DNV·GL

NATION RISE WIND FARM

Decommissioning Plan Report

Nation Rise Wind Farm Limited Partnership

Document No.: 10021027-CAMO-R-05
Issue: E**, Status:** FINAL
Date: 29 November 2017



IMPORTANT NOTICE AND DISCLAIMER

1. This document is intended for the sole use of the Customer as detailed on the front page of this document to whom the document is addressed and who has entered into a written agreement with the DNV GL entity issuing this document ("DNV GL"). To the extent permitted by law, neither DNV GL nor any group company (the "Group") assumes any responsibility whether in contract, tort including without limitation negligence, or otherwise howsoever, to third parties (being persons other than the Customer), and no company in the Group other than DNV GL shall be liable for any loss or damage whatsoever suffered by virtue of any act, omission or default (whether arising by negligence or otherwise) by DNV GL, the Group or any of its or their servants, subcontractors or agents. This document must be read in its entirety and is subject to any assumptions and qualifications expressed therein as well as in any other relevant communications in connection with it. This document may contain detailed technical data which is intended for use only by persons possessing requisite expertise in its subject matter.

2. This document is protected by copyright and may only be reproduced and circulated in accordance with the Document Classification and associated conditions stipulated or referred to in this document and/or in DNV GL's written agreement with the Customer. No part of this document may be disclosed in any public offering memorandum, prospectus or stock exchange listing, circular or announcement without the express and prior written consent of DNV GL. A Document Classification permitting the Customer to redistribute this document shall not thereby imply that DNV GL has any liability to any recipient other than the Customer.

3. This document has been produced from information relating to dates and periods referred to in this document. This document does not imply that any information is not subject to change. Except and to the extent that checking or verification of information or data is expressly agreed within the written scope of its services, DNV GL shall not be responsible in any way in connection with erroneous information or data provided to it by the Customer or any third party, or for the effects of any such erroneous information or data whether or not contained or referred to in this document.

4. Any energy forecasts estimates or predictions are subject to factors not all of which are within the scope of the probability and uncertainties contained or referred to in this document and nothing in this document guarantees any particular energy output, including factors such as wind speed or irradiance.

KEY TO DOCUMENT CLASSIFICATION

Strictly Confidential	:	For disclosure only to named individuals within the Customer's organization.
Private and Confidential	:	For disclosure only to individuals directly concerned with the subject matter of the document within the Customer's organization.
Commercial in Confidence	:	Not to be disclosed outside the Customer's organization.
DNV GL only	:	Not to be disclosed to non-DNV GL staff
Customer's Discretion	:	Distribution for information only at the discretion of the Customer (subject to the above Important Notice and Disclaimer and the terms of DNV GL's written agreement with the Customer).
Published	:	Available for information only to the general public (subject to the above Important Notice and Disclaimer).

Project name:	Nation Rise Wind Farm	DNV GL - Energy
Report title:	Decommissioning Plan Report	Advisory Americas
Customer:	Nation Rise Wind Farm Limited Partnership 110 Spadina Ave, Suite 609 Toronto, ON M5V 2K4	4100 Rue Molson, Suite 100, Montreal, QC, H1Y 3N1 CANADA Tel: 514 272-2175
Contact person:	Kenneth Little	Enterprise No.: 860480037
Date of issue:	29 November 2017	
Project No.:	10021027	
Document No.:	10021027-CAMO-R-05	
Issue/Status	E/FINAL	

Prepared by:	Verified by:	Approved by:
Nancy O'Neill Project Manager, Environmental and Permitting Services	Gabriel Constantin Team Leader, Environmental and Permitting Services	Michael Roberge, Head of Section, Environmental and Permitting Services

☐ Strictly Confidential
☐ Private and Confidential
☐ Commercial in Confidence
☐ DNV GL only
☐ Customer's Discretion
☒ Published

© 2016 GL Garrad Hassan Canada Inc.. All rights reserved.

Reference to part of this report which may lead to misinterpretation is not permissible.

Issue	Date	Reason for Issue	Prepared by	Verified by	Approved by
A	22 March 2017	Draft report	N. O'Neill	G. Constantin	M. Roberge
B	7 July 2017	Updated draft report	N. O'Neill	G. Constantin	M. Roberge
C	13 July 2017	Updated for final submission	N. O'Neill	G. Constantin	M. Roberge
D	4 August 2017	Minor updates	N. O'Neill	G. Constantin	M. Roberge
E	29 November 2017	Rectify the number of petroleum wells within 75m of the Project to 0	N. O'Neill	G. Constantin	M. Roberge

Table of contents

1 PREAMBLE 1

2 GENERAL INFORMATION 2
2.1 Project Name and Project Proponent 2
2.2 Location of the Project 2
2.3 Energy Source, Nameplate Capacity, and Class of Facility 5
2.4 Contact Information 5

3 PROBABLE FUTURE USE OF THE FACILITY 6

4 DECOMMISSIONING 6
4.1 Decommissioning During Construction 6
4.2 Decommissioning After Ceasing Operations 6
4.3 Procedures for Dismantling 7
4.4 Restoration of Land 8
4.5 Waste Generated 8
4.6 Stormwater, Erosion and Sediment Management 9

5 EMERGENCY RESPONSE AND COMMUNICATIONS PLAN 9

6 HEALTH AND SAFETY PLAN 9

7 TRAFFIC MANAGEMENT PLAN 9

8 PUBLIC, MUNICIPAL AND ABORIGINAL COMMUNITY NOTIFICATION 10

9 OTHER APPROVALS 10

10 ENVIRONMENTAL EFFECTS MONITORING PLAN 10

11 REFERENCES 37

Appendices

APPENDIX A – SITE PLAN MAPS

List of tables

Table 2-1: Geographic coordinates of Project study area 2
Table 10-1: Potential Negative Effects and Mitigation Measures – Construction and Decommissioning 12

List of figures

Figure 2-1: General Project study area 4

List of abbreviations

Abbreviation	Meaning
CPR	Construction Plan Report
DPR	Decommissioning Plan Report
DNV GL	GL Garrad Hassan Canada Inc.
EEMP	Environmental Effects Monitoring Plan
EPA	Ontario *Environmental Protection Act*
ERP	Emergency Response Plan
ESA	*Endangered Species Act*
HONI	Hydro One Network Inc.
IESO	Independent Electricity System Operator
LRP	Large Renewable Procurement
MNRF	Ontario Ministry of Natural Resources and Forestry
MOECC	Ontario Ministry of Environment and Climate Change
MTCS	Ontario Ministry of Tourism, Culture and Sport
MTO	Ontario Ministry of Transportation
MW	Megawatt
NHA	Natural Heritage Assessment
O. Reg	*Ontario Regulation*
PCC	Point of Common Coupling
PSWs	Provincially Significant Wetlands
REA	Renewable Energy Approval
SARA	*Species at Risk Act*
SESMP	Stormwater, Erosion and Sediment Management Plan
SNCA	South Nation Conservation Authority
SWH	Significant Wildlife Habitat
TMP	Traffic Management Plan

1 PREAMBLE

Nation Rise Wind Farm Limited Partnership (the "Proponent") is proposing to develop the Nation Rise Wind Farm (the "Project") which is subject to Ontario Regulation (*O. Reg*.) *359/09* (Renewable Energy Approvals under Part V.0.1 of the Ontario *Environmental Protection Act* (EPA) [1]), as amended. The Proponent was awarded a contract for this Project in March 2016 from the Independent Electricity System Operator (IESO) under the Large Renewable Procurement (LRP), and is seeking a Renewable Energy Approval (REA) from the Ontario Ministry of the Environment and Climate Change (MOECC). The Project will be owned and operated by Nation Rise Wind Farm Limited Partnership, a wholly-owned subsidiary of EDP Renewables Canada Ltd.

This Decommissioning Plan Report (DPR) has been prepared in accordance with Table 1 of *O. Reg 359/09* and the Technical Guide to Renewable Energy Approvals, Chapter 7: Guidance for preparing the Decommissioning Plan Report [2]. Table 1-1 outlines the section within this DPR that corresponds with the requirements set forth within the guidelines.

Table 1-1: Decommissioning Plan Report Requirements and Corresponding Sections

Requirement	Section
Procedures for dismantling or demolishing the facility.	4.3
Activities related to the restoration of any land and water negatively affected by the facility.	4.4, 10.1.1
Procedures for managing excess materials and waste.	4.5, 10.1.1

2 GENERAL INFORMATION

2.1 Project Name and Project Proponent

The name of the Project is Nation Rise Wind Farm (hereafter referred to as "the Project") and Nation Rise Wind Farm Limited Partnership is the Project Proponent (hereafter referred to as the "Proponent").

2.2 Location of the Project

The Nation Rise Wind Farm is located in eastern Ontario, within the Township of North Stormont and the United Counties of Stormont, Dundas and Glengarry, Ontario. More specifically, the Project is located within the western portion of North Stormont bounded to the south by the Township of South Stormont and to the west by the boundary of the Township of North Dundas. The north portion of the Project area is delimited by the municipality boundaries of Russell and the Nation. Courville Road and MacMillan Road are the east boundaries of the Project, which has a total Project study area of approximately 8,974 hectares.

Project components will be installed predominantly on privately-owned agricultural lots. It is anticipated that the electrical collector lines will be partially sited within public road allowances to connect to the substation that is located in the northern section of the Project study area. There is no proposed transmission line for the Project.

The proposed Project study area is located on private and public lands; the geographic coordinates of the extreme points of the Project study area are presented in Table 2-1 and Figure 2-1. The location of the study area was defined early in the planning process and was selected based on the availability of wind resources, the approximate area required for the proposed Project, and the availability of existing infrastructure for connection to the electrical grid. The Project substation is located along the existing L24A 230 kV transmission line just south of County Road 13. Most of the agricultural fields are planted annually with common crops (e.g. corn, soybeans and winter wheat) or are used as pasture lands.

Table 2-1: Geographic coordinates of Project study area

Site Location	Easting	Northing
North	483970	5008222
East	480929	5004950
West	494722	5001252
South	487941	4992782

The Project Location, situated within the broader Project study area, is defined in *O. Reg. 359/09* as "...*a part of land and all or part of any building or structure in, on or over which a person is engaging in or proposes to engage in the project and any air space in which a person is engaging in or proposes to engage in the project*". As described therein, the Project Location boundary is the outer limit of where site preparation and construction activities will occur (i.e., *Disturbance Areas* described below) and where permanent infrastructure will be located, including the air space occupied by turbine blades.

