed  | Not Listed    | Not Listed     | Red          |
| Blunt-Leaf Pondweed        | <i>Potamogeton obtusifolius</i>   | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Bog Willow                 | <i>Salix pedicellaris</i>         | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Boreal American-Aster      | <i>Symphyotrichum boreale</i>     | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Boreal Felt Lichen         | <i>Erioderma pedicellatum</i>     | Endangered  | Endangered    | Endangered     | Red          |
| Bottlebrush Grass          | <i>Elymus hystrix</i>             | Not Listed  | Not Listed    | Not Listed     | Red          |
| Bristly Crowfoot           | <i>Ranunculus pensylvanicus</i>   | Not Listed  | Not Listed    | Not Listed     | Red          |
| Bristly Sedge              | <i>Carex comosa</i>               | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Broad-Glumed Brome         | <i>Bromus latiglumis</i>          | Not Listed  | Not Listed    | Not Listed     | Red          |
| Brook-Side Alder           | <i>Alnus serrulata</i>            | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Button-Bush Dodder         | <i>Cuscuta cephalanthi</i>        | Not Listed  | Not Listed    | Not Listed     | Red          |

Table E1: Short List of Rare Plant and Lichen Species Identified Within 100 km of the Project Site, Ellershouse Wind Farm

Project#12-4583

| Common Name                   | Scientific Name                  | SARA Status     | NS ESA Status | COSEWIC Status  | NSDNR Status |
|-------------------------------|----------------------------------|-----------------|---------------|-----------------|--------------|
| Canada Anemone                | <i>Anemone canadensis</i>        | Not Listed      | Not Listed    | Not Listed      | Red          |
| Canada Buffalo-Berry          | <i>Shepherdia canadensis</i>     | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Canada Clearweed              | <i>Pilea pumila</i>              | Not Listed      | Not Listed    | Not Listed      | Red          |
| Canada Frostweed              | <i>Helianthemum canadense</i>    | Not Listed      | Not Listed    | Not Listed      | Red          |
| Canada Lily                   | <i>Lilium canadense</i>          | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Canada Mountain-Ricegrass     | <i>Piptatherum canadense</i>     | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Capitate Spikerush            | <i>Eleocharis olivacea</i>       | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Carolina Redroot              | <i>Lachnanthes caroliniana</i>   | Special Concern | Threatened    | Special Concern | Red          |
| Case's Ladies'-Tresses        | <i>Spiranthes casei</i>          | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Chestnut-Colored Sedge        | <i>Carex castanea</i>            | Not Listed      | Not Listed    | Not Listed      | Red          |
| Clammy Hedge-Hyssop           | <i>Gratiola neglecta</i>         | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Climbing False-Buckwheat      | <i>Fallopia scandens</i>         | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Cloud Sedge                   | <i>Carex haydenii</i>            | Not Listed      | Not Listed    | Not Listed      | Red          |
| Coast Pepper-Bush             | <i>Clethra alnifolia</i>         | Special Concern | Vulnerable    | Special Concern | Yellow       |
| Coastal-Plain Blue-Eyed-Grass | <i>Sisyrinchium fuscatum</i>     | Not Listed      | Not Listed    | Not Listed      | Red          |
| Coffee Tinker's-Weed          | <i>Triosteum aurantiacum</i>     | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Comb-Leaved Mermaid-Weed      | <i>Proserpinaca pectinata</i>    | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Common Alexanders             | <i>Zizia aurea</i>               | Not Listed      | Not Listed    | Not Listed      | Red          |
| Common Buttonbush             | <i>Cephalanthus occidentalis</i> | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Creeping Alkali Grass         | <i>Puccinellia phryganodes</i>   | Not Listed      | Not Listed    | Not Listed      | Undetermined |
| Creeping Sandwort             | <i>Stellaria humifusa</i>        | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Crowded Sedge                 | <i>Carex adusta</i>              | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Cursed Crowfoot               | <i>Ranunculus sceleratus</i>     | Not Listed      | Not Listed    | Not Listed      | Red          |
| Cut-Leaved Coneflower         | <i>Rudbeckia laciniata</i>       | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Daisy Fleabane                | <i>Erigeron hyssopifolius</i>    | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Disguised St. John's-Wort     | <i>Hypericum dissimulatum</i>    | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Downy Rattlesnake-Plantain    | <i>Goodyera pubescens</i>        | Not Listed      | Not Listed    | Not Listed      | Red          |
| Downy Willow-Herb             | <i>Epilobium strictum</i>        | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Drummond Rockcress            | <i>Arabis drummondii</i>         | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Dudley's Rush                 | <i>Juncus dudleyi</i>            | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Dwarf Birch                   | <i>Betula michauxii</i>          | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Dwarf Blueberry               | <i>Vaccinium cespitosum</i>      | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Dwarf Rattlesnake-Plantain    | <i>Goodyera repens</i>           | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Dwarf Rattlesnakeroot         | <i>Prenanthes nana</i>           | Not Listed      | Not Listed    | Not Listed      | Undetermined |

Table E1: Short List of Rare Plant and Lichen Species Identified Within 100 km of the Project Site, Ellershouse Wind Farm

Project#12-4583

| Common Name                 | Scientific Name                            | SARA Status     | NS ESA Status | COSEWIC Status  | NSDNR Status |
|-----------------------------|--|-----------------|---------------|-----------------|--------------|
| Eastern Leatherwood         | <i>Dirca palustris</i>                     | Not Listed      | Not Listed    | Not Listed      | Red          |
| Eastern Lilaeopsis          | <i>Lilaeopsis chinensis</i>                | Special Concern | Vulnerable    | Special Concern | Yellow       |
| Eaton's Witchgrass          | <i>Dichanthelium spretum</i>               | Not Listed      | Not Listed    | Not Listed      | Undetermined |
| Ebony Sedge                 | <i>Carex eburnea</i>                       | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Eel-Grass                   | <i>Vallisneria americana</i>               | Not Listed      | Not Listed    | Not Listed      | Red          |
| Elk Sedge                   | <i>Carex garberi</i>                       | Not Listed      | Not Listed    | Not Listed      | Red          |
| Emmons Sedge                | <i>Carex albicans</i> var. <i>emmonsii</i> | Not Listed      | Not Listed    | Not Listed      | Undetermined |
| Estuary Beggar-Ticks        | <i>Bidens hyperborea</i>                   | Not Listed      | Not Listed    | Not Listed      | Red          |
| False Mermaid-Weed          | <i>Floerkea proserpinacoides</i>           | Not Listed      | Not Listed    | Not at Risk     | Yellow       |
| Farwell's Water-Milfoil     | <i>Myriophyllum farwellii</i>              | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Fernald Serviceberry        | <i>Amelanchier fernaldii</i>               | Not Listed      | Not Listed    | Not Listed      | Undetermined |
| Field Dodder                | <i>Cuscuta pentagona</i>                   | Not Listed      | Not Listed    | Not Listed      | Undetermined |
| Field Milkwort              | <i>Polygala sanguinea</i>                  | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Fir Clubmoss                | <i>Huperzia selago</i>                     | Not Listed      | Not Listed    | Not Listed      | Undetermined |
| Flatstem Pondweed           | <i>Potamogeton zosteriformis</i>           | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Fountain Miner's-Lettuce    | <i>Montia fontana</i>                      | Not Listed      | Not Listed    | Not Listed      | Red          |
| Fragile Rockbrake           | <i>Cryptogramma stelleri</i>               | Not Listed      | Not Listed    | Not Listed      | Red          |
| Fragrant Fern               | <i>Dryopteris fragrans</i>                 | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Frankton's Saltbush         | <i>Atriplex franktonii</i>                 | Not Listed      | Not Listed    | Not Listed      | Not Listed   |
| Fries' Pondweed             | <i>Potamogeton friesii</i>                 | Not Listed      | Not Listed    | Not Listed      | Red          |
| Gaspé Peninsula Arrow-Grass | <i>Triglochin gaspensis</i>                | Not Listed      | Not Listed    | Not Listed      | Undetermined |
| Ghost Antler Lichen         | <i>Pseudevernia cladonia</i>               | No Status       | Not Listed    | Not at Risk     | Yellow       |
| Golden Crest                | <i>Lophiola aurea</i>                      | Threatened      | Vulnerable    | Special Concern | Red          |
| Golden-Heather              | <i>Hudsonia ericoides</i>                  | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Grassleaf Rush              | <i>Juncus marginatus</i>                   | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Green Ash                   | <i>Fraxinus pennsylvanica</i>              | Not Listed      | Not Listed    | Not Listed      | Red          |
| Green Spleenwort            | <i>Asplenium viride</i>                    | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Greene's Rush               | <i>Juncus greenei</i>                      | Not Listed      | Not Listed    | Not Listed      | Red          |
| Ground-Fir                  | <i>Lycopodium sabinifolium</i>             | Not Listed      | Not Listed    | Not Listed      | Not Listed   |
| Hair-Like Sedge             | <i>Carex capillaris</i>                    | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Hairy Goldenrod             | <i>Solidago hispida</i>                    | Not Listed      | Not Listed    | Not Listed      | Red          |
| Hairy Rock-Cress            | <i>Arabis hirsuta</i>                      | Not Listed      | Not Listed    | Not Listed      | Red          |
| Hairy Swamp Loosestrife     | <i>Decodon verticillatus</i>               | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Hairy Wild Lettuce          | <i>Lactuca hirsuta</i>                     | Not Listed      | Not Listed    | Not Listed      | Yellow       |

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Project#12-4583

| Common Name                     | Scientific Name                  | SARA Status     | NS ESA Status | COSEWIC Status  | NSDNR Status |
|---------------------------------|----------------------------------|-----------------|---------------|-----------------|--------------|
| Halberd-Leaf Tearthumb          | <i>Polygonum arifolium</i>       | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Hare Figwort                    | <i>Scrophularia lanceolata</i>   | Not Listed      | Not Listed    | Not Listed      | Undetermined |
| Heart-Leaved Foam-Flower        | <i>Tiarella cordifolia</i>       | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Hemlock Parsley                 | <i>Conioselinum chinense</i>     | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Hoary Willow                    | <i>Salix candida</i>             | Not Listed      | Endangered    | Not Listed      | Red          |
| Intermediate Mermaid-Weed       | <i>Proserpinaca intermedia</i>   | Not Listed      | Not Listed    | Not Listed      | Red          |
| Joe-Pye Thoroughwort            | <i>Eupatorium dubium</i>         | Not Listed      | Not Listed    | Not Listed      | Red          |
| Kalm's Hawkweed                 | <i>Hieracium kalmii</i>          | Not Listed      | Not Listed    | Not Listed      | Not Listed   |
| Lance-Leaf Grape-Fern           | <i>Botrychium lanceolatum</i>    | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Large Round-Leaved Orchid       | <i>Platanthera macrophylla</i>   | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Large Tick-Trefoil              | <i>Desmodium glutinosum</i>      | Not Listed      | Not Listed    | Not Listed      | Red          |
| Large Toothwort                 | <i>Cardamine maxima</i>          | Not Listed      | Not Listed    | Not Listed      | Red          |
| Large Yellow Lady's-Slipper     | <i>Cypripedium parviflorum</i>   | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Large-Flower Trillium           | <i>Trillium grandiflorum</i>     | Not Listed      | Not Listed    | Not Listed      | Undetermined |
| Larger Canadian St. John's Wort | <i>Hypericum majus</i>           | Not Listed      | Not Listed    | Not Listed      | Red          |
| Least Grape-Fern                | <i>Botrychium simplex</i>        | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Lesser Wintergreen              | <i>Pyrola minor</i>              | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Lindley's Aster                 | <i>Symphyotrichum ciliolatum</i> | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Livid Sedge                     | <i>Carex livida</i>              | Not Listed      | Not Listed    | Not Listed      | Red          |
| Long-Bract Green Orchis         | <i>Coeloglossum viride</i>       | Not Listed      | Not Listed    | Not Listed      | Red          |
| Longleaf Stitchwort             | <i>Stellaria longifolia</i>      | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Long's Bulrush                  | <i>Scirpus longii</i>            | Special Concern | Vulnerable    | Special Concern | Yellow       |
| Loose-Flowered Sedge            | <i>Carex laxiflora</i>           | Not Listed      | Not Listed    | Not Listed      | Red          |
| Maidenhair Spleenwort           | <i>Asplenium trichomanes</i>     | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Maritime Saltbush               | <i>Atriplex acadiensis</i>       | Not Listed      | Not Listed    | Not Listed      | Not Listed   |
| Marsh Bellflower                | <i>Campanula aparinoides</i>     | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Marsh Elder                     | <i>Iva frutescens</i>            | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Marsh Horsetail                 | <i>Equisetum palustre</i>        | Not Listed      | Not Listed    | Not Listed      | Red          |
| Meadow Horsetail                | <i>Equisetum pratense</i>        | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Meadow Sedge                    | <i>Carex granularis</i>          | Not Listed      | Not Listed    | Not Listed      | Undetermined |
| Michaux's Dwarf Birch           | <i>Betula michauxii</i>          | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Moonwort Grape-Fern             | <i>Botrychium lunaria</i>        | Not Listed      | Not Listed    | Not Listed      | Red          |
| Mountain Sandwort               | <i>Minuartia groenlandica</i>    | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Mudwort                         | <i>Limosella australis</i>       | Not Listed      | Not Listed    | Not Listed      | Yellow       |

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| Common Name               | Scientific Name                   | SARA Status     | NS ESA Status | COSEWIC Status  | NSDNR Status |
|---------------------------|-----------------------------------|-----------------|---------------|-----------------|--------------|
| Nantucket Shadbush        | <i>Amelanchier nantucketensis</i> | Not Listed      | Not Listed    | Not Listed      | Red          |
| Necklace Spike Sedge      | <i>Carex ormostachya</i>          | Not Listed      | Not Listed    | Not Listed      | Red          |
| Nodding Fescue            | <i>Festuca subverticillata</i>    | Not Listed      | Not Listed    | Not Listed      | Red          |
| Northern Bedstraw         | <i>Galium boreale</i>             | Not Listed      | Not Listed    | Not Listed      | Red          |
| Northern Blueberry        | <i>Vaccinium boreale</i>          | Not Listed      | Not Listed    | Not Listed      | Red          |
| Northern Bog Violet       | <i>Viola nephrophylla</i>         | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Northern Comandra         | <i>Geocaulon lividum</i>          | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Northern Dewberry         | <i>Rubus flagellaris</i>          | Not Listed      | Not Listed    | Not Listed      | Undetermined |
| Northern Maidenhair-Fern  | <i>Adiantum pedatum</i>           | Not Listed      | Not Listed    | Not Listed      | Red          |
| Northern White Cedar      | <i>Thuja occidentalis</i>         | Not Listed      | Vulnerable    | Not Listed      | Red          |
| Northern Wild Comfrey     | <i>Cynoglossum virginianum</i>    | Not Listed      | Not Listed    | Not Listed      | Red          |
| Oval-Leaf Huckleberry     | <i>Vaccinium ovalifolium</i>      | Not Listed      | Not Listed    | Not Listed      | Red          |
| Ovate Spikerush           | <i>Eleocharis ovata</i>           | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Pale Green Orchid         | <i>Platanthera flava</i>          | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Pale Jewel-Weed           | <i>Impatiens pallida</i>          | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Pale-Spiked Lobelia       | <i>Lobelia spicata</i>            | Not Listed      | Not Listed    | Not Listed      | Red          |
| Pennsylvania Sedge        | <i>Carex pensylvanica</i>         | Not Listed      | Not Listed    | Not Listed      | Undetermined |
| Philadelphia Fleabane     | <i>Erigeron philadelphicus</i>    | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Philadelphia Panic Grass  | <i>Panicum philadelphicum</i>     | Not Listed      | Not Listed    | Not Listed      | Undetermined |
| Plantain-Leaved Sedge     | <i>Carex plantaginea</i>          | Not Listed      | Not Listed    | Not Listed      | Red          |
| Pondshore Knotweed        | <i>Polygonum raii</i>             | Not Listed      | Not Listed    | Not Listed      | Undetermined |
| Porcupine Sedge           | <i>Carex hystericina</i>          | Not Listed      | Not Listed    | Not Listed      | Red          |
| Prairie Sedge             | <i>Carex prairea</i>              | Not Listed      | Not Listed    | Not Listed      | Red          |
| Prototype Quillwort       | <i>Isoetes prototypus</i>         | Special Concern | Vulnerable    | Special Concern | Yellow       |
| Pubescent Sedge           | <i>Carex hirtifolia</i>           | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Purple Clematis           | <i>Clematis occidentalis</i>      | Not Listed      | Not Listed    | Not Listed      | Red          |
| Purple Crowberry          | <i>Empetrum eamesii</i>           | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Purple-Leaf Willow-Herb   | <i>Epilobium coloratum</i>        | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Racemed Milkwort          | <i>Polygala polygama</i>          | Not Listed      | Not Listed    | Not Listed      | Undetermined |
| Ram's-Head Lady's-Slipper | <i>Cypripedium arietinum</i>      | Not Listed      | Endangered    | Not Listed      | Red          |
| Redhead Grass             | <i>Potamogeton richardsonii</i>   | Not Listed      | Not Listed    | Not Listed      | Red          |
| Redtop Panic Grass        | <i>Panicum rigidulum</i>          | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| River Anemone             | <i>Anemone virginiana</i>         | Not Listed      | Not Listed    | Not Listed      | Yellow       |
| Robbins' Milk-Vetch       | <i>Astragalus robbinsii</i>       | Not Listed      | Not Listed    | Not Listed      | Red          |



Table E1: Short List of Rare Plant and Lichen Species Identified Within 100 km of the Project Site, Ellershouse Wind Farm

Project#12-4583

| Common Name                 | Scientific Name                    | SARA Status | NS ESA Status | COSEWIC Status | NSDNR Status |
|-----------------------------|------------------------------------|-------------|---------------|----------------|--------------|
| Robinson's Hawkweed         | <i>Hieracium robinsonii</i>        | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Rock Crowberry              | <i>Empetrum eamesii</i>            | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Rock Whitlow-Grass          | <i>Draba arabisans</i>             | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Roland's Sea-Blite          | <i>Suaeda rolandii</i>             | Not Listed  | Not Listed    | Not Listed     | Red          |
| Round-Leaved Liverleaf      | <i>Hepatica nobilis</i>            | Not Listed  | Not Listed    | Not Listed     | Undetermined |
| Salt Marsh Goosegrass       | <i>Puccinellia fasciculata</i>     | Not Listed  | Not Listed    | Not Listed     | Undetermined |
| Seabeach Groundsel          | <i>Senecio pseudoarnica</i>        | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Secund Rush                 | <i>Juncus secundus</i>             | Not Listed  | Not Listed    | Not Listed     | Red          |
| Shining Ladies'-Tresses     | <i>Spiranthes lucida</i>           | Not Listed  | Not Listed    | Not Listed     | Red          |
| Short-Awn Foxtail           | <i>Alopecurus aequalis</i>         | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Showy Lady's-Slipper        | <i>Cypripedium reginae</i>         | Not Listed  | Not Listed    | Not Listed     | Red          |
| Showy Tick-Trefoil          | <i>Desmodium canadense</i>         | Not Listed  | Not Listed    | Not Listed     | Red          |
| Shrubby Sundrops            | <i>Oenothera fruticosa</i>         | Not Listed  | Not Listed    | Not Listed     | Undetermined |
| Silky Willow                | <i>Salix sericea</i>               | Not Listed  | Not Listed    | Not Listed     | Red          |
| Sleepy Catchfly             | <i>Silene antirrhina</i>           | Not Listed  | Not Listed    | Not Listed     | Red          |
| Slender Blue Flag           | <i>Iris prismatica</i>             | Not Listed  | Not Listed    | Not Listed     | Red          |
| Slender Cotton-Grass        | <i>Eriophorum gracile</i>          | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Slender Dichanthelium       | <i>Dichanthelium xanthophysum</i>  | Not Listed  | Not Listed    | Not Listed     | Red          |
| Slender Mountain-Ricegrass  | <i>Piptatherum pungens</i>         | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Slender Sedge               | <i>Carex tenera</i>                | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Slim-Leaf Witchgrass        | <i>Dichanthelium linearifolium</i> | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Small White Leek            | <i>Allium tricoccum</i>            | Not Listed  | Not Listed    | Not Listed     | Red          |
| Small Yellow Lady's-Slipper | <i>Cypripedium parviflorum</i>     | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Small-Flower Bitter-Cress   | <i>Cardamine parviflora</i>        | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Small's Knotweed            | <i>Polygonum buxiforme</i>         | Not Listed  | Not Listed    | Not Listed     | Not Listed   |
| Smooth Woodsia              | <i>Woodsia glabella</i>            | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Smoother Sweet-Cicely       | <i>Osmorhiza longistylis</i>       | Not Listed  | Not Listed    | Not Listed     | Red          |
| Southern Rein Orchid        | <i>Platanthera flava</i>           | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Southern Rein-Orchid        | <i>Platanthera flava</i>           | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Southern Twayblade          | <i>Listera australis</i>           | Not Listed  | Not Listed    | Not Listed     | Red          |
| Spotted Pondweed            | <i>Potamogeton pulcher</i>         | Not Listed  | Vulnerable    | Not Listed     | Red          |
| Squaw-Root                  | <i>Conopholis americana</i>        | Not Listed  | Not Listed    | Not Listed     | Red          |
| St. John's Oxytrope         | <i>Oxytropis campestris</i>        | Not Listed  | Not Listed    | Not Listed     | Red          |
| Stalked Bulrush             | <i>Scirpus pedicellatus</i>        | Not Listed  | Not Listed    | Not Listed     | Undetermined |

Table E1: Short List of Rare Plant and Lichen Species Identified Within 100 km of the Project Site, Ellershouse Wind Farm

Project#12-4583

| Common Name                    | Scientific Name                   | SARA Status | NS ESA Status | COSEWIC Status | NSDNR Status |
|--------------------------------|-----------------------------------|-------------|---------------|----------------|--------------|
| Swan Sedge                     | <i>Carex swanii</i>               | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Threadfoot                     | <i>Podostemum ceratophyllum</i>   | Not Listed  | Not Listed    | Not Listed     | Red          |
| Thread-Like Naiad              | <i>Najas gracillima</i>           | Not Listed  | Not Listed    | Not Listed     | Red          |
| Tower-Mustard                  | <i>Arabis glabra</i>              | Not Listed  | Not Listed    | Not Listed     | Undetermined |
| Tuckerman Sedge                | <i>Carex tuckermanii</i>          | Not Listed  | Not Listed    | Not Listed     | Red          |
| Virginia Anemone               | <i>Anemone virginiana</i>         | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Water Pigmy-Weed               | <i>Crassula aquatica</i>          | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Water Pimpernel                | <i>Samolus valerandi</i>          | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Wavy-leaf American-Aster       | <i>Symphyotrichum undulatum</i>   | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| White Adder's-Mouth            | <i>Malaxis monophyllos</i>        | Not Listed  | Not Listed    | Not Listed     | Red          |
| White Bluegrass                | <i>Poa glauca</i>                 | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| White Snakeroot                | <i>Ageratina altissima</i>        | Not Listed  | Not Listed    | Not Listed     | Red          |
| White-Stem Pondweed            | <i>Potamogeton praelongus</i>     | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| White-Tinged Sedge             | <i>Carex peckii</i>               | Not Listed  | Not Listed    | Not Listed     | Red          |
| Whorled Water-Milfoil          | <i>Myriophyllum verticillatum</i> | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Wiegand's Wild Rye             | <i>Elymus wiegandii</i>           | Not Listed  | Not Listed    | Not Listed     | Red          |
| Wild Black Currant             | <i>Ribes americanum</i>           | Not Listed  | Not Listed    | Not Listed     | Undetermined |
| Wild Chives                    | <i>Allium schoenoprasum</i>       | Not Listed  | Not Listed    | Not Listed     | Red          |
| Willow Dock                    | <i>Rumex salicifolius</i>         | Not Listed  | Not Listed    | Not Listed     | Undetermined |
| Wood Anemone                   | <i>Anemone quinquefolia</i>       | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Wood Nettle                    | <i>Laportea canadensis</i>        | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Woods-Rush                     | <i>Juncus subcaudatus</i>         | Not Listed  | Not Listed    | Not Listed     | Yellow       |
| Woolly Sedge                   | <i>Carex pellita</i>              | Not Listed  | Not Listed    | Not Listed     | Red          |
| Yellow Nodding Ladies'-Tresses | <i>Spiranthes ochroleuca</i>      | Not Listed  | Not Listed    | Not Listed     | Yellow       |

Table E2: Plant Species Observed during 2013 Field Surveys, Ellershouse Wind Farm

Project# 12-4583

| Common Name            | Scientific Name                    | SARA Status | NSESA Status | COSEWIC Status | NSDNR Status |
|------------------------|------------------------------------|-------------|--------------|----------------|--------------|
| Alleghaney Blackberry  | <i>Rubus allegheniensis</i>        | Not Listed  | Not Listed   | Not Listed     | Green        |
| American Beech         | <i>Fagus grandifolia</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| American Mountain Ash  | <i>Sorbus americana</i>            | Not Listed  | Not Listed   | Not Listed     | Green        |
| Arrow-leaved Smartweed | <i>Polygonum sagittatum</i>        | Not Listed  | Not Listed   | Not Listed     | Green        |
| Balsam Fir             | <i>Abies balsamea</i>              | Not Listed  | Not Listed   | Not Listed     | Green        |
| Beaked Hazel           | <i>Corylus cornuta</i>             | Not Listed  | Not Listed   | Not Listed     | Green        |
| Bebb's Willow          | <i>Salix bebbiana</i>              | Not Listed  | Not Listed   | Not Listed     | Green        |
| Bittersweet Nightshade | <i>Solanum dulcamara</i>           | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Black Cherry           | <i>Prunus serotina</i>             | Not Listed  | Not Listed   | Not Listed     | Green        |
| Black Elderberry       | <i>Sambucus nigra</i>              | Not Listed  | Not Listed   | Not Listed     | Green        |
| Black Knapweed         | <i>Centaurea nigra</i>             | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Black Spruce           | <i>Picea mariana</i>               | Not Listed  | Not Listed   | Not Listed     | Green        |
| Black-girdled Bulrush  | <i>Scirpus atrocinctus</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Bog Willowherb         | <i>Epilobium leptophyllum</i>      | Not Listed  | Not Listed   | Not Listed     | Green        |
| Bracken Fern           | <i>Pteridium aquilinum</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Bristly Dewberry       | <i>Rubus hispidus</i>              | Not Listed  | Not Listed   | Not Listed     | Green        |
| Bristly Sarsaparilla   | <i>Aralia hispida</i>              | Not Listed  | Not Listed   | Not Listed     | Green        |
| Broad-leaved Cattail   | <i>Typha latifolia</i>             | Not Listed  | Not Listed   | Not Listed     | Green        |
| Broom Sedge            | <i>Carex scoparia</i>              | Not Listed  | Not Listed   | Not Listed     | Green        |
| Brown-Fruited Rush     | <i>Juncus pelocarpus</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Bunchberry             | <i>Cornus canadensis</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Calico Aster           | <i>Symphyotrichum lateriflorum</i> | Not Listed  | Not Listed   | Not Listed     | Green        |
| Canada Fly Honeysuckle | <i>Lonicera canadensis</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Canada Goldenrod       | <i>Solidago canadensis</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Canada Hawkweed        | <i>Hieracium canadense</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Canada Lettuce         | <i>Lactuca canadensis</i>          | Not Listed  | Not Listed   | Not Listed     | Green        |
| Canada Manna Grass     | <i>Glyceria canadensis</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Canada Serviceberry    | <i>Amelanchier canadensis</i>      | Not Listed  | Not Listed   | Not Listed     | Green        |
| Canada St John's-wort  | <i>Hypericum canadense</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Christmas Fern         | <i>Polystichum acrostichoides</i>  | Not Listed  | Not Listed   | Not Listed     | Green        |
| Cinnamon Fern          | <i>Osmunda cinnamomea</i>          | Not Listed  | Not Listed   | Not Listed     | Green        |
| Coltsfoot              | <i>Tussilago farfara</i>           | Not Listed  | Not Listed   | Not Listed     | Exotic       |

Table E2: Plant Species Observed during 2013 Field Surveys, Ellershouse Wind Farm