Disturbance Areas surrounding various Project components have been identified; such areas correspond to the "Project Location" boundaries on the Site Plan Maps provided in Appendix A. These areas represent

zones where temporary disturbance during the decommissioning phase may occur such as temporary Project component laydown and storage areas. Following decommissioning activities, the land will be returned to pre-construction conditions.

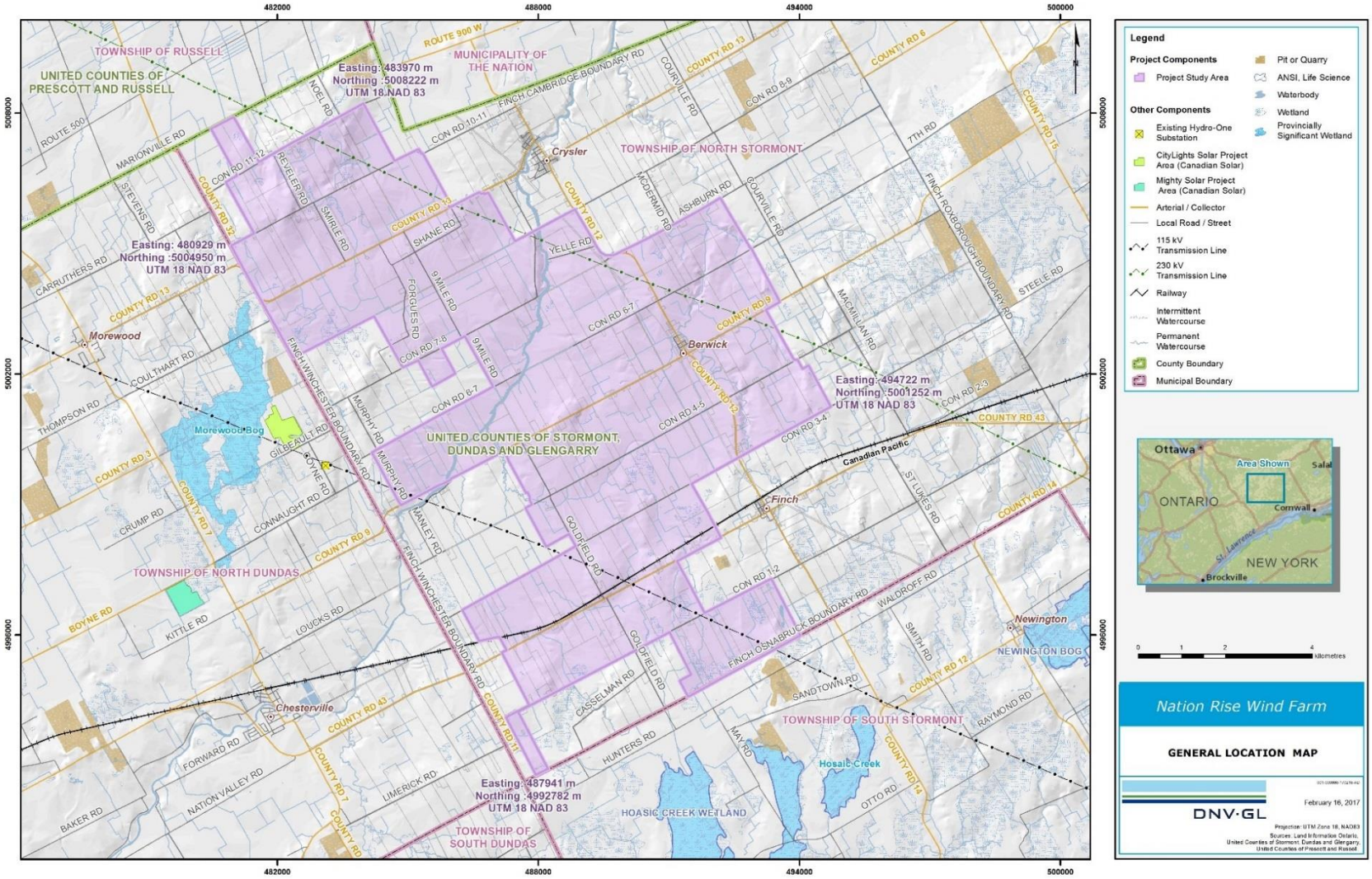


Figure 2-1: General Project study area

2.3 Energy Source, Nameplate Capacity, and Class of Facility

The wind turbine generators of the Project will convert wind energy into electricity to feed into the Ontario IESO transmission system. This Project, with a total nameplate capacity of approximately 100 megawatts (MW), is considered to be a Class 4 wind facility. A total of 33 wind turbine locations are being permitted and the Proponent is currently evaluating different wind turbine technologies for the Project. It is likely to be a 3.0 to 3.6 MW turbine and for the purposes of reference, the Vestas V136-3.45 MW turbine model will be considered in the Project REA application, although an acoustically equivalent wind turbine may be chosen.

2.4 Contact Information

2.4.1 Project Proponent

The Project Proponent is the Nation Rise Wind Farm Limited Partnership, a renewable energy energy developer, owner and operator, with an office in Toronto, Ontario. The primary contact for this Project is:

Kenneth Little
Development Project Manager
Nation Rise Wind Farm Limited Partnership
110 Spadina Ave., Suite 609,
Toronto, ON M5V 2K4
(416) 502-9463

Project email: nationrise@edpr.com
Project website: http://nationrisewindfarm.com/

2.4.2 Project Consultant

GL Garrad Hassan Canada Inc. (hereafter referred to as "DNV GL"), a member of the DNV GL Group and part of the DNV GL brand, has been retained to lead the REA work for the Project. The Environmental and Permitting Services team of DNV GL has completed mandates throughout Canada, the United States and in many other parts of the world. These mandates include permitting management, permit applications, environmental impact assessment, and various environmental studies for more than 15,000 MW of wind and solar-PV projects.

DNV GL's environmental team is composed of over 20 environmental professionals, including environmental impact specialists, planners, GIS, technicians and engineers. DNV GL has no equity stake in any Project, distinguishing it from many other players and underscoring its independence.

DNV GL's contact information is as follows:

Gabriel Constantin
Team Leader, Environmental and Permitting Services
DNV GL – Energy Advisory
4100 Molson Street, Suite 100,
Montreal (QC), H1Y 3N1, Canada
(416) 320-4636

Email: Gabriel.Constantin@dnvgl.com

3 PROBABLE FUTURE USE OF THE FACILITY

The Project is anticipated to have an operational lifespan of 20 or more years. If Project economics and needs remain viable at the end of this lifespan, the facility could be "repowered" with new technology and continue operating for an extended period. Prior to incorporating substantial changes, the Proponent will engage the public, as appropriate and required, based on regulations and requirements in effect at the time of decommissioning. At the end of the Project lifespan, the Project components are expected to be decommissioned as described in Section 4.

Although the future land use is difficult to predict, it is most probable that after decommissioning the Project Location will be returned to its former agricultural land use. Thus, this DPR has conservatively assumed that the future land use will be agricultural.

It should be noted that there is potential for the planned post-decommissioning land use to change prior to actual decommissioning. In such instances, the information in this report will be updated, as required, in advance of decommissioning to represent the applicable conditions and regulatory requirements in effect at that time.

4 DECOMMISSIONING

The anticipated life of the Project is estimated to be a minimum of 20 years. The following sections describe how the Project will be dismantled either during construction or following the operations phase of the Project.

4.1 Decommissioning During Construction

Although it is unlikely that the Project would be decommissioned prior to commencement of the operations phase, the actual procedures for dismantling the Project would depend upon the state of construction activities at the time of decommissioning.

However, should decommissioning during construction occur, dismantling would follow the steps outlined in Section 4.3 and any exposed soils would be re-vegetated in consultation with the relevant landowner and local Ministry of Natural Resources and Forestry (MNRF).

4.2 Decommissioning After Ceasing Operations

It is anticipated that the Project will have an operational lifespan of 20 or more years. The Project lifespan could be further extended with proper maintenance, component replacement and repowering.

Should it be decided to not extend operations or repower the Project at the end of its service life, the steps outlined in Section 4.3 would be taken to dismantle the various Project components.

4.3 Procedures for Dismantling

If the facility is to be decommissioned and the turbines are to be removed at the end of its service life or during construction, the procedures will be similar to the construction phase, but in reverse sequence. Mitigation measures associated with the implementation of these procedures are outlined in Section 10.1.1 of this report.

The dismantling procedures will include:

- At the end of the Project's life, it will first be de-energized and isolated from all external electrical lines.
- The creation of temporary staging areas. In order to provide sufficient area for the laydown of the disassembled wind turbine components and loading onto trucks, a circular area of 80 m radius must be cleared, leveled and made accessible. After completion of the decommissioning, temporary staging areas and any associated temporary decommissioning facilities or components used throughout the decommissioning phase (e.g. temporary construction trailer) will be removed. The temporary staging areas will be located within the Construction Disturbance Area (Project Location) used during the construction phase of the Project.
- The installation of crane pads (if required). The crane pads will typically be 30 m x 70 m (actual size to be finalized) in size and will be located within the temporary staging area around each wind turbine. The topsoil at the crane pad will be removed and approximately 600 mm of compacted crushed gravel will be added. Once the turbine disassembly has been completed, the gravel area around each turbine will be removed and the area will be restored to prior use using stockpiled topsoil.
- The use of cranes to remove the blades, hub, nacelle and tower segments.
- The use of trucks and heavy-load hauling trucks for the removal of turbines, towers and associated equipment.
- Removal of turbine components will also include the removal of 1 m of the underground foundation below the original grade (prior to construction). Excavated foundation areas will be backfilled with clean fill and stockpiled topsoil to match the original elevations. These areas will be graded, contoured, and restored to a land use similar to what was present prior to foundation installation in order to allow for prior activities to resume.
- Underground electrical collector lines, once de-energized, are expected to remain in place at the end of the Project life. However, electrical collection lines will be cut to a depth of approximately 1 m below original grade at their connection points in the substation or in junction boxes, where the underground electrical collector lines come to the surface.
- Overhead electrical lines are expected to be removed at the end of the Project's life; however, the poles on which the collector lines will be installed that are not shared with Hydro One Network Inc. (HONI) will be cut to a depth of approximately 1 m below original grade or may be completely removed from the ground, where feasible.
- Any electrical collector lines located at directionally drilled watercourse crossings or underneath significant natural features and wildlife habitats will be de-energized and remain in place; however, the connection point will be severed at a point located outside of the South Nation Conservation Authority (SNCA), where possible, and outside of significant natural features and/or wildlife habitats.

- The substation, switchyard and associated infrastructure will be dismantled and removed in accordance with the legal requirements at the time unless otherwise requested by HONI. Any concrete foundations associated with these facilities will be removed to at least 1 m below original grade. The area will be graded, contoured, and restored to land use similar to what was present prior to foundation installation in order to allow for prior activities to resume. All materials will be recycled, where possible, or disposed offsite at an approved and appropriate facility.
- The Proponent is responsible for decommissioning of the electrical connector line from the substation up to the Point of Common Coupling (PCC), after which point the infrastructure is owned by HONI.
- Removal of access roads will depend on the requirements and agreements in place with the individual landowner. Impacted lands will be restored to land use in place prior to access road construction, at the discretion of landowners.
- Up to three meteorological tower(s) will be installed during the construction phase and these tower(s) will be removed during the decommissioning phase unless otherwise requested by the Township of North Stormont or local aviation groups (and agreed to by the Proponent and the property owner) for the tower(s) to remain in place. Any concrete foundation would be removed to at least 1 m below original grade or to the depth originally installed if less than 1 m below original grade. The area will be graded, contoured, and restored to land use similar to what was present prior to foundation installation in order to allow for prior activities to resume.

4.4 Restoration of Land

Once the dismantling procedures have been completed and the turbines and other ancillary facilities have been removed, the restoration of land will occur.

Dismantling of the wind turbines or other Project components will not result in any impacts to surface or groundwater quality. After the dismantling process has been completed, the land will be restored to a similar land use to what was present prior to construction in consultation with the landowner and local MNRF office. This will be accomplished by removing the foundations (or part of foundation), granular material from roadways and culverts. The natural environment will be restored by re-vegetation. If there is insufficient material onsite, topsoil and/or subsoil will be imported from a source acceptable to the landowner, local municipality and local MNRF office, as applicable

As strict spill prevention procedures will be in place throughout the decommissioning activities, the potential for small spills is very low. In the unlikely event that a spill occurs during decommissioning, the soil conditions of the areas will be surveyed per current standards at the time of occurrence to determine if any impacts have occurred. Should soil impacts be noted, the impacted soils will be immediately delineated, excavated and removed, per applicable standards, from the site for disposal at an approved and appropriate facility.

4.5 Waste Generated

Waste and debris generated during the decommissioning activities will be collected and disposed of at an approved facility. All reasonable efforts will be made to minimize waste generated throughout

decommissioning. Materials used and generated throughout decommissioning will be recycled, as practicable.

Industry best practices for spill prevention will be employed. In the unlikely event of a minor spill, it will be cleaned up immediately and any impacted soils will be removed from the site and disposed of an appropriate facility in accordance with the applicable regulations.

At the conclusion of decommissioning, vehicles and construction equipment will be removed from the site.

4.6 Stormwater, Erosion and Sediment Management

While the decommissioning activities are anticipated to have only a minimal impact on the natural ground cover, a conceptual Stormwater, Erosion and Sediment Management Plan (SESMP) has been developed with the aim of minimizing any impacts to stormwater runoff associated with the Project and minimizing the erosion and sedimentation of natural habitat(s). The SESMP is included in Appendix B of Construction Plan Report (CPR), as part of the complete REA application package.

5 EMERGENCY RESPONSE AND COMMUNICATIONS PLAN

The Project Emergency Response Plan (ERP) is described in Section 7 of the Design and Operations Report [3], as part of the complete REA application package. The purpose of the ERP is to establish and maintain emergency procedures for the Project in order to effectively respond to accidents and other emergency situations, as well as minimize losses. The ERP will be implemented throughout all phases of the Project.

6 HEALTH AND SAFETY PLAN

Nation Rise Wind Farm Limited Partnership and the general contractor will implement and communicate a Health and Safety Plan during the decommissioning phase of the Project.

7 TRAFFIC MANAGEMENT PLAN

A Traffic Management Plan (TMP) for the Project will be developed in coordination with local municipalities and the Ministry of Transportation Ontario (MTO). The overall purpose of the TMP is to ensure that access to the Project study area will be maintained through all phases of the Project in a manner that ensures the safety of public users. The TMP will therefore provide the strategies, procedures and mitigation measures necessary to ensure continuous and safe access to the Project study area.

The TMP is meant to be utilized during construction and post-construction activities. It will describe the potential impacts caused by Project-related traffic and will provide methods and mitigation measures designed to reduce these impacts.

8 PUBLIC, MUNICIPAL AND ABORIGINAL COMMUNITY NOTIFICATION

Decommissioning activities may require notification to stakeholders, given their potential to temporarily increase traffic, noise, and general disturbance. In the event of Project decommissioning, the Proponent will update the list of stakeholders from the area to ensure that all new stakeholders are considered and notified of the decommissioning activities. In accordance with the requirements of REA, the stakeholder list update and notification would occur approximately six months prior to the start of the decommissioning activities. Local and provincial agencies will also be notified, as required, to discuss the potential approvals and requirements required to conduct the decommissioning activities.

9 OTHER APPROVALS

It is expected that decommissioning activities will require certain permits, similar to those required for construction, given the use of heavy machinery, trucks and oversize loads, and the potential for impacts to the surrounding environment. Authorizations from the following agencies or entities may be required:

- The Township of North Stormont;
- The United Counties of Stormont, Dundas and Glengarry;
- SNCA;
- Fisheries and Oceans Canada;
- MTO;
- Ministry of Labour;
- MNRF; and
- MOECC.

All required authorizations and approvals will be obtained prior to the start of any decommissioning activity and will be based on the current regulations in place at the time of decommissioning.

10 ENVIRONMENTAL EFFECTS MONITORING PLAN

This section presents a summary of potential effects, mitigation measures and residual effects associated with project-environment interactions during the construction and decommissioning phases of the Project. Further information on the construction phase can be found within the CPR.

Prior to decommissioning, the archaeological and heritage assessment reports prepared for the Project will be reviewed to ensure that the archaeological and heritage resources are protected. More detailed discussions relating to natural heritage impacts, archaeological and cultural heritage impacts, land use impacts and water body impacts are found in the Natural Heritage Assessment (NHA) reports, Archaeological Assessment Reports, Heritage Report, and Water Body Reports, as part of the complete REA Application package.

As requested under REA, potential effects from the construction, installation and operation, and decommissioning of the wind farm must be assessed while considering applicable mitigation and compensation measures. The Project *residual effects* (i.e. after considering mitigation/compensation measures) will be determined and their significance will be based on the level of concern and likelihood of each effect. Depending on the outcome of the effects assessment, follow-up and/or monitoring programs could be proposed in order to further investigate the potential effects, or verify the significance of the effect following decommissioning.

10.1.1 Construction and Decommissioning

Table 10-1: Potential Negative Effects and Mitigation Measures – Construction and Decommissioning

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
Cultural Heritage (Protected Properties, Archaeological and Heritage Resources)				
Disturbance or displacement of archaeological resources by any ground disturbance activity.	Avoid disturbance/loss of archaeological sites.	Conduct Archaeological Assessment and apply recommended avoidance measures and other measures from licensed archaeologist or MTCS to project design. Details of the Archaeological Assessment can be found in the reports on this subject as part of the complete REA application package.	The Archaeological Assessment was undertaken as per MTCS guidelines and it is anticipated that the Project will receive confirmation from the MTCS. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Immediate notification of the Archaeologist and the MTCS in the event archaeological resources are found. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and best management practices are applied.
Construction vibrations to sensitive cultural heritage buildings	Minimize direct impacts from vibrations.	Apply avoidance and minimization measures recommended in the Cultural Heritage Assessment. Details of the Cultural Heritage Assessment can be found in the reports on this subject as part of the complete REA application package.	The Cultural Heritage Assessment was undertaken as per MTCS guidelines and it is anticipated that the Project will receive confirmation from the MTCS. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: No monitoring required. Contingency: If the avoidance and minimization measures cannot be implemented, a more detailed vibration analysis will be undertaken by a qualified engineer.
Natural Heritage				
Disturbance of local wildlife (Amphibian Breeding Habitat)	Avoid disturbance and displacement of breeding amphibians.	Avoid construction and decommissioning activities in amphibian breeding habitat within the peak amphibian breeding season (April 15 – June 15), in areas identified as	The NHA was undertaken per MNRF guidelines and this Project is	Monitoring: Environmental supervision will be implemented during construction as part of a routine inspection program to

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		being vulnerable to direct impact.	anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	ensure adherence to the mitigation measures. Contingency: Schedule construction or decommissioning activities during daylight hours, wherever practicable, to limit potential impacts from light, noise, or vehicle interactions.
Disturbance of local wildlife (Bat Maternity Colony)	Avoid disturbance, displacement and mortality of roosting bats.	Avoid construction and decommissioning activities during the critical roosting period (June 1 – June 30) within designated areas that have been identified as being vulnerable to direct impact.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Environmental supervision will be implemented during construction as part of a routine inspection program to ensure adherence to the mitigation measures. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and best management practices are applied.
Disturbance of local wildlife (Butterfly Species of Conservation Concern Habitats)	Avoid disturbance and displacement of butterflies within significant butterfly species of conservation concern habitats.	Avoid construction and decommissioning activities during the flight season (May 1 – September 30) within significant butterfly species of conservation concern habitats that have been identified as being vulnerable to direct impact. Schedule construction and decommissioning activities to occur during daylight hours, wherever practicable, to avoid excessive noise and/or light disturbances to butterflies. If construction and decommissioning activities must occur outside of daylight hours, spotlights will be directed downward and/or away from the features.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Environmental supervision will be implemented during construction as part of a routine inspection program to ensure adherence to the mitigation measures. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and best management practices are applied.
Disturbance of local wildlife (Bird Species of Conservation Concern Habitats –	Avoid disturbance, displacement and mortality to birds that might be breeding within these	Avoid construction and decommissioning activities (including rock blasting, trenching, sawing, or hammering) during the breeding bird period (May 1 – July 31),	The NHA was undertaken as per MNRF guidelines and this Project is	Monitoring: If construction or decommissioning vegetation removal activities must occur during the breeding bird period