Project# 12-4583

| Common Name              | Scientific Name                  | SARA Status | NSESA Status | COSEWIC Status | NSDNR Status |
|--------------------------|----------------------------------|-------------|--------------|----------------|--------------|
| Common Boneset           | <i>Eupatorium perfoliatum</i>    | Not Listed  | Not Listed   | Not Listed     | Green        |
| Common Dandelion         | <i>Taraxacum officinale</i>      | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Common Evening Primrose  | <i>Oenothera biennis</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Common Hemp-nettle       | <i>Galeopsis tetrahit</i>        | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Common Lady Fern         | <i>Athyrium filix-femina</i>     | Not Listed  | Not Listed   | Not Listed     | Green        |
| Common Marsh Bedstraw    | <i>Galium palustre</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Common Oak Fern          | <i>Gymnocarpium dryopteris</i>   | Not Listed  | Not Listed   | Not Listed     | Green        |
| Common Plantain          | <i>Plantago major</i>            | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Common Speedwell         | <i>Veronica officinalis</i>      | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Common St. John's-wort   | <i>Hypericum perforatum</i>      | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Common Timothy           | <i>Phleum pratense</i>           | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Common Winterberry       | <i>Ilex verticillata</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Common Wood Sorrel       | <i>Oxalis montana</i>            | Not Listed  | Not Listed   | Not Listed     | Green        |
| Common Woolly Bulrush    | <i>Scirpus cyperinus</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Creeping Buttercup       | <i>Ranunculus repens</i>         | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Creeping Cinquefoil      | <i>Potentilla reptans</i>        | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Creeping Snowberry       | <i>Gaultheria hispidula</i>      | Not Listed  | Not Listed   | Not Listed     | Green        |
| Crested Wood Fern        | <i>Dryopteris cristata</i>       | Not Listed  | Not Listed   | Not Listed     | Green        |
| Devil's Beggarticks      | <i>Bidens frondosa</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Dewdrop                  | <i>Dalibarda repens</i>          | Not Listed  | Not Listed   | Not Listed     | Green        |
| Downy Goldenrod          | <i>Solidago puberula</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Dwarf Red Raspberry      | <i>Rubus pubescens</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Eastern Burnweed         | <i>Erechtites hieraciifolius</i> | Not Listed  | Not Listed   | Not Listed     | Green        |
| Eastern Hay-Scented Fern | <i>Dennstaedtia punctilobula</i> | Not Listed  | Not Listed   | Not Listed     | Green        |
| Eastern Hemlock          | <i>Tsuga canadensis</i>          | Not Listed  | Not Listed   | Not Listed     | Green        |
| Eastern Teaberry         | <i>Gaultheria procumbens</i>     | Not Listed  | Not Listed   | Not Listed     | Green        |
| Eastern White Pine       | <i>Pinus strobus</i>             | Not Listed  | Not Listed   | Not Listed     | Green        |
| Eurasian Black Bindweed  | <i>Fallopia convolvulus</i>      | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Evergreen Wood Fern      | <i>Dryopteris intermedia</i>     | Not Listed  | Not Listed   | Not Listed     | Green        |
| Fall Dandelion           | <i>Leontodon autumnalis</i>      | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Field Horsetail          | <i>Equisetum arvense</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Field Sow Thistle        | <i>Sonchus arvensis</i>          | Not Listed  | Not Listed   | Not Listed     | Exotic       |

Table E2: Plant Species Observed during 2013 Field Surveys, Ellershouse Wind Farm

Project# 12-4583

| Common Name                   | Scientific Name                | SARA Status | NSESA Status | COSEWIC Status | NSDNR Status |
|-------------------------------|--------------------------------|-------------|--------------|----------------|--------------|
| Fireberry Hawthorn            | <i>Crataegus chrysocarpa</i>   | Not Listed  | Not Listed   | Not Listed     | Green        |
| Fireweed                      | <i>Chamerion angustifolium</i> | Not Listed  | Not Listed   | Not Listed     | Green        |
| Flat-branched Tree-clubmoss   | <i>Lycopodium obscurum</i>     | Not Listed  | Not Listed   | Not Listed     | Green        |
| Flattened Oat Grass           | <i>Danthonia compressa</i>     | Not Listed  | Not Listed   | Not Listed     | Green        |
| Fowl Manna Grass              | <i>Glyceria striata</i>        | Not Listed  | Not Listed   | Not Listed     | Green        |
| Fox Sedge                     | <i>Carex vulpinoidea</i>       | Not Listed  | Not Listed   | Not Listed     | Green        |
| Fraser's Marsh St John's-wort | <i>Triadenum fraseri</i>       | Not Listed  | Not Listed   | Not Listed     | Green        |
| Fringed Sedge                 | <i>Carex crinita</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Goldthread                    | <i>Coptis trifolia</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Grass-leaved Goldenrod        | <i>Euthamia graminifolia</i>   | Not Listed  | Not Listed   | Not Listed     | Green        |
| Gray Birch                    | <i>Betula populifolia</i>      | Not Listed  | Not Listed   | Not Listed     | Green        |
| Green Alder                   | <i>Alnus viridis</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Hairy Flat-top White Aster    | <i>Doellingeria umbellata</i>  | Not Listed  | Not Listed   | Not Listed     | Green        |
| Hairy Soloman's Seal          | <i>Polygonatum pubescens</i>   | Not Listed  | Not Listed   | Not Listed     | Green        |
| Helleborine                   | <i>Epipactis helleborine</i>   | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Hobblebush                    | <i>Viburnum lantanoides</i>    | Not Listed  | Not Listed   | Not Listed     | Green        |
| Indian Cucumber Root          | <i>Medeola virginiana</i>      | Not Listed  | Not Listed   | Not Listed     | Green        |
| Indian Pipe                   | <i>Monotropa uniflora</i>      | Not Listed  | Not Listed   | Not Listed     | Green        |
| Interrupted Fern              | <i>Osmunda claytoniana</i>     | Not Listed  | Not Listed   | Not Listed     | Green        |
| Japanese Knotweed             | <i>Fallopia japonica</i>       | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Kentucky Blue Grass           | <i>Poa pratensis</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Large-leaved Aster            | <i>Eurybia macrophylla</i>     | Not Listed  | Not Listed   | Not Listed     | Green        |
| Large-toothed Aspen           | <i>Populus grandidentata</i>   | Not Listed  | Not Listed   | Not Listed     | Green        |
| Leatherleaf                   | <i>Chamaedaphne calyculata</i> | Not Listed  | Not Listed   | Not Listed     | Green        |
| Lettuce Hawkweed              | <i>Hieracium lactucella</i>    | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Low Hop Clover                | <i>Trifolium campestre</i>     | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Marsh Blue Violet             | <i>Viola cucullata</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Marsh Cudweed                 | <i>Gnaphalium uliginosum</i>   | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Mountain Blue-eyed-grass      | <i>Sisyrinchium montanum</i>   | Not Listed  | Not Listed   | Not Listed     | Green        |
| Mountain Fly Honeysuckle      | <i>Lonicera villosa</i>        | Not Listed  | Not Listed   | Not Listed     | Green        |
| Mountain Maple                | <i>Acer spicatum</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Mouse-ear Hawkweed            | <i>Hieracium pilosella</i>     | Not Listed  | Not Listed   | Not Listed     | Exotic       |

Table E2: Plant Species Observed during 2013 Field Surveys, Ellershouse Wind Farm

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| Common Name               | Scientific Name                     | SARA Status | NSESA Status | COSEWIC Status | NSDNR Status |
|---------------------------|-------------------------------------|-------------|--------------|----------------|--------------|
| New York Fern             | <i>Thelypteris noveboracensis</i>   | Not Listed  | Not Listed   | Not Listed     | Green        |
| Northern Beech Fern       | <i>Phegopteris connectilis</i>      | Not Listed  | Not Listed   | Not Listed     | Green        |
| Northern Bush Honeysuckle | <i>Diervilla lonicera</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Northern Red Oak          | <i>Quercus rubra</i>                | Not Listed  | Not Listed   | Not Listed     | Green        |
| Northern Shorthusk        | <i>Brachyelytrum septentrionale</i> | Not Listed  | Not Listed   | Not Listed     | Green        |
| Northern Starflower       | <i>Trientalis borealis</i>          | Not Listed  | Not Listed   | Not Listed     | Green        |
| Northern Water Horehound  | <i>Lycopus uniflorus</i>            | Not Listed  | Not Listed   | Not Listed     | Green        |
| Northern Wild Raisin      | <i>Viburnum nudum</i>               | Not Listed  | Not Listed   | Not Listed     | Green        |
| Northern Willowherb       | <i>Epilobium ciliatum</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Nova Scotia Agalinis      | <i>Agalinis neoscotica</i>          | Not Listed  | Not Listed   | Not Listed     | Green        |
| Old Field Cinquefoil      | <i>Potentilla simplex</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Orchard Grass             | <i>Dactylis glomerata</i>           | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Painted Trillium          | <i>Trillium undulatum</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Pale Bog Laurel           | <i>Kalmia polifolia</i>             | Not Listed  | Not Listed   | Not Listed     | Green        |
| Paper Birch               | <i>Betula papyrifera</i>            | Not Listed  | Not Listed   | Not Listed     | Green        |
| Partridgeberry            | <i>Mitchella repens</i>             | Not Listed  | Not Listed   | Not Listed     | Green        |
| Path Rush                 | <i>Juncus tenuis</i>                | Not Listed  | Not Listed   | Not Listed     | Green        |
| Pearly Everlasting        | <i>Anaphalis margaritacea</i>       | Not Listed  | Not Listed   | Not Listed     | Green        |
| Pin Cherry                | <i>Prunus pensylvanica</i>          | Not Listed  | Not Listed   | Not Listed     | Green        |
| Pink Lady's-Slipper       | <i>Cypripedium acaule</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Poverty Oat Grass         | <i>Danthonia spicata</i>            | Not Listed  | Not Listed   | Not Listed     | Green        |
| Purple-stemmed Aster      | <i>Symphyotrichum puniceum</i>      | Not Listed  | Not Listed   | Not Listed     | Green        |
| Pussy Willow              | <i>Salix discolor</i>               | Not Listed  | Not Listed   | Not Listed     | Green        |
| Queen Anne's Lace         | <i>Daucus carota</i>                | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Rabbit's-foot Clover      | <i>Trifolium arvense</i>            | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Red Clover                | <i>Trifolium pratense</i>           | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Red Fescue                | <i>Festuca rubra</i>                | Not Listed  | Not Listed   | Not Listed     | Green        |
| Red Maple                 | <i>Acer rubrum</i>                  | Not Listed  | Not Listed   | Not Listed     | Green        |
| Red Raspberry             | <i>Rubus idaeus</i>                 | Not Listed  | Not Listed   | Not Listed     | Green        |
| Red Spruce                | <i>Picea rubens</i>                 | Not Listed  | Not Listed   | Not Listed     | Green        |
| Rhodora                   | <i>Rhododendron canadense</i>       | Not Listed  | Not Listed   | Not Listed     | Green        |
| Rice Cut Grass            | <i>Leersia oryzoides</i>            | Not Listed  | Not Listed   | Not Listed     | Green        |

Table E2: Plant Species Observed during 2013 Field Surveys, Ellershouse Wind Farm

Project# 12-4583

| Common Name                     | Scientific Name                  | SARA Status | NSESA Status | COSEWIC Status | NSDNR Status |
|---------------------------------|----------------------------------|-------------|--------------|----------------|--------------|
| Rose Twisted-stalk              | <i>Streptopus lanceolatus</i>    | Not Listed  | Not Listed   | Not Listed     | Green        |
| Rough Bent Grass                | <i>Agrostis scabra</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Rough Fleabane                  | <i>Erigeron strigosus</i>        | Not Listed  | Not Listed   | Not Listed     | Green        |
| Rough Hawkweed                  | <i>Hieracium scabrum</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Rough Sedge                     | <i>Carex scabrata</i>            | Not Listed  | Not Listed   | Not Listed     | Green        |
| Rough-stemmed Goldenrod         | <i>Solidago rugosa</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Round-leaved Sundew             | <i>Drosera rotundifolia</i>      | Not Listed  | Not Listed   | Not Listed     | Green        |
| Running Clubmoss                | <i>Lycopodium clavatum</i>       | Not Listed  | Not Listed   | Not Listed     | Green        |
| Sallow Sedge                    | <i>Carex lurida</i>              | Not Listed  | Not Listed   | Not Listed     | Green        |
| Sensitive Fern                  | <i>Onoclea sensibilis</i>        | Not Listed  | Not Listed   | Not Listed     | Green        |
| Sheep Laurel                    | <i>Kalmia angustifolia</i>       | Not Listed  | Not Listed   | Not Listed     | Green        |
| Small Enchanter's Nightshade    | <i>Circaea alpina</i>            | Not Listed  | Not Listed   | Not Listed     | Green        |
| Small-flowered Evening Primrose | <i>Oenothera parviflora</i>      | Not Listed  | Not Listed   | Not Listed     | Green        |
| Small-fruited Bulrush           | <i>Scirpus microcarpus</i>       | Not Listed  | Not Listed   | Not Listed     | Green        |
| Soft Rush                       | <i>Juncus effusus</i>            | Not Listed  | Not Listed   | Not Listed     | Green        |
| Southern Clubmoss               | <i>Diphasiastrum digitatum</i>   | Not Listed  | Not Listed   | Not Listed     | Green        |
| Speckled Alder                  | <i>Alnus incana</i>              | Not Listed  | Not Listed   | Not Listed     | Green        |
| Spinulose Wood Fern             | <i>Dryopteris carthusiana</i>    | Not Listed  | Not Listed   | Not Listed     | Green        |
| Spotted Jewelweed               | <i>Impatiens capensis</i>        | Not Listed  | Not Listed   | Not Listed     | Green        |
| Spreading Dogbane               | <i>Apocynum androsaemifolium</i> | Not Listed  | Not Listed   | Not Listed     | Green        |
| Steeplebush                     | <i>Spiraea tomentosa</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Stiff Clubmoss                  | <i>Lycopodium annotinum</i>      | Not Listed  | Not Listed   | Not Listed     | Green        |
| Stiff Eyebright                 | <i>Euphrasia stricta</i>         | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Striped Maple                   | <i>Acer pensylvanicum</i>        | Not Listed  | Not Listed   | Not Listed     | Green        |
| Sugar Maple                     | <i>Acer saccharum</i>            | Not Listed  | Not Listed   | Not Listed     | Green        |
| Sulphur Cinquefoil              | <i>Potentilla recta</i>          | Not Listed  | Not Listed   | Not Listed     | Exotic       |
| Swamp Yellow Loosestrife        | <i>Lysimachia terrestris</i>     | Not Listed  | Not Listed   | Not Listed     | Green        |
| Sweet-fern                      | <i>Comptonia peregrina</i>       | Not Listed  | Not Listed   | Not Listed     | Green        |
| Tall Meadow-Rue                 | <i>Thalictrum pubescens</i>      | Not Listed  | Not Listed   | Not Listed     | Green        |
| Three-leaved Rattlesnakeroot    | <i>Prenanthes trifoliolata</i>   | Not Listed  | Not Listed   | Not Listed     | Green        |
| Three-seeded Sedge              | <i>Carex trisperma</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| Toad Rush                       | <i>Juncus bufonius</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |

Table E2: Plant Species Observed during 2013 Field Surveys, Ellershouse Wind Farm

Project# 12-4583

| Common Name             | Scientific Name               | SARA Status | NSESA Status | COSEWIC Status | NSDNR Status |
|-------------------------|-------------------------------|-------------|--------------|----------------|--------------|
| Trailing Arbutus        | <i>Epigaea repens</i>         | Not Listed  | Not Listed   | Not Listed     | Green        |
| Trembling Aspen         | <i>Populus tremuloides</i>    | Not Listed  | Not Listed   | Not Listed     | Green        |
| Twinflower              | <i>Linnaea borealis</i>       | Not Listed  | Not Listed   | Not Listed     | Green        |
| Upland Willow           | <i>Salix humilis</i>          | Not Listed  | Not Listed   | Not Listed     | Green        |
| Velvet-leaved Blueberry | <i>Vaccinium myrtilloides</i> | Not Listed  | Not Listed   | Not Listed     | Green        |
| Virginia Rose           | <i>Rosa virginiana</i>        | Not Listed  | Not Listed   | Not Listed     | Green        |
| White Ash               | <i>Fraxinus americana</i>     | Not Listed  | Not Listed   | Not Listed     | Green        |
| White Beakrush          | <i>Rhynchospora alba</i>      | Not Listed  | Not Listed   | Not Listed     | Green        |
| White Goldenrod         | <i>Solidago bicolor</i>       | Not Listed  | Not Listed   | Not Listed     | Green        |
| White Meadowsweet       | <i>Spiraea alba</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| White Spruce            | <i>Picea glauca</i>           | Not Listed  | Not Listed   | Not Listed     | Green        |
| White-edged Sedge       | <i>Carex debilis</i>          | Not Listed  | Not Listed   | Not Listed     | Green        |
| Whorled Wood Aster      | <i>Oclemena acuminata</i>     | Not Listed  | Not Listed   | Not Listed     | Green        |
| Wild Lily-of-The-Valley | <i>Maianthemum canadense</i>  | Not Listed  | Not Listed   | Not Listed     | Green        |
| Wild Sarsaparilla       | <i>Aralia nudicaulis</i>      | Not Listed  | Not Listed   | Not Listed     | Green        |
| Wild Strawberry         | <i>Fragaria virginiana</i>    | Not Listed  | Not Listed   | Not Listed     | Green        |
| Yellow Birch            | <i>Betula alleghaniensis</i>  | Not Listed  | Not Listed   | Not Listed     | Green        |
| Yellow Bluebead Lily    | <i>Clintonia borealis</i>     | Not Listed  | Not Listed   | Not Listed     | Green        |
| Zigzag Goldenrod        | <i>Solidago flexicaulis</i>   | Not Listed  | Not Listed   | Not Listed     | Green        |



## APPENDIX F

### MOOSE SURVEY METHODOLOGY

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## MOOSE SURVEY METHODOLOGY

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Pellet count surveys are an effective method of documenting the mammalian fauna present in an area. These surveys consist of assessing transects through the survey areas within the Project site. The survey areas were developed with consideration for the following:

- Coverage of the Project site: Survey areas were designed to cover as much of the Project site as possible.
- Habitat: Multiple habitats were targeted including mature softwood forest, mixed wood forest, wetlands, and clear cuts.
- Development footprint: Survey areas focused on land incorporating the development footprint (access roads and turbines), to the extent possible.
- Access to the Project site: The Project site incorporates a large tract of land which is accessible via logging roads. On-foot transects were designed to start and finish at existing logging roads/access roads.

### *Pellet Group Survey Methodology*

Two pre-construction surveys were completed on May 24, 2013, and November 13, 2013 using the pellet group survey methodology. The surveys were conducted by a team of biologists with a demonstrable knowledge of mammalian animal sign. Survey areas were located across the Project site and included six triangular transects of 1.3 km, 1.3 km, 1.0 km, 0.9 km, 0.9 km and 0.9 km. Due to site layout changes between the first and second pellet group survey, the location of one transect (Transect 5a) was changed (to Transect 5b) to reflect the updated development footprint (Drawing 8.6). The distance of these two transects (Transects 5a and 5b) are approximately equal (0.9 km).

Transects were followed according to tracks laid out on GPS units and qualified biologists searched for pellet groups within approximately 2-3 m on either side of the transect line. All wildlife sign, including tracks, foraging sign, scat, and rubs, encountered during the surveys were identified to species, where possible. In addition, the locations of all noteworthy observations were recorded using GPS receivers capable of sub 5 m accuracy, with representative photos taken.

APPENDIX G  
BIRD SURVEY METHODOLOGY AND FIELD DATA  
RESULTS

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## BIRD MONITORING PROTOCOL – Pre-construction Surveys

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Pre-construction (baseline) avian field surveys were completed to complement desktop information and to characterize the pre-construction (baseline) bird community at the Project site throughout the year. These surveys were carried out by an expert birder and were designed with the purpose of collecting data on species presence, abundance, and habitat usage at the Project site during the months coinciding with fall migration, spring migration, breeding season and the winter season. All field surveys were designed to conform to protocols outlined in the document “Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds” (CWS 2007).

Surveys were completed in April, May, June, September, October, November and December 2013. The following information was recorded at each survey location:

- Weather conditions (temperature, wind speed, cloud cover, and presence of precipitation);
- Date and time of day;
- Habitat description; and
- GPS coordinates of the survey location.

Surveys employed point count, area search, and stopover count methodologies depending on the season and target species. Regardless of survey methodology, the following elements were consistent among surveys:

- surveys were four hours in duration, commencing as close to sunrise as possible;
- species presence and abundance were recorded based on visual and acoustic observations;
- approximate distance to each bird was recorded using a scale of 0-50 m, 50-100 m and further than 100 m;
- behavioural patterns were noted to determine whether birds flying over the site would be within the future blade-swept area of a turbine; and
- survey locations during each survey were separated by a minimum distance of 300 m, whenever possible, to account for all present habitat types throughout the Project site.

## REFERENCES

CWS (Canadian Wildlife Service). 2007. Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds. 33 pp.

Table G1: Project Site Spring Migration Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date      | Location | Coordinates<br>(UTM NAD83) | Habitat  | Conditions                  |                |        |               | Time    | Common Name            | Number<br>Observed | Distance to<br>Observer (m) | Flyover                |
|-----------|----------|----------------------------|--|-----------------------------|----------------|--------|---------------|---------|------------------------|--------------------|-----------------------------|------------------------|
|           |          |                            |  | Wind Speed and<br>Direction | Temperature °C | Sky    | Precipitation |         |                        |                    |                             |                        |
| 29-Apr-13 | ST1      | 0418951;<br>4975948        | Mid aged mixed<br>wood near clearcut                 | low                         | 11             | Cloudy | None          | 5:38 AM | American Robin         | 2                  | 0-50                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | American Robin         | 3                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | American Robin         | 4                  | 100+                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Barred Owl             | 2                  | 100+                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Black-capped Chickadee | 1                  | 100+                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Dark-eyed Junco        | 1                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Hermit Thrush          | 1                  | 100+                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Hermit Thrush          | 2                  | 100+                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Ruffed Grouse          | 1                  | 100+                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Song sparrow           | 3                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | White-throated Sparrow | 1                  | 0-50                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | White-throated Sparrow | 2                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | White-throated Sparrow | 2                  | 100+                        | ...                    |
| ...       | ST2      | 0419968;<br>4975681        | Early to mid aged<br>mixed wood                      | low                         | 11             | Cloudy | None          | 5:57 AM | American Robin         | 2                  | 100+                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | American Robin         | 1                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Dark-eyed Junco        | 1                  | 0-50                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Dark-eyed Junco        | 1                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Evening Grosbeak       | ...                | ...                         | 1 2 at 50m to<br>north |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Hermit Thrush          | 3                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Hermit Thrush          | 1                  | 100+                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Ruby-crowned Kinglet   | 1                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Ruffed Grouse          | 1                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | White-throated Sparrow | 1                  | 0-50                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Yellow-rumped Warbler  | 1                  | 0-50                        | ...                    |
| ...       | ST3      | 0420675;<br>4975670        | Mid-aged to mature<br>mixed wood                     | low                         | 11             | Cloudy | None          | 6:15 AM | American Robin         | 2                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Dark-eyed Junco        | 1                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Dark-eyed Junco        | 2                  | 100+                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Evening Grosbeak       | 1                  | 100+                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Hermit Thrush          | 3                  | 100+                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Northern Flicker       | 1                  | 100+                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Purple Finch           | 1                  | 100+                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | White-throated Sparrow | 1                  | 100+                        | ...                    |
| ...       | ST4      | 0419782;<br>4975021        | Mature hardwood                                      | low                         | 11             | Cloudy | None          | 6:31 AM | American Robin         | 1                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Black-capped Chickadee | 2                  | 0-50                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Blue Jay               | 2                  | 100+                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Downy Woodpecker       | 1                  | 0-50                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Hermit Thrush          | 1                  | 0-50                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Hermit Thrush          | 1                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Northern Flicker       | 1                  | 0-50                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Northern Flicker       | 1                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Purple Finch           | 1                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Ruby-crowned Kinglet   | 1                  | 100+                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Song sparrow           | 1                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Yellow-rumped Warbler  | 1                  | 0-50                        | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Yellow-rumped Warbler  | 1                  | 50-100                      | ...                    |
| ...       | ST5      | 0420311;<br>4975001        | Early successional<br>mixed wood near<br>watercourse | low                         | 11             | Cloudy | None          | 6:50 AM | American Robin         | 1                  | 50-100                      | ...                    |
| ...       | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Black-capped Chickadee | 1                  | 50-100                      | ...                    |

Table G1: Project Site Spring Migration Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date | Location | Coordinates<br>(UTM NAD83) | Habitat  | Conditions                  |                |        |               | Time    | Common Name            | Number<br>Observed | Distance to<br>Observer (m) | Flyover                  |
|------|----------|----------------------------|--|-----------------------------|----------------|--------|---------------|---------|------------------------|--------------------|-----------------------------|--------------------------|
|      |          |                            |  | Wind Speed and<br>Direction | Temperature °C | Sky    | Precipitation |         |                        |                    |                             |                          |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Blue Jay               | 1                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Golden-crowned Kinglet | 1                  | 0-50                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Hermit Thrush          | 2                  | 50-100                      | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Palm Warbler           | 1                  | 50-100                      | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Purple Finch           | 2                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Ruby-crowned Kinglet   | 1                  | 0-50                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Ruffed Grouse          | 1                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Swamp Sparrow          | 1                  | 50-100                      | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | White-throated Sparrow | 2                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | White-throated Sparrow | 1                  | 50-100                      | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Winter Wren            | 1                  | 50-100                      | ...                      |
| ...  | ST6      | 0420568;<br>4975187        | swamp surrounded<br>by mature mixed<br>wood forest         | low                         | 11             | Cloudy | None          | 7:14 AM | American Robin         | 1                  | 0-50                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | American Robin         | 2                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | American Robin         | 1                  | 50-100                      | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Blue Jay               | 2                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Dark-eyed Junco        | 1                  | 0-50                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Evening Grosbeak       | ...                | ...                         | 2 at 50m to north        |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Golden-crowned Kinglet | 1                  | 0-50                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Hermit Thrush          | 1                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Mourning Dove          | ...                | ...                         | 1 at 50m to<br>northeast |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Northern Flicker       | 1                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Palm Warbler           | 3                  | 50-100                      | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Palm Warbler           | 2                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Purple Finch           | 1                  | 50-100                      | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Ruffed Grouse          | 1                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Swamp Sparrow          | 2                  | 50-100                      | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Swamp Sparrow          | 1                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | White-throated Sparrow | 2                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Winter Wren            | 1                  | 50-100                      | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Winter Wren            | 1                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Yellow-rumped Warbler  | 1                  | 50-100                      | ...                      |
| ...  | ST9      | 0419425;<br>4974246        | Mid to mature aged<br>mixed wood in valley<br>near cutover | Low                         | 12             | clear  | None          | 8:28 AM | American Robin         | 2                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Black-capped Chickadee | 2                  | 0-50                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Blue Jay               | 2                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Dark-eyed Junco        | 1                  | 50-100                      | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Hermit Thrush          | 1                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Palm Warbler           | 1                  | 50-100                      | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Red-tailed Hawk        | 1                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | White-throated Sparrow | 2                  | 0-50                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | White-throated Sparrow | 2                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Yellow-rumped Warbler  | 1                  | 50-100                      | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Yellow-rumped Warbler  | 1                  | 100+                        | ...                      |
| ...  | ST11     | 0418829;<br>4974567        | Early to mid aged<br>mixed wood                            | Low                         | 12             | clear  | None          | 9:03 AM | American Goldfinch     | 1                  | 50-100                      | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Black-capped Chickadee | 1                  | 0-50                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Blue Jay               | 1                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Hermit Thrush          | 1                  | 100+                        | ...                      |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...    | ...           | ...     | Ruby-crowned Kinglet   | 1                  | 100+                        | ...                      |

Table G1: Project Site Spring Migration Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date     | Location | Coordinates<br>(UTM NAD83) | Habitat                              | Conditions                              |                |          |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer (m) | Flyover |
|----------|----------|----------------------------|--------------------------------------|---|----------------|----------|---------------|---------|------------------------------|--------------------|-----------------------------|---------|
|          |          |                            |                                      | Wind Speed and<br>Direction             | Temperature °C | Sky      | Precipitation |         |                              |                    |                             |         |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 2                  | 50-100                      | ...     |
| 5-May-13 | ST1      | 0418951;<br>4975948        | Mid aged mixed<br>wood near clearcut | 10 km with gusts to<br>30, blowing west | 11             | Overcast | None          | 5:32 AM | American Robin               | 2                  | 50-100                      | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Black-and-white Warbler      | 1                  | 0-50                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Black-capped Chickadee       | 3                  | 0-50                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Hermit Thrush                | 1                  | 50-100                      | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Palm Warbler                 | 2                  | 50-100                      | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Ruffed grouse                | 1                  | 50-100                      | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 3                  | 0-50                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 5                  | 50-100                      | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 4                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 2                  | 0-50                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                      | ...     |
| ...      | ST2      | 0419968;<br>4975681        | Early to mid aged<br>mixed wood      | 10 km with gusts to<br>30, blowing west | 11             | Overcast | None          | 5:55 AM | American Goldfinch           | 1                  | 0-50                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | American Robin               | 1                  | 0-50                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | American Robin               | 1                  | 50-100                      | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | American Robin               | 1                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Black-capped Chickadee       | 1                  | 50-100                      | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Hermit Thrush                | 1                  | 50-100                      | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Mourning Dove                | 1                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Nashville Warbler            | 1                  | 0-50                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Nashville Warbler            | 1                  | 50-100                      | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Palm Warbler                 | 2                  | 50-100                      | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Purple Finch                 | 1                  | 50-100                      | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Ruby-crowned Kinglet         | 1                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Ruffed grouse                | 1                  | 0-50                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 1                  | 0-50                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 1                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Winter Wren                  | 1                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 0-50                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                      | ...     |
| ...      | ST3      | 0420675;<br>4975670        | Mid-aged to mature<br>mixed wood     | 10 km with gusts to<br>30, blowing west | 11             | Cloudy   | None          | 8:52 AM | American Goldfinch           | 1                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | American Robin               | 3                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Black-capped Chickadee       | 2                  | 50-100                      | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Black-throated Green Warbler | 1                  | 0-50                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Black-throated Green Warbler | 2                  | 50-100                      | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Black-throated Green Warbler | 2                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Blue Jay                     | 2                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Blue-headed Vireo            | 1                  | 50-100                      | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Blue-headed Vireo            | 1                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Downy Woodpecker             | 1                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Golden-crowned Kinglet       | 1                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Mourning Dove                | 1                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Nashville Warbler            | 1                  | 50-100                      | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Nashville Warbler            | 1                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Purple Finch                 | 1                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 2                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Winter Wren                  | 1                  | 100+                        | ...     |
| ...      | ...      | ...                        | ...                                  | ...                                     | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                      | ...     |