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
Crepuscular Species)	habitats and that are active at night.	within designated areas that have been identified as being vulnerable to direct impact. Where possible, schedule construction and decommissioning activities to occur during daylight hours to increase visibility and to avoid light pollution effects during the night. If an active bird nest is identified in the location where natural vegetation clearing is proposed, the area will be protected and no construction activities will occur until the young have fledged or until the nest is no longer active, as confirmed by a qualified biologist. If confirmed significant, where regular Project maintenance activities within 30 m of significant habitats must occur outside of daylight hours, spotlights will be directed downwards and/or away from the identified habitats.	anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	(May 1 – July 31), nest searches will be conducted in affected areas. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and best management practices are applied.
Disturbance of local wildlife (Bird Species of Conservation Concern Habitats – Diurnal Species)	Avoid disturbance, displacement and mortality to birds that might be breeding within these habitats and that are inactive at night.	Avoid construction and decommissioning activities (including rock blasting, trenching, sawing, or hammering) during the breeding bird period (May 1 – July 31) within designated areas that have been identified as being vulnerable to direct impact Schedule construction and decommissioning activities to occur during daylight hours to avoid excessive noise and/or light disturbances to wildlife, wherever practicable. If an active bird nest is identified in the location where natural vegetation clearing is proposed, the area will be protected and no construction activities will occur until the young have fledged or until the nest is no longer active, as confirmed by a qualified biologist. If construction or decommissioning activities must occur outside of daylight	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: If construction or decommissioning vegetation removal activities must occur during the breeding bird period (May 1 – July 31), a biologist will conduct nest searches in affected areas. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and best management practices are applied.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		hours, spotlights will be directed downward and/or away from the features.		
Disturbance of local wildlife (Generalized significant wildlife habitats (SWHs))	Avoid disturbance, displacement or mortality to species that might be breeding within these habitats and that are not accustomed to nighttime disturbances.	Avoid construction and decommissioning activities (including Rock blasting, trenching, sawing, or hammering) during the breeding bird period (May 1 – July 31) within designated areas that have been identified as being vulnerable to direct impact. Schedule construction and decommissioning activities to occur during daylight hours to avoid excessive noise and/or light disturbances to wildlife, wherever practicable. If an active bird nest is identified in the location where natural vegetation clearing is proposed, the area will be protected and no construction activities will occur until the young have fledged or until the nest is no longer active, as confirmed by a qualified biologist. If construction or decommissioning activities must occur outside of daylight hours, spotlights will be directed downward and/or away from the features.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: If construction or decommissioning vegetation removal activities must occur during the breeding bird period (May 1 – July 31), a biologist will conduct nest searches in affected areas. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and best management practices are applied.
Disturbance of local wildlife (Open Country Bird Breeding Habitat)	Avoid disturbance, displacement, and mortality to birds that might be breeding within these habitats, and that are relatively inactive at night and not accustomed to nighttime disturbances.	Avoid construction and decommissioning activities (including Rock blasting, trenching, sawing, or hammering) during the breeding bird period (May 1– July 31) within designated areas that have been identified as being vulnerable to direct impact. Schedule construction and decommissioning activities to occur during daylight hours to avoid excessive noise and/or light disturbances to wildlife, wherever practicable. If an active bird nest is identified in the location where natural vegetation clearing is proposed, the area will be protected and no construction activities will occur until the	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: If construction or decommissioning vegetation removal activities must occur during the breeding bird period (May 1 – July 31), a biologist will conduct nest searches in affected areas. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and best management practices are applied.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		young have fledged or until the nest is no longer active, as confirmed by a qualified biologist. If construction or decommissioning activities must occur outside of daylight hours, spotlights will be directed downward and/or away from the features.		
Disturbance of local wildlife (Reptile Hibernacula)	Avoid disturbance to hibernating snakes.	Schedule construction and decommissioning activities (including rock blasting, trenching, sawing, or hammering) to occur outside of the snake hibernation period (September 15 – May 15) within designated areas that have been identified as being vulnerable to direct impact. If construction and decommissioning activities must occur during the snake hibernation period September 15 – May 15), install exclusionary fencing around the perimeter of the construction disturbance area within areas identified as being vulnerable to direct impact. If a snake is identified where construction or decommissioning activities are proposed, including during habitat removal, the area will be protected and no construction activities will occur until the snake can be relocated by a qualified biologist. If a snake is identified outside of the snake hibernation period (September 15 – May 15) where rock blasting, trenching, sawing, or hammering is proposed, including during habitat removal, the area will be protected and no construction activities will occur until the snake can be relocated by a qualified biologist.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: If construction or decommissioning activities must occur during the snake hibernation season (September 15 – May 15), a biologist will search the area of disturbance immediately prior to habitat removal. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and best management practices are applied.
Disturbance of local wildlife (Turtle Wintering Area)	Avoid disturbance to overwintering turtles.	Schedule construction and decommissioning activities to occur outside of the turtle overwintering period (October 15 – April 15) within designated areas that have been identified as being vulnerable to direct impact.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval	Monitoring: If construction or decommissioning activities must occur during the turtle overwintering season (October 15th – April 15th), a biologist will search the area of disturbance immediately prior to

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		If construction and decommissioning activities must occur during the turtle overwintering season (October 15 – April 15, exclusionary fencing will be installed around the perimeter of the construction disturbance area to avoid directly impacting turtles within designated areas that have been identified as being vulnerable to direct impact. If a turtle is identified where construction or decommissioning activities are proposed, the area will be protected and no construction activities will occur until the turtle can be relocated by a qualified biologist.	from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	activities occurring. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and best management practices are applied.
Disturbance of local wildlife (Waterfowl Stopover and Staging Area)	Avoid disturbance, displacement, and mortality to staging waterfowl.	Schedule construction and decommissioning activities in Waterfowl Stopover and Staging Areas to occur outside of the most important period for staging waterfowl (March 1 – April 30) within designated areas that have been identified as being vulnerable to direct impact. Schedule construction or decommissioning activities during daylight hours, wherever practicable, to limit potential impacts from light, noise, or vehicle interactions. If construction or decommissioning activities must occur during the peak waterfowl staging season, a biologist will confirm that birds are not impacted by construction or decommissioning activities.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Regular biological monitoring of staging waterfowl will be conducted if construction or decommissioning activities will occur during the peak stopover and staging season. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and best management practices are applied.
Damage or removal of vegetation within significant woodlands, SWHs, and Generalized SWHs.	To avoid accidental damage or removal of vegetation within significant woodlands, SWHs, and Generalized SWHs.	Clearly delineate work areas using erosion fencing or other suitable barrier to avoid accidental damage or removal of retained species. The on-site environmental monitor may also consider substituting other demarcating types for fencing, such as staking and flagging, where it is determined that there is no apparent risk to	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this	Monitoring: Undertake weekly monitoring of the dripline when construction or decommissioning activities are anticipated within 10m of a significant woodland, SWH, or Generalized SWH. Undertake regular monitoring of the dripline to ensure the work area is clearly delineated and dripline

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		significant woodlands, SWHs, or Generalized SWHs. This could include instances where the significant features are at a higher elevation than the occurring construction activity. The on-site environmental monitor will be a contractor with experience providing environmental recommendations on a large-scale construction site. Erect erosion fencing, or other barrier, to correspond to the disturbance area limits. Place the erosion fencing, or other barrier, as far away as practicable from the feature or SWH, and no closer than the dripline. Locate all directional drill entry and exit pits a sufficient distance from the edge of significant natural features, SWHs, and Generalized SWHs, to maintain a vertical depth of at least 1.5m at all times below the natural feature to protect the critical root zone.	residual effect is considered non-significant.	boundaries are respected when construction is anticipated to occur within 10-30m of significant woodlands, SWHs, or Generalized SWHs, at a minimum frequency of once per month. Contingency: Prune any tree limbs or roots that are accidentally damaged by construction activities using proper arboricultural techniques. Accidental damage to trees, or unexpected vegetation removal, may require replanting of similar, native species, depending on the extent of damage incurred.
Damage to significant woodlands/wetlands, SWHs, and Generalized SWHs.	Avoid impacts to natural vegetation species in significant woodlands/wetlands, SWHs, and Generalized SWHs.	Avoid the use of herbicides (Project related activities only).	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: No monitoring required. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measure is applied.
Damage to retained trees within significant woodlands and wildlife habitats.	Avoid impacts to retained trees within significant woodlands and wildlife habitats.	Prune any tree limbs or roots that are accidentally damaged by construction activities using proper arboricultural techniques.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF.	Monitoring: Depending on the amount of vegetation removal proposed and proximity to trees to be retained outside of public road allowances, the on-site environmental monitor may recommend monitoring by a Certified Arborist

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
			The likelihood and magnitude of this residual effect is considered non-significant.	during tree removal or pruning. Contingency: Accidental damage to trees, or unexpected vegetation removal, may require replanting of similar, native species, depending on the extent of damage incurred.
Erosion and sedimentation in significant natural features, SWHs, and Generalized SWHs.	Avoid impacts associated with erosion and sedimentation in significant natural features, SWHs, and Generalized SWHs.	The general contractor will develop and implement an erosion and sediment control (ESC) plan. Install, monitor, and maintain ESC measures (i.e. erosion fencing) around the Project Location for the duration of the construction or decommissioning activities, as identified within the ESC plan. Erect erosion fencing, or other barrier, to correspond to the construction disturbance area limits. Place the erosion fencing, or other barrier, as far away as practicable from the identified feature(s), and no closer than the dripline. Depending on site-specific conditions, such as steep topography and the presence of direct, or regular, surface water flow, the on-site environmental monitor may consider substituting other styles of fencing, when appropriate. Utilize erosion blankets, silt fencing, straw bales, etc. for construction. Store any stockpiled material more than 30m from significant natural features, SWHs, and Generalized SWHs throughout the construction and decommissioning phases. Schedule grading to avoid times of high run-off volumes, wherever practicable. Re-vegetate areas adjacent to the feature(s) as soon as practicable after construction activities are complete.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Undertake regular monitoring and routine inspections to ensure proper installation of erosion control measures are in place. Monitor sediment and erosion control measures, such as erosion fencing, and check dams daily in areas where work is taking place and prior to and after any storm events. Monitor sediment and erosion control measures weekly in areas where active construction is not occurring until the construction phase is complete. Contingency: If deficiencies in sediment and erosion control measures are noted, the on-site environmental monitor will notify the general contractor and the Proponent and recommend remedial actions. Silt fencing, or other applicable sediment and erosion control measures, that is not working properly will be corrected. If sedimentation and erosion control measures fail or/and degradation of the natural feature occurs, appropriate contingency measures will be implemented, which may include re-establishing mitigation measures, habitat remediation, and/or seeding of permanently damaged areas, depending on the extent of degradation