Table G1: Project Site Spring Migration Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date | Location | Coordinates<br>(UTM NAD83) | Habitat  | Conditions                              |                |          |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer (m) | Flyover |
|------|----------|----------------------------|--|---|----------------|----------|---------------|---------|------------------------------|--------------------|-----------------------------|---------|
|      |          |                            |  | Wind Speed and<br>Direction             | Temperature °C | Sky      | Precipitation |         |                              |                    |                             |         |
| ...  | ST4      | 0419782;<br>4975021        | Mature hardwood                                      | 10 km with gusts to<br>30, blowing west | 11             | Overcast | None          | 6:09 AM | American Robin               | 2                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Black-and-white Warbler      | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Black-throated Blue Warbler  | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Blue-headed Vireo            | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Blue-headed Vireo            | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Dark-eyed Junco              | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Dark-eyed Junco              | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Hermit Thrush                | 2                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Nashville Warbler            | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Purple Finch                 | 2                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Purple Finch                 | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 2                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Winter Wren                  | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                      | ...     |
| ...  | ST5      | 0420311;<br>4975001        | Early successional<br>mixed wood near<br>watercourse | 10 km with gusts to<br>30, blowing west | 11             | Overcast | None          | 7:32 AM | American Goldfinch           | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | American Robin               | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Black-and-white Warbler      | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Blue Jay                     | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Mourning Dove                | 2                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Northern Flicker             | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Northern Parula              | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Ruby-crowned Kinglet         | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                      | ...     |
| ...  | ST6      | 0420568;<br>4975187        | swamp surrounded<br>by mature mixed<br>wood forrest  | low                                     | 13             | Cloudy   | None          | 7:50 AM | Black-and-white Warbler      | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Black-capped Chickadee       | 2                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Black-throated Green Warbler | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Blue Jay                     | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Blue-headed Vireo            | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Dark-eyed Junco              | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Golden-crowned Kinglet       | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Nashville Warbler            | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Ovenbird                     | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Palm Warbler                 | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Ruby-crowned Kinglet         | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Ruffed grouse                | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Song sparrow                 | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Swamp Sparrow                | 2                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 1                  | 50-100                      | ...     |



Table G1: Project Site Spring Migration Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date      | Location | Coordinates<br>(UTM NAD83) | Habitat  | Conditions                              |                |          |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer (m) | Flyover |
|-----------|----------|----------------------------|--|---|----------------|----------|---------------|---------|------------------------------|--------------------|-----------------------------|---------|
|           |          |                            |  | Wind Speed and<br>Direction             | Temperature °C | Sky      | Precipitation |         |                              |                    |                             |         |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 2                  | 50-100                      | ...     |
| ...       | ST9      | 0419425;<br>4974246        | Mid to mature aged<br>mixed wood in valley<br>near cutover | 10 km with gusts to<br>30, blowing west | 11             | Overcast | None          | 6:56 AM | American Robin               | 1                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | American Robin               | 1                  | 100+                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Black-and-white Warbler      | 1                  | 0-50                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Black-throated Green Warbler | 2                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Dark-eyed Junco              | 1                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Golden-crowned Kinglet       | 2                  | 0-50                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Hermit Thrush                | 1                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Northern Flicker             | 1                  | 100+                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Palm Warbler                 | 1                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Pine Siskin                  | 1                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Ruffed grouse                | 1                  | 100+                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 1                  | 100+                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 100+                        | ...     |
| ...       | ST11     | 0418829;<br>4974567        | Early to mid aged<br>mixed wood                            | 10 km with gusts to<br>30, blowing west | 11             | Overcast | None          | 6:27 AM | American Goldfinch           | 1                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Black-and-white Warbler      | 1                  | 0-50                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Northern Flicker             | 1                  | 100+                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Palm Warbler                 | 1                  | 0-50                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Palm Warbler                 | 1                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Purple Finch                 | 1                  | 0-50                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Ruby-crowned Kinglet         | 1                  | 100+                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 2                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 2                  | 100+                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Winter Wren                  | 1                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 100+                        | ...     |
| 31-May-13 | ST1      | 0418951;<br>4975948        | Mid aged mixed<br>wood near clearcut                       | Low                                     | 18             | clear    | None          | 5:09 AM | American Robin               | 2                  | 100+                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Alder Flycatcher             | 1                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Alder Flycatcher             | 1                  | 100+                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Black-throated Blue Warbler  | 1                  | 0-50                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Black-throated Blue Warbler  | 1                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Black-throated Green Warbler | 1                  | 100+                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Chestnut-sided Warbler       | 1                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Common Yellowthroat          | 2                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Hermit Thrush                | 1                  | 100+                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Magnolia Warbler             | 2                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Magnolia Warbler             | 1                  | 100+                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Northern Parula              | 2                  | 0-50                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Northern Parula              | 1                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Ovenbird                     | 2                  | 0-50                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Ovenbird                     | 1                  | 50-100                      | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Song sparrow                 | 1                  | 0-50                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | White-throated Sparrow       | 3                  | 100+                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Yellow-bellied Sapsucker     | 1                  | 100+                        | ...     |
| ...       | ...      | ...                        | ...  | ...                                     | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                      | ...     |
| ...       | ST2      | 0419968;<br>4975681        | Early to mid aged<br>mixed wood                            | Low                                     | 18             | clear    | None          | 5:23 AM | American Crow                | 1                  | 100+                        | ...     |

Table G1: Project Site Spring Migration Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date | Location | Coordinates<br>(UTM NAD83) | Habitat                          | Conditions                  |                |       |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer (m) | Flyover |
|------|----------|----------------------------|----------------------------------|-----------------------------|----------------|-------|---------------|---------|------------------------------|--------------------|-----------------------------|---------|
|      |          |                            |                                  | Wind Speed and<br>Direction | Temperature °C | Sky   | Precipitation |         |                              |                    |                             |         |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | American Goldfinch           | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | American Robin               | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Black-and-white Warbler      | 2                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Black-capped Chickadee       | 2                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Dark-eyed Junco              | 1                  | 0-100                       | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Hermit Thrush                | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Hermit Thrush                | 3                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Ovenbird                     | 2                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Ovenbird                     | 2                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Ovenbird                     | 2                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Purple Finch                 | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Winter Wren                  | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                      | ...     |
| ...  | ST3      | 0420675;<br>4975670        | Mid-aged to mature<br>mixed wood | Low                         | 18             | clear | None          | 7:20 AM | Chestnut-sided Warbler       | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Alder Flycatcher             | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | American Redstart            | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | American Robin               | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Black-and-white Warbler      | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Black-and-white Warbler      | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Blackburnian Warbler         | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Blue-headed Vireo            | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Common Yellowthroat          | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Golden-crowned Kinglet       | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Hermit Thrush                | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Ovenbird                     | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Ovenbird                     | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                      | ...     |
| ...  | ST4      | 0419782;<br>4975021        | Mature hardwood                  | Low                         | 18             | clear | None          | 5:35 AM | American Redstart            | 2                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | American Robin               | 2                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | American Robin               | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | American Robin               | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Black-and-white Warbler      | 2                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Black-throated Blue Warbler  | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Blue Jay                     | 2                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Chestnut-sided Warbler       | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Common Yellowthroat          | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Common Yellowthroat          | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Gray Jay                     | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Hermit Thrush                | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Magnolia Warbler             | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Ovenbird                     | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Ovenbird                     | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | Red-eyed Vireo               | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...                              | ...                         | ...            | ...   | ...           | ...     | White-throated Sparrow       | 1                  | 0-50                        | ...     |

Table G1: Project Site Spring Migration Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date | Location | Coordinates<br>(UTM NAD83) | Habitat  | Conditions                  |                |       |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer (m) | Flyover |
|------|----------|----------------------------|--|-----------------------------|----------------|-------|---------------|---------|------------------------------|--------------------|-----------------------------|---------|
|      |          |                            |  | Wind Speed and<br>Direction | Temperature °C | Sky   | Precipitation |         |                              |                    |                             |         |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | White-throated Sparrow       | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Winter Wren                  | 1                  | 50-100                      | ...     |
| ...  | ST5      | 0420311;<br>4975001        | Early successional<br>mixed wood near<br>watercourse       | Low                         | 18             | clear | None          | 5:52 AM | Black-and-white Warbler      | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Blackburnian Warbler         | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Blackburnian Warbler         | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Black-throated Blue Warbler  | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 3                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Blue-headed Vireo            | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Canada Warbler               | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Hermit Thrush                | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Hermit Thrush                | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Magnolia Warbler             | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Ovenbird                     | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Ovenbird                     | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Swainson's Thrush            | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | White-throated Sparrow       | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Winter Wren                  | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Yellow-bellied Sapsucker     | 1                  | 0-50                        | ...     |
| ...  | ST6      | 0420568;<br>4975187        | swamp surrounded<br>by mature mixed<br>wood forest         | Low                         | 18             | clear | None          | 6:12 AM | Black-and-white Warbler      | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Blue-headed Vireo            | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Common Yellowthroat          | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Hairy Woodpecker             | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Magnolia Warbler             | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Magnolia Warbler             | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Northern Parula              | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Ovenbird                     | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Ovenbird                     | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Red-eyed Vireo               | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Swainson's Thrush            | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Swamp Sparrow                | 2                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | White-throated Sparrow       | 2                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Winter Wren                  | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Yellow-bellied Flycatcher    | 1                  | 0-50                        | ...     |
| ...  | ST9      | 0419425;<br>4974246        | Mid to mature aged<br>mixed wood in valley<br>near cutover | Low                         | 21             | clear | None          | 8:09 AM | American Robin               | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Black-and-white Warbler      | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Black-throated Blue Warbler  | 2                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Blue Jay                     | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Dark-eyed Junco              | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Dark-eyed Junco              | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Hermit Thrush                | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Magnolia Warbler             | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Magnolia Warbler             | 2                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...  | ...                         | ...            | ...   | ...           | ...     | Magnolia Warbler             | 1                  | 100+                        | ...     |

Table G1: Project Site Spring Migration Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date | Location | Coordinates<br>(UTM NAD83) | Habitat                         | Conditions                  |                |       |               | Time    | Common Name                 | Number<br>Observed | Distance to<br>Observer (m) | Flyover |
|------|----------|----------------------------|---------------------------------|-----------------------------|----------------|-------|---------------|---------|-----------------------------|--------------------|-----------------------------|---------|
|      |          |                            |                                 | Wind Speed and<br>Direction | Temperature °C | Sky   | Precipitation |         |                             |                    |                             |         |
| ...  | ...      | ...                        | ...                             | ...                         | ...            | ...   | ...           | ...     | Nashville Warbler           | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                             | ...                         | ...            | ...   | ...           | ...     | Northern Parula             | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                             | ...                         | ...            | ...   | ...           | ...     | Ovenbird                    | 2                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...                             | ...                         | ...            | ...   | ...           | ...     | Ruffed grouse               | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...                             | ...                         | ...            | ...   | ...           | ...     | Sharp-shinned Hawk          | 1                  | 100+                        | ...     |
| ...  | ...      | ...                        | ...                             | ...                         | ...            | ...   | ...           | ...     | White-throated Sparrow      | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                             | ...                         | ...            | ...   | ...           | ...     | White-throated Sparrow      | 1                  | 100+                        | ...     |
| ...  | ST11     | 0418829;<br>4974567        | Early to mid aged<br>mixed wood | Low                         | 21             | clear | None          | 7:52 AM | Alder Flycatcher            | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                             | ...                         | ...            | ...   | ...           | ...     | Black-throated Blue Warbler | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                             | ...                         | ...            | ...   | ...           | ...     | Black-and-white Warbler     | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                             | ...                         | ...            | ...   | ...           | ...     | Black-throated Blue Warbler | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                             | ...                         | ...            | ...   | ...           | ...     | Cedar Waxwing               | 4                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...                             | ...                         | ...            | ...   | ...           | ...     | Common Yellowthroat         | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                             | ...                         | ...            | ...   | ...           | ...     | Nashville Warbler           | 1                  | 0-50                        | ...     |
| ...  | ...      | ...                        | ...                             | ...                         | ...            | ...   | ...           | ...     | Ovenbird                    | 1                  | 50-100                      | ...     |
| ...  | ...      | ...                        | ...                             | ...                         | ...            | ...   | ...           | ...     | White-throated Sparrow      | 2                  | 100+                        | ...     |

Table G2: Project Site Spring Migration Surveys, Results Summary, Ellershouse Wind Farm

Project # 12-4583

| Common Name                  | Scientific Name                   | SARA Status | NSESA Status | COSEWIC Status | NSDNR Status | Number of Observations | Number of Individuals Observed |
|------------------------------|-----------------------------------|-------------|--------------|----------------|--------------|------------------------|--------------------------------|
| Alder Flycatcher             | <i>Empidonax alnorum</i>          | Not Listed  | Not Listed   | Not Listed     | Green        | 4                      | 4                              |
| American Crow                | <i>Corvus brachyrhynchos</i>      | Not Listed  | Not Listed   | Not Listed     | Green        | 1                      | 1                              |
| American Goldfinch           | <i>Spinus tristis</i>             | Not Listed  | Not Listed   | Not Listed     | Green        | 6                      | 6                              |
| American Redstart            | <i>Setophaga ruticilla</i>        | Not Listed  | Not Listed   | Not Listed     | Green        | 2                      | 3                              |
| American Robin               | <i>Turdus migratorius</i>         | Not Listed  | Not Listed   | Not Listed     | Green        | 28                     | 44                             |
| Barred Owl                   | <i>Strix varia</i>                | Not Listed  | Not Listed   | Not Listed     | Green        | 1                      | 2                              |
| Black-and-white Warbler      | <i>Mniotilta varia</i>            | Not Listed  | Not Listed   | Not Listed     | Green        | 14                     | 16                             |
| Blackburnian Warbler         | <i>Dendroica fusca</i>            | Not Listed  | Not Listed   | Not Listed     | Green        | 3                      | 3                              |
| Black-capped Chickadee       | <i>Poecile atricapillus</i>       | Not Listed  | Not Listed   | Not Listed     | Green        | 10                     | 17                             |
| Black-throated Blue Warbler  | <i>Dendroica caerulescens</i>     | Not Listed  | Not Listed   | Not Listed     | Green        | 8                      | 9                              |
| Black-throated Green Warbler | <i>Dendroica virens</i>           | Not Listed  | Not Listed   | Not Listed     | Green        | 15                     | 20                             |
| Blue Jay                     | <i>Cyanocitta cristata</i>        | Not Listed  | Not Listed   | Not Listed     | Green        | 10                     | 15                             |
| Blue-headed Vireo            | <i>Vireo solitarius</i>           | Not Listed  | Not Listed   | Not Listed     | Green        | 8                      | 8                              |
| Canada Warbler               | <i>Wilsonia canadensis</i>        | Threatened  | Endangered   | Threatened     | Red          | 1                      | 1                              |
| Cedar Waxwing                | <i>Bombycilla cedrorum</i>        | Not Listed  | Not Listed   | Not Listed     | Green        | 1                      | 4                              |
| Chestnut-sided Warbler       | <i>Dendroica pensylvanica</i>     | Not Listed  | Not Listed   | Not Listed     | Green        | 3                      | 3                              |
| Common Yellowthroat          | <i>Geothlypis trichas</i>         | Not Listed  | Not Listed   | Not Listed     | Green        | 6                      | 7                              |
| Dark-eyed Junco              | <i>Junco hyemalis</i>             | Not Listed  | Not Listed   | Not Listed     | Green        | 14                     | 15                             |
| Downy Woodpecker             | <i>Picoides pubescens</i>         | Not Listed  | Not Listed   | Not Listed     | Green        | 2                      | 2                              |
| Evening Grosbeak             | <i>Coccothraustes vespertinus</i> | Not Listed  | Not Listed   | Not Listed     | Green        | 3                      | 1                              |
| Golden-crowned Kinglet       | <i>Regulus satrapa</i>            | Not Listed  | Not Listed   | Not Listed     | Yellow       | 6                      | 7                              |
| Gray Jay                     | <i>Perisoreus canadensis</i>      | Not Listed  | Not Listed   | Not Listed     | Yellow       | 1                      | 1                              |
| Hairy Woodpecker             | <i>Picoides villosus</i>          | Not Listed  | Not Listed   | Not Listed     | Green        | 1                      | 1                              |
| Hermit Thrush                | <i>Catharus guttatus</i>          | Not Listed  | Not Listed   | Not Listed     | Green        | 23                     | 32                             |
| Magnolia Warbler             | <i>Dendroica magnolia</i>         | Not Listed  | Not Listed   | Not Listed     | Green        | 9                      | 11                             |
| Mourning Dove                | <i>Zenaidura macroura</i>         | Not Listed  | Not Listed   | Not Listed     | Green        | 4                      | 4                              |
| Nashville Warbler            | <i>Vermivora ruficapilla</i>      | Not Listed  | Not Listed   | Not Listed     | Green        | 8                      | 8                              |
| Northern Flicker             | <i>Colaptes auratus</i>           | Not Listed  | Not Listed   | Not Listed     | Green        | 7                      | 7                              |
| Northern Parula              | <i>Parula americana</i>           | Not Listed  | Not Listed   | Not Listed     | Green        | 5                      | 6                              |
| Ovenbird                     | <i>Seiurus aurocapilla</i>        | Not Listed  | Not Listed   | Not Listed     | Green        | 16                     | 21                             |
| Palm Warbler                 | <i>Dendroica palmarum</i>         | Not Listed  | Not Listed   | Not Listed     | Green        | 10                     | 15                             |
| Pine Siskin                  | <i>Spinus pinus</i>               | Not Listed  | Not Listed   | Not Listed     | Yellow       | 1                      | 1                              |
| Purple Finch                 | <i>Carpodacus purpureus</i>       | Not Listed  | Not Listed   | Not Listed     | Green        | 10                     | 12                             |
| Red-eyed Vireo               | <i>Vireo olivaceus</i>            | Not Listed  | Not Listed   | Not Listed     | Green        | 2                      | 2                              |
| Red-tailed Hawk              | <i>Buteo jamaicensis</i>          | Not Listed  | Not Listed   | Not at Risk    | Green        | 1                      | 1                              |
| Ruby-crowned Kinglet         | <i>Regulus calendula</i>          | Not Listed  | Not Listed   | Not Listed     | Yellow       | 8                      | 8                              |
| Ruffed Grouse                | <i>Bonasa umbellus</i>            | Not Listed  | Not Listed   | Not Listed     | Green        | 9                      | 9                              |
| Sharp-shinned Hawk           | <i>Accipiter striatus</i>         | Not Listed  | Not Listed   | Not at Risk    | Green        | 1                      | 1                              |

**Table G2: Project Site Spring Migration Surveys, Results Summary, Ellershouse Wind Farm**

**Project # 12-4583**

| Common Name               | Scientific Name                | SARA Status | NSESA Status | COSEWIC Status | NSDNR Status | Number of Observations | Number of Individuals Observed |
|---------------------------|--------------------------------|-------------|--------------|----------------|--------------|------------------------|--------------------------------|
| Song Sparrow              | <i>Melospiza melodia</i>       | Not Listed  | Not Listed   | Not Listed     | Green        | 4                      | 6                              |
| Swainson's Thrush         | <i>Catharus ustulatus</i>      | Not Listed  | Not Listed   | Not Listed     | Green        | 2                      | 2                              |
| Swamp Sparrow             | <i>Melospiza georgiana</i>     | Not Listed  | Not Listed   | Not Listed     | Green        | 5                      | 8                              |
| White-throated Sparrow    | <i>Zonotrichia albicollis</i>  | Not Listed  | Not Listed   | Not Listed     | Green        | 34                     | 57                             |
| Winter Wren               | <i>Troglodytes troglodytes</i> | Not Listed  | Not Listed   | Not Listed     | Green        | 11                     | 11                             |
| Yellow-bellied Flycatcher | <i>Empidonax flaviventris</i>  | Not Listed  | Not Listed   | Not Listed     | Yellow       | 1                      | 1                              |
| Yellow-bellied Sapsucker  | <i>Sphyrapicus varius</i>      | Not Listed  | Not Listed   | Not Listed     | Green        | 2                      | 2                              |
| Yellow-rumped Warbler     | <i>Dendroica coronata</i>      | Not Listed  | Not Listed   | Not Listed     | Green        | 23                     | 26                             |

Table G3: Control Site Spring Migration Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date      | Location | Coordinates<br>(UTM NAD83) | Habitat                        | Conditions                  |                |        |               | Time    | Common Name              | Number<br>Observed | Distance to<br>Observer<br>(m) | Flyover |
|-----------|----------|----------------------------|--------------------------------|-----------------------------|----------------|--------|---------------|---------|--------------------------|--------------------|--------------------------------|---------|
|           |          |                            |                                | Wind Speed and<br>Direction | Temperature °C | Sky    | Precipitation |         |                          |                    |                                |         |
| 29-Apr-13 | ST7      | 0420319;<br>4974288        | Early successional<br>softwood | Low                         | 11             | Cloudy | None          | 7:48 AM | Blue Jay                 | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Boreal Chickadee         | 2                  | 0-50                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Evening Grosbeak         | 1                  | 0-50                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Hermit Thrush            | 2                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Mourning Dove            | 1                  | 0-50                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Northern Flicker         | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Palm Warbler             | 1                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Palm Warbler             | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Palm Warbler             | 2                  | 0-50                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Pine Siskin              | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Purple Finch             | 1                  | 0-50                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Purple Finch             | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Ruffed Grouse            | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | White-throated Sparrow   | 2                  | 0-50                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Yellow-rumped Warbler    | 1                  | 0-50                           | ...     |
| ...       | ST8      | 0420657;<br>4973984        | Early to mid aged<br>softwood  | Low                         | 12             | clear  | None          | 8:04 AM | American Robin           | 2                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Dark-eyed Junco          | 2                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Downy Woodpecker         | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Golden-crowned Kinglet   | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Hairy Woodpecker         | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Hermit Thrush            | 2                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Northern Flicker         | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Palm Warbler             | 1                  | 0-50                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Palm Warbler             | 1                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Palm Warbler             | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Purple Finch             | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Ruby-crowned Kinglet     | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Ruffed Grouse            | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Winter Wren              | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Yellow-bellied Sapsucker | 2                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Yellow-rumped Warbler    | 1                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Yellow-rumped Warbler    | 1                  | 100+                           | ...     |
| ...       | ST10     | 0419444;<br>4973796        | Conifer patches in<br>cutover  | Low                         | 12             | clear  | None          | 8:43 AM | Dark-eyed Junco          | 1                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Dark-eyed Junco          | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Golden-crowned Kinglet   | 2                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Palm Warbler             | 2                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                            | ...                         | ...            | ...    | ...           | ...     | Ruffed Grouse            | 1                  | 100+                           | ...     |

Table G3: Control Site Spring Migration Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date     | Location | Coordinates<br>(UTM NAD83) | Habitat                           | Conditions                  |                |        |               | Time    | Common Name             | Number<br>Observed | Distance to<br>Observer<br>(m) | Flyover |
|----------|----------|----------------------------|-----------------------------------|-----------------------------|----------------|--------|---------------|---------|-------------------------|--------------------|--------------------------------|---------|
|          |          |                            |                                   | Wind Speed and<br>Direction | Temperature °C | Sky    | Precipitation |         |                         |                    |                                |         |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | White-throated Sparrow  | 1                  | 100+                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Winter Wren             | 1                  | 100+                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Yellow-rumped Warbler   | 1                  | 100+                           | ...     |
| ...      | ST12     | 0478685;<br>4974115        | mature mixed<br>wood being logged | Low                         | 12             | clear  | None          | 9:18 AM | American Goldfinch      | 1                  | 0-50                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | American Robin          | 1                  | 100+                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Black-capped Chickadee  | 2                  | 0-50                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Downy Woodpecker        | 1                  | 50-100                         | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Hermit Thrush           | 2                  | 100+                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Mourning Dove           | 1                  | 100+                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Palm Warbler            | 1                  | 50-100                         | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Purple Finch            | 1                  | 0-50                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Ruby-crowned Kinglet    | 1                  | 50-100                         | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Winter Wren             | 1                  | 100+                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Yellow-rumped Warbler   | 1                  | 50-100                         | ...     |
| 5-May-13 | ST7      | 0420319;<br>4974288        | Early successional<br>softwood    | Low                         | 13             | Cloudy | None          | 8:10 AM | Black-and-white Warbler | 1                  | 100+                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Blue Jay                | 1                  | 100+                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Hermit Thrush           | 2                  | 100+                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Magnolia Warbler        | 1                  | 50-100                         | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Nashville Warbler       | 1                  | 50-100                         | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Nashville Warbler       | 1                  | 100+                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Northern Flicker        | 1                  | 100+                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Palm Warbler            | 1                  | 50-100                         | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Palm Warbler            | 2                  | 100+                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Ruffed grouse           | 1                  | 50-100                         | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | White-throated Sparrow  | 1                  | 0-50                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | White-throated Sparrow  | 1                  | 50-100                         | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | White-throated Sparrow  | 2                  | 100+                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Winter Wren             | 1                  | 100+                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Yellow-rumped Warbler   | 3                  | 100+                           | ...     |
| ...      | ST8      | 0420657;<br>4973984        | Early to mid aged<br>softwood     | Low                         | 13             | clear  | None          | 8:25 AM | Black-and-white Warbler | 2                  | 50-100                         | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Boreal Chickadee        | 1                  | 0-50                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Hermit Thrush           | 1                  | 100+                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Nashville Warbler       | 1                  | 0-50                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Palm Warbler            | 1                  | 0-50                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Palm Warbler            | 1                  | 50-100                         | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Palm Warbler            | 1                  | 100+                           | ...     |
| ...      | ...      | ...                        | ...                               | ...                         | ...            | ...    | ...           | ...     | Yellow-rumped Warbler   | 2                  | 100+                           | ...     |



Table G3: Control Site Spring Migration Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date      | Location | Coordinates<br>(UTM NAD83) | Habitat                           | Conditions                             |                |          |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer<br>(m) | Flyover |
|-----------|----------|----------------------------|-----------------------------------|--|----------------|----------|---------------|---------|------------------------------|--------------------|--------------------------------|---------|
|           |          |                            |                                   | Wind Speed and<br>Direction            | Temperature °C | Sky      | Precipitation |         |                              |                    |                                |         |
| ...       | ST10     | 0419444;<br>4973796        | Conifer patches in<br>cutover     | 10 km with gusts to<br>30, bLowig west | 11             | Overcast | None          | 7:10 AM | Blue Jay                     | 1                  | 0-50                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Blue-headed Vireo            | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Dark-eyed Junco              | 1                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Hairy Woodpecker             | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Hermit Thrush                | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Northern Flicker             | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Pileated Woodpecker          | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Purple Finch                 | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | White-throated Sparrow       | 1                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | White-throated Sparrow       | 3                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Winter Wren                  | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                         | ...     |
| ...       | ST12     | 0478685;<br>4974115        | mature mixed<br>wood being logged | 10 km with gusts to<br>30, bLowig west | 11             | Overcast | None          | 6:39 AM | Black-capped Chickadee       | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Blue Jay                     | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Dark-eyed Junco              | 1                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Hermit Thrush                | 2                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Hermit Thrush                | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Mourning Dove                | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Nashville Warbler            | 1                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Northern Flicker             | 1                  | 0-50                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Northern Flicker             | 1                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Palm Warbler                 | 2                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Purple Finch                 | 1                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Red-tailed Hawk              | 1                  | 0-50                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | White-throated Sparrow       | 2                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 0-50                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                         | ...     |
| 31-May-13 | ST7      | 0420319;<br>4974288        | Early successional<br>softwood    | Low                                    | 18             | clear    | None          | 6:27 AM | Bay-Breasted Warbler         | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Black-and-white Warbler      | 1                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Black-capped Chickadee       | 2                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Black-throated Green Warbler | 1                  | 0-50                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Black-throated Green Warbler | 2                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Canada Warbler               | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Hermit Thrush                | 1                  | 100+                           | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Magnolia Warbler             | 3                  | 50-100                         | ...     |
| ...       | ...      | ...                        | ...                               | ...                                    | ...            | ...      | ...           | ...     | Nashville Warbler            | 1                  | 0-50                           | ...     |

Table G3: Control Site Spring Migration Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date | Location | Coordinates<br>(UTM NAD83) | Habitat                       | Conditions                  |                |       |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer<br>(m) | Flyover                  |
|------|----------|----------------------------|-------------------------------|-----------------------------|----------------|-------|---------------|---------|------------------------------|--------------------|--------------------------------|--------------------------|
|      |          |                            |                               | Wind Speed and<br>Direction | Temperature °C | Sky   | Precipitation |         |                              |                    |                                |                          |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Ovenbird                     | 1                  | 0-50                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Ovenbird                     | 1                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Palm Warbler                 | 1                  | 50-100                         | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Palm Warbler                 | 3                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | White-throated Sparrow       | 3                  | 100+                           | ...                      |
| ...  | ST8      | 0420657;<br>4973984        | Early to mid aged<br>softwood | Low                         | 18             | clear | None          | 6:53 AM | Palm Warbler                 | 1                  | 0-50                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Black-and-white Warbler      | 1                  | 50-100                         | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Blackburnian Warbler         | 1                  | 50-100                         | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                         | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Blue Jay                     | 1                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Common Yellowthroat          | 1                  | 50-100                         | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Golden-crowned Kinglet       | 1                  | 50-100                         | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Hermit Thrush                | 2                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Magnolia Warbler             | 1                  | 50-100                         | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Magnolia Warbler             | 2                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Nashville Warbler            | 1                  | 0-50                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Nashville Warbler            | 1                  | 50-100                         | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Northern Parula              | 1                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Ovenbird                     | 1                  | 50-100                         | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Palm Warbler                 | 1                  | 50-100                         | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Palm Warbler                 | 1                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Purple Finch                 | 1                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Red-eyed Vireo               | 1                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Swainson's Thrush            | 2                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | White-throated Sparrow       | 1                  | 50-100                         | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Winter Wren                  | 1                  | 50-100                         | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Yellow-bellied Flycatcher    | 1                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Yellow-rumped Warbler        | 3                  | 100+                           | ...                      |
| ...  | ST10     | 0419444;<br>4973796        | Conifer patches in<br>cutover | Low                         | 21             | clear | None          | 8:27 AM | American Goldfinch           | 1                  | 0-50                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | American Redstart            | 1                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Blackburnian Warbler         | 1                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Black-throated Blue Warbler  | 1                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 2                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Blue Jay                     | 1                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Blue-headed Vireo            | 2                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Chestnut-sided Warbler       | 1                  | 100+                           | ...                      |
| ...  | ...      | ...                        | ...                           | ...                         | ...            | ...   | ...           | ...     | Common Grackle               | ...                | ...                            | 2 over<br>50m to<br>east |