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		Collect directional drill cuttings as they are generated and placed in a soil bin or bag for off-site disposal. Restore and revegetate directional drill entry/exit pits to pre-construction conditions as soon as practicable after construction.		incurred.
Fugitive dust within significant natural features, SWHs, and Generalized SWHs.	Avoid fugitive dust within significant natural features, SWHs, and Generalized SWHs.	On-site speed limits will be clearly posted, applied, and followed by construction staff. Apply dust suppressants to unpaved areas when necessary to suppress dust, as determined by the on-site environmental monitor and the general contractor. Application frequency will vary, but will be determined by site specific weather conditions, including recent precipitation, temperatures, and wind speeds. Re-vegetate cleared areas as soon as reasonably practicable after construction activities are complete. Install wind fences where determined to be necessary by the on-site environmental monitor. Installation of these fences will depend on site-specific conditions, including wind speeds, topography, land cover, and the extent of surrounding natural wind breaks.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Undertake regular monitoring and routine inspections to ensure proper fugitive dust control measures are in place. Monitor dust control measures at least once per week in areas where work is taking place. Monitor dust control measures at least once per month in areas where active construction is not occurring until the construction phase is complete. Contingency: If fugitive dust is noted, the on-site environmental monitor will notify the general contractor and the Proponent and recommend remedial actions, if necessary. If fugitive dust control measures fail and degradation of the natural feature occurs, appropriate contingency measures will be implemented, which may include re-establishing mitigation measures, habitat remediation, and/or seeding of permanently damaged areas depending on the extent of degradation incurred.
Fugitive dust and debris from blasting within significant natural features and SWHs.	Avoid fugitive dust and debris within significant natural features and SWHs.	Use blasting mats to contain debris and spray the surface of the blast site with water to reduce the amount of dust emitted.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval	Monitoring: Monitor to ensure proper fugitive dust and debris control measures for blasting are in place and functioning as intended for all blasting activities.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
			from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Contingency: If fugitive dust or debris is noted, the on-site environmental monitor will notify the general contractor and the Proponent and recommend remedial actions, if necessary. If fugitive dust and debris control measures fail and degradation of the natural feature occurs, appropriate contingency measures will be implemented, which may include re-establishing mitigation measures, habitat remediation, and/or seeding of permanently damaged areas depending on the extent of degradation incurred.
Loss of vegetation communities and significant wetlands.	Avoid direct impacts on vegetation communities and protect significant wetlands. Avoid impacts to hydrological connectivity of significant wetlands.	Clearly delineate work areas using erosion fencing, or other barrier, to minimize potential impacts to hydrological connectivity from loss of riparian vegetation. Depending on site-specific conditions, such as steep topography and the presence of direct, or regular, surface water flow, the on-site environmental monitor may consider substituting other styles of fencing for erosion fencing, when appropriate. Where the temporary construction area is proposed to be within 5m of, but not overlapping by a method other than directional drilling, a wetland (excluding along existing municipal roads), design any permanent infrastructure (i.e., access roads) to be 5m from the wetland edge and plant native vegetation in the 5m buffer between the infrastructure and wetland edge as soon as reasonably practicable after construction. Re-vegetate cleared areas as soon as reasonably practicable after construction activities are complete.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Undertake regular monitoring of the identified features to ensure the work area is clearly delineated for the duration of the construction and decommissioning phases of the Project. Undertake monitoring at least once per week when activities are occurring within 10m of a feature. Undertake regular monitoring of the feature to ensure the work area is clearly delineated and respected when construction is anticipated to occur within 10-30m of the features, at a minimum frequency of once per month. Depending on the season and site-specific conditions, such as topography, surface water flow patterns, and the presence or absence of vegetative buffers, monitoring frequency will be increased at the discretion of the on-site environmental monitor. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
				best management practices are applied.
Change in groundwater discharge affecting significant wetlands and Generalized SWHs.	To minimize direct impacts on significant wetlands and Generalized SWHs.	Monitor rate of water pumping and timing to meet the requirement of less than 50,000L per day, or otherwise obtain an appropriate permit from the Ministry of the Environment and Climate Change (MOECC) that addresses increased water taking, if more than 50,000L per day is required. Restrict taking of groundwater and surface water during extreme low flow time periods. Control quantity and quality of stormwater discharge using best management practices, and avoid direct discharge into wetlands, SWHs, and Generalized SWHs.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Undertake regular monitoring of significant wetlands and Generalized SWHs to ensure the work area is clearly delineated within 10m of construction activities for the duration of the construction and decommissioning phases of the Project. This monitoring will be conducted at least once per week when construction is anticipated within 10m of a significant wetland or Generalized SWH. Undertake regular monitoring of significant wetlands and Generalized SWHs to ensure the work area is clearly delineated and respected when construction is anticipated to occur within 10-30m of the features, at least once per month. Depending on the season and site-specific conditions, such as topography, surface water flow patterns, and the presence or absence of vegetative buffers, monitoring frequency will be increased at the discretion of the on-site environmental monitor. Contingency: If impacts to groundwater discharge occur as a result of construction activities, the MNRF will be notified of appropriate contingency measures that will be implemented.
Changes on infiltration affecting significant wetlands and Generalized SWHs.	To minimize impacts to infiltration within significant wetlands and Generalized SWHs.	Minimize the use of impervious surfaces where practicable, such as utilizing and contouring permeable surface material (e.g. aggregate) to increase infiltration, and reduce surface water run-off.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and	Monitoring: Environmental supervision will be implemented during construction as part of a routine inspection program to ensure adherence to the prescribed mitigation measures. Contingency:

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
			magnitude of this residual effect is considered non-significant.	The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and best management practices are applied.
Changes in soil moisture regime affecting vegetation species composition within significant natural features, SWHs, and Generalized SWHs.	Avoid changes in soil moisture regime and vegetation species composition within significant natural features, SWHs, and Generalized SWHs.	Minimize the use of impervious surfaces where practicable, such as utilizing and contouring permeable surface material (e.g. aggregate) to increase infiltration, and reduce surface water run-off. Minimize paved surfaces and design roads to promote infiltration.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Environmental supervision will be implemented during construction as part of a routine inspection program to ensure adherence to the prescribed mitigation measures. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and best management practices are applied.
Change in water quality affecting significant wetlands	Avoid changes to water quality (i.e. associated with increased turbidity) within significant wetlands.	Clearly delineate work areas using erosion fencing, or other barrier, to minimize potential impacts to water quality which may result from accidental loss of riparian vegetation. Apply dust suppressants to unpaved areas when necessary to suppress dust, as determined by the on-site environmental monitor and general contractor. Application frequency will vary, but will be determined by site specific weather conditions, including recent precipitation, temperatures, and wind speeds. On-site speed limits will be clearly posted, applied, and followed by construction staff. Re-vegetate areas adjacent to significant wetlands as soon as practicable after construction activities are complete. Install wind fences where determined to be necessary by the on-site environmental monitor. Installation of these fences will depend on site-specific conditions, including wind speeds, topography, land cover, and	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Undertake regular monitoring of significant wetlands to ensure the work area is clearly delineated within 10m of construction activities for the duration of the construction and decommissioning phases of the Project. This monitoring will be conducted at a minimum frequency of once per week when construction is anticipated within 10m of a significant wetland. Undertake regular monitoring of significant wetlands to ensure the work area is clearly delineated and respected when construction is anticipated to occur within 10-30m of significant wetlands, at a minimum frequency of once per month. Depending on the season and site-specific conditions, such as topography, surface water flow patterns, and the presence or absence of vegetative buffers, monitoring frequency will be increased at the discretion of the on-site environmental

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		the extent of surrounding natural wind breaks. No use of herbicides (Project related activities only) within significant wetlands.		monitor. Contingency: If reduced water quality (i.e. increased turbidity) as a result of construction activities is observed, the MNRF will be notified of appropriate contingency measures that will be implemented.
Invasive Seed Transfer	Avoid impacts to sensitive habitats and maintain vegetated buffers, including riparian zones.	Clearly delineate work areas using erosion fencing, or other barrier, to minimize seed transfer into suitable habitat. Regularly clean vehicles and equipment. Vehicle use will occur primarily on access roads and in agricultural habitats, where invasive and non-native vegetation species are less likely to be concentrated.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Environmental supervision will be implemented during construction as part of a routine inspection program to ensure adherence to the prescribed mitigation measures. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and best management practices are applied.
Soil compaction within significant natural features, SHWs, and Generalized SWHs.	Avoid soil compaction within significant natural features, SHWs, and Generalized SWHs.	Minimize vehicle traffic on exposed soils during site clearing, grubbing, grading and topsoil removal. Clearly delineate the dripline and root zone of all trees within 10m of construction activities with erosion fencing or other barrier.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Environmental supervision will be implemented during construction as part of a routine inspection program to ensure adherence to the prescribed mitigation measures. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and best management practices are applied.
Contamination of significant natural features, SWHs, and Generalized SWHs.	Avoid spills within 30m of significant natural features, SWHs, and Generalized SWHs.	The general contractor will develop and implement a spill response plan and train staff on appropriate procedures. The general contractor will develop a "frac-out" contingency plan and train staff on appropriate procedures during the	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF.	Monitoring: Regular environmental monitoring will occur at least once every two weeks during the construction and decommissioning phase to ensure vehicle refuelling and storage of chemicals is occurring more than 30m

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		construction phase. Keep emergency spill kits on site. Keep contact information for the MOECC Spills Action Centre in a designated area on-site. Dispose of waste material by authorized and approved off-site vendors. Store hazardous materials in designated areas. Locate all vehicle refuelling or washing, as well as the storage of chemical and construction equipment more than 30m from applicable features.	The likelihood and magnitude of this residual effect is considered non-significant.	from the applicable features. An on-site environmental monitor will be present when active directional drilling is occurring within 30m of significant natural features, SWHs, and Generalized SWHs. Contingency: If "frac-out" occurs, immediately implement "frac-out" contingency plan. In the event of a spill notify the MOECC Spills Action Centre, immediately stop work, and ensure all efforts are made to completely remediate affected areas, especially prior to rain events. If a spill occurs within a significant natural feature, SWH, or Generalized SWH, the on-site environmental monitor will be notified and a follow-up site inspection will be conducted to document extent of degradation of the features, if any. If degradation of significant natural features, SWHs, or Generalized SWHs occurs as a result of the spill, appropriate contingency measures will be implemented, which may include re-establishing mitigation measures, habitat remediation, and/or seeding of permanently damaged areas depending on the extent of degradation incurred.
Disturbance, displacement or mortality of wildlife.	Avoid disturbance, displacement, and mortality to wildlife.	On-site speed limits will be clearly posted, applied, and followed by construction staff throughout the construction and decommissioning phases. Re-vegetate disturbed areas of significant wildlife habitats as soon as practicable after construction activities are complete using an appropriate plant species composition for the habitat type.	The NHA was undertaken as per MNRF guidelines and this Project is anticipated to receive approval from the MNRF. The likelihood and magnitude of this residual effect is considered non-	Monitoring: Environmental supervision will be implemented during construction as part of a routine inspection program to ensure adherence to the prescribed mitigation measures. Contingency: Wildlife fatalities due to construction and decommissioning activities will be documented and may be used to