Table G3: Control Site Spring Migration Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date | Location | Coordinates<br>(UTM NAD83) | Habitat                           | Conditions                  |                |       |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer<br>(m) | Flyover |
|------|----------|----------------------------|-----------------------------------|-----------------------------|----------------|-------|---------------|---------|------------------------------|--------------------|--------------------------------|---------|
|      |          |                            |                                   | Wind Speed and<br>Direction | Temperature °C | Sky   | Precipitation |         |                              |                    |                                |         |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Common Yellowthroat          | 2                  | 50-100                         | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Dark-eyed Junco              | 1                  | 0-50                           | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Dark-eyed Junco              | 1                  | 100+                           | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Hermit Thrush                | 1                  | 100+                           | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Magnolia Warbler             | 1                  | 50-100                         | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Magnolia Warbler             | 1                  | 100+                           | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Nashville Warbler            | 1                  | 50-100                         | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Nashville Warbler            | 1                  | 100+                           | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Northern Flicker             | 1                  | 0-50                           | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Northern Parula              | 1                  | 50-100                         | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Northern Parula              | 1                  | 100+                           | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Ovenbird                     | 1                  | 100+                           | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Palm Warbler                 | 1                  | 100+                           | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | White-throated Sparrow       | 2                  | 50-100                         | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Winter Wren                  | 1                  | 100+                           | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Yellow-bellied Flycatcher    | 1                  | 50-100                         | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                         | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Yellow-rumped Warbler        | 1                  | 100+                           | ...     |
| ...  | ST12     | 0418685;<br>4974115        | mature mixed<br>wood being logged | Low                         | 21             | clear | None          | 7:39 AM | American Robin               | 1                  | 100+                           | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 1                  | 0-50                           | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                         | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Chestnut-sided Warbler       | 1                  | 50-100                         | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Common Yellowthroat          | 1                  | 50-100                         | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Dark-eyed Junco              | 1                  | 50-100                         | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Northern Parula              | 1                  | 50-100                         | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Ovenbird                     | 2                  | 100+                           | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Red-eyed Vireo               | 1                  | 100+                           | ...     |
| ...  | ...      | ...                        | ...                               | ...                         | ...            | ...   | ...           | ...     | Yellow Warbler               | 1                  | 100+                           | ...     |

Table G4: Control Site Spring Migration Surveys, Results Summary, Ellershouse Wind Farm

Project # 12-4583

| Common Name                  | Scientific Name                   | SARA Status | NSESA Status | COSEWIC Status | NSDNR Status | Number of Observations | Number of Individuals Observed |
|------------------------------|-----------------------------------|-------------|--------------|----------------|--------------|------------------------|--------------------------------|
| American Goldfinch           | <i>Spinus tristis</i>             | Not Listed  | Not Listed   | Not Listed     | Green        | 2                      | 2                              |
| American Redstart            | <i>Setophaga ruticilla</i>        | Not Listed  | Not Listed   | Not Listed     | Green        | 1                      | 1                              |
| American Robin               | <i>Turdus migratorius</i>         | Not Listed  | Not Listed   | Not Listed     | Green        | 3                      | 4                              |
| Bay-Breasted Warbler         | <i>Dendroica castanea</i>         | Not Listed  | Not Listed   | Not Listed     | Yellow       | 1                      | 1                              |
| Black-and-white Warbler      | <i>Mniotilta varia</i>            | Not Listed  | Not Listed   | Not Listed     | Green        | 4                      | 5                              |
| Blackburnian Warbler         | <i>Dendroica fusca</i>            | Not Listed  | Not Listed   | Not Listed     | Green        | 2                      | 2                              |
| Black-capped Chickadee       | <i>Poecile atricapillus</i>       | Not Listed  | Not Listed   | Not Listed     | Green        | 3                      | 5                              |
| Black-throated Blue Warbler  | <i>Dendroica caerulescens</i>     | Not Listed  | Not Listed   | Not Listed     | Green        | 1                      | 1                              |
| Black-throated Green Warbler | <i>Dendroica virens</i>           | Not Listed  | Not Listed   | Not Listed     | Green        | 6                      | 8                              |
| Blue Jay                     | <i>Cyanocitta cristata</i>        | Not Listed  | Not Listed   | Not Listed     | Green        | 6                      | 6                              |
| Blue-headed Vireo            | <i>Vireo solitarius</i>           | Not Listed  | Not Listed   | Not Listed     | Green        | 2                      | 3                              |
| Boreal Chickadee             | <i>Poecile hudsonicus</i>         | Not Listed  | Not Listed   | Not Listed     | Yellow       | 2                      | 3                              |
| Canada Warbler               | <i>Wilsonia canadensis</i>        | Threatened  | Endangered   | Threatened     | Red          | 1                      | 1                              |
| Chestnut-sided Warbler       | <i>Dendroica pensylvanica</i>     | Not Listed  | Not Listed   | Not Listed     | Green        | 2                      | 2                              |
| Common Grackle               | <i>Quiscalus quiscula</i>         | Not Listed  | Not Listed   | Not Listed     | Green        | 1                      | 0                              |
| Common Yellowthroat          | <i>Geothlypis trichas</i>         | Not Listed  | Not Listed   | Not Listed     | Green        | 3                      | 4                              |
| Dark-eyed Junco              | <i>Junco hyemalis</i>             | Not Listed  | Not Listed   | Not Listed     | Green        | 8                      | 9                              |
| Downy Woodpecker             | <i>Picoides pubescens</i>         | Not Listed  | Not Listed   | Not Listed     | Green        | 2                      | 2                              |
| Evening Grosbeak             | <i>Coccothraustes vespertinus</i> | Not Listed  | Not Listed   | Not Listed     | Green        | 1                      | 1                              |
| Golden-crowned Kinglet       | <i>Regulus satrapa</i>            | Not Listed  | Not Listed   | Not Listed     | Yellow       | 3                      | 4                              |
| Hairy Woodpecker             | <i>Picoides villosus</i>          | Not Listed  | Not Listed   | Not Listed     | Green        | 2                      | 2                              |
| Hermit Thrush                | <i>Catharus guttatus</i>          | Not Listed  | Not Listed   | Not Listed     | Green        | 11                     | 17                             |
| Magnolia Warbler             | <i>Dendroica magnolia</i>         | Not Listed  | Not Listed   | Not Listed     | Green        | 6                      | 9                              |
| Mourning Dove                | <i>Zenaida macroura</i>           | Not Listed  | Not Listed   | Not Listed     | Green        | 3                      | 3                              |
| Nashville Warbler            | <i>Vermivora ruficapilla</i>      | Not Listed  | Not Listed   | Not Listed     | Green        | 9                      | 9                              |
| Northern Flicker             | <i>Colaptes auratus</i>           | Not Listed  | Not Listed   | Not Listed     | Green        | 7                      | 7                              |
| Northern Parula              | <i>Parula americana</i>           | Not Listed  | Not Listed   | Not Listed     | Green        | 4                      | 4                              |
| Ovenbird                     | <i>Seiurus aurocapilla</i>        | Not Listed  | Not Listed   | Not Listed     | Green        | 5                      | 6                              |
| Palm Warbler                 | <i>Dendroica palmarum</i>         | Not Listed  | Not Listed   | Not Listed     | Green        | 20                     | 26                             |
| Pileated Woodpecker          | <i>Dryocopus pileatus</i>         | Not Listed  | Not Listed   | Not Listed     | Green        | 1                      | 1                              |

**Table G4: Control Site Spring Migration Surveys, Results Summary, Ellershouse Wind Farm**

**Project # 12-4583**

| <b>Common Name</b>        | <b>Scientific Name</b>         | <b>SARA Status</b> | <b>NSESA Status</b> | <b>COSEWIC Status</b> | <b>NSDNR Status</b> | <b>Number of Observations</b> | <b>Number of Individuals Observed</b> |
|---------------------------|--------------------------------|--------------------|---------------------|-----------------------|---------------------|-------------------------------|---------------------------------------|
| Pine Siskin               | <i>Spinus pinus</i>            | Not Listed         | Not Listed          | Not Listed            | Yellow              | 1                             | 1                                     |
| Purple Finch              | <i>Carpodacus purpureus</i>    | Not Listed         | Not Listed          | Not Listed            | Green               | 7                             | 7                                     |
| Red-eyed Vireo            | <i>Vireo olivaceus</i>         | Not Listed         | Not Listed          | Not Listed            | Green               | 2                             | 2                                     |
| Red-tailed Hawk           | <i>Buteo jamaicensis</i>       | Not Listed         | Not Listed          | Not at Risk           | Green               | 1                             | 1                                     |
| Ruby-crowned Kinglet      | <i>Regulus calendula</i>       | Not Listed         | Not Listed          | Not Listed            | Yellow              | 2                             | 2                                     |
| Ruffed Grouse             | <i>Bonasa umbellus</i>         | Not Listed         | Not Listed          | Not Listed            | Green               | 4                             | 4                                     |
| Swainson's Thrush         | <i>Catharus ustulatus</i>      | Not Listed         | Not Listed          | Not Listed            | Green               | 1                             | 2                                     |
| White-throated Sparrow    | <i>Zonotrichia albicollis</i>  | Not Listed         | Not Listed          | Not Listed            | Green               | 11                            | 19                                    |
| Winter Wren               | <i>Troglodytes troglodytes</i> | Not Listed         | Not Listed          | Not Listed            | Green               | 7                             | 7                                     |
| Yellow Warbler            | <i>Dendroica petechia</i>      | Not Listed         | Not Listed          | Not Listed            | Green               | 1                             | 1                                     |
| Yellow-bellied Flycatcher | <i>Empidonax flaviventris</i>  | Not Listed         | Not Listed          | Not Listed            | Yellow              | 2                             | 2                                     |
| Yellow-bellied Sapsucker  | <i>Sphyrapicus varius</i>      | Not Listed         | Not Listed          | Not Listed            | Green               | 1                             | 2                                     |
| Yellow-rumped Warbler     | <i>Dendroica coronata</i>      | Not Listed         | Not Listed          | Not Listed            | Green               | 13                            | 18                                    |

Table G5: Project Site Breeding Bird Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date      | Location | Coordinates<br>(UTM NAD83) | Habitat                                 | Conditions                   |                |          |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer<br>(m) |
|-----------|----------|----------------------------|---|------------------------------|----------------|----------|---------------|---------|------------------------------|--------------------|--------------------------------|
|           |          |                            |   | Wind                         | Temperature °C | Sky      | Precipitation |         |                              |                    |                                |
| 18-Jun-13 | ST1      | 0418951;<br>4975948        | Mid aged<br>mixed wood<br>near clearcut | 10 to 25 to the<br>southwest | 9              | Overcast | None          | 4:53 AM | American Robin               | 3                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Alder Flycatcher             | 3                  | 100+                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | American Redstart            | 2                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | American Woodcock            | 4                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Black-and-white Warbler      | 1                  | 100+                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Black-capped Chickadee       | 1                  | 100+                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Common Yellowthroat          | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Common Yellowthroat          | 1                  | 100+                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Hermit Thrush                | 1                  | 100+                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Least Flycatcher             | 1                  | 0-50                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Northern Parula              | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Ovenbird                     | 2                  | 100+                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Purple Finch                 | 1                  | 100+                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Red-eyed Vireo               | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | White-throated Sparrow       | 2                  | 100+                           |
| ...       | ST2      | 0419968;<br>4975681        | Early to mid<br>aged mixed<br>wood      | 10 to 25 to the<br>southwest | 9              | Overcast | None          | 5:07 AM | American Robin               | 1                  | 100+                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Black-throated Green Warbler | 2                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Dark-eyed Junco              | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Golden-crowned Kinglet       | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Northern Parula              | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Ovenbird                     | 1                  | 50-100                         |
| ...       | ST3      | 0420675;<br>4975670        | Mid-aged to<br>mature mixed<br>wood     | 10km south                   | 17             | Clear    | None          | 8:26 AM | Black-and-white Warbler      | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Black-capped Chickadee       | 1                  | 0-50                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Black-throated Green Warbler | 1                  | 0-50                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Blue Jay                     | 1                  | 100+                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Cedar Waxwing                | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Chestnut-sided Warbler       | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Chestnut-sided Warbler       | 1                  | 100+                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Golden-crowned Kinglet       | 1                  | 0-50                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Magnolia Warbler             | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Northern Parula              | 1                  | 0-50                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Ovenbird                     | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Red-eyed Vireo               | 1                  | 0-50                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Red-eyed Vireo               | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Swainson's Thrush            | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | White-throated Sparrow       | 1                  | 100+                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | Yellow-throated Warbler      | 1                  | 0-50                           |
| ...       | ST4      | 0419782;<br>4975021        | Mature<br>hardwood                      | 10 to 25 to the<br>southwest | 9              | Overcast | None          | 5:19 AM | Alder Flycatcher             | 1                  | 100+                           |
| ...       | ...      | ...                        | ...                                     | ...                          | ...            | ...      | ...           | ...     | American Redstart            | 1                  | 50-100                         |

Table G5: Project Site Breeding Bird Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date | Location | Coordinates<br>(UTM NAD83) | Habitat  | Conditions                   |                |          |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer<br>(m) |
|------|----------|----------------------------|--|------------------------------|----------------|----------|---------------|---------|------------------------------|--------------------|--------------------------------|
|      |          |                            |  | Wind                         | Temperature °C | Sky      | Precipitation |         |                              |                    |                                |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | American Robin               | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Black-and-white Warbler      | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Black-and-white Warbler      | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Black-throated Green Warbler | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Chestnut-sided Warbler       | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Common Yellowthroat          | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Dark-eyed Junco              | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Hermit Thrush                | 2                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Hermit Thrush                | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Magnolia Warbler             | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Magnolia Warbler             | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Ovenbird                     | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Red-eyed Vireo               | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Red-eyed Vireo               | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Swainson's Thrush            | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | White-throated Sparrow       | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Winter Wren                  | 1                  | 100+                           |
| ...  | ST5      | 0420311;<br>4975001        | Early<br>successional<br>mixed wood<br>near<br>watercourse | 10 to 25 to the<br>southwest | 9              | Overcast | None          | 5:37 AM | American Robin               | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | American Robin               | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | American Woodcock            | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Black-and-white Warbler      | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Blue-headed Vireo            | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Blue-headed Vireo            | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Common Yellowthroat          | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Hermit Thrush                | 2                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Magnolia Warbler             | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Northern Parula              | 2                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Ovenbird                     | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Ovenbird                     | 1                  | 100+                           |
| ...  | ST6      | 0420568;<br>4975187        | swamp<br>surrounded by<br>mature mixed<br>wood forrest     | 10 to 25 to the<br>southwest | 9              | Overcast | None          | 5:51 AM | Alder Flycatcher             | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Black-and-white Warbler      | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Black-throated Blue Warbler  | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Blue Jay                     | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Blue-headed Vireo            | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Chestnut-sided Warbler       | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Common Yellowthroat          | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...                          | ...            | ...      | ...           | ...     | Dark-eyed Junco              | 1                  | 0-50                           |

Table G5: Project Site Breeding Bird Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date      | Location | Coordinates<br>(UTM NAD83) | Habitat   | Conditions |                |                        |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer<br>(m) |
|-----------|----------|----------------------------|---|------------|----------------|------------------------|---------------|---------|------------------------------|--------------------|--------------------------------|
|           |          |                            |   | Wind       | Temperature °C | Sky                    | Precipitation |         |                              |                    |                                |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Magnolia Warbler             | 1                  | 100+                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Ovenbird                     | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Red-eyed Vireo               | 2                  | 100+                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Winter Wren                  | 1                  | 100+                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Yellow-bellied Flycatcher    | 1                  | 100+                           |
| ...       | ST9      | 0419425;<br>4974246        | Mid to mature<br>aged mixed<br>wood in valley<br>near cutover | 10km south | 17             | Clear                  | None          | 7:02 AM | Black-and-white Warbler      | 1                  | 0-50                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Black-and-white Warbler      | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Black-capped Chickadee       | 1                  | 100+                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 0-50                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Hairy Woodpecker             | 1                  | 100+                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Hermit Thrush                | 1                  | 100+                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Magnolia Warbler             | 1                  | 0-50                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Magnolia Warbler             | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Northern Flicker             | 1                  | 100+                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Northern Parula              | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Ovenbird                     | 1                  | 0-50                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Palm Warbler                 | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Red-breasted Nuthatch        | 1                  | 100+                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Red-eyed Vireo               | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Red-eyed Vireo               | 1                  | 100+                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Ruby-crowned Kinglet         | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Ruby-throated Hummingbird    | 1                  | 0-50                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Ruffed Grouse                | 3                  | 0-50                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | White-throated Sparrow       | 2                  | 100+                           |
| ...       | ST11     | 0418829;<br>4974567        | Early to mid<br>aged mixed<br>wood                            | 10km south | 17             | Clear                  | None          | 7:41 AM | American Redstart            | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Black-and-white Warbler      | 1                  | 0-50                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Black-throated Blue Warbler  | 1                  | 0-50                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Magnolia Warbler             | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Red-breasted Nuthatch        | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Red-eyed Vireo               | 1                  | 0-50                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Winter Wren                  | 1                  | 100+                           |
| 25-Jun-13 | ST1      | 0418951;<br>4975948        | Mid aged<br>mixed wood<br>near clearcut                       | Low        | 19             | Variable<br>Cloudiness | None          | 5:28 AM | Alder Flycatcher             | 1                  | 100+                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | American Robin               | 1                  | 0-50                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | American Robin               | 1                  | 100+                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Chestnut-sided Warbler       | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Chestnut-sided Warbler       | 1                  | 100+                           |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Dark-eyed Junco              | 1                  | 50-100                         |
| ...       | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Hermit Thrush                | 1                  | 100+                           |



Table G5: Project Site Breeding Bird Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date | Location | Coordinates<br>(UTM NAD83) | Habitat                             | Conditions |                |                        |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer<br>(m) |
|------|----------|----------------------------|-------------------------------------|------------|----------------|------------------------|---------------|---------|------------------------------|--------------------|--------------------------------|
|      |          |                            |                                     | Wind       | Temperature °C | Sky                    | Precipitation |         |                              |                    |                                |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Least Flycatcher             | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Least Flycatcher             | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Mourning Dove                | 1                  | 100+                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Northern Parula              | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Ovenbird                     | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Ovenbird                     | 1                  | 100+                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Red-eyed Vireo               | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Red-eyed Vireo               | 1                  | 100+                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | White-throated Sparrow       | 1                  | 100+                           |
| ...  | ST2      | 0419968;<br>4975681        | Early to mid<br>aged mixed<br>wood  | Low        | 19             | Variable<br>Cloudiness | None          | 5:44 AM | Black-and-white Warbler      | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Black-throated Blue Warbler  | 1                  | 100+                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Black-throated Green Warbler | 2                  | 100+                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Dark-eyed Junco              | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Hermit Thrush                | 1                  | 100+                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Magnolia Warbler             | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Ovenbird                     | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Ovenbird                     | 3                  | 100+                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Red-eyed Vireo               | 2                  | 100+                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Swainson's Thrush            | 1                  | 100+                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Winter Wren                  | 1                  | 100+                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Yellow-rumped Warbler        | 1                  | 100+                           |
| ...  | ST3      | 0420675;<br>4975670        | Mid-aged to<br>mature mixed<br>wood | 10km west  | 24             | Clear                  | None          | 9:10 AM | American Redstart            | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Black-and-white Warbler      | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Chestnut-sided Warbler       | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Common Yellowthroat          | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Hermit Thrush                | 1                  | 100+                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Magnolia Warbler             | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Northern Parula              | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Ovenbird                     | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Ovenbird                     | 1                  | 100+                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Red-eyed Vireo               | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | White-throated Sparrow       | 2                  | 0-50                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | White-throated Sparrow       | 1                  | 100+                           |
| ...  | ST4      | 0419782;<br>4975021        | Mature<br>hardwood                  | Low        | 19             | Variable<br>Cloudiness | None          | 5:56 AM | Alder Flycatcher             | 1                  | 100+                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | American Robin               | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Black-and-white Warbler      | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Black-and-white Warbler      | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Black-and-white Warbler      | 1                  | 100+                           |
| ...  | ...      | ...                        | ...                                 | ...        | ...            | ...                    | ...           | ...     | Black-capped Chickadee       | 1                  | 0-50                           |

Table G5: Project Site Breeding Bird Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date | Location | Coordinates<br>(UTM NAD83) | Habitat  | Conditions |                |                        |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer<br>(m) |
|------|----------|----------------------------|--|------------|----------------|------------------------|---------------|---------|------------------------------|--------------------|--------------------------------|
|      |          |                            |  | Wind       | Temperature °C | Sky                    | Precipitation |         |                              |                    |                                |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Black-throated Blue Warbler  | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Chestnut-sided Warbler       | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Chestnut-sided Warbler       | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Hermit Thrush                | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Magnolia Warbler             | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Magnolia Warbler             | 2                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Nashville Warbler            | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Ovenbird                     | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Red-breasted Nuthatch        | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Red-eyed Vireo               | 2                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Swainson's Thrush            | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | White-throated Sparrow       | 2                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Winter Wren                  | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Yellow-bellied Flycatcher    | 1                  | 100+                           |
| ...  | ST5      | 0420311;<br>4975001        | Early<br>successional<br>mixed wood<br>near<br>watercourse | Low        | 19             | Variable<br>Cloudiness | None          | 5:56 AM | American Goldfinch           | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Black-and-white Warbler      | 2                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Black-and-white Warbler      | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Blue-headed Vireo            | 2                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Canada Warbler               | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Cedar Waxwing                | 2                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Common Yellowthroat          | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Nashville Warbler            | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Ovenbird                     | 2                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | White-throated Sparrow       | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Yellow-rumped Warbler        | 1                  | 100+                           |
| ...  | ST6      | 0420568;<br>4975187        | swamp<br>surrounded by<br>mature mixed<br>wood forest      | Low        | 19             | Variable<br>Cloudiness | None          | 6:29 AM | American Robin               | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Black-throated Blue Warbler  | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Blue Jay                     | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Blue-headed Vireo            | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Chestnut-sided Warbler       | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Common Yellowthroat          | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Hermit Thrush                | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Nashville Warbler            | 1                  | 100+                           |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Northern Flicker             | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...  | ...        | ...            | ...                    | ...           | ...     | Northern Parula              | 1                  | 50-100                         |

Table G5: Project Site Breeding Bird Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date | Location | Coordinates<br>(UTM NAD83) | Habitat   | Conditions |                |                        |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer<br>(m) |
|------|----------|----------------------------|---|------------|----------------|------------------------|---------------|---------|------------------------------|--------------------|--------------------------------|
|      |          |                            |   | Wind       | Temperature °C | Sky                    | Precipitation |         |                              |                    |                                |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Ovenbird                     | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Purple Finch                 | 1                  | 100+                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Red-eyed Vireo               | 2                  | 100+                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Winter Wren                  | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Yellow-bellied Sapsucker     | 1                  | 50-100                         |
| ...  | ST9      | 0419425;<br>4974246        | Mid to mature<br>aged mixed<br>wood in valley<br>near cutover | Low        | 20             | Variable<br>Cloudiness | None          | 7:53 AM | American Robin               | 1                  | 100+                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Black-and-white Warbler      | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 100+                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Common Yellowthroat          | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Dark-eyed Junco              | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Hermit Thrush                | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Hermit Thrush                | 1                  | 100+                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Magnolia Warbler             | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Mourning Dove                | 2                  | 100+                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Northern Parula              | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Northern Parula              | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Ovenbird                     | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Palm Warbler                 | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Pileated Woodpecker          | 1                  | 100+                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | White-throated Sparrow       | 2                  | 100+                           |
| ...  | ST11     | 0418829;<br>4974567        | Early to mid<br>aged mixed<br>wood                            | Low        | 22             | Clear                  | None          | 8:26 AM | American Redstart            | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | American Woodcock            | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Black-and-white Warbler      | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Black-and-white Warbler      | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Black-throated Blue Warbler  | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 100+                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Blue Jay                     | 2                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Chestnut-sided Warbler       | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Magnolia Warbler             | 2                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Northern Flicker             | 1                  | 100+                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Northern Parula              | 1                  | 0-50                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Ovenbird                     | 1                  | 100+                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Pine Siskin                  | 1                  | FO                             |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Red-breasted Nuthatch        | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | Red-eyed Vireo               | 1                  | 100+                           |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | White-throated Sparrow       | 1                  | 50-100                         |
| ...  | ...      | ...                        | ...   | ...        | ...            | ...                    | ...           | ...     | White-throated Sparrow       | 2                  | 100+                           |

Table G6: Project Site Breeding Bird Surveys, Results Summary, Ellershouse Wind Farm

Project # 12-4583

| Common Name                  | Scientific Name               | SARA Status | NSEA Status | COSEWIC Status | NSDNR Status | Number of Observations | Total Individuals Observed |
|------------------------------|-------------------------------|-------------|-------------|----------------|--------------|------------------------|----------------------------|
| Alder Flycatcher             | <i>Empidonax alnorum</i>      | Not Listed  | Not Listed  | Not Listed     | Green        | 5                      | 7                          |
| American Goldfinch           | <i>Spinus tristis</i>         | Not Listed  | Not Listed  | Not Listed     | Green        | 1                      | 1                          |
| American Redstart            | <i>Setophaga ruticilla</i>    | Not Listed  | Not Listed  | Not Listed     | Green        | 5                      | 6                          |
| American Robin               | <i>Turdus migratorius</i>     | Not Listed  | Not Listed  | Not Listed     | Green        | 10                     | 12                         |
| American Woodcock            | <i>Scolopax minor</i>         | Not Listed  | Not Listed  | Not Listed     | Green        | 3                      | 6                          |
| Black-and-white Warbler      | <i>Mniotilta varia</i>        | Not Listed  | Not Listed  | Not Listed     | Green        | 19                     | 20                         |
| Black-capped Chickadee       | <i>Poecile atricapillus</i>   | Not Listed  | Not Listed  | Not Listed     | Green        | 4                      | 4                          |
| Black-throated Blue Warbler  | <i>Dendroica caerulescens</i> | Not Listed  | Not Listed  | Not Listed     | Green        | 6                      | 6                          |
| Black-throated Green Warbler | <i>Dendroica virens</i>       | Not Listed  | Not Listed  | Not Listed     | Green        | 17                     | 19                         |
| Blue Jay                     | <i>Cyanocitta cristata</i>    | Not Listed  | Not Listed  | Not Listed     | Green        | 4                      | 5                          |
| Blue-headed Vireo            | <i>Vireo solitarius</i>       | Not Listed  | Not Listed  | Not Listed     | Green        | 5                      | 6                          |
| Canada Warbler               | <i>Wilsonia canadensis</i>    | Threatened  | Endangered  | Threatened     | Red          | 1                      | 1                          |
| Cedar Waxwing                | <i>Bombycilla cedrorum</i>    | Not Listed  | Not Listed  | Not Listed     | Green        | 2                      | 3                          |
| Chestnut-sided Warbler       | <i>Dendroica pensylvanica</i> | Not Listed  | Not Listed  | Not Listed     | Green        | 11                     | 11                         |
| Common Yellowthroat          | <i>Geothlypis trichas</i>     | Not Listed  | Not Listed  | Not Listed     | Green        | 9                      | 9                          |
| Dark-eyed Junco              | <i>Junco hyemalis</i>         | Not Listed  | Not Listed  | Not Listed     | Green        | 6                      | 6                          |
| Golden-crowned Kinglet       | <i>Regulus satrapa</i>        | Not Listed  | Not Listed  | Not Listed     | Yellow       | 2                      | 2                          |
| Hairy Woodpecker             | <i>Picoides villosus</i>      | Not Listed  | Not Listed  | Not Listed     | Green        | 1                      | 1                          |
| Hermit Thrush                | <i>Catharus guttatus</i>      | Not Listed  | Not Listed  | Not Listed     | Green        | 12                     | 14                         |
| Least Flycatcher             | <i>Empidonax minimus</i>      | Not Listed  | Not Listed  | Not Listed     | Green        | 3                      | 3                          |
| Magnolia Warbler             | <i>Dendroica magnolia</i>     | Not Listed  | Not Listed  | Not Listed     | Green        | 14                     | 16                         |
| Mourning Dove                | <i>Zenaida macroura</i>       | Not Listed  | Not Listed  | Not Listed     | Green        | 2                      | 3                          |
| Nashville Warbler            | <i>Vermivora ruficapilla</i>  | Not Listed  | Not Listed  | Not Listed     | Green        | 3                      | 3                          |
| Northern Flicker             | <i>Colaptes auratus</i>       | Not Listed  | Not Listed  | Not Listed     | Green        | 3                      | 3                          |
| Northern Parula              | <i>Parula americana</i>       | Not Listed  | Not Listed  | Not Listed     | Green        | 11                     | 12                         |
| Ovenbird                     | <i>Seiurus aurocapilla</i>    | Not Listed  | Not Listed  | Not Listed     | Green        | 19                     | 23                         |
| Palm Warbler                 | <i>Dendroica palmarum</i>     | Not Listed  | Not Listed  | Not Listed     | Green        | 2                      | 2                          |
| Pileated Woodpecker          | <i>Dryocopus pileatus</i>     | Not Listed  | Not Listed  | Not Listed     | Green        | 1                      | 1                          |
| Pine Siskin                  | <i>Spinus pinus</i>           | Not Listed  | Not Listed  | Not Listed     | Yellow       | 1                      | 1                          |
| Purple Finch                 | <i>Carpodacus purpureus</i>   | Not Listed  | Not Listed  | Not Listed     | Green        | 2                      | 2                          |
| Red-breasted Nuthatch        | <i>Sitta canadensis</i>       | Not Listed  | Not Listed  | Not Listed     | Green        | 4                      | 4                          |
| Red-eyed Vireo               | <i>Vireo olivaceus</i>        | Not Listed  | Not Listed  | Not Listed     | Green        | 16                     | 20                         |
| Ruby-crowned Kinglet         | <i>Regulus calendula</i>      | Not Listed  | Not Listed  | Not Listed     | Yellow       | 1                      | 1                          |
| Ruby-throated Hummingbird    | <i>Archilochus colubris</i>   | Not Listed  | Not Listed  | Not Listed     | Green        | 1                      | 1                          |
| Ruffed Grouse                | <i>Bonasa umbellus</i>        | Not Listed  | Not Listed  | Not Listed     | Green        | 1                      | 3                          |
| Swainson's Thrush            | <i>Catharus ustulatus</i>     | Not Listed  | Not Listed  | Not Listed     | Green        | 4                      | 4                          |

**Table G6: Project Site Breeding Bird Surveys, Results Summary, Ellershouse Wind Farm**

**Project # 12-4583**

| Common Name               | Scientific Name                | SARA Status | NSESA Status | COSEWIC Status | NSDNR Status | Number of Observations | Total Individuals Observed |
|---------------------------|--------------------------------|-------------|--------------|----------------|--------------|------------------------|----------------------------|
| White-throated Sparrow    | <i>Zonotrichia albicollis</i>  | Not Listed  | Not Listed   | Not Listed     | Green        | 12                     | 18                         |
| Winter Wren               | <i>Troglodytes troglodytes</i> | Not Listed  | Not Listed   | Not Listed     | Green        | 6                      | 6                          |
| Yellow-bellied Flycatcher | <i>Empidonax flaviventris</i>  | Not Listed  | Not Listed   | Not Listed     | Yellow       | 2                      | 2                          |
| Yellow-bellied Sapsucker  | <i>Sphyrapicus varius</i>      | Not Listed  | Not Listed   | Not Listed     | Green        | 1                      | 1                          |
| Yellow-rumped Warbler     | <i>Dendroica coronata</i>      | Not Listed  | Not Listed   | Not Listed     | Green        | 2                      | 2                          |
| Yellow-throated Warbler   | <i>Dendroica dominica</i>      | Not Listed  | Not Listed   | Not Listed     | Accidental   | 1                      | 1                          |

Probable Breeder

Confirmed Breeder

Table G7: Control Site Breeding Bird Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date      | Location | Coordinates<br>(UTM NAD83) | Habitat                           | Conditions                   |                   |          |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer (m) |
|-----------|----------|----------------------------|-----------------------------------|------------------------------|-------------------|----------|---------------|---------|------------------------------|--------------------|-----------------------------|
|           |          |                            |                                   | Wind                         | Temperature<br>°C | Sky      | Precipitation |         |                              |                    |                             |
| 18-Jun-13 | ST7      | 0420319;<br>4974288        | Early<br>successional<br>softwood | 10 to 25 to the<br>southwest | 9                 | Overcast | None          | 6:08 AM | Black-and-white Warbler      | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Black-throated Green Warbler | 2                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Blue Jay                     | 1                  | 0-50                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Common Raven                 | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Dark-eyed Junco              | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Golden-crowned Kinglet       | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Hermit Thrush                | 2                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Magnolia Warbler             | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Nashville Warbler            | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Ovenbird                     | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Ovenbird                     | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | White-throated Sparrow       | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Winter Wren                  | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                      |
| ...       | ST8      | 0420657;<br>4973984        | Early to mid aged<br>softwood     | 10 to 25 to the<br>southwest | 9                 | Overcast | None          | 6:21 AM | Black-and-white Warbler      | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Black-throated Green Warbler | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Dark-eyed Junco              | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Gray Jay                     | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Hermit Thrush                | 2                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Magnolia Warbler             | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Nashville Warbler            | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Ovenbird                     | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Palm Warbler                 | 1                  | 0-50                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Palm Warbler                 | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Red-breasted Nuthatch        | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Swainson's Thrush            | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | White-throated Sparrow       | 2                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Yellow-bellied Flycatcher    | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Yellow-rumped Warbler        | 1                  | 100+                        |
| ...       | ST10     | 0419444;<br>4973796        | Conifer patches in<br>cutover     | 10km south                   | 17                | Clear    | None          | 7:20 AM | Black-and-white Warbler      | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Black-throated Green Warbler | 2                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Blue-headed Vireo            | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Common Yellowthroat          | 1                  | 0-50                        |
| ...       | ...      | ...                        | ...                               | ...                          | ...               | ...      | ...           | ...     | Magnolia Warbler             | 1                  | 0-50                        |

Table G7: Control Site Breeding Bird Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date | Location | Coordinates<br>(UTM NAD83) | Habitat                              | Conditions |                   |       |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer (m) |
|------|----------|----------------------------|--------------------------------------|------------|-------------------|-------|---------------|---------|------------------------------|--------------------|-----------------------------|
|      |          |                            |                                      | Wind       | Temperature<br>°C | Sky   | Precipitation |         |                              |                    |                             |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Magnolia Warbler             | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Magnolia Warbler             | 2                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Mourning Warbler             | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Nashville Warbler            | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Olive-sided Flycatcher       | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Pileated Woodpecker          | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Red-eyed Vireo               | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | White-throated Sparrow       | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | White-throated Sparrow       | 2                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Winter Wren                  | 1                  | 100+                        |
| ...  | ST12     | 0478685;<br>4974115        | mature mixed<br>wood being<br>logged | 10km south | 17                | Clear | None          | 7:56 AM | Alder Flycatcher             | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | American Robin               | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Black-capped Chickadee       | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Black-throated Green Warbler | 3                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Cedar Waxwing                | 2                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Chestnut-sided Warbler       | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Eastern Wood-pewee           | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Hairy Woodpecker             | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Northern Parula              | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Ovenbird                     | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Ovenbird                     | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Purple Finch                 | 1                  | 0-50                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Yellow-rumped Warbler        | 1                  | 0-50                        |
| ...  | STC1     | 419292 E;<br>4972833 N     | ...                                  | 10km south | 17                | Clear | None          | 6:40 AM | Alder Flycatcher             | 2                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Black-and-white Warbler      | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Black-capped Chickadee       | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Cedar Waxwing                | 2                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Common Yellowthroat          | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Hermit Thrush                | 2                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Magnolia Warbler             | 2                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Nashville Warbler            | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Nashville Warbler            | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Northern Flicker             | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Northern Parula              | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Olive-sided Flycatcher       | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...   | ...           | ...     | Palm Warbler                 | 1                  | 50-100                      |

Table G7: Control Site Breeding Bird Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date      | Location | Coordinates<br>(UTM NAD83) | Habitat                           | Conditions |                   |                        |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer (m) |
|-----------|----------|----------------------------|-----------------------------------|------------|-------------------|------------------------|---------------|---------|------------------------------|--------------------|-----------------------------|
|           |          |                            |                                   | Wind       | Temperature<br>°C | Sky                    | Precipitation |         |                              |                    |                             |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Palm Warbler                 | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Red-eyed Vireo               | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | White-throated Sparrow       | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | White-throated Sparrow       | 3                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Winter Wren                  | 1                  | 100+                        |
| ...       | STC2     | 418036 E;<br>4974155 N     | Middle age mixed<br>woods (regen) | 10km south | 17                | Clear                  | None          | 8:10 AM | Black-capped Chickadee       | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Black-throated Green Warbler | 2                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Blue-headed Vireo            | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Common Yellowthroat          | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Hermit Thrush                | 1                  | 0-50                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Mourning Dove                | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Ovenbird                     | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Ovenbird                     | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Pileated Woodpecker          | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Red-eyed Vireo               | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Winter Wren                  | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                      |
| 25-Jun-13 | ST7      | 0420319;<br>4974288        | Early<br>successional<br>softwood | Low        | 19                | Variable<br>Cloudiness | None          | 6:51 AM | American Robin               | 2                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Black-and-white Warbler      | 1                  | 0-50                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Black-and-white Warbler      | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Black-backed Woodpecker      | 1                  | 0-50                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 0-50                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Common Yellowthroat          | 1                  | 0-50                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Hairy Woodpecker             | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Hermit Thrush                | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Magnolia Warbler             | 1                  | 0-50                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Magnolia Warbler             | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Mourning Dove                | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Ovenbird                     | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Palm Warbler                 | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Pileated Woodpecker          | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Purple Finch                 | 1                  | 100+                        |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Red-eyed Vireo               | 1                  | 50-100                      |
| ...       | ...      | ...                        | ...                               | ...        | ...               | ...                    | ...           | ...     | Swainson's Thrush            | 1                  | 100+                        |



Table G7: Control Site Breeding Bird Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date | Location | Coordinates<br>(UTM NAD83) | Habitat                       | Conditions |                   |                        |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer (m) |
|------|----------|----------------------------|-------------------------------|------------|-------------------|------------------------|---------------|---------|------------------------------|--------------------|-----------------------------|
|      |          |                            |                               | Wind       | Temperature<br>°C | Sky                    | Precipitation |         |                              |                    |                             |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | White-throated Sparrow       | 2                  | 0-50                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | White-throated Sparrow       | 2                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Winter Wren                  | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                      |
| ...  | ST8      | 0420657;<br>4973984        | Early to mid aged<br>softwood | Low        | 20                | Variable<br>Cloudiness | None          | 7:09 AM | Blackburnian Warbler         | 1                  | 0-50                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Blue-headed Vireo            | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Dark-eyed Junco              | 1                  | 0-50                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Golden-crowned Kinglet       | 1                  | 0-50                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Golden-crowned Kinglet       | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Gray Jay                     | 2                  | 50-100                      |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Magnolia Warbler             | 1                  | 0-50                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Magnolia Warbler             | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Ovenbird                     | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Purple Finch                 | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Swainson's Thrush            | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | White-throated Sparrow       | 2                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Winter Wren                  | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Yellow-rumped Warbler        | 1                  | 50-100                      |
| ...  | ST10     | 0419444;<br>4973796        | Conifer patches in<br>cutover | Low        | 22                | Clear                  | None          | 8:05 AM | American Robin               | 2                  | 50-100                      |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Black-and-white Warbler      | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Black-throated Blue Warbler  | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Blue Jay                     | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Blue-headed Vireo            | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Blue-headed Vireo            | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Cedar Waxwing                | 2                  | 50-100                      |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Common Yellowthroat          | 1                  | 0-50                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Dark-eyed Junco              | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Golden-crowned Kinglet       | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Hermit Thrush                | 2                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Magnolia Warbler             | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Ovenbird                     | 1                  | 0-50                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Ovenbird                     | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Palm Warbler                 | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Palm Warbler                 | 2                  | 100+                        |
| ...  | ...      | ...                        | ...                           | ...        | ...               | ...                    | ...           | ...     | Yellow-rumped Warbler        | 1                  | 100+                        |

Table G7: Control Site Breeding Bird Surveys, Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date | Location | Coordinates<br>(UTM NAD83) | Habitat                              | Conditions |                   |                        |               | Time    | Common Name                  | Number<br>Observed | Distance to<br>Observer (m) |
|------|----------|----------------------------|--------------------------------------|------------|-------------------|------------------------|---------------|---------|------------------------------|--------------------|-----------------------------|
|      |          |                            |                                      | Wind       | Temperature<br>°C | Sky                    | Precipitation |         |                              |                    |                             |
| ...  | ST12     | 0478685;<br>4974115        | mature mixed<br>wood being<br>logged | Low        | 22                | Clear                  | None          | 8:39 AM | American Robin               | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Black-and-white Warbler      | 1                  | 0-50                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Black-throated Green Warbler | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Blue-headed Vireo            | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Chestnut-sided Warbler       | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Chestnut-sided Warbler       | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Dark-eyed Junco              | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Mourning Dove                | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Ovenbird                     | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Ovenbird                     | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Red-eyed Vireo               | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Red-eyed Vireo               | 1                  | 100+                        |
| ...  | STC1     | 419292 E;<br>4972833 N     | ...                                  | Low        | 20                | Variable<br>Cloudiness | None          | 7:32 AM | Alder Flycatcher             | 2                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | American Redstart            | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Blue Jay                     | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Common Yellowthroat          | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Dark-eyed Junco              | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Hairy Woodpecker             | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Hermit Thrush                | 1                  | 0-50                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Magnolia Warbler             | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Palm Warbler                 | 1                  | 0-50                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Palm Warbler                 | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Palm Warbler                 | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | White-throated Sparrow       | 3                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Winter Wren                  | 1                  | 100+                        |
| ...  | STC2     | 418036 E;<br>4974155 N     | Middle age mixed<br>woods (regen)    | 10km west  | 24                | Clear                  | None          | 8:52 AM | American Robin               | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Black-and-white Warbler      | 1                  | 0-50                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Black-throated Green Warbler | 2                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Blue Jay                     | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Blue-headed Vireo            | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Common Raven                 | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Common Yellowthroat          | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Dark-eyed Junco              | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Hermit Thrush                | 1                  | 100+                        |
| ...  | ...      | ...                        | ...                                  | ...        | ...               | ...                    | ...           | ...     | Mourning Dove                | 1                  | 100+                        |

Table G7: Control Site Breeding Bird Surveys, Detailed Results, Ellershouse Wind Farm

| Date | Location | Coordinates<br>(UTM NAD83) | Habitat | Conditions |                   |     |               | Time | Common Name           | Number<br>Observed | Distance to<br>Observer (m) |
|------|----------|----------------------------|---------|------------|-------------------|-----|---------------|------|-----------------------|--------------------|-----------------------------|
|      |          |                            |         | Wind       | Temperature<br>°C | Sky | Precipitation |      |                       |                    |                             |
| ...  | ...      | ...                        | ...     | ...        | ...               | ... | ...           | ...  | Nashville Warbler     | 1                  | 50-100                      |
| ...  | ...      | ...                        | ...     | ...        | ...               | ... | ...           | ...  | Ovenbird              | 1                  | 100+                        |
| ...  | ...      | ...                        | ...     | ...        | ...               | ... | ...           | ...  | Red-eyed Vireo        | 1                  | 0-50                        |
| ...  | ...      | ...                        | ...     | ...        | ...               | ... | ...           | ...  | Red-eyed Vireo        | 1                  | 100+                        |
| ...  | ...      | ...                        | ...     | ...        | ...               | ... | ...           | ...  | Yellow-rumped Warbler | 1                  | 50-100                      |

Table G8: Control Site Breeding Bird Surveys, Results Summary, Ellershouse Wind Farm

Project # 12-4583

| Common Name                  | Scientific Name               | SARA Status | NSESA Status | COSEWIC Status  | NSDNR Status | Number of Observations | Number of Individuals Observed |
|------------------------------|-------------------------------|-------------|--------------|-----------------|--------------|------------------------|--------------------------------|
| Alder Flycatcher             | <i>Empidonax alnorum</i>      | Not Listed  | Not Listed   | Not Listed      | Green        | 3                      | 5                              |
| American Redstart            | <i>Setophaga ruticilla</i>    | Not Listed  | Not Listed   | Not Listed      | Green        | 1                      | 1                              |
| American Robin               | <i>Turdus migratorius</i>     | Not Listed  | Not Listed   | Not Listed      | Green        | 5                      | 7                              |
| Black-and-white Warbler      | <i>Mniotilta varia</i>        | Not Listed  | Not Listed   | Not Listed      | Green        | 9                      | 9                              |
| Black-backed Woodpecker      | <i>Picoides arcticus</i>      | Not Listed  | Not Listed   | Not Listed      | Yellow       | 1                      | 1                              |
| Blackburnian Warbler         | <i>Dendroica fusca</i>        | Not Listed  | Not Listed   | Not Listed      | Green        | 1                      | 1                              |
| Black-capped Chickadee       | <i>Poecile atricapillus</i>   | Not Listed  | Not Listed   | Not Listed      | Green        | 3                      | 3                              |
| Black-throated Blue Warbler  | <i>Dendroica caerulescens</i> | Not Listed  | Not Listed   | Not Listed      | Green        | 1                      | 1                              |
| Black-throated Green Warbler | <i>Dendroica virens</i>       | Not Listed  | Not Listed   | Not Listed      | Green        | 12                     | 18                             |
| Blue Jay                     | <i>Cyanocitta cristata</i>    | Not Listed  | Not Listed   | Not Listed      | Green        | 4                      | 4                              |
| Blue-headed Vireo            | <i>Vireo solitarius</i>       | Not Listed  | Not Listed   | Not Listed      | Green        | 7                      | 7                              |
| Cedar Waxwing                | <i>Bombycilla cedrorum</i>    | Not Listed  | Not Listed   | Not Listed      | Green        | 3                      | 6                              |
| Chestnut-sided Warbler       | <i>Dendroica pensylvanica</i> | Not Listed  | Not Listed   | Not Listed      | Green        | 3                      | 3                              |
| Common Raven                 | <i>Corvus corax</i>           | Not Listed  | Not Listed   | Not Listed      | Green        | 2                      | 2                              |
| Common Yellowthroat          | <i>Geothlypis trichas</i>     | Not Listed  | Not Listed   | Not Listed      | Green        | 7                      | 7                              |
| Dark-eyed Junco              | <i>Junco hyemalis</i>         | Not Listed  | Not Listed   | Not Listed      | Green        | 7                      | 7                              |
| Eastern Wood-pewee           | <i>Contopus virens</i>        | Not Listed  | Vulnerable   | Special Concern | Yellow       | 1                      | 1                              |
| Golden-crowned Kinglet       | <i>Regulus satrapa</i>        | Not Listed  | Not Listed   | Not Listed      | Yellow       | 4                      | 4                              |
| Gray Jay                     | <i>Perisoreus canadensis</i>  | Not Listed  | Not Listed   | Not Listed      | Yellow       | 2                      | 3                              |
| Hairy Woodpecker             | <i>Picoides villosus</i>      | Not Listed  | Not Listed   | Not Listed      | Green        | 3                      | 3                              |
| Hermit Thrush                | <i>Catharus guttatus</i>      | Not Listed  | Not Listed   | Not Listed      | Green        | 8                      | 12                             |
| Magnolia Warbler             | <i>Dendroica magnolia</i>     | Not Listed  | Not Listed   | Not Listed      | Green        | 12                     | 14                             |
| Mourning Dove                | <i>Zenaidura macroura</i>     | Not Listed  | Not Listed   | Not Listed      | Green        | 4                      | 4                              |
| Mourning Warbler             | <i>Oporornis philadelphia</i> | Not Listed  | Not Listed   | Not Listed      | Green        | 1                      | 1                              |
| Nashville Warbler            | <i>Vermivora ruficapilla</i>  | Not Listed  | Not Listed   | Not Listed      | Green        | 6                      | 6                              |
| Northern Flicker             | <i>Colaptes auratus</i>       | Not Listed  | Not Listed   | Not Listed      | Green        | 1                      | 1                              |
| Northern Parula              | <i>Parula americana</i>       | Not Listed  | Not Listed   | Not Listed      | Green        | 2                      | 2                              |
| Olive-sided Flycatcher       | <i>Contopus cooperi</i>       | Threatened  | Threatened   | Threatened      | Red          | 2                      | 2                              |
| Ovenbird                     | <i>Seiurus aurocapilla</i>    | Not Listed  | Not Listed   | Not Listed      | Green        | 14                     | 14                             |
| Palm Warbler                 | <i>Dendroica palmarum</i>     | Not Listed  | Not Listed   | Not Listed      | Green        | 10                     | 11                             |
| Pileated Woodpecker          | <i>Dryocopus pileatus</i>     | Not Listed  | Not Listed   | Not Listed      | Green        | 3                      | 3                              |
| Purple Finch                 | <i>Carpodacus purpureus</i>   | Not Listed  | Not Listed   | Not Listed      | Green        | 3                      | 3                              |
| Red-breasted Nuthatch        | <i>Sitta canadensis</i>       | Not Listed  | Not Listed   | Not Listed      | Green        | 1                      | 1                              |

**Table G8: Control Site Breeding Bird Surveys, Results Summary, Ellershouse Wind Farm**

**Project # 12-4583**

| Common Name               | Scientific Name                | SARA Status | NSESA Status | COSEWIC Status | NSDNR Status | Number of Observations | Number of Individuals Observed |
|---------------------------|--------------------------------|-------------|--------------|----------------|--------------|------------------------|--------------------------------|
| Red-eyed Vireo            | <i>Vireo olivaceus</i>         | Not Listed  | Not Listed   | Not Listed     | Green        | 8                      | 8                              |
| Swainson's Thrush         | <i>Catharus ustulatus</i>      | Not Listed  | Not Listed   | Not Listed     | Green        | 3                      | 3                              |
| White-throated Sparrow    | <i>Zonotrichia albicollis</i>  | Not Listed  | Not Listed   | Not Listed     | Green        | 10                     | 19                             |
| Winter Wren               | <i>Troglodytes troglodytes</i> | Not Listed  | Not Listed   | Not Listed     | Green        | 7                      | 7                              |
| Yellow-bellied Flycatcher | <i>Empidonax flaviventris</i>  | Not Listed  | Not Listed   | Not Listed     | Yellow       | 1                      | 1                              |
| Yellow-rumped Warbler     | <i>Dendroica coronata</i>      | Not Listed  | Not Listed   | Not Listed     | Green        | 8                      | 8                              |

Probable Breeder

Confirmed Breeder

Table G9: Project Site Fall Migration Surveys, Detailed Results, Ellershouse Wind Farm

| Date      | Transect Number | Transect Startpoint Coordinates (NAD 83) | Start Point Habitat  | Transect Enpoint Coordinates (NAD 83) | Conditions               |                |       |               | Time    | Common Name                  | Number Observed | Distance to Observer (m) | Notes |
|-----------|-----------------|--|--|---------------------------------------|--------------------------|----------------|-------|---------------|---------|------------------------------|-----------------|--------------------------|-------|
|           |                 |  |  |                                       | Wind Speed and Direction | Temperature °C | Sky   | Precipitation |         |                              |                 |                          |       |
| 17-Sep-13 | ST1             | 418901 E;<br>4976197 N                   | Young hardwoods transitioning to mid-aged hardwoods along woods road | 419036 E;<br>4975933 N                | 10 km/h NW               | 5              | Clear | None          | 6:43 AM | Black-capped Chickadee       | 2               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Common Yellowthroat          | 2               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Dark-eyed Junco              | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Hermit Thrush                | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | White-throated Sparrow       | 4               | 0-50                     | ...   |
| ...       | ST2             | 419036 E;<br>4975933 N                   | Mid-aged to mature hardwoods along woods road                        | 419302 E;<br>4975769 N                | 10 km/h NW               | 5              | Clear | None          | 6:59 AM | American Goldfinch           | 2               | 50-100                   | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Common Yellowthroat          | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Golden-crowned Kinglet       | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Hermit Thrush                | 1               | 50-100                   | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Hermit Thrush                | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Northern Flicker             | 1               | 100+                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Ovenbird                     | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Red-breasted Nuthatch        | 1               | 100+                     | ...   |
| ...       | ST3             | 419604 E;<br>4975695 N                   | Early successional transitioning to mid-aged mixed-woods along road  | 419985 E;<br>4975669 N                | 10 km/h NW               | 5              | Clear | None          | 7:17 AM | Black-and-white Warbler      | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-capped Chickadee       | 6               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-capped Chickadee       | 4               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 1               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Blue Jay                     | 2               | 50-100                   | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Blue Jay                     | 1               | 100+                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Canada Goose                 | 1               | 100+                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Common Raven                 | 1               | 100+                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Dark-eyed Junco              | 2               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Hermit Thrush                | 1               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Magnolia Warbler             | 1               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Northern Parula              | 1               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Palm Warbler                 | 3               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Red-breasted Nuthatch        | 1               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Wilson's Warbler             | 1               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Yellow-rumped Warbler        | 1               | 0-50                     | ...   |
| ...       | ST4             | 419985 E;<br>4975669 N                   | Mid-aged mixedwoods transitioning to mid-aged hardwoods along road   | 419919 E;<br>4975267 N                | 10 km/h NW               | 5              | Clear | None          | 7:42 AM | American Goldfinch           | 2               | FO                       | W     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Bay-breasted Warbler         | 1               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-and-white Warbler      | 2               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-and-white Warbler      | 1               | 0-50                     | **    |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-capped Chickadee       | 6               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-capped Chickadee       | 3               | 0-50                     | **    |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 4               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 1               | 0-50                     | **    |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Blue Jay                     | 2               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Blue-headed Vireo            | 2               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Blue-headed Vireo            | 1               | 0-50                     | **    |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Dark-eyed Junco              | 1               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Golden-crowned Kinglet       | 2               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Golden-crowned Kinglet       | 3               | 0-50                     | **    |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Least Flycatcher             | 1               | 0-50                     | **    |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Magnolia Warbler             | 2               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Magnolia Warbler             | 1               | 0-50                     | **    |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Nashville Warbler            | 1               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Northern Parula              | 1               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Northern Parula              | 1               | 0-50                     | **    |
| ...       | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Palm Warbler                 | 1               | 0-50                     | *     |

Table G9: Project Site Fall Migration Surveys, Detailed Results, Ellershouse Wind Farm

| Date | Transect Number | Transect Startpoint Coordinates (NAD 83) | Start Point Habitat  | Transect Enpoint Coordinates (NAD 83) | Conditions               |                |       |               | Time    | Common Name                  | Number Observed | Distance to Observer (m) | Notes   |
|------|-----------------|--|--|---------------------------------------|--------------------------|----------------|-------|---------------|---------|------------------------------|-----------------|--------------------------|---------|
|      |                 |  |  |                                       | Wind Speed and Direction | Temperature °C | Sky   | Precipitation |         |                              |                 |                          |         |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Red-eyed Vireo               | 2               | 0-50                     | *       |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Red-eyed Vireo               | 2               | 0-50                     | **      |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Ruby-crowned Kinglet         | 1               | 0-50                     | **      |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Yellow-rumped Warbler        | 1               | 0-50                     | **      |
| ...  | ST5             | 419919 E;<br>4975267 N                   | Mid-aged hardwoods along road, transitioning to easly successional adjacent to cutover                                   | 419762 E;<br>4974962 N                | 10 km/h NW               | 5              | Clear | None          | 8:10 AM | Black-and-white Warbler      | 1               | 0-50                     | ...     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 1               | 0-50                     | ...     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Magnolia Warbler             | 1               | 0-50                     | ...     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Red-breasted Nuthatch        | 1               | 50-100                   | ...     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | White-throated Sparrow       | 1               | 0-50                     | ...     |
| ...  | ST6             | 419762 E;<br>4974962 N                   | Early successional along road adjacent to cutover transitioning to young hardwoods                                       | 419558 E;<br>4974947 N                | 10 km/h NW               | 6              | Clear | None          | 8:27 AM | Blue Jay                     | 1               | 50-100                   | ...     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Nashville Warbler            | 1               | 0-50                     | ...     |
| ...  | ST7             | 419639 E;<br>4974794 N                   | Mid-aged to mature hardwoods along road  | 419454E;<br>4974522 N                 | 10 km/h NW               | 6              | Clear | None          | 8:49 AM | Black-and-white Warbler      | 1               | 0-50                     | **      |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-capped Chickadee       | 3               | 0-50                     | *       |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-capped Chickadee       | 3               | 0-50                     | **      |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 1               | 0-50                     | *       |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 3               | 0-50                     | **      |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 1               | 0-50                     | ***     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Blue Jay                     | 3               | 100+                     | ...     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Blue Jay                     | 1               | 0-50                     | ...     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Chestnut-sided Warbler       | 1               | 0-50                     | **      |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Common Raven                 | 1               | 100+                     | ...     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Common Raven                 | 2               | 50-100                   | ...     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Common Yellowthroat          | 1               | 0-50                     | **      |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Eastern Wood-pewee           | 1               | 0-50                     | ...     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Magnolia Warbler             | 1               | 0-50                     | *       |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Magnolia Warbler             | 2               | 0-50                     | ***     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Nashville Warbler            | 1               | 0-50                     | *       |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Northern Parula              | 1               | 0-50                     | *       |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Northern Parula              | 2               | 0-50                     | **      |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Northern Parula              | 1               | 0-50                     | ***     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Red-eyed Vireo               | 1               | 0-50                     | *       |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Red-eyed Vireo               | 1               | 0-50                     | **      |
| ...  | ST8             | 419040 E; 4<br>974659 N                  | Mature hardwood along road w/small clearing, transitioning to mature hardwoods adjacent to cutover and small watercourse | 418761 E;<br>4974536 N                | 20 km/h NE               | 6              | Clear | None          | 9:14 AM | Black-capped Chickadee       | 3               | 0-50                     | *       |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-capped Chickadee       | 1               | 0-50                     | ...     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-throated Blue Warbler  | 1               | 0-50                     | ...     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 3               | 0-50                     | *       |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Black-throated Green Warbler | 1               | 0-50                     | ...     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Blue-headed Vireo            | 2               | 0-50                     | *       |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Broad-winged Hawk            | 1               | 100+                     | Soaring |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Hermit Thrush                | 1               | 0-50                     | *       |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Northern Parula              | 1               | 0-50                     | *       |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Palm Warbler                 | 1               | 0-50                     | *       |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Red-eyed Vireo               | 1               | 0-50                     | ...     |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Ruby-crowned Kinglet         | 1               | 0-50                     | *       |
| ...  | ...             | ...                                      | ...  | ...                                   | ...                      | ...            | ...   | ...           | ...     | Yellow-rumped Warbler        | 1               | 0-50                     | *       |