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
			significant.	determine if any additional mitigation measures should be implemented.
Water bodies				
Damage to water body banks or removal of riparian vegetation adjacent to water bodies	Avoid accidental damage to water body banks or removal of riparian vegetation adjacent to water bodies.	Clearly delineate work area using erosion fencing or other suitable barrier to avoid accidental damage to water body banks, including damage to or removal of riparian vegetation. Place the erosion fencing, or other barrier, as far away as practical from the water body, and where possible from the average annual high-water mark of the water body (e.g. bankfull level or top of bank). The on-site environmental monitor may also consider substituting other demarcating types for fencing, such as staking and flagging, where it is determined that there is no apparent risk to water bodies. Locate directional drilling entry/exit shafts, if applicable, beyond the top of bank at a distance that allows the minimum depth, as established by geotechnical studies, to be reached while below the water body. This distance should be agreed upon with regulatory agencies. Operate construction equipment (i.e., cranes, back hoes, etc.) in a manner that minimizes disturbance to the water body banks and stays outside of the water body and bank area. Implement riparian planting after construction, as soon as weather permits, to stabilize water body banks and encourage rapid revegetation of disturbed soils. This will aid in preventing bank collapse and erosion, which, in turn, will minimize sedimentation and protect sensitive ecological functions that occur in water bodies.	The Water Body Assessment was undertaken as per MOECC guidelines and this Project is expected to receive confirmation from the MOECC. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Undertake regular monitoring of the work delineation fencing at a minimum frequency of once per month to ensure damage has not occurred to the fencing, and boundaries are clearly delineated and respected when construction is occurring within 30m of a water body. Contingency: Accidental damage to riparian vegetation may require replanting of similar, native species, depending on the extent of damage incurred.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		If insufficient time is available in the growing season to establish vegetative cover, overwintering treatments should be applied, such as erosion control blankets, fibre matting, rock (i.e. large, clean angular rocks) reinforcement/armouring or equivalent to contain the site over the winter period. Plant vegetative cover as soon as is feasible in the next growing season, followed by maintenance and inspection.		
Contamination of water bodies.	Avoid spills and contamination of water bodies.	Clearly delineate the work area and place the fencing/barriers, as far away as practical from the average annual high-water mark of the water body (e.g. bankfull level or top of bank). Locate directional drilling entry/exit shafts, if applicable, beyond the top of bank, at a distance that allows the minimum depth, as established by geotechnical studies, to be reached while below the water body. This distance should be agreed upon with regulatory agencies. Develop a Spill Response Plan (SRP) prior to commencement of construction and train staff on appropriate procedures. Keep emergency spill kits on site at all times. Keep contact information for the MOECC (Ministry of the Environment and Climate Change) Spills Action Centre in a designated area on-site. Dispose of waste material by authorized and approved off-site vendors. Store fuel, hazardous materials, and other construction related materials securely away from any drainage features. Locate all vehicle refuelling or washing stations a minimum of 30m from any water body. Develop and implement an emergency	The Water Body Assessment was undertaken as per MOECC guidelines and this Project is expected to receive confirmation from the MOECC. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Environmental monitoring will occur at least once every two weeks during the construction and decommissioning phase to ensure vehicle refuelling and storage of chemicals is occurring more than 30m from any water body. An on-site environmental monitor will be present when active directional drilling is occurring within 30m of a water body to identify "frac-out", if it occurs. Contingency: In the event of a spill, notify the MOECC Spills Action Centre, immediately stop work, and ensure all efforts are made to completely remediate affected areas, especially prior to rain events. If a spill occurs within a water body, the on-site environmental monitor will be notified and a follow-up site inspection will be conducted to document extent of degradation of the features, if any. If degradation of a water body occurs because of the spill, appropriate contingency measures will be implemented, which may include re-establishing mitigation measures, habitat remediation, and/or seeding of banks and/or riparian areas in permanently damaged areas,

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		"frac-out" response plan including steps to contain, monitor and clean-up in response to the event.		depending on the extent of degradation incurred. If "frac-out" occurs, immediately implement "frac-out" contingency plan, identified
Changes in infiltration and surface drainage patterns and run-off.	Avoid changes to infiltration and changes in surface drainage patterns and run-off.	Minimize the use of impervious surfaces, where practical, such as utilizing and contouring permeable surface material (e.g. aggregate) to increase infiltration, and reduce surface water run-off. Minimize vehicle traffic on exposed soils during site clearing, grubbing, grading and topsoil removal. Confine construction equipment to designated areas, controlled vehicle access routes to minimize the potential for soil compaction. Clearly delineate work areas using erosion fencing or other suitable barrier to avoid accidental damage to water body banks or removal of riparian vegetation. Place the erosion fencing, or other barrier, as far away as practical from the water body from the average annual high-water mark of the water body (e.g. bankfull level or top of bank). Avoid construction during high volume rain events and substantial snow melt/thaw events, where possible, to avoid risk of soil compaction.	The Water Body Assessment was undertaken as per MOECC guidelines and this Project is expected to receive confirmation from the MOECC. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Undertake regular monitoring of the work delineation fencing at a minimum frequency of once per month to ensure damage has not occurred to the fencing, and boundaries are clearly delineated and respected when construction is occurring within 30m of a water body. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and best management practices are applied.
Erosion and sedimentation of waterbodies.	Avoid erosion and sedimentation of water bodies.	Develop and implement an erosion and sediment control (ESC) plan. Install, monitor, and maintain ESC measures (e.g. erosion fencing, blankets, straw bales, etc.) around the Project Location for the duration of the construction or decommissioning activities, as identified within the ESC plan. Clearly delineate work areas using erosion	The Water Body Assessment was undertaken as per MOECC guidelines and this Project is expected to receive confirmation from the MOECC. The likelihood and magnitude of this	Monitoring: Undertake regular monitoring and routine inspections to ensure proper installation of erosion control measures are in place. Monitor sediment and erosion control measures, such as erosion fencing, and check dams daily in areas where work is taking place, and prior to, during,

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		fencing or other suitable barrier to avoid accidental damage or removal of retained species. Erect erosion fencing, or other barrier, to correspond to the construction disturbance area limits and as far away as practical from the average annual high-water mark of the water body (e.g. bankfull level or top of bank). Depending on site-specific conditions, such as steep topography and the presence of direct, or regular, surface water flow, the on-site environmental monitor may consider substituting other styles of fencing, when appropriate. Utilize erosion blankets, silt fencing, straw bales, etc., for construction. Store any stockpiled material more than 30m from the average annual high-water mark of water bodies (e.g. bankfull level for intermittent/permanent watercourses). Schedule grading to avoid times of high run-off volumes, wherever possible. Where possible, time clearing, grubbing, and grading activities to avoid seasonally wet periods (i.e., spring and fall). Collect directional drill cuttings as they are generated and placed in a soil bin or bag for off-site disposal. Re-vegetate areas adjacent to water bodies, and directional drill entry/exit pits, to pre-construction conditions as soon as practical after construction activities are complete. Schedule construction activities within 30m of a water body to occur within the low flow period of the late summer months, where possible, to avoid or minimize impacts. Remove construction debris from the site and stabilize stockpiles, where practical, to prevent debris from entering the nearby	residual effect is considered non-significant.	and after any storm events or significant snowmelt events. During extended rain or snowmelt periods, monitor erosion control measures daily. Monitor sediment and erosion control measures monthly in areas where active construction is not occurring until the construction phase is complete. Undertake regular monitoring of the work delineation fencing at a minimum frequency of once per month to ensure damage has not occurred to the fencing, and boundaries are clearly delineated and respected when construction is occurring within 30m of a water body. Contingency: If deficiencies in sediment and erosion control measures are noted, the on-site environmental monitor will notify the general contractor and the Proponent and recommend remedial actions. Silt fencing, or other applicable sediment and erosion control measures, that is not working properly will be corrected. If sedimentation and erosion control measures fail and/or degradation of a water body occurs, appropriate contingency measures will be implemented, which may include re-establishing mitigation measures, water body clean out and/or bank stabilization, depending on the extent of degradation incurred. Repair or replace any damaged fencing immediately

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		water bodies. Develop a Flood Response Plan (FRP) to deal with on-site flooding in order to mitigate any possible effects to the aquatic environment.		
Groundwater discharge	Avoid direct impacts to water quantity/quality in water bodies.	Monitor rate of water pumping and timing to meet the requirement of less than 50,000 L per day per turbine location, and contact the local Ministry of the Environment and Climate Change (MOECC) if a total of more than 400,000 L per day situation arises. Restrict taking of groundwater and surface water during extreme low flow time periods. Control quantity and quality of stormwater discharge using best management practices, and avoid direct discharge into wetlands, SWHs, and Generalized SWHs. When discharging to a water body follow the ESC Plan and implement best management practices to avoid degradation of the water body. Adhere to MOECC water quality Policy 1 and 2 Standards for discharging to water bodies. If discharging to a municipal storm sewer system, ensure that water quality meets the objectives of the municipal storm sewer by-law prior to discharge. Obtain water quality and turbidity samples prior to discharge to ensure the quality is suitable for discharge and will not result in an impact to the receiving water body. If the water quality is not suitable for discharge, identify alternate disposal locations or undertake all practical measures to upgrade water quality prior to discharge.	The Water Body Assessment was undertaken as per MOECC guidelines and this Project is expected to receive confirmation from the MOECC. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Monitor water levels of adjacent water body during groundwater dewatering activities to determine if activities are resulting in alteration of water levels within the water body. Monitor endpoint of dewatering discharge for water quality and erosion (if dewatering). Conduct daily erosion checks during discharge of water. Monitor water quality (turbidity) prior to discharge, once a week thereafter or as described by agencies. Contingency: If impacts to groundwater discharge occur because of construction activities, the MNRF will be notified of appropriate contingency measures that will be implemented.
Water Quality Impairment	Avoid degradation of surface water quality and changes in	Clearly delineate the work area using erosion fencing, or other barrier, to	The Water Body Assessment was	Monitoring: Follow the ESC Plan monitoring

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
	water quantity related to construction activities.	minimize potential impacts to water quality which may result from loss of riparian vegetation. Place erosion fencing as far as practical from the average annual high-water mark of the water body (e.g. bankfull level or top of bank). Erect erosion fencing, or other barrier, to correspond to the disturbance area limits. Place the erosion fencing, or other barrier, as far away as practical from the average annual high-water mark of the water body (e.g. bankfull level or top of bank). Locate directional drilling entry/exit shafts, if applicable, beyond the top of bank, at a distance that allows the minimum depth, as established by geotechnical studies, to be reached while below the water body. This distance should be agreed upon with regulatory agencies. On site speed limits will be clearly posted, applied, and followed by construction staff to reduce fugitive dust. Apply dust suppressants to unpaved areas when necessary to suppress dust, as determined by the on-site environmental monitor and general contractor. Application frequency will vary, but will be determined by site-specific weather conditions, including recent precipitation, temperatures, and wind speeds. Install wind fences, where determined to be necessary by the on-site environmental monitor. Installation of these fences will depend on site-specific conditions, including wind speeds, topography, land cover, and the extent of surrounding natural wind breaks. Restrict taking of groundwater and surface water during extreme low flow time periods.	undertaken as per MOECC guidelines and this Project is expected to receive confirmation from the MOECC. The likelihood and magnitude of this residual effect is considered non-significant.	commitments. Monitor surface water quality for turbidity prior to conducting in-water work or surface water dewatering. Conduct pre-construction sampling immediately prior to beginning work and during the same season in which work will be conducted, where possible. Locate pre-construction monitoring stations upstream of construction area to provide baseline conditions. Monitor surface water turbidity during the construction activity at a frequency relative to the proximity to the water body, duration of the construction activity, and type of construction activity, as determined by the Environmental Construction Monitor. Obtain water quality and turbidity samples prior to discharge to ensure the quality is suitable for discharge and will not result in an impact to the receiving water body. When discharging to a different drainage feature, monitor general water quality parameters as required to meet MOECC Policy 1 and 2 standards for discharging to a water body. In addition, measure turbidity levels of water to be discharged. If the water quality is not suitable for discharge, identify alternate disposal locations or undertake all practical measures to upgrade water quality prior to discharge. Monitor water levels immediately before and during dewatering activities, to determine if dewatering activities are resulting in alteration of water levels within the water body.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		If in-water work is required (e.g. for culvert installation and/or electrical collector line installation), adhere to required timing windows confirmed through consultation with regulatory agencies, including the MNRF. If required, perform in-water work in dry conditions, where possible. Where work in dry conditions is not possible, short-term, isolated surface water dewatering is required. Prior to dewatering, isolate the work area with the installation of a temporary water containment structure. The structure should form an impermeable enclosure that will prevent debris and sediment from escaping into the surrounding water body. Construct a bypass channel to maintain flow through the water body and prevent back flooding, which could ultimately overtop the water containment structure. Obtain applicable permits, where required, for surface water dewatering. Prior to surface water dewatering, obtain a Fish Salvage Plan, prepared by a qualified fisheries biologist and relocate fish to a suitable location, preferably downstream and away from the construction area, as detailed in the plan. Install an in-stream sediment filter (e.g. Siltsoxx or Filtersoxx) downstream of water containment structure. Dewatering discharge should be dissipated (i.e. splash pads, sand bags, hay bales, etc.) and may require splitting discharge to more than one location. Dewatering discharge rates should be evaluated to ensure they do not result in erosion and sedimentation to the receiving water body. If discharging to a municipal storm sewer		Monitor the discharge location for dewatering activities to ensure erosion and sedimentation of the receiving water body is not occurring. Monitor erosion and sediment control systems frequently for effectiveness at a minimum of once daily during discharge activities. Repair deficient controls in a timely manner and using an adaptive management approach when deemed appropriate. Monitor bypass channel (if applicable) daily to ensure it is functioning appropriately and water is flowing through as designed. Undertake regular monitoring of the work delineation fencing at a minimum frequency of once per month to ensure damage has not occurred to the fencing, and boundaries are clearly delineated and respected when construction is occurring within 30m of a water body. Contingency: If reduced water quality (i.e. increased turbidity) because of construction activities is observed, the MNRF will be notified of appropriate contingency measures that will be implemented. Repair or replace any damaged fencing immediately upon discovering an issue.

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		system, ensure that water quality meets the objectives of the municipal storm sewer by-law prior to discharge. Re-vegetate disturbed area adjacent to water bodies as soon as practical after construction activities are complete.		
Alterations to water bodies.	To minimize fugitive dust deposits within water bodies.	On-site speed limits will be clearly posted, applied, and followed by construction staff. Apply dust suppressants to unpaved areas when necessary to suppress dust, as determined by the on-site environmental monitor and the general contractor. Application frequency will vary, but will be determined by site specific weather conditions, including recent precipitation, temperatures, and wind speeds. Re-vegetate cleared areas as soon as reasonably practical after construction activities are complete. Install wind fences where determined to be necessary by the on-site environmental monitor. Installation of these fences will depend on site-specific conditions, including wind speeds, topography, land cover, and the extent of surrounding natural wind breaks.	The Water Body Assessment was undertaken as per MOECC guidelines and this Project is expected to receive confirmation from the MOECC. The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Undertake regular monitoring and routine inspections to ensure proper fugitive dust control measures are in place. Monitor dust control measures at a minimum weekly frequency in areas where work is taking place. Monitor dust control measures at a minimum monthly frequency in areas where active construction is not occurring until the construction phase is complete. Contingency: If fugitive dust is noted, the on-site environmental monitor will notify the general contractor and the Proponent and recommend remedial actions, if necessary. If fugitive dust control measures fail and degradation of water bodies occurs, appropriate contingency measures will be implemented, which may include re-establishing mitigation measures, and/or seeding of permanently damaged areas depending on the extent
Emissions to Air, including Odour and Dust				
Reduction in air quality due to CAC emissions and dust.	Minimize deterioration of air quality.	Ensure proper operation and maintenance of vehicles and machinery to limit noise, CAC emissions and leaks.	The likelihood and magnitude of this residual effect is	Monitoring: Track all complaints and conduct follow-up monitoring (see Complaints

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
		Use water or water-based dust suppressant to control dust on unpaved roads. Implement speed limits on unpaved roads. Minimize vehicular traffic on exposed soils and stabilize high traffic areas with clean gravel surface layer or other suitable cover material. Minimize mud tracking by construction vehicles along access routes and areas outside of the immediate work site, and ensuring timely clean-up of any tracked mud, dirt and debris. Cover or otherwise contain loose construction materials that have potential to release airborne particulates during transport, installation or removal. Restore temporary construction road areas as soon as possible to minimize the duration of soil exposure.	considered non-significant.	Resolution Process in emergency Response and Communications Plan Section 7 of the Design and Operations Report (DOR)) Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation/compensation measures and best management practices are applied.
Noise				
Increase in noise levels in Project study area.	Minimize noise increases for inhabited areas.	Ensure proper operation and maintenance of vehicles and machinery to limit noise, CAC emissions and leaks. Implement speed limits on unpaved roads. Construction equipment will be kept in good condition and will not exceed the noise emissions as specified in MOECC publication NPC-115 and any applicable municipal by-laws	The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in emergency Response and Communications Plan Section 7 of the DOR) Contingency: Faulty equipment resulting in increased noise levels are to be repaired in a timely fashion.
Local and Provincial Interests, Land, Use and Infrastructure				
Increased congestion due to increase in truck traffic and short-term lane closures	Minimize disturbance to local community and achieve zero human safety incident.	Notify the community in advance of construction delivery schedules and installing signage to notify road users of construction activity.	The likelihood and magnitude of this residual effect is considered non-	Monitoring: Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in Emergency

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
on local roads during delivery of Project components.		If required by municipal authorities develop a traffic management plan for the construction phase and submit to the Municipalities prior to construction and communicate truck routes.	significant.	Response and Communications Plan Section 7 of the DOR) Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation/compensation measures and best management practices are applied.
Damage to local infrastructure.	Minimize damage to local infrastructure.	Adhere to the best practices regarding the operation of construction equipment and delivery of construction materials. If required by municipal authorities, undertake roads condition surveys prior to construction and post-construction.	The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: Track all complaints and conduct follow-up monitoring (see Complaints Resolution Process in Emergency Response and Communications Plan Section 7 of the DOR) Contingency: If required by local authorities, return damaged infrastructure to original condition (or better) where appropriate.
Areas Protected under Provincial Plans and Policies				
N/A	-	-	-	-
Public Health and Safety				
Effects on public health and safety during construction have been described above under Emissions to air, including Odour and Dust, Noise and Local and Provincial Interests Land Use and Infrastructure.	-	-	-	-
Other Resources				

Potential Effect	Performance Objective	Mitigation/Compensation Measures	Residual Effect	Monitoring / Contingency
Potential impacts to petroleum wells or facilities (APRD)	No negative effects on petroleum resources or the renewable energy project	As part of the APRD and as per the MNR "Template for Renewable Energy Projects: Setbacks from Petroleum Operations" a search was conducted using the OGSR database to identify any petroleum wells or facilities within 75 m of project infrastructure. The search concluded that there are no active petroleum wells or facilities existing within 75 m of the Project Location. Notice of the findings was reported to the local District MNR office.	The likelihood and magnitude of this residual effect is considered non-significant.	Monitoring: The magnitude of the residual effect is considered non-significant therefore no monitoring is required provided the recommended mitigation measures and best management practices are applied. Contingency: The magnitude of the residual effect is considered non-significant therefore no contingency is required provided the recommended mitigation measures and best management practices are applied.