Table G9: Project Site Fall Migration Surveys, Detailed Results, Ellershouse Wind Farm

| Date      | Transect Number | Transect Startpoint Coordinates (NAD 83) | Start Point Habitat   | Transect Endpoint Coordinates (NAD 83) | Conditions               |                |       |               | Time     | Common Name                  | Number Observed | Distance to Observer (m) | Notes |
|-----------|-----------------|--|---|--|--------------------------|----------------|-------|---------------|----------|------------------------------|-----------------|--------------------------|-------|
|           |                 |  |   |  | Wind Speed and Direction | Temperature °C | Sky   | Precipitation |          |                              |                 |                          |       |
| ...       | ST9             | 419429 E;<br>4974310 N                   | Young softwood adjacent to cutover, transitioning to mid-aged mixed-woods along road with small watercourse and alder swamp | 419446 E;<br>4973969 N                 | 20 km/h NE               | 9              | Clear | None          | 9:35 AM  | American Redstart            | 1               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Black-and-white Warbler      | 1               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Black-capped Chickadee       | 2               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Black-throated Green Warbler | 2               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Broad-winged Hawk            | 1               | 50-100                   | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Common Raven                 | 1               | 50-100                   | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Common Yellowthroat          | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Common Yellowthroat          | 2               | 0-50                     | *     |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Hermit Thrush                | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Northern Flicker             | 1               | 50-100                   | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Red-breasted Nuthatch        | 1               | 50-100                   | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Ruby-crowned Kinglet         | 1               | 0-50                     | *     |
| ...       | ST10            | 420051 E;<br>4974863 N                   | Alder shrubs with mature hardwoods beyond, transitioning to cutover adjacent to shrub swamp                                 | 420359 E;<br>4974996 N                 | 20 km/h NE               | 10             | Clear | None          | 10:05 AM | Black-capped Chickadee       | 2               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | American Goldfinch           | 1               | FO                       | N     |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | American Woodcock            | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Black-and-white Warbler      | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Black-throated Green Warbler | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Blue-headed Vireo            | 2               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Golden-crowned Kinglet       | 2               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Magnolia Warbler             | 2               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Northern Parula              | 3               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Northern Parula              | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Red-eyed Vireo               | 2               | 0-50                     | ...   |
| ...       | ST11            | 420063 E;<br>4975684 N                   | Young hardwoods along road, transitioning to young mixed-woods along road adjacent to pit, with mature hardwoods            | 420324 E;<br>4975831 N                 | 20 km/h NE               | 10             | Clear | None          | 10:30 AM | Black-capped Chickadee       | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Black-throated Green Warbler | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Blue Jay                     | 3               | 50-100                   | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Blue-headed Vireo            | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Cedar Waxwing                | 2               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Dark-eyed Junco              | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Northern Flicker             | 1               | 50-100                   | ...   |
| 25-Oct-13 | ST1             | 418901 E;<br>4976197 N                   | Young hardwoods transitioning to mid-aged hardwoods along woods road  | 419036 E;<br>4975933 N                 | Calm                     | 5              | Clear | None          | 7:40 AM  | American Robin               | 2               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | American Robin               | 1               | 100+                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Black-capped Chickadee       | 1               | 50-100                   | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Blue Jay                     | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Common Raven                 | 1               | 100+                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Dark-eyed Junco              | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Golden-crowned Kinglet       | 2               | 0-50                     | ...   |
| ...       | ST2             | 419036 E;<br>4975933 N                   | Mid-aged to mature hardwoods along woods road   | 419302 E;<br>4975769 N                 | Calm                     | 5              | Clear | None          | 7:44 AM  | American Robin               | 2               | FO                       | NW    |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Black-capped Chickadee       | 1               | 50-100                   | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Blue Jay                     | 2               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Golden-crowned Kinglet       | 2               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...   | ...                                    | ...                      | ...            | ...   | ...           | ...      | Golden-crowned Kinglet       | 1               | 50-100                   | ...   |



Table G9: Project Site Fall Migration Surveys, Detailed Results, Ellershouse Wind Farm

| Date | Transect Number | Transect Startpoint Coordinates (NAD 83) | Start Point Habitat  | Transect Endpoint Coordinates (NAD 83) | Conditions               |                |       |               | Time    | Common Name            | Number Observed | Distance to Observer (m) | Notes |
|------|-----------------|--|--|--|--------------------------|----------------|-------|---------------|---------|------------------------|-----------------|--------------------------|-------|
|      |                 |  |  |  | Wind Speed and Direction | Temperature °C | Sky   | Precipitation |         |                        |                 |                          |       |
| ...  | ST13            | 419302E;<br>4975769 N                    | Mid-aged to mature hardwoods along woods road  | 419604 E;<br>4975695 N                 | Calm                     | 5              | Clear | None          | 7:52 AM | Black-capped Chickadee | 2               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Common Raven           | 2               | 100+                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Golden-crowned Kinglet | 2               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Purple Finch           | 1               | 100+                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | White-throated Sparrow | 1               | 0-50                     | ...   |
| ...  | ST3             | 419604 E;<br>4975695 N                   | Early successional transitioning to mid-aged mixed-woods along road  | 419985 E;<br>4975669 N                 | Calm                     | 5              | Clear | None          | 8:03 AM | American Robin         | 1               | 50-100                   | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Black-capped Chickadee | 2               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Common Raven           | 1               | 100+                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Dark-eyed Junco        | 3               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Golden-crowned Kinglet | 4               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Red-tailed Hawk        | 1               | 50-100                   | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Yellow-rumped Warbler  | 1               | 0-50                     | ...   |
| ...  | ST11            | 420063 E;<br>4975684 N                   | Young hardwoods along road, transitioning to young mixed-woods along road adjacent to pit, with mature hardwoods | 420324 E;<br>4975831 N                 | Calm                     | 5              | Clear | None          | 8:15 AM | Blue Jay               | 1               | 50-100                   | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Dark-eyed Junco        | 2               | 50-100                   | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Hairy Woodpecker       | 2               | 0-50                     | ...   |
| ...  | ST12            | 420435 E;<br>4975781 N                   | Mixed along road with clearcut   | 420673 E;<br>4975605 N                 | Calm                     | 5              | Clear | None          | 8:27 AM | Common Raven           | 1               | 100+                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | American Robin         | 1               | 100+                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Blue Jay               | 1               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Boreal Chickadee       | 5               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Golden-crowned Kinglet | 2               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Golden-crowned Kinglet | 1               | 50-100                   | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Hairy Woodpecker       | 1               | 100+                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Purple Finch           | 1               | 100+                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Ruffed Grouse          | 1               | 0-50                     | ...   |
| ...  | ST4             | 419985 E;<br>4975669 N                   | Mid-aged mixedwoods transitioning to mid-aged hardwoods along road   | 419919 E;<br>4975267 N                 | Calm                     | 5              | Clear | None          | 8:54 AM | Black-capped Chickadee | 4               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Black-capped Chickadee | 2               | 50-100                   | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Common Raven           | 1               | 100+                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Dark-eyed Junco        | 1               | 50-100                   | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Downy Woodpecker       | 1               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Golden-crowned Kinglet | 2               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Pileated Woodpecker    | 1               | 100+                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Purple Finch           | 2               | 100+                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | UNKNOWN                | ...             | ...                      | ...   |
| ...  | ST5             | 419919 E;<br>4975267 N                   | Mid-aged hardwoods along road, transitioning to easrly successional adjacent to cutover                          | 419762 E;<br>4974962 N                 | Calm                     | 5              | Clear | None          | 9:03 AM | Black-capped Chickadee | 5               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Golden-crowned Kinglet | 3               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Hairy Woodpecker       | 1               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Red-breasted Nuthatch  | 2               | 0-50                     | ...   |
| ...  | ST10            | 420051 E;<br>4974863 N                   | Alder shrubs with mature hardwoods beyond, transitioning to cutover adjacent to shrub swamp                      | 420359 E;<br>4974996 N                 | Calm                     | 5              | Clear | None          | 9:23 AM | American Goldfinch     | 5               | 0-50                     | W     |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Black-capped Chickadee | 4               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Blue Jay               | 1               | FO                       | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Downy Woodpecker       | 1               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...   | ...           | ...     | Golden-crowned Kinglet | 3               | 0-50                     | ...   |

Table G9: Project Site Fall Migration Surveys, Detailed Results, Ellershouse Wind Farm

| Date      | Transect Number | Transect Startpoint Coordinates (NAD 83) | Start Point Habitat  | Transect Endpoint Coordinates (NAD 83) | Conditions               |                |         |               | Time     | Common Name            | Number Observed | Distance to Observer (m) | Notes |
|-----------|-----------------|--|--|--|--------------------------|----------------|---------|---------------|----------|------------------------|-----------------|--------------------------|-------|
|           |                 |  |  |  | Wind Speed and Direction | Temperature °C | Sky     | Precipitation |          |                        |                 |                          |       |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Pileated Woodpecker    | 1               | 100+                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Purple Finch           | 1               | 100+                     | ...   |
| ...       | ST7             | 419639 E;<br>4974794 N                   | Mid-aged to mature hardwoods along road  | 419454 E;<br>4974522 N                 | Calm                     | 5              | Clear   | None          | 9:50 AM  | Black-capped Chickadee | 2               | 50-100                   | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Blue Jay               | 1               | 100+                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Common Raven           | 1               | 50-100                   | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Dark-eyed Junco        | 1               | 50-100                   | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Palm Warbler           | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Purple Finch           | 1               | 100+                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Ruffed Grouse          | 1               | 0-50                     | ...   |
| ...       | ST8             | 419040 E;<br>4974659 N                   | Mature hardwood along road w/small clearing, transitioning to mature hardwoods adjacent to cutover and small watercourse | 418761 E;<br>4974536 N                 | Calm                     | 5              | Clear   | None          | 10:00 AM | Black-capped Chickadee | 4               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Blue Jay               | 1               | 100+                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Blue Jay               | 1               | FO                       | NW    |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Dark-eyed Junco        | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Downy Woodpecker       | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Golden-crowned Kinglet | 4               | 0-50                     | ...   |
| ...       | ST6             | 419762 E;<br>4974962 N                   | Early successional along road adjacent to cutover transitioning to young hardwoods                                       | 419558 E;<br>4974947 N                 | Calm                     | 5              | Clear   | None          | 10:15 AM | Blue Jay               | 1               | 100+                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Yellow-rumped Warbler  | 1               | 50-100                   | ...   |
| 13-Nov-13 | ST1             | 418901 E;<br>4976197 N                   | Young hardwoods transitioning to mid-aged hardwoods along woods road   | 419036 E;<br>4975933 N                 | Unknown                  | Unknown        | Unknown | Unknown       | 7:15 AM  | American Robin         | 1               | 100+                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Black-capped Chickadee | 5               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Blue Jay               | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Common Raven           | 4               | 100+                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Hairy Woodpecker       | 1               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Pileated Woodpecker    | 1               | 100+                     | ...   |
| ...       | ST2             | 419036 E;<br>4975933 N                   | Mid-aged to mature hardwoods along woods road  | 419302 E;<br>4975769 N                 | Unknown                  | Unknown        | Unknown | Unknown       | 7:28 AM  | American Crow          | 6               | 100+                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Black-capped Chickadee | 1               | 50-100                   | ...   |
| ...       | ST3             | 419604 E;<br>4975695 N                   | Early successional transitioning to mid-aged mixed-woods along road  | 419985 E;<br>4975669 N                 | Unknown                  | Unknown        | Unknown | Unknown       | 7:42 AM  | American Goldfinch     | 1               | 100+                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Black-capped Chickadee | 4               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Golden-crowned Kinglet | 3               | 0-50                     | ...   |
| ...       | ST4             | 419985 E;<br>4975669 N                   | Mid-aged mixedwoods transitioning to mid-aged hardwoods along road   | 419919 E;<br>4975267 N                 | Unknown                  | Unknown        | Unknown | Unknown       | 7:52 AM  | American Goldfinch     | 1               | 50-100                   | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Black-capped Chickadee | 2               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Golden-crowned Kinglet | 1               | 50-100                   | ...   |
| ...       | ST5             | 419919 E;<br>4975267 N                   | Mid-aged hardwoods along road, transitioning to easrly successional adjacent to cutover                                  | 419762 E;<br>4974962 N                 | Unknown                  | Unknown        | Unknown | Unknown       | 8:03 AM  | Golden-crowned Kinglet | 2               | 0-50                     | ...   |
| ...       | ...             | ...                                      | ...  | ...                                    | ...                      | ...            | ...     | ...           | ...      | Purple Finch           | 1               | 100+                     | ...   |
| ...       | ST6             | 419762 E;<br>4974962 N                   | Early successional along road adjacent to cutover transitioning to young hardwoods                                       | 419558 E;<br>4974947 N                 | Unknown                  | Unknown        | Unknown | Unknown       | 8:10 AM  | Golden-crowned Kinglet | 2               | 0-50                     | ...   |

Table G9: Project Site Fall Migration Surveys, Detailed Results, Ellershouse Wind Farm

| Date | Transect Number | Transect Startpoint Coordinates (NAD 83) | Start Point Habitat   | Transect Enpoint Coordinates (NAD 83) | Conditions               |                |         |               | Time     | Common Name            | Number Observed | Distance to Observer (m) | Notes |
|------|-----------------|--|---|---------------------------------------|--------------------------|----------------|---------|---------------|----------|------------------------|-----------------|--------------------------|-------|
|      |                 |  |   |                                       | Wind Speed and Direction | Temperature °C | Sky     | Precipitation |          |                        |                 |                          |       |
| ...  | ST14            | 418761 E;<br>4974536 N                   | Young to mid-aged hardwoods adjacent to cutover   | 419639 E;<br>4974794 N                | Unknown                  | Unknown        | Unknown | Unknown       | 8:21 AM  | Black-capped Chickadee | 9               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Blue Jay               | 1               | 100+                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Golden-crowned Kinglet | 4               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | White-throated Sparrow | 2               | 0-50                     | ...   |
| ...  | ST7             | 419639 E;<br>4974794 N                   | Mid-aged to mature hardwoods along road   | 419454E;<br>4974522 N                 | Unknown                  | Unknown        | Unknown | Unknown       | 8:33 AM  | Common Raven           | 1               | 100+                     | ...   |
| ...  | ST15            | 419454 E;<br>4974522 N                   | Mid-aged hardwoods adjacent to cutover, transitioning to mature hardwood along road w/small clearing, transitioning to mature hardwoods adjacent to cutover and small watercourse | 419040 E;<br>4974659 N                | Unknown                  | Unknown        | Unknown | Unknown       | 8:49 AM  | Golden-crowned Kinglet | 1               | 50-100                   | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Purple Finch           | 1               | 100+                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Ruffed Grouse          | 1               | 0-50                     | ...   |
| ...  | ST8             | 419040 E;<br>4974659 N                   | Mature hardwood along road w/small clearing, transitioning to mature hardwoods adjacent to cutover and small watercourse  | 418761 E;<br>4974536 N                | Unknown                  | Unknown        | Unknown | Unknown       | 8:58 AM  | Black-capped Chickadee | 7               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Blue Jay               | 4               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Brown Creeper          | 1               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Golden-crowned Kinglet | 4               | 0-50                     | ...   |
| ...  | ST9             | 419429 E;<br>4974310 N                   | Young softwood adjacent to cutover, transitioning to mid-aged mixed-woods along road with small watercourse and alder swamp   | 419446 E;<br>4973969 N                | Unknown                  | Unknown        | Unknown | Unknown       | 9:12 AM  | American Goldfinch     | 2               | 50-100                   | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Golden-crowned Kinglet | 3               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Hairy Woodpecker       | 1               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Purple Finch           | 2               | 100+                     | ...   |
| ...  | ST11            | 420063 E;<br>4975684 N                   | Young hardwoods along road  | 420324 E;<br>4975831 N                | Unknown                  | Unknown        | Unknown | Unknown       | 9:40 AM  | Black-capped Chickadee | 4               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Blue Jay               | 2               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Common Raven           | 1               | 100+                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Golden-crowned Kinglet | 3               | 0-50                     | ...   |
| ...  | ST12            | 420435 E;<br>4975781 N                   | Mixed along road with clearcut  | 420673 E;<br>4975605 N                | Unknown                  | Unknown        | Unknown | Unknown       | 9:58 AM  | Black-capped Chickadee | 3               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Blue Jay               | 1               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Golden-crowned Kinglet | 2               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Purple Finch           | 1               | FO                       | W     |
| ...  | ST10            | 420051 E;<br>4974863 N                   | Alder shrubs with mature hardwoods beyond, transitioning to cutover adjacent to shrub swamp   | 420359 E;;<br>4974996 N               | Unknown                  | Unknown        | Unknown | Unknown       | 10:33 AM | American Goldfinch     | 2               | 50-100                   | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Black-capped Chickadee | 4               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Black-capped Chickadee | 1               | 50-100                   | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Blue Jay               | 1               | 100+                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Downy Woodpecker       | 1               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Golden-crowned Kinglet | 4               | 0-50                     | ...   |
| ...  | ...             | ...                                      | ...   | ...                                   | ...                      | ...            | ...     | ...           | ...      | Ruffed Grouse          | 1               | 0-50                     | ...   |

Table G10: Project Site Fall Migration Surveys, Results Summary, Ellershouse Wind Farm

Project # 12-4583

| Common Name                  | Scientific Name               | SARA Status | NSESA Status | COSEWIC Status  | NSDNR Status | Number of Times Observed | Number of Individuals Observed |
|------------------------------|-------------------------------|-------------|--------------|-----------------|--------------|--------------------------|--------------------------------|
| American Crow                | <i>Corvus brachyrhynchos</i>  | Not Listed  | Not Listed   | Not Listed      | Green        | 1                        | 6                              |
| American Goldfinch           | <i>Spinus tristis</i>         | Not Listed  | Not Listed   | Not Listed      | Green        | 8                        | 16                             |
| American Redstart            | <i>Setophaga ruticilla</i>    | Not Listed  | Not Listed   | Not Listed      | Green        | 1                        | 1                              |
| American Robin               | <i>Turdus migratorius</i>     | Not Listed  | Not Listed   | Not Listed      | Green        | 6                        | 8                              |
| American Woodcock            | <i>Scolopax minor</i>         | Not Listed  | Not Listed   | Not Listed      | Green        | 1                        | 1                              |
| Bay-breasted Warbler         | <i>Dendroica castanea</i>     | Not Listed  | Not Listed   | Not Listed      | Yellow       | 1                        | 1                              |
| Black-and-white Warbler      | <i>Mniotilta varia</i>        | Not Listed  | Not Listed   | Not Listed      | Green        | 7                        | 8                              |
| Black-capped Chickadee       | <i>Poecile atricapillus</i>   | Not Listed  | Not Listed   | Not Listed      | Green        | 32                       | 103                            |
| Black-throated Blue Warbler  | <i>Dendroica caerulescens</i> | Not Listed  | Not Listed   | Not Listed      | Green        | 1                        | 1                              |
| Black-throated Green Warbler | <i>Dendroica virens</i>       | Not Listed  | Not Listed   | Not Listed      | Green        | 12                       | 20                             |
| Blue Jay                     | <i>Cyanocitta cristata</i>    | Not Listed  | Not Listed   | Not Listed      | Green        | 22                       | 33                             |
| Blue-headed Vireo            | <i>Vireo solitarius</i>       | Not Listed  | Not Listed   | Not Listed      | Green        | 5                        | 8                              |
| Boreal Chickadee             | <i>Poecile hudsonicus</i>     | Not Listed  | Not Listed   | Not Listed      | Yellow       | 1                        | 5                              |
| Broad-winged Hawk            | <i>Buteo platypterus</i>      | Not Listed  | Not Listed   | Not Listed      | Green        | 2                        | 2                              |
| Brown Creeper                | <i>Certhia americana</i>      | Not Listed  | Not Listed   | Not Listed      | Green        | 1                        | 1                              |
| Canada Goose                 | <i>Branta canadensis</i>      | Not Listed  | Not Listed   | Not Listed      | Green        | 1                        | 1                              |
| Cedar Waxwing                | <i>Bombycilla cedrorum</i>    | Not Listed  | Not Listed   | Not Listed      | Green        | 1                        | 2                              |
| Chestnut-sided Warbler       | <i>Dendroica pensylvanica</i> | Not Listed  | Not Listed   | Not Listed      | Green        | 1                        | 1                              |
| Common Raven                 | <i>Corvus corax</i>           | Not Listed  | Not Listed   | Not Listed      | Green        | 13                       | 18                             |
| Common Yellowthroat          | <i>Geothlypis trichas</i>     | Not Listed  | Not Listed   | Not Listed      | Green        | 5                        | 7                              |
| Dark-eyed Junco              | <i>Junco hyemalis</i>         | Not Listed  | Not Listed   | Not Listed      | Green        | 10                       | 14                             |
| Downy Woodpecker             | <i>Picoides pubescens</i>     | Not Listed  | Not Listed   | Not Listed      | Green        | 4                        | 4                              |
| Eastern Wood-pewee           | <i>Contopus virens</i>        | Not Listed  | Vulnerable   | Special Concern | Yellow       | 1                        | 1                              |
| Golden-crowned Kinglet       | <i>Regulus satrapa</i>        | Not Listed  | Not Listed   | Not Listed      | Yellow       | 26                       | 63                             |
| Hairy Woodpecker             | <i>Picoides villosus</i>      | Not Listed  | Not Listed   | Not Listed      | Green        | 5                        | 6                              |
| Hermit Thrush                | <i>Catharus guttatus</i>      | Not Listed  | Not Listed   | Not Listed      | Green        | 6                        | 6                              |
| Least Flycatcher             | <i>Empidonax minimus</i>      | Not Listed  | Not Listed   | Not Listed      | Green        | 1                        | 1                              |
| Magnolia Warbler             | <i>Dendroica magnolia</i>     | Not Listed  | Not Listed   | Not Listed      | Green        | 7                        | 10                             |
| Nashville Warbler            | <i>Vermivora ruficapilla</i>  | Not Listed  | Not Listed   | Not Listed      | Green        | 3                        | 3                              |
| Northern Flicker             | <i>Colaptes auratus</i>       | Not Listed  | Not Listed   | Not Listed      | Green        | 3                        | 3                              |

Table G10: Project Site Fall Migration Surveys, Results Summary, Ellershouse Wind Farm

Project # 12-4583

| Common Name            | Scientific Name               | SARA Status | NSESA Status | COSEWIC Status | NSDNR Status | Number of Times Observed | Number of Individuals Observed |
|------------------------|-------------------------------|-------------|--------------|----------------|--------------|--------------------------|--------------------------------|
| Northern Parula        | <i>Parula americana</i>       | Not Listed  | Not Listed   | Not Listed     | Green        | 9                        | 12                             |
| Ovenbird               | <i>Seiurus aurocapilla</i>    | Not Listed  | Not Listed   | Not Listed     | Green        | 1                        | 1                              |
| Palm Warbler           | <i>Dendroica palmarum</i>     | Not Listed  | Not Listed   | Not Listed     | Green        | 4                        | 6                              |
| Pileated Woodpecker    | <i>Dryocopus pileatus</i>     | Not Listed  | Not Listed   | Not Listed     | Green        | 3                        | 3                              |
| Purple Finch           | <i>Carpodacus purpureus</i>   | Not Listed  | Not Listed   | Not Listed     | Green        | 9                        | 11                             |
| Red-breasted Nuthatch  | <i>Sitta canadensis</i>       | Not Listed  | Not Listed   | Not Listed     | Green        | 5                        | 6                              |
| Red-eyed Vireo         | <i>Vireo olivaceus</i>        | Not Listed  | Not Listed   | Not Listed     | Green        | 6                        | 9                              |
| Red-tailed Hawk        | <i>Buteo jamaicensis</i>      | Not Listed  | Not Listed   | Not at Risk    | Green        | 1                        | 1                              |
| Ruby-crowned Kinglet   | <i>Regulus calendula</i>      | Not Listed  | Not Listed   | Not Listed     | Yellow       | 3                        | 3                              |
| Ruffed Grouse          | <i>Bonasa umbellus</i>        | Not Listed  | Not Listed   | Not Listed     | Green        | 4                        | 4                              |
| White-throated Sparrow | <i>Zonotrichia albicollis</i> | Not Listed  | Not Listed   | Not Listed     | Green        | 4                        | 8                              |
| Wilson's Warbler       | <i>Wilsonia pusilla</i>       | Not Listed  | Not Listed   | Not Listed     | Yellow       | 1                        | 1                              |
| Yellow-rumped Warbler  | <i>Dendroica coronata</i>     | Not Listed  | Not Listed   | Not Listed     | Green        | 5                        | 5                              |

Table G11: Project Site Fall Passage Migration Surveys Detailed Results, Ellershouse Wind Farm

Project # 12-4583

| Date      | Location | Coordinates<br>(UTM NAD83) | Habitat                                  | Conditions                  |                |       |               | Start Time | End Time | Common Name       | Number<br>Observed | Notes  |
|-----------|----------|----------------------------|--|-----------------------------|----------------|-------|---------------|------------|----------|-------------------|--------------------|--|
|           |          |                            |  | Wind Speed and<br>Direction | Temperature °C | Sky   | Precipitation |            |          |                   |                    |  |
| 17-Sep-13 | STHAWK1  | 419456 E; 4974326 N        | Edge of cutover along south facing slope | 20 km/h NW                  | 10             | Clear | None          | 10:55 AM   | 1:00 PM  | Broad-winged Hawk | 1                  | Flying to W at an<br>approximate height of<br>50 m |

**Table G12: Control Site Fall Migration Surveys, Detailed Results, Ellershouse Wind Farm**

**Project # 12-4583**

| Date      | Transect Number | Habitat                | Conditions               |                |       |               | Time     | Common Name            | Number Observed | Distance to Observer (m) |
|-----------|-----------------|------------------------|--------------------------|----------------|-------|---------------|----------|------------------------|-----------------|--------------------------|
|           |                 |                        | Wind Speed and Direction | Temperature °C | Sky   | Precipitation |          |                        |                 |                          |
| 25-Oct-13 | STC1            | Along Ellershouse Road | Calm                     | 5              | Clear | None          | 10:45 AM | American Crow          | 2               | 100+                     |
| ...       | ...             | ...                    | ...                      | ...            | ...   | ...           | ...      | Black-capped Chickadee | 3               | 0-50                     |

Table G13: Project Site Winter Surveys, Detailed Results, Ellershouse Wind Farm

| Date      | Transect Number | Transect Startpoint Coordinates (NAD 83) | Transect Enpoint Coordinates (NAD 83) | Habitat   | Conditions               |                |          |               | Time    | Common Name            | Number Observed | Distance to Observer (m) | Flyover Direction  |
|-----------|-----------------|--|---------------------------------------|---|--------------------------|----------------|----------|---------------|---------|------------------------|-----------------|--------------------------|--------------------|
|           |                 |  |                                       |   | Wind Speed and Direction | Temperature °C | Sky      | Precipitation |         |                        |                 |                          |                    |
| 07-Dec-13 | ST1             | 418901 E;<br>4976197 N                   | 419036 E;<br>4975933 N                | Young hardwoods transitioning to mid-aged hardwoods along woods road  | <10 km/h NE              | -3             | Overcast | None          | 7:32 AM | American Crow          | 2               | 100+                     | ...                |
| ...       | ST2             | 419036 E;<br>4975933 N                   | 419302 E;<br>4975769 N                | Mid-aged to mature hardwoods along woods road   | <10 km/h NE              | -3             | Overcast | None          | 7:40 AM | Black-capped Chickadee | 2               | 0-50                     | ...                |
| ...       | ...             | ...                                      | ...                                   | ...   | ...                      | ...            | ...      | ...           | ...     | Black-capped Chickadee | 2               | 0-50                     | ...                |
| ...       | ...             | ...                                      | ...                                   | ...   | ...                      | ...            | ...      | ...           | ...     | Golden-crowned Kinglet | 1               | 0-50                     | ...                |
| ...       | ST13            | 419302E;<br>4975769 N                    | 419604 E;<br>4975695 N                | Mid-aged to mature hardwoods along woods road   | <10 km/h NE              | -3             | Overcast | None          | 7:46 AM | Common Raven           | 1               | 100+                     | ...                |
| ...       | ...             | ...                                      | ...                                   | ...   | ...                      | ...            | ...      | ...           | ...     | Purple Finch           | 1               | FO                       | S                  |
| ...       | ST3             | 419604 E;<br>4975695 N                   | 419985 E;<br>4975669 N                | Early successional transitioning to mid-aged mixed-woods along road   | <10 km/h NE              | -3             | Overcast | None          | 7:53 AM | Blue Jay               | 6               | ...                      | to north under 50m |
| ...       | ST4             | 419985 E;<br>4975669 N                   | 419919 E;<br>4975267 N                | Mid-aged mixedwoods transitioning to mid-aged hardwoods along road  | <10 km/h NE              | -3             | Overcast | None          | 7:58 AM | Black-capped Chickadee | 3               | 0-50                     | ...                |
| ...       | ...             | ...                                      | ...                                   | ...   | ...                      | ...            | ...      | ...           | ...     | Golden-crowned Kinglet | 1               | 0-50                     | ...                |
| ...       | ST5             | 419919 E;<br>4975267 N                   | 419762 E;<br>4974962 N                | Mid-aged hardwoods along road, transitioning to easrly successional adjacent to cutover                                     | <10 km/h NE              | -3             | Overcast | None          | 8:08 AM | Black-capped Chickadee | 2               | 0-50                     | ...                |
| ...       | ...             | ...                                      | ...                                   | ...   | ...                      | ...            | ...      | ...           | ...     | Golden-crowned Kinglet | 2               | 0-50                     | ...                |
| ...       | ST6             | 419762 E;<br>4974962 N                   | 419558 E;<br>4974947 N                | Early successional along road adjacent to cutover transitioning to young hardwoods  | <10 km/h NE              | -3             | Overcast | None          | 8:19 AM | Black-capped Chickadee | 6               | 0-50                     | ...                |
| ...       | ...             | ...                                      | ...                                   | ...   | ...                      | ...            | ...      | ...           | ...     | Golden-crowned Kinglet | 2               | 0-50                     | ...                |
| ...       | ST14            | 418761 E;<br>4974536 N                   | 419639 E;<br>4974794 N                | Young to mid-aged hardwoods adjacent to cutover   | <10 km/h NE              | -3             | Overcast | None          | 8:42 AM | Golden-crowned Kinglet | 2               | 0-50                     | ...                |
| ...       | ST7             | 419639 E;<br>4974794 N                   | 419454E;<br>4974522 N                 | Mid-aged to mature hardwoods along road   | <10 km/h NE              | -3             | Overcast | None          | 8:48 AM | American Goldfinch     | 1               | 100+                     | ...                |
| ...       | ...             | ...                                      | ...                                   | ...   | ...                      | ...            | ...      | ...           | ...     | Black-capped Chickadee | 6               | 0-50                     | ...                |
| ...       | ...             | ...                                      | ...                                   | ...   | ...                      | ...            | ...      | ...           | ...     | Blue Jay               | 1               | 50-100                   | ...                |
| ...       | ...             | ...                                      | ...                                   | ...   | ...                      | ...            | ...      | ...           | ...     | Golden-crowned Kinglet | 1               | 0-50                     | ...                |
| ...       | ...             | ...                                      | ...                                   | ...   | ...                      | ...            | ...      | ...           | ...     | Red-breasted Nuthatch  | 2               | 50-100                   | ...                |
| ...       | ST9             | 419429 E;<br>4974310 N                   | 419446 E;<br>4973969 N                | Young softwood adjacent to cutover, transitioning to mid-aged mixed-woods along road with small watercourse and alder swamp | <10 km/h NE              | -3             | Overcast | None          | 9:00 AM | Golden-crowned Kinglet | 1               | 0-50                     | ...                |
| ...       | ST16            | 419762 E;<br>4974962 N                   | 420051 E;<br>4974863 N                | Shrub hardwood along road; ends to treed swamp adjacent to cutover  | <10 km/h NE              | -3             | Overcast | None          | 9:25 AM | Golden-crowned Kinglet | 1               | 0-50                     | ...                |
| ...       | ST10            | 420051 E;<br>4974863 N                   | 420359 E;<br>4974996 N                | Alder shrubs with mature hardwoods beyond, transitioning to cutover adjacent to shrub swamp                                 | <10 km/h NE              | -3             | Overcast | None          | 9:28 AM | Black-capped Chickadee | 5               | 0-50                     | ...                |
| ...       | ...             | ...                                      | ...                                   | ...   | ...                      | ...            | ...      | ...           | ...     | Blue Jay               | 1               | 100+                     | ...                |
| ...       | ST11            | 420063 E; 4975684 N                      | 420324 E;<br>4975831 N                | Young hardwoods along road, transitioning to young mixed-woods along road adjacent to pit, with mature hardwoods            | <10 km/h NE              | -3             | Overcast | None          | 9:15 AM | American Goldfinch     | 1               | FO                       | E                  |
| ...       | ST12            | 420435 E;<br>4975781 N                   | 420673 E;<br>4975605 N                | Mixed along road with clearcut  | <10 km/h NE              | -3             | Overcast | None          | 9:52 AM | Black-capped Chickadee | 1               | 0-50                     | ...                |
| ...       | ...             | ...                                      | ...                                   | ...   | ...                      | ...            | ...      | ...           | ...     | Golden-crowned Kinglet | 1               | 0-50                     | ...                |



**Table G14: Project Site Winter Surveys, Results Summary, Ellershouse Wind Farm**

**Project # 12-4583**

| <b>Common Name</b>     | <b>Scientific Name</b>       | <b>SARA Status</b> | <b>NSESA Status</b> | <b>COSEWIC Status</b> | <b>NSDNR Status</b> | <b>Number of Times Observed</b> | <b>Individuals Observed</b> |
|------------------------|------------------------------|--------------------|---------------------|-----------------------|---------------------|---------------------------------|-----------------------------|
| American Crow          | <i>Corvus brachyrhynchos</i> | Not Listed         | Not Listed          | Not Listed            | Green               | 1                               | 2                           |
| American Goldfinch     | <i>Spinus tristis</i>        | Not Listed         | Not Listed          | Not Listed            | Green               | 2                               | 2                           |
| Black-capped Chickadee | <i>Poecile atricapillus</i>  | Not Listed         | Not Listed          | Not Listed            | Green               | 8                               | 27                          |
| Blue Jay               | <i>Cyanocitta cristata</i>   | Not Listed         | Not Listed          | Not Listed            | Green               | 3                               | 8                           |
| Common Raven           | <i>Corvus corax</i>          | Not Listed         | Not Listed          | Not Listed            | Green               | 1                               | 1                           |
| Golden-crowned Kinglet | <i>Regulus satrapa</i>       | Not Listed         | Not Listed          | Not Listed            | Yellow              | 9                               | 12                          |
| Purple Finch           | <i>Carpodacus purpureus</i>  | Not Listed         | Not Listed          | Not Listed            | Green               | 1                               | 1                           |
| Red-breasted Nuthatch  | <i>Sitta canadensis</i>      | Not Listed         | Not Listed          | Not Listed            | Green               | 1                               | 2                           |

**Table G15: Control Site Winter Surveys, Detailed Results, Ellershouse Wind Farm**

**Project # 12-4583**

| Date      | Transect Number | Habitat                | Conditions               |                |          |               | Time  | Common Name            | Number Observed | Distance to Observer (m) |
|-----------|-----------------|------------------------|--------------------------|----------------|----------|---------------|-------|------------------------|-----------------|--------------------------|
|           |                 |                        | Wind Speed and Direction | Temperature °C | Sky      | Precipitation |       |                        |                 |                          |
| 07-Dec-13 | STC1            | Along Ellershouse Road | <10 km/h NE              | -3             | Overcast | None          | 10:13 | American Goldfinch     | 2               | 50-100                   |
| ...       | ...             | ...                    | ...                      | ...            | ...      | ...           | ...   | Blue Jay               | 1               | 50-100                   |
| ...       | ...             | ...                    | ...                      | ...            | ...      | ...           | ...   | Golden-crowned Kinglet | 1               | 0-50                     |
| ...       | ...             | ...                    | ...                      | ...            | ...      | ...           | ...   | Purple Finch           | 1               | 50-100                   |

## APPENDIX H

### SHADOW FLICKER MODELING RESULTS

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| Receptor ID | Easting (m) | Northing (m) | Predicted Shadow Hours/Year | Predicted Shadow Hours on Worst Day of Year |
|-------------|-------------|--------------|-----------------------------|---|
| R1          | 420545      | 4977343      | 0:00                        | 0:00  |
| R2          | 420326      | 4977411      | 0:00                        | 0:00  |
| R3          | 420939      | 4977369      | 0:00                        | 0:00  |
| R4          | 417897      | 4977695      | 0:00                        | 0:00  |
| R5          | 420380      | 4977102      | 0:00                        | 0:00  |
| R6          | 418854      | 4977641      | 0:00                        | 0:00  |
| R7          | 421241      | 4976854      | 13:21                       | 0:17  |
| R8          | 420728      | 4977511      | 0:00                        | 0:00  |
| R9          | 420067      | 4977514      | 0:00                        | 0:00  |
| R10         | 420327      | 4977127      | 0:00                        | 0:00  |
| R11         | 420359      | 4977427      | 0:00                        | 0:00  |
| R12         | 420523      | 4977364      | 0:00                        | 0:00  |
| R13         | 420460      | 4977354      | 0:00                        | 0:00  |
| R14         | 420807      | 4977526      | 0:00                        | 0:00  |
| R15         | 419724      | 4977674      | 0:00                        | 0:00  |
| R16         | 420867      | 4977655      | 0:00                        | 0:00  |
| R17         | 419626      | 4977807      | 0:00                        | 0:00  |
| R18         | 421118      | 4977148      | 0:00                        | 0:00  |
| R19         | 417991      | 4975407      | 9:18                        | 0:16  |
| R20         | 421204      | 4976998      | 0:19                        | 0:04  |
| R21         | 421312      | 4976707      | 6:25                        | 0:17  |
| R22         | 420861      | 4977457      | 0:00                        | 0:00  |
| R23         | 420580      | 4977347      | 0:00                        | 0:00  |
| R24         | 420392      | 4977189      | 0:00                        | 0:00  |
| R25         | 420648      | 4977503      | 0:00                        | 0:00  |
| R26         | 419640      | 4977768      | 0:00                        | 0:00  |
| R27         | 420386      | 4977443      | 0:00                        | 0:00  |
| R28         | 421284      | 4976783      | 7:42                        | 0:17  |
| R29         | 420568      | 4977279      | 0:00                        | 0:00  |
| R30         | 417908      | 4977694      | 0:00                        | 0:00  |
| R31         | 418650      | 4977616      | 0:00                        | 0:00  |
| R32         | 420935      | 4977648      | 0:00                        | 0:00  |
| R33         | 418827      | 4977616      | 0:00                        | 0:00  |
| R34         | 420405      | 4977432      | 0:00                        | 0:00  |
| R35         | 420195      | 4977455      | 0:00                        | 0:00  |
| R36         | 420479      | 4977407      | 0:00                        | 0:00  |
| R37         | 421225      | 4977045      | 0:00                        | 0:00  |
| R38         | 420516      | 4977224      | 0:00                        | 0:00  |
| R39         | 419930      | 4977441      | 0:00                        | 0:00  |
| R40         | 420246      | 4977472      | 0:00                        | 0:00  |
| R41         | 420438      | 4977443      | 0:00                        | 0:00  |
| R42         | 419635      | 4977671      | 0:00                        | 0:00  |
| R43         | 420817      | 4977499      | 0:00                        | 0:00  |
| R44         | 421200      | 4976903      | 10:02                       | 0:17  |
| R45         | 418918      | 4977812      | 0:00                        | 0:00  |
| R46         | 420812      | 4977541      | 0:00                        | 0:00  |
| R47         | 420450      | 4977266      | 0:00                        | 0:00  |
| R48         | 421087      | 4977193      | 0:00                        | 0:00  |
| R49         | 420922      | 4977752      | 0:00                        | 0:00  |
| R50         | 420710      | 4977428      | 0:00                        | 0:00  |
| R51         | 420245      | 4977521      | 0:00                        | 0:00  |
| R52         | 419049      | 4977992      | 0:00                        | 0:00  |
| R53         | 420476      | 4977427      | 0:00                        | 0:00  |
| R54         | 420483      | 4977200      | 0:00                        | 0:00  |
| R55         | 419715      | 4977651      | 0:00                        | 0:00  |
| R56         | 420431      | 4977136      | 0:00                        | 0:00  |
| R57         | 420534      | 4977462      | 0:00                        | 0:00  |

| Receptor ID | Easting (m) | Northing (m) | Predicted Shadow Hours/Year | Predicted Shadow Hours on Worst Day of Year |
|-------------|-------------|--------------|-----------------------------|---|
| R58         | 420327      | 4977498      | 0:00                        | 0:00  |
| R59         | 421321      | 4976635      | 6:01                        | 0:17  |
| R60         | 421216      | 4977088      | 0:00                        | 0:00  |
| R61         | 421193      | 4977109      | 0:00                        | 0:00  |
| R62         | 420458      | 4977427      | 0:00                        | 0:00  |
| R63         | 420543      | 4977141      | 0:00                        | 0:00  |
| R64         | 420522      | 4977121      | 0:00                        | 0:00  |
| R65         | 421180      | 4976864      | 11:42                       | 0:18  |
| R66         | 420486      | 4977451      | 0:00                        | 0:00  |
| R67         | 420600      | 4977380      | 0:00                        | 0:00  |
| R68         | 420145      | 4977555      | 0:00                        | 0:00  |
| R69         | 420539      | 4977222      | 0:00                        | 0:00  |
| R70         | 417991      | 4975385      | 4:11                        | 0:16  |
| R71         | 420482      | 4977348      | 0:00                        | 0:00  |
| R72         | 420737      | 4977465      | 0:00                        | 0:00  |
| R73         | 420319      | 4977458      | 0:00                        | 0:00  |
| R74         | 420929      | 4977707      | 0:00                        | 0:00  |
| R75         | 420562      | 4977325      | 0:00                        | 0:00  |
| R76         | 421255      | 4976868      | 13:03                       | 0:17  |
| R77         | 420353      | 4977183      | 0:00                        | 0:00  |
| R78         | 420665      | 4977095      | 0:00                        | 0:00  |
| R79         | 420434      | 4977408      | 0:00                        | 0:00  |
| R80         | 421113      | 4976899      | 3:44                        | 0:12  |
| R81         | 420319      | 4977276      | 0:00                        | 0:00  |
| R82         | 420397      | 4977129      | 0:00                        | 0:00  |
| R83         | 421163      | 4977125      | 0:00                        | 0:00  |
| R84         | 420392      | 4977493      | 0:00                        | 0:00  |
| R85         | 420554      | 4977472      | 0:00                        | 0:00  |
| R86         | 421174      | 4977105      | 0:00                        | 0:00  |
| R87         | 421391      | 4976481      | 5:03                        | 0:17  |
| R88         | 421416      | 4976616      | 4:53                        | 0:16  |
| R89         | 420724      | 4977456      | 0:00                        | 0:00  |
| R90         | 418981      | 4977976      | 0:00                        | 0:00  |
| R91         | 421199      | 4976960      | 4:33                        | 0:13  |
| R92         | 421236      | 4977048      | 0:00                        | 0:00  |
| R93         | 419642      | 4977829      | 0:00                        | 0:00  |
| R94         | 420392      | 4977479      | 0:00                        | 0:00  |
| R95         | 418936      | 4977775      | 0:00                        | 0:00  |
| R96         | 420800      | 4977377      | 0:00                        | 0:00  |
| R97         | 420799      | 4977515      | 0:00                        | 0:00  |
| R98         | 420840      | 4977676      | 0:00                        | 0:00  |
| R99         | 421247      | 4976980      | 6:15                        | 0:14  |
| R100        | 420685      | 4977118      | 0:00                        | 0:00  |
| R101        | 421225      | 4976812      | 13:05                       | 0:17  |
| R102        | 420446      | 4977142      | 0:00                        | 0:00  |
| R103        | 420447      | 4977173      | 0:00                        | 0:00  |
| R104        | 419714      | 4977685      | 0:00                        | 0:00  |
| R105        | 418814      | 4977606      | 0:00                        | 0:00  |
| R106        | 420705      | 4977438      | 0:00                        | 0:00  |
| R107        | 420192      | 4977650      | 0:00                        | 0:00  |
| R108        | 420335      | 4977252      | 0:00                        | 0:00  |
| R109        | 420840      | 4977404      | 0:00                        | 0:00  |
| R110        | 419923      | 4977516      | 0:00                        | 0:00  |
| R111        | 421244      | 4976904      | 12:08                       | 0:17  |
| R112        | 420533      | 4977407      | 0:00                        | 0:00  |
| R113        | 418980      | 4977958      | 0:00                        | 0:00  |
| R114        | 419641      | 4977817      | 0:00                        | 0:00  |

| Receptor ID | Easting (m) | Northing (m) | Predicted Shadow Hours/Year | Predicted Shadow Hours on Worst Day of Year |
|-------------|-------------|--------------|-----------------------------|---|
| R115        | 420352      | 4977491      | 0:00                        | 0:00  |
| R116        | 421290      | 4976748      | 7:17                        | 0:17  |
| R117        | 420415      | 4977498      | 0:00                        | 0:00  |
| R118        | 421069      | 4977184      | 0:00                        | 0:00  |
| R119        | 420957      | 4977655      | 0:00                        | 0:00  |
| R120        | 420495      | 4977344      | 0:00                        | 0:00  |
| R121        | 420256      | 4977655      | 0:00                        | 0:00  |
| R122        | 420901      | 4977618      | 0:00                        | 0:00  |
| R123        | 420678      | 4977473      | 0:00                        | 0:00  |
| R124        | 420644      | 4977425      | 0:00                        | 0:00  |
| R125        | 421254      | 4976930      | 10:56                       | 0:16  |
| R126        | 419903      | 4977546      | 0:00                        | 0:00  |
| R127        | 419765      | 4977548      | 0:00                        | 0:00  |
| R128        | 420359      | 4977278      | 0:00                        | 0:00  |
| R129        | 420419      | 4977417      | 0:00                        | 0:00  |
| R130        | 420226      | 4977460      | 0:00                        | 0:00  |
| R131        | 420420      | 4977388      | 0:00                        | 0:00  |
| R132        | 419687      | 4977685      | 0:00                        | 0:00  |
| R133        | 420522      | 4977298      | 0:00                        | 0:00  |
| R134        | 420344      | 4977451      | 0:00                        | 0:00  |
| R135        | 420754      | 4977480      | 0:00                        | 0:00  |
| R136        | 419630      | 4977687      | 0:00                        | 0:00  |
| R137        | 420990      | 4977744      | 0:00                        | 0:00  |
| R138        | 420634      | 4977359      | 0:00                        | 0:00  |
| R139        | 420498      | 4977386      | 0:00                        | 0:00  |
| R140        | 420399      | 4977439      | 0:00                        | 0:00  |
| R141        | 420785      | 4977558      | 0:00                        | 0:00  |
| R142        | 421276      | 4976801      | 8:21                        | 0:17  |
| R143        | 420927      | 4977624      | 0:00                        | 0:00  |
| R144        | 420341      | 4977296      | 0:00                        | 0:00  |
| R145        | 420940      | 4977349      | 0:00                        | 0:00  |
| R146        | 421380      | 4976500      | 5:07                        | 0:17  |
| R147        | 421317      | 4976579      | 5:52                        | 0:17  |
| R148        | 420453      | 4977336      | 0:00                        | 0:00  |
| R149        | 420720      | 4977492      | 0:00                        | 0:00  |
| R150        | 421132      | 4977146      | 0:00                        | 0:00  |
| R151        | 421127      | 4976911      | 3:50                        | 0:12  |
| R152        | 417888      | 4977696      | 0:00                        | 0:00  |
| R153        | 420427      | 4977468      | 0:00                        | 0:00  |
| R154        | 420406      | 4977419      | 0:00                        | 0:00  |
| R155        | 420406      | 4977375      | 0:00                        | 0:00  |
| R156        | 420458      | 4977385      | 0:00                        | 0:00  |
| R157        | 420407      | 4977122      | 0:00                        | 0:00  |
| R158        | 420605      | 4977317      | 0:00                        | 0:00  |
| R159        | 420684      | 4977385      | 0:00                        | 0:00  |
| R160        | 420747      | 4977519      | 0:00                        | 0:00  |
| R161        | 421255      | 4976899      | 12:30                       | 0:16  |
| R162        | 420771      | 4977496      | 0:00                        | 0:00  |
| R163        | 420242      | 4977539      | 0:00                        | 0:00  |
| R164        | 420631      | 4977411      | 0:00                        | 0:00  |
| R165        | 420621      | 4977326      | 0:00                        | 0:00  |
| R166        | 420222      | 4976814      | 0:00                        | 0:00  |
| R167        | 420207      | 4976812      | 0:00                        | 0:00  |
| R168        | 420322      | 4977250      | 0:00                        | 0:00  |
| R169        | 420329      | 4977233      | 0:00                        | 0:00  |
| R170        | 420476      | 4977192      | 0:00                        | 0:00  |
| R171        | 420432      | 4977527      | 0:00                        | 0:00  |

| Receptor ID | Easting (m) | Northing (m) | Predicted Shadow Hours/Year | Predicted Shadow Hours on Worst Day of Year |
|-------------|-------------|--------------|-----------------------------|---|
| R172        | 420916      | 4977697      | 0:00                        | 0:00  |
| R173        | 420252      | 4977695      | 0:00                        | 0:00  |
| R174        | 420214      | 4977655      | 0:00                        | 0:00  |
| R175        | 421235      | 4976963      | 7:07                        | 0:15  |
| R176        | 421274      | 4976763      | 7:45                        | 0:17  |
| R177        | 421239      | 4976781      | 9:21                        | 0:17  |
| R178        | 421417      | 4976639      | 4:58                        | 0:16  |
| R179        | 418668      | 4977603      | 0:00                        | 0:00  |
| R180        | 419640      | 4977874      | 0:00                        | 0:00  |
| R181        | 419626      | 4977846      | 0:00                        | 0:00  |
| R182        | 419632      | 4977766      | 0:00                        | 0:00  |
| R183        | 419673      | 4977570      | 0:00                        | 0:00  |
| R184        | 419612      | 4977606      | 0:00                        | 0:00  |
| R185        | 419560      | 4977520      | 0:00                        | 0:00  |
| R186        | 419500      | 4977445      | 0:00                        | 0:00  |
| R187        | 420486      | 4977326      | 0:00                        | 0:00  |
| R188        | 420732      | 4977555      | 0:00                        | 0:00  |
| R189        | 420691      | 4977546      | 0:00                        | 0:00  |

APPENDIX I  
ELECTROMAGNETIC INTERFERENCE STUDY  
CORRESPONDENCE

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## LAND USE PROPOSAL SUBMISSION FORM

|                             |                     |                     |
|-----------------------------|---------------------|---------------------|
| Date Received by NAV CANADA | NC file N° / Ref N° | TC File N° / Ref N° |
|-----------------------------|---------------------|---------------------|

### GENERAL INFORMATION:

|  |                   |                                       |  |          |                      |
|--|-------------------|---------------------------------------|--|----------|----------------------|
| Company/Owner Name: <b>Minas Basin Pulp and Power</b>              |                   |                                       | Contact Person: Chris Peters           |          |                      |
| Address: 53 Prince Street, PO Box 401                              |                   |                                       | City: Hantsport                        | Prov: NS | Postal Code: M0P1P0  |
| Tel: 9026842400  | Fax:              | Email: <u>chris.peters@minasenerg</u> | 24 Hour Emergency Number:              |          |                      |
| Applicant: Strum Consulting  |                   |                                       | Contact Person: Nic Strum              |          |                      |
| Address: 1355 Bedford Highway                                      |                   |                                       | City: Bedford                          | Prov: NS | Postal Code: B4A 1C5 |
| Tel: 902-835-5560  | Fax: 902-835-5574 | Email: <u>nstrum@strum.com</u>        | 24 Hour Emergency Number: 902-233-6569 |          |                      |
| Airport Authority : N/A<br>(If within 6 km of a lighted aerodrome) |                   |                                       | Airport Manager:                       |          |                      |
| Address:   |                   |                                       | City:                                  |          | Prov:                |
| Postal Code:   | Tel:              | Fax:                                  | Email:                                 |          |                      |

### DETAILS OF PROPOSAL:

- Please provide the data in the highest resolution as it was obtained.
- For geographic coordinates, provide up to four (4) decimal places of a second.
- For ground elevation and tower height, provide up to four (4) decimal places of a meter or foot.

|  |  |  |  |         |         |
|--|--|--|--|---------|---------|
| Project #, Street Address, etc.: NAVCAN #13-0280   |  |  | Nearest Town, Province: **   |         |         |
| Geographic Coordinates of Site in NAD 83:  |  |  | Degrees  | Minutes | Seconds |
| Linear Structures:   |  |  | Degrees  | Minutes | Seconds |
| Indicate Starting Point on 1 <sup>st</sup> line and End Point 2 <sup>nd</sup> line:  |  |  | Lat. N   | /       | /       |
| Type of Structure: Wind Turbine  |  |  | New Structure? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |         |         |
| Generator x 7  |  |  | Height Added (If Existing)   |         |         |
| Cranes to be used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>If Yes, see Note 4 on page 3</i> |  |  | Ground Elevation (Above Sea Level)   |         |         |
| Dimensions: SEE ATTACHED PDF   |  |  | Structure Height (Above Ground Level)  |         |         |
| Materials & Roof Shape (If Building): -  |  |  | Total Height (Above Sea Level)   |         |         |
| Proposed Construction Start Date: Q4 2014  |  |  | Approximate Duration of Construction:  |         |         |
| If Temporary Structure, indicate Removal Date:   |  |  | From: hrs  |         | To: hrs |

Comments: This submission represents the revision of a previously submitted 3 wind turbine proposal (NAV CAN # 13-0280)

Coordinates and height related data has been supplied on the NavCanada Windfarm Template attached to this email..

### ELECTRONIC / TELECOMMUNICATION INTERFERENCE (Check off the items which may cause interference and provide details)

|                            |  |
|----------------------------|--|
| High Voltage Equipment     | <input checked="" type="checkbox"/> Details Wind farm operating at high voltage          |
| Arc Welding                | <input checked="" type="checkbox"/> Details Possible Welding on Site during construction |
| Radar Emission             | <input type="checkbox"/> Details   |
| High Powered Transmissions | <input type="checkbox"/> Details   |
| VHF Radio                  | <input type="checkbox"/> Details   |
| Other                      | <input type="checkbox"/> Details   |

**OBSTRUCTION TO VISION ON AIRPORT WITH NAV CANADA SERVICES/CONTROL TOWER, FSS, CARS:****Check the items which may cause obstructions to vision to the installation:**Line of Sight ☐ DetailsGeneration of Smoke/Vapour ☐ DetailsReflectivity ☐ DetailsAircraft Parking ☐ DetailsExterior Lighting ☐ Details**MAPS/DRAWINGS (Required for Supporting Documentation )****Proposals for structures not adjacent to an airport OR on airport without NAV CANADA Services**

- 1:50,000 topographical map section with the location of the proposed structure clearly marked. The map must contain a legend indicating the map datum (NAD27 or 83) and the contour interval.
- Legal survey (if available)

**Proposals adjacent within 2 km from an airport with FSS, Control Tower, Localizer or ILS navigational aids**

- 1:50,000 topographical map section with the location of the proposed structure clearly marked. The map must contain a legend indicating the map datum (NAD27 or 83) and the contour interval.
- For localizer/ILS runways, site plan at 1:2000 scale, with distance bar, showing 90° distances to nearest runway centre line/centre line extension, and distance to nearest runway threshold. Note: reference TP1247 to determine requirement when along an extended centerline of a localizer/ILS runway up to 6km.
- For buildings, architectural drawings in both plan view (with north arrow indicator) detailing orientation of building and dimensions; and profile view detailing maximum height of building (including rooftop structures) and elevation at grade level.

**Proposals on an airport with FSS or Control Tower Services, Weather Services, Localizer or ILS navigational aids**

- 1:50,000 topographical map section with the location of the proposed structure clearly marked. The map must contain a legend indicating the map datum (NAD27 or 83) and the contour interval.
- Airport plan at 1:500 scale, with distance bar, showing orientation of structures including vehicle and aircraft entry/exit points.
- For sites with localizer/ILS runways site plan at 1:2000 scale, with distance bar, showing 90° distances to nearest runway centre line/centre line extension, taxiway, and distance to nearest runway threshold. Note: will require drawings for structures up to 6km along the extended centreline of the localizer/ILS runway.
- Site plan depicting entire airport and location of proposed structures and excavations/trenching include depth.
- Site plans at 1:2000 scale, with distance bar, showing line of sight to the mandatory viewing areas (runways and taxiways) identifying existing structures along the sightline in both cross section (profile) view and plan view format. Refer to NAV CANADA sightline requirements for criteria of mandatory viewing areas.
- For buildings, architectural drawings in both plan view (with north arrow indicator) detailing orientation of building and dimensions; and profile view detailing maximum height of building (including rooftop structures) and elevation at grade level.

**Applicant/Representative Signature****Print Name****Date**

Nic Strum

13/09/13

For a detailed description on NAV CANADA's requirements and additional information, refer to the NAV CANADA website at [www.navcanada.ca](http://www.navcanada.ca) >Land Use Proposal

NAV CANADA's evaluation of land use proposals and construction proposals neither constitutes nor replaces any approvals or permits required by Transport Canada, other Federal Government Departments, Provincial or Municipal land use authorities, or any agency from which any approval is required.

Please Submit by email to [landuse@navcanada.ca](mailto:landuse@navcanada.ca)

## NOTES

1. **Processing Times.** NAV CANADA will endeavour to provide a response within 30 working days (6 weeks) of receipt of the proposal. The accuracy and completeness of the initial documentation provided to NAV CANADA, and consequently the cooperation of the proponent to quickly rectify any deficiencies/inaccuracies will go far to expedite the process and ensure a timely response. Electronic submissions will also decrease the time required to properly assess a submission.

2. **Obstruction Marking and Lighting.** Transport Canada is required to perform an assessment on the requirement for obstruction marking and lighting of man-made structures per CAR 621.19 (Canadian Aviation Regulations). Obstructions are assessed by Transport Canada through the Aeronautical Obstruction Clearance Form Process. Note: outages in obstruction lighting deemed a requirement by Transport Canada are to be reported to Transport Canada as per CAR 621.19.