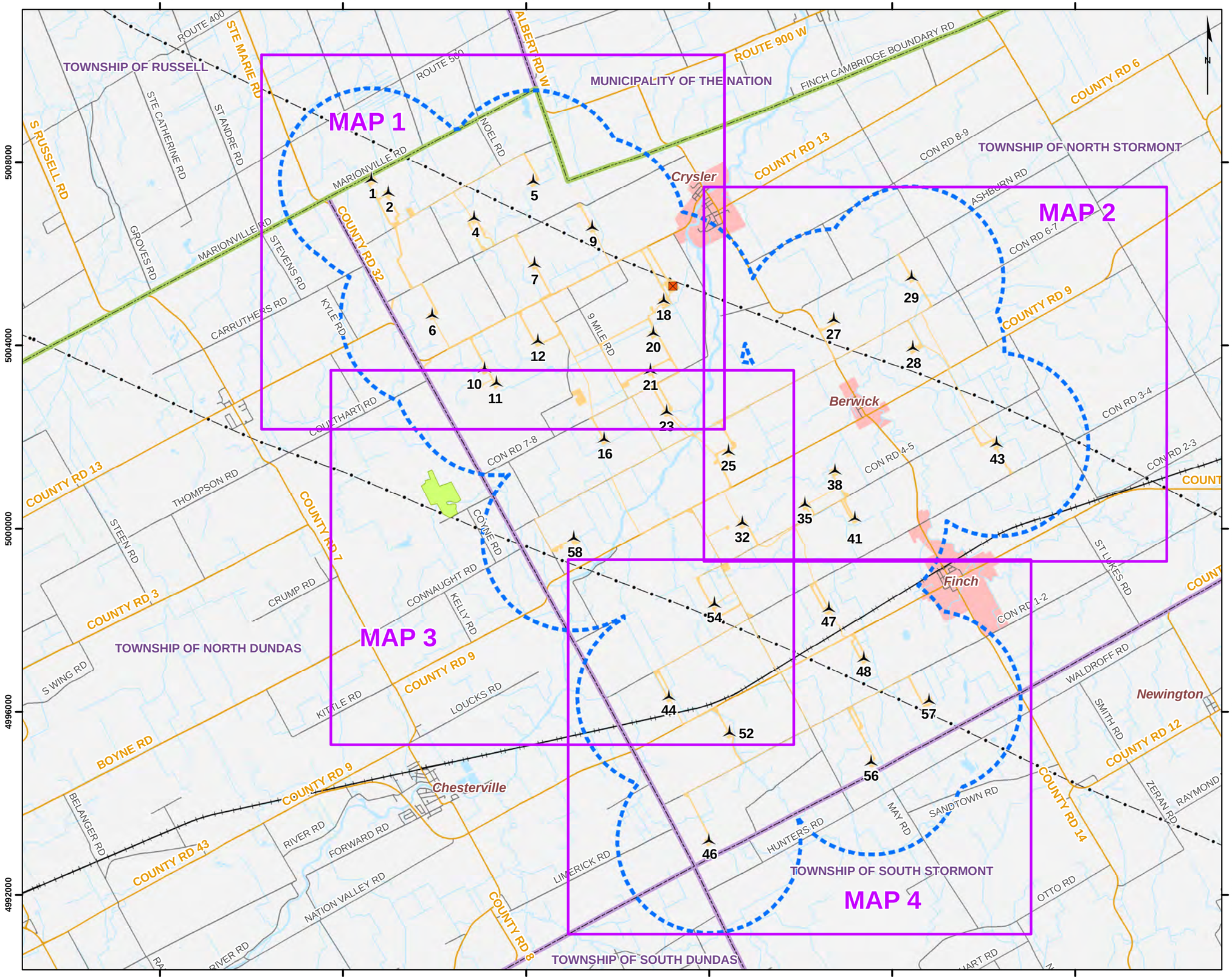
11 REFERENCES

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

[2] Technical Guide to Renewable Energy Approvals, Ontario Ministry of the Environment and Climate Change, 2017.

[3] DNV GL, Design and Operations Report, Nation Rise Wind Farm, 03 August 2017.

APPENDIX A – SITE PLAN MAPS



Legend

Project Components

- Wind Turbine (34)
- Substation, Switchyard
- Project Location
- Wind Turbine (2 km Buffer)
- City Light Solar Farm

Other Components

- Railroad
- Local Road
- Secondary Road
- Existing HONI Transmission Line
- Watercourse
- Built Up Area
- Waterbody



0 0.5 1 2 3 4 Kilometers

Nation Rise Wind Farm

SITE PLAN MAP EXTENTS

001-10021027-170303-AD

6 July 2017

DNV·GL

Projection: UTM Zone 18, NAD83

Sources: Land Information Ontario, ArcGIS Online, United Counties of Stormont, Dundas and Glengarry, United Counties of Prescott and Russell, DRAPE (Sept 2014), First Base Solutions (March 2017), NRSI, Golder.

480000
482000
484000
486000
488000
5008000
5006000
5004000
5002000

UNITED COUNTIES OF PRESCOTT AND RUSSELL
TOWNSHIP OF RUSSELL
MUNICIPALITY OF THE NATION
TOWNSHIP OF NORTH STORMONT
UNITED COUNTIES OF STORMONT, DUNDAS AND GLENGARRY
TOWNSHIP OF NORTH DUNDAS
Crysler

Legend

Project Components

- Wind Turbine (33)
- Substation, Switchyard
- Meteorological Mast
- Collection System
- Access Road
- Crane Path
- Temporary Construction Access Road
- Turning Radii
- Project Location
- Substation Area
- Laydown Area
- Property Boundary Setback (132 m)
- Road and Railway Setback (81 m)
- Noise Receptor Setback (550 m)
- Project Location (120 m)
- Project Location (300 m)

Waterbody Assessment *

- Watebody Assessment Point

Natural Heritage Features*

- Significant Wetland [1]
- Significant Woodland
- Significant Habitats for Species of Conservation Concern
- Treated as Significant Specialized Wildlife Habitats and Rare Vegetation Communities [2]
- Significant Seasonal Concentration Areas
- Treated As Significant Seasonal Concentration Areas [2]
- Generalized Significant Wildlife Habitat [3]

Cultural Heritage Features

- Cultural Heritage Value Interest

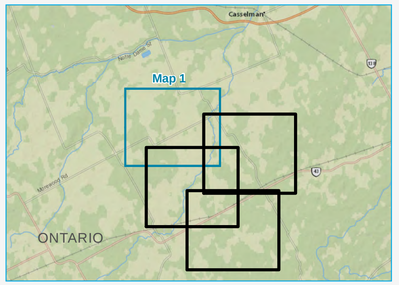
Noise Receptor *

- 1 Storey Receptor
- 2 Storey Receptor
- 3 Storey Receptor
- Vacant Lot Receptor
- Participant Receptor

Other Components

- Arterial / Collector
- Local Road / Street
- Railway
- Existing HONI Transmission Line
- Intermittent Watercourse
- Permanent Watercourse
- Municipal Drain
- Contour (Interval: 5 m)
- County Boundary
- Municipal Boundary
- Property Boundary
- Waterbody

* Natural Features Distance: See App. E Evaluation of Significance Report Table 7 and 8.
Waterbody Distance: See App. F Water Body Report Table 4.
Receptor Distance: See App. G NIA Table 7-2.
1 - Natural Features that have been Treated as Significant following Appendix C: Wetland Characteristics and Ecological Functions Assessment for Renewable Energy Projects of the Natural Heritage Assessment Guide for Renewable Energy Projects. (OMNR 2012).
2 - Candidate Significant Wildlife Habitats that have been Treated As Significant with a commitment to conduct pre-construction surveys to determine significance, or which access to the habitat to conduct surveys has been denied.
3 - Generalized Candidate Significant Wildlife Habitats that have been Treated As Significant following the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR 2012).



0 375 750 1,500 Meters

Nation Rise Wind Farm

SITE PLAN
MAP 1

001-10021027-170706

11 July 2017

DNV·GL

Projection: UTM Zone 18, NAD83

Sources: Land Information Ontario, ArcGIS Online, United Counties of Stormont, Dundas and Glengarry, United Counties of Prescott and Russell, DRAPE (Sept 2014), First Base Solutions (March 2017), NRSI, Golder.



Legend

Project Components

- Wind Turbine (33)
- Meteorological Mast
- Collection System
- Access Road
- Crane Path
- Turning Radii
- Project Location
- Property Boundary Setback (132 m)
- Road and Railway Setback (81 m)
- Noise Receptor Setback (550 m)
- Project Location (120 m)
- Project Location (300 m)

Waterbody Assessment *

- Watebody Assessment Point

Natural Heritage Features*

- Significant Wetland[1]
- Significant Woodland
- Significant Habitats for Species of Conservation Concern
- Treated as Significant Specialized Wildlife Habitats and Rare Vegetation Communities[2]
- Significant Seasonal Concentration Areas
- Treated as Significant Seasonal Concentration Areas[2]
- Generalized Significant Wildlife Habitat[3]

Cultural Heritage Features

- Cultural Heritage Value Interest

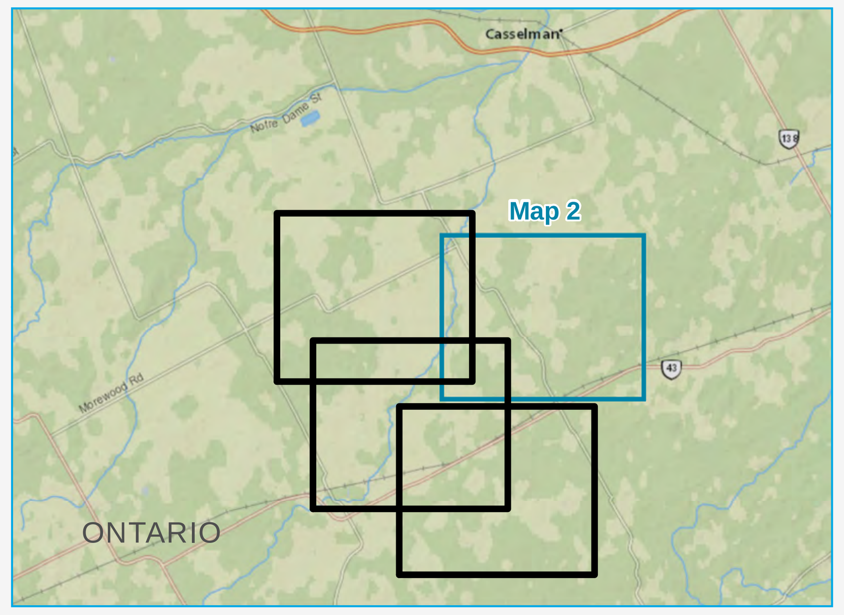
Noise Receptor *

- 1 Storey Receptor
- 2 Storey Receptor
- 3 Storey Receptor
- Vacant Lot Receptor
- Participant Receptor

Other Components

- Arterial / Collector
- Local Road / Street
- Railway
- Existing HONI Transmission Line
- Intermittent Watercourse
- Permanent Watercourse
- Municipal Drain
- Contour (Interval: 5 m)
- County Boundary
- Municipal Boundary
- Property Boundary
- Waterbody

* Natural Features Distance: See App. E Evaluation of Significance Report Table 7 and 8.
Waterbody Distance: See App. F Water Body Report Table 4.
Receptor Distance: See App. G NIA Table 7-2.
1 - Natural Features that have been Treated as Significant following Appendix C: Wetland Characteristics and Ecological Functions