3. **Geodetic Datum.** The Land Use Proposal Submission Form must contain geographic coordinates in NAD83. NAD 27 or UTM coordinates must be converted into the required format; the following are Natural Resources Canada online transformation links (Note, may be changed without notice:

NAD 27/83 conversions: [http://www.geod.nrcan.gc.ca/apps/ntv2/ntv2\\_geo\\_e.php](http://www.geod.nrcan.gc.ca/apps/ntv2/ntv2_geo_e.php)

Geographic/UTM conversions: [http://www.geod.nrcan.gc.ca/apps/gsrug/index\\_e.php](http://www.geod.nrcan.gc.ca/apps/gsrug/index_e.php)

4. **Cranes.** A separate land use submission for any crane(s) (temporary and mobile) used in the construction/assembly of a new building, placement of roof top structures, flare stack, etc., where the maximum operating height will be higher than the overall height of the proposed structure must be assessed for potential impacts at least 30 working days in advance. We ask that crane application(s) be cross reference to the associated construction project and to provide detailed crane specifications such as maximum height, boom length and swing radius. A drawing detailing the crane specifications and type would be beneficial, please reference the NAV CANADA Land Use Proposal web page for more details).

5. **Blasting Operations.** The following additional information will be required for blasting activities for a land use assessment and possible NOTAM / publication action:

- Blast Area: coordinates (latitude & longitude in NAD83). Specify corner coordinates or centre coordinates with the blasting radius.
- Blasting times: specify period during the day (e.g. daylight hours or 0800 – 1600 local time).
- Duration of operation: estimated amount of time (months/years) expected to operate at specified location.
- Highest ground elevation (above sea level) within blasting zone.
- Maximum height of fly rock (above ground level).
- Shock wave height (above ground level).
- Indicate use of blast mats (if applicable).
- Topographical map (1:50 000 scale) depicting the blasting area.

6. **Contact us:**

NAV CANADA  
Aeronautical Information Services  
Data Collection Unit / Land Use Office  
1601 Tom Roberts  
P.O. Box 9824, Station T  
Ottawa, ON  
K1G 6R2

Website: [www.navcanada.ca](http://www.navcanada.ca) >Land Use Proposal

Toll Free: (866) 577-0247

Fax: (613) 248-4094

E-mail : [landuse@navcanada.ca](mailto:landuse@navcanada.ca) **\*\*Preferred method for submission**



Nic Strum &lt;nstrum@strum.com&gt;

---

## Proposed St Croix NS Wind Farm Assessment

---

**XNCR, Windfarm Coordinator** <Windfarm.Coordinator@dfo-mpo.gc.ca>

Thu, Sep 19, 2013 at 10:38 AM

To: Nic Strum &lt;nstrum@strum.com&gt;

Cc: "Mojica, Jose Fernando" &lt;Jose-Fernando.Mojica@dfo-mpo.gc.ca&gt;, "Montor, Tom" &lt;Tom.Montor@dfo-mpo.gc.ca&gt;

Hello,

The proposed wind farm (St Croix) is located 43 km away from the Shannon Hill radar site and 48 km away from the Georges Island radar site.

Even though it is located within the 60 km consultation zone, it is located beyond the areas covered by the radars. Therefore no interference issues are anticipated.

Regards,

**Martin Grégoire, P. Eng**

Canadian Coast Guard

---

**From:** Mojica, Jose Fernando  
**Sent:** September 18, 2013 4:39 PM  
**To:** Nic Strum; XNCR, Windfarm Coordinator  
**Cc:** Montor, Tom  
**Subject:** Proposed St Croix NS Wind Farm Assessment

Please note I am no longer the person responsible for this file.

**José Fernando Mojica**

Director, Marine and Civil Infrastructure and Environmental Response/Directeur, Infrastructure maritimes et civiles  
et intervention environnementale  
Integrated Technical Services / Services techniques intégrés  
Canadian Coast Guard /Garde côtière canadienne

200 Kent St., Mail Station 7W092,  
Ottawa, Ontario K1A 0E6  
(613) 998-1777  
[jose-fernando.mojica@dfo-mpo.gc.ca](mailto:jose-fernando.mojica@dfo-mpo.gc.ca)

**From:** Nic Strum [<mailto:nstrum@strum.com>]  
**Sent:** September-17-13 3:25 PM  
**To:** Mojica, Jose Fernando; XNCR, Windfarm Coordinator  
**Subject:** Proposed St Croix NS Wind Farm Assessment

To whom it may concern,

Strum Consulting Ltd is conducting an initial investigation, in accordance with the Radio Advisory Board of Canada and the Canadian Wind Energy Association's Technical Information and Coordination Process Between Wind Turbines and Radiocommunication and Radar Systems document, of the placement of seven (7) proposed wind turbines near St. Croix, Nova Scotia. This correspondence represents a request to conduct an assessment of the impact of the proposed turbines on any existing operations under the jurisdiction of the Department of Fisheries and Oceans and the Canadian Coast Guard.

Please find attached the following pertinent information:

- 1) List of proposed turbine coordinates, tower height, base elevation and maximum elevation to blade tip; and
- 2) A plot of the proposed turbine locations.

Please provide confirmation that this correspondence has been received.

If you have any questions or require additional information please contact Nic Strum.

Thank you,

Nic Strum, EIT



Bedford • Antigonish • Deer Lake

Head Office:

Railside, 1355 Bedford Highway

Bedford, NS B4A 1C5

Tel: 902.835.5560 (24/7)

Fax: 902.835.5574

Cell: 902.225.0917

[www.strum.com](http://www.strum.com)

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Nic Strum &lt;nstrum@strum.com&gt;

---

## Proposed St Croix NS Wind Farm Assessment

---

**Weather Radars Contact, National Radar Program [Ontario]**

Mon, Oct 7, 2013 at 11:57

&lt;weatherradars@ec.gc.ca&gt;

AM

To: Nic Strum &lt;nstrum@strum.com&gt;, "Weather Radars Contact, National Radar Program [Ontario]"

&lt;weatherradars@ec.gc.ca&gt;

Dear Mr. Nic Strum,

Thank you for contacting the Meteorological Service of Canada, a branch of Environment Canada, regarding your wind energy intentions.

Our preliminary assessment of the information provided to us via e-mail on September 17, 2013 indicates that any potential interference that may be created by the St. Croix Wind Farm near Ellershouse, Nova Scotia will not be severe. Although we would prefer our radar view to be interference free, this is not always reasonable. As a consequence, we do not have strong objections to the current proposal.

If your plans are modified in any manner (e.g. number of turbines, height, placement or materials) this analysis would no longer be valid. An updated analysis must be conducted.

Please contact us at: [weatherradars@ec.gc.ca](mailto:weatherradars@ec.gc.ca).

Thank you for your ongoing cooperation and we wish you success.

Best Regards,

Carolyn Wilson

---

**Carolyn Wilson (Rennie)**  
National Radar Program  
Meteorological Service of Canada  
Environment Canada  
4905 Dufferin Street  
Toronto, Ontario M3H 5T4

Office : 3N-WS12

\*NEW\* Carolyn.Wilson@ec.gc.ca

Phone : 416-739-4931

---

**Carolyn Wilson** (*Rennie*)

Le Programme Nationale de Radar

Service météorologique du Canada

Environnement Canada

4905, rue Dufferin

Toronto, Ontario M3H 5T4

Bureau : 3N-WS12

\*NOUVEAU\* Carolyn.Wilson@ec.gc.ca

Téléphone : 416-739-4931

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**From:** Nic Strum [mailto:[nstrum@strum.com](mailto:nstrum@strum.com)]

**Sent:** Tuesday, September 17, 2013 2:50 PM

**To:** Weather Radars Contact,National Radar Program [Ontario]

**Subject:** Proposed St Croix NS Wind Farm Assessment

Carolyn Rennie,

Strum Consulting Ltd is conducting an initial investigation, in accordance with the Radio Advisory Board of Canada and the Canadian Wind Energy Association's Technical Information and Coordination Process Between Wind Turbines and Radiocommunication and Radar Systems document, of the placement of seven (7) proposed wind turbines near St. Croix, Nova Scotia. This correspondence represents a request to conduct an assessment of the impact of the proposed turbines on any existing operations under the jurisdiction of Environment Canada.

Please find attached the following pertinent information:

- 1) - List of proposed turbine coordinates, tower height, base elevation and maximum elevation to blade tip; and
- 2) - A plot of the proposed turbine locations.

Please provide confirmation that this correspondence has been received.

If you have any questions or require additional information please contact Nic Strum.

Thank you,

Nic Strum, EIT



Bedford • Antigonish • Deer Lake

Head Office:



Railside, 1355 Bedford Highway

Bedford, NS B4A 1C5

Tel: 902.835.5560 (24/7)

Fax: 902.835.5574

Cell: 902.225.0917

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*Aerospace and Telecommunications  
Engineering Support Squadron  
Canadian Forces Base Trenton  
PO Box 1000, Stn Forces  
Astra, ON K0K 3W0*



*Escadron de soutien technique des  
télécommunications et des moyens  
aérospatiaux  
Base des Forces canadiennes Trenton  
CP 1000, succ Forces  
Astra, ON K0K 3W0*

2700-1 (CCISF FC)

23 Oct 2013

NOV 13 2013

Nic Strum, EIT  
Strum Consulting  
Railside  
1355 Bedford Highway  
Bedford, NS B4C 1C5

Dear Mr. Strum,

Thank you for your patience on this matter and for considering DND radar and airport facilities in your project development process.

We have completed the detailed analysis of your proposed site revision, St Croix Wind Project, located near St Croix, NS (WTA-3001). The results of the detailed analysis and subsequent technical and operational impact assessments have confirmed there is likely to be minimal interference with DND radar and flight operations.

Therefore, as a result of these findings we have no objections with your project revision as submitted (attached).

If however, the layout were to change/move, please re-submit that proposal for another assessment using the assigned WTA number listed above. The concurrence for this site is valid for 24 months from date of this correspondence. If the project should be cancelled or delayed during this timeframe please advise my point of contact.

It should be noted that each submission is assessed on a case by case basis and as such, concurrence on this submission in no way constitutes a concurrence for similar projects in the same area, nor does it indicate that similar concurrence might be offered in another region.

The issuance of this Letter of Non-Objection shall not constitute a waiver or alienation of any existing or future legal rights of the DND/CF nor shall it be construed to create any exemptions, indemnification, approvals, rights, acceptances in favour of Minas Energy. The DND/CF expressly reserves its rights to take legal action or seek remedy for any and all liability, loss, harm, degradation of services or equipment, mitigation costs, damages, judgments or expenses that arise from the adverse effects, whether incidental, indirect or causal, of the Minas Energy St Croix Wind Project upon the DND/CF radars, equipment and its provision of Air Traffic Services.

I trust that you will find this satisfactory. If you have any technical questions or concerns regarding any aspect of this investigation, please contact the ATESS Liaison Officer at (613) 392-2811 extension 4834, or at [+windturbines@forces.gc.ca](mailto:windturbines@forces.gc.ca).

Sincerely,



Major T.D. Lavigne  
Flight Commander / Commandant D'Escadrille  
Aerospace and Telecommunications Engineering Support Squadron (ATESS)/CCISF |  
Escadron de Soutien Technique des Télécommunications et des Moyens Aérospatiaux  
(ESTTMA)/ESICC  
National Defence | Défense Nationale  
Astra, ON, Canada K0K 3W0

| Turbine<br>Number | LAT<br>dd mm ss.ss | LONG<br>-ddd mm ss.ss | Ground<br>Elevation<br>(meters) | Nacelle<br>Height<br>(meters) | Rotor<br>Diameter<br>(meters) | Total<br>Height<br>(meters) |
|-------------------|--------------------|-----------------------|---------------------------------|-------------------------------|-------------------------------|-----------------------------|
| Turbine 1         | 44°56'1.81"        | -64° 1'45.89"         | 141                             | 98                            | 92                            | 285                         |
| Turbine 2         | 44°55'53.38"       | -64° 1'39.68"         | 154                             | 98                            | 92                            | 298                         |
| Turbine 3         | 44°55'45.15"       | -64° 1'9.97"          | 176                             | 98                            | 92                            | 320                         |
| Turbine 4         | 44°55'50.99"       | -64° 0'55.29"         | 177                             | 98                            | 92                            | 321                         |
| Turbine 5         | 44°55'55.99"       | -64° 0'39.36"         | 177                             | 98                            | 92                            | 321                         |
| Turbine 6         | 44°55'40.05"       | -64° 0'6.42"          | 178                             | 98                            | 92                            | 322                         |
| Turbine 7         | 44°55'23.33"       | -64° 1'22.17"         | 174                             | 98                            | 92                            | 318                         |



Nic Strum &lt;nstrum@strum.com&gt;

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## DND Radiocommunication Approval for the St. Croix Wind Project

---

**MARIO.LAVOIE2@forces.gc.ca** <MARIO.LAVOIE2@forces.gc.ca>

Thu, Nov 7, 2013 at 12:30 PM

To: nstrum@strum.com

Dear Nic,

In reference to the St Croix Wind Project ,

I have reviewed your proposal in respect to DND's radio communication systems, and I have no objections or concerns.

Thank you for coordinating with DND.

Have a good Day.

Mr. Mario Lavoie  
Spectrum Engineering Technician  
National Defence | Défense nationale  
Ottawa, Canada K1A 0K2  
mario.lavoie2@forces.gc.ca  
Telephone | Téléphone 613-992-3479  
Facsimile | Télécopieur 613-991-3961  
Government of Canada | Gouvernement du Canada

---

**From:** Nic Strum [mailto:nstrum@strum.com]  
**Sent:** Thursday, 7, November, 2013 10:44 AM  
**To:** Lavoie MJ@ADM(IM) J6 Coord@Ottawa-Hull  
**Subject:** St. Croix Wind Farm

Mario.

I received a letter of non objection from Captain Switzer pertaining to the st croix wind farm. I would just like to confirm whether or not your department has an objection with this project or not.

Thank you,

Nic Strum, EIT

**Bedford** Antigonish Deer LakeHead Office:

Railside, 1355 Bedford Highway

Bedford, NS B4A 1C5

Tel: 902.835.5560 (24/7)

Fax: 902.835.5574

Cell: 902.225.0917

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## APPENDIX J

### SOUND MODELING RESULTS

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| <u>Receptor ID</u> | <u>Easting (m)</u> | <u>Northing (m)</u> | <u>Predicted Sound Levels (dBA)</u> |
|--------------------|--------------------|---------------------|-------------------------------------|
| RV1                | 421760             | 4975744             | 34.5                                |
| RV2                | 421630             | 4975776             | 35.6                                |
| RV3                | 421553             | 4976094             | 34.7                                |
| RV4                | 421702             | 4976468             | 32.2                                |
| RV5                | 422026             | 4976577             | 30.2                                |
| RV6                | 422035             | 4976224             | 31.2                                |
| RV7                | 422720             | 4975028             | 27.8                                |
| RV8                | 422115             | 4974163             | 28.6                                |
| RV9                | 421570             | 4976527             | 32.6                                |
| RV10               | 421525             | 4976743             | 31.9                                |
| RV11               | 421475             | 4976791             | 31.9                                |
| RV12               | 421298             | 4976987             | 31.7                                |
| RV13               | 421339             | 4976942             | 31.8                                |
| RV14               | 421137             | 4977177             | 31.4                                |
| RV15               | 421123             | 4977192             | 31.4                                |
| RV16               | 422083             | 4976869             | 29                                  |
| RV17               | 422022             | 4977026             | 28.8                                |
| RV18               | 421629             | 4977277             | 29.3                                |
| RV19               | 421094             | 4977664             | 29.3                                |
| RV20               | 420904             | 4977403             | 31                                  |
| RV21               | 420829             | 4977444             | 31                                  |
| RV22               | 420627             | 4977392             | 31.7                                |
| RV23               | 420572             | 4977401             | 31.8                                |
| RV24               | 420538             | 4977258             | 32.7                                |
| RV25               | 420277             | 4977311             | 32.9                                |
| RV26               | 420142             | 4977497             | 32                                  |
| RV27               | 420110             | 4977511             | 32                                  |
| RV28               | 420100             | 4977549             | 31.8                                |
| RV29               | 420069             | 4977567             | 31.7                                |
| RV30               | 420045             | 4977615             | 31.5                                |
| RV31               | 420078             | 4977397             | 32.7                                |
| RV32               | 419843             | 4977562             | 31.9                                |
| RV33               | 419735             | 4977694             | 31.3                                |
| RV34               | 419721             | 4977730             | 31.1                                |
| RV35               | 419784             | 4977835             | 30.5                                |
| RV36               | 420585             | 4977590             | 30.8                                |
| RV37               | 420616             | 4977537             | 31                                  |
| RV38               | 420696             | 4977564             | 30.7                                |
| RV39               | 421012             | 4977689             | 29.4                                |
| RV40               | 420945             | 4977577             | 30                                  |
| RV41               | 420792             | 4977738             | 29.6                                |
| RV42               | 420680             | 4977677             | 30.2                                |
| RV43               | 419898             | 4977622             | 31.5                                |
| RV44               | 419484             | 4977554             | 32.2                                |
| RV45               | 419416             | 4977548             | 32.2                                |
| RV46               | 419001             | 4977851             | 30.4                                |
| RV47               | 418875             | 4977917             | 29.9                                |
| RV48               | 418732             | 4977900             | 29.8                                |
| RV49               | 418215             | 4977965             | 28.7                                |
| RV50               | 417781             | 4977758             | 28.5                                |



| <u>Receptor ID</u> | <u>Easting (m)</u> | <u>Northing (m)</u> | <u>Predicted Sound Levels (dBA)</u> |
|--------------------|--------------------|---------------------|-------------------------------------|
| RV51               | 417685             | 4975328             | 33.3                                |
| RV52               | 418584             | 4977359             | 32.8                                |
| RV53               | 417245             | 4977101             | 28.9                                |
| RV54               | 417344             | 4976707             | 30.5                                |
| RV55               | 417364             | 4976551             | 31                                  |
| RV56               | 416816             | 4976003             | 28.6                                |
| RV57               | 416806             | 4976066             | 28.5                                |
| RV58               | 417205             | 4977217             | 28.4                                |
| RV59               | 417208             | 4977268             | 28.3                                |
| RV60               | 420468             | 4977288             | 32.7                                |
| R1                 | 420545             | 4977343             | 32.2                                |
| R2                 | 420326             | 4977411             | 32.2                                |
| R3                 | 420939             | 4977369             | 31.1                                |
| R4                 | 417897             | 4977695             | 29.1                                |
| R5                 | 420380             | 4977102             | 34.1                                |
| R6                 | 418854             | 4977641             | 31.4                                |
| R7                 | 421241             | 4976854             | 32.6                                |
| R8                 | 420728             | 4977511             | 30.9                                |
| R9                 | 420067             | 4977514             | 32                                  |
| R10                | 420327             | 4977127             | 34                                  |
| R11                | 420359             | 4977427             | 32.1                                |
| R12                | 420523             | 4977364             | 32.1                                |
| R13                | 420460             | 4977354             | 32.3                                |
| R14                | 420807             | 4977526             | 30.6                                |
| R15                | 419724             | 4977674             | 31.4                                |
| R16                | 420867             | 4977655             | 29.9                                |
| R17                | 419626             | 4977807             | 30.7                                |
| R18                | 421118             | 4977148             | 31.6                                |
| R19                | 417991             | 4975407             | 35.8                                |
| R20                | 421204             | 4976998             | 32.1                                |
| R21                | 421312             | 4976707             | 33.1                                |
| R22                | 420861             | 4977457             | 30.8                                |
| R23                | 420580             | 4977347             | 32.1                                |
| R24                | 420392             | 4977189             | 33.5                                |
| R25                | 420648             | 4977503             | 31.1                                |
| R26                | 419640             | 4977768             | 30.9                                |
| R27                | 420386             | 4977443             | 32                                  |
| R28                | 421284             | 4976783             | 32.8                                |
| R29                | 420568             | 4977279             | 32.5                                |
| R30                | 417908             | 4977694             | 29.1                                |
| R31                | 418650             | 4977616             | 31.3                                |
| R32                | 420935             | 4977648             | 29.7                                |
| R33                | 418827             | 4977616             | 31.5                                |
| R34                | 420405             | 4977432             | 32                                  |
| R35                | 420195             | 4977455             | 32.2                                |
| R36                | 420479             | 4977407             | 32                                  |
| R37                | 421225             | 4977045             | 31.8                                |
| R38                | 420516             | 4977224             | 33                                  |
| R39                | 419930             | 4977441             | 32.6                                |
| R40                | 420246             | 4977472             | 32                                  |

| <u>Receptor ID</u> | <u>Easting (m)</u> | <u>Northing (m)</u> | <u>Predicted Sound Levels (dBA)</u> |
|--------------------|--------------------|---------------------|-------------------------------------|
| R41                | 420438             | 4977443             | 31.9                                |
| R42                | 419635             | 4977671             | 31.4                                |
| R43                | 420817             | 4977499             | 30.7                                |
| R44                | 421200             | 4976903             | 32.6                                |
| R45                | 418918             | 4977812             | 30.5                                |
| R46                | 420812             | 4977541             | 30.5                                |
| R47                | 420450             | 4977266             | 32.9                                |
| R48                | 421087             | 4977193             | 31.5                                |
| R49                | 420922             | 4977752             | 29.3                                |
| R50                | 420710             | 4977428             | 31.4                                |
| R51                | 420245             | 4977521             | 31.7                                |
| R52                | 419049             | 4977992             | 29.6                                |
| R53                | 420476             | 4977427             | 31.9                                |
| R54                | 420483             | 4977200             | 33.2                                |
| R55                | 419715             | 4977651             | 31.5                                |
| R56                | 420431             | 4977136             | 33.7                                |
| R57                | 420534             | 4977462             | 31.6                                |
| R58                | 420327             | 4977498             | 31.7                                |
| R59                | 421321             | 4976635             | 33.4                                |
| R60                | 421216             | 4977088             | 31.6                                |
| R61                | 421193             | 4977109             | 31.6                                |
| R62                | 420458             | 4977427             | 31.9                                |
| R63                | 420543             | 4977141             | 33.4                                |
| R64                | 420522             | 4977121             | 33.6                                |
| R65                | 421180             | 4976864             | 32.8                                |
| R66                | 420486             | 4977451             | 31.7                                |
| R67                | 420600             | 4977380             | 31.9                                |
| R68                | 420145             | 4977555             | 31.7                                |
| R69                | 420539             | 4977222             | 32.9                                |
| R70                | 417991             | 4975385             | 35.7                                |
| R71                | 420482             | 4977348             | 32.3                                |
| R72                | 420737             | 4977465             | 31.1                                |
| R73                | 420319             | 4977458             | 32                                  |
| R74                | 420929             | 4977707             | 29.5                                |
| R75                | 420562             | 4977325             | 32.3                                |
| R76                | 421255             | 4976868             | 32.5                                |
| R77                | 420353             | 4977183             | 33.6                                |
| R78                | 420665             | 4977095             | 33.4                                |
| R79                | 420434             | 4977408             | 32.1                                |
| R80                | 421113             | 4976899             | 32.9                                |
| R81                | 420319             | 4977276             | 33.1                                |
| R82                | 420397             | 4977129             | 33.9                                |
| R83                | 421163             | 4977125             | 31.6                                |
| R84                | 420392             | 4977493             | 31.7                                |
| R85                | 420554             | 4977472             | 31.5                                |
| R86                | 421174             | 4977105             | 31.6                                |
| R87                | 421391             | 4976481             | 33.8                                |
| R88                | 421416             | 4976616             | 33                                  |
| R89                | 420724             | 4977456             | 31.2                                |
| R90                | 418981             | 4977976             | 29.7                                |

| <u>Receptor ID</u> | <u>Easting (m)</u> | <u>Northing (m)</u> | <u>Predicted Sound Levels (dBA)</u> |
|--------------------|--------------------|---------------------|-------------------------------------|
| R91                | 421199             | 4976960             | 32.3                                |
| R92                | 421236             | 4977048             | 31.7                                |
| R93                | 419642             | 4977829             | 30.6                                |
| R94                | 420392             | 4977479             | 31.7                                |
| R95                | 418936             | 4977775             | 30.7                                |
| R96                | 420800             | 4977377             | 31.4                                |
| R97                | 420799             | 4977515             | 30.7                                |
| R98                | 420840             | 4977676             | 29.8                                |
| R99                | 421247             | 4976980             | 32                                  |
| R100               | 420685             | 4977118             | 33.2                                |
| R101               | 421225             | 4976812             | 32.9                                |
| R102               | 420446             | 4977142             | 33.7                                |
| R103               | 420447             | 4977173             | 33.5                                |
| R104               | 419714             | 4977685             | 31.3                                |
| R105               | 418814             | 4977606             | 31.6                                |
| R106               | 420705             | 4977438             | 31.3                                |
| R107               | 420192             | 4977650             | 31.1                                |
| R108               | 420335             | 4977252             | 33.2                                |
| R109               | 420840             | 4977404             | 31.2                                |
| R110               | 419923             | 4977516             | 32.1                                |
| R111               | 421244             | 4976904             | 32.4                                |
| R112               | 420533             | 4977407             | 31.9                                |
| R113               | 418980             | 4977958             | 29.8                                |
| R114               | 419641             | 4977817             | 30.6                                |
| R115               | 420352             | 4977491             | 31.7                                |
| R116               | 421290             | 4976748             | 33                                  |
| R117               | 420415             | 4977498             | 31.6                                |
| R118               | 421069             | 4977184             | 31.6                                |
| R119               | 420957             | 4977655             | 29.7                                |
| R120               | 420495             | 4977344             | 32.3                                |
| R121               | 420256             | 4977655             | 31                                  |
| R122               | 420901             | 4977618             | 30                                  |
| R123               | 420678             | 4977473             | 31.2                                |
| R124               | 420644             | 4977425             | 31.5                                |
| R125               | 421254             | 4976930             | 32.2                                |
| R126               | 419903             | 4977546             | 32                                  |
| R127               | 419765             | 4977548             | 32.1                                |
| R128               | 420359             | 4977278             | 33                                  |
| R129               | 420419             | 4977417             | 32                                  |
| R130               | 420226             | 4977460             | 32.1                                |
| R131               | 420420             | 4977388             | 32.2                                |
| R132               | 419687             | 4977685             | 31.3                                |
| R133               | 420522             | 4977298             | 32.5                                |
| R134               | 420344             | 4977451             | 32                                  |
| R135               | 420754             | 4977480             | 31                                  |
| R136               | 419630             | 4977687             | 31.3                                |
| R137               | 420990             | 4977744             | 29.2                                |
| R138               | 420634             | 4977359             | 31.9                                |
| R139               | 420498             | 4977386             | 32.1                                |
| R140               | 420399             | 4977439             | 32                                  |

| <u>Receptor ID</u> | <u>Easting (m)</u> | <u>Northing (m)</u> | <u>Predicted Sound Levels (dBA)</u> |
|--------------------|--------------------|---------------------|-------------------------------------|
| R141               | 420785             | 4977558             | 30.5                                |
| R142               | 421276             | 4976801             | 32.7                                |
| R143               | 420927             | 4977624             | 29.9                                |
| R144               | 420341             | 4977296             | 32.9                                |
| R145               | 420940             | 4977349             | 31.2                                |
| R146               | 421380             | 4976500             | 33.8                                |
| R147               | 421317             | 4976579             | 33.7                                |
| R148               | 420453             | 4977336             | 32.5                                |
| R149               | 420720             | 4977492             | 31                                  |
| R150               | 421132             | 4977146             | 31.6                                |
| R151               | 421127             | 4976911             | 32.8                                |
| R152               | 417888             | 4977696             | 29.1                                |
| R153               | 420427             | 4977468             | 31.7                                |
| R154               | 420406             | 4977419             | 32.1                                |
| R155               | 420406             | 4977375             | 32.3                                |
| R156               | 420458             | 4977385             | 32.2                                |
| R157               | 420407             | 4977122             | 33.9                                |
| R158               | 420605             | 4977317             | 32.2                                |
| R159               | 420684             | 4977385             | 31.7                                |
| R160               | 420747             | 4977519             | 30.8                                |
| R161               | 421255             | 4976899             | 32.3                                |
| R162               | 420771             | 4977496             | 30.9                                |
| R163               | 420242             | 4977539             | 31.6                                |
| R164               | 420631             | 4977411             | 31.6                                |
| R165               | 420621             | 4977326             | 32.1                                |
| R166               | 420222             | 4976814             | 36.6                                |
| R167               | 420207             | 4976812             | 36.7                                |
| R168               | 420322             | 4977250             | 33.2                                |
| R169               | 420329             | 4977233             | 33.3                                |
| R170               | 420476             | 4977192             | 33.3                                |
| R171               | 420432             | 4977527             | 31.4                                |
| R172               | 420916             | 4977697             | 29.6                                |
| R173               | 420252             | 4977695             | 30.8                                |
| R174               | 420214             | 4977655             | 31                                  |
| R175               | 421235             | 4976963             | 32.1                                |
| R176               | 421274             | 4976763             | 32.9                                |
| R177               | 421239             | 4976781             | 33                                  |
| R178               | 421417             | 4976639             | 32.9                                |
| R179               | 418668             | 4977603             | 31.4                                |
| R180               | 419640             | 4977874             | 30.3                                |
| R181               | 419626             | 4977846             | 30.5                                |
| R182               | 419632             | 4977766             | 30.9                                |
| R183               | 419673             | 4977570             | 32                                  |
| R184               | 419612             | 4977606             | 31.8                                |
| R185               | 419560             | 4977520             | 32.3                                |
| R186               | 419500             | 4977445             | 32.8                                |
| R187               | 420486             | 4977326             | 32.4                                |
| R188               | 420732             | 4977555             | 30.7                                |
| R189               | 420691             | 4977546             | 30.8                                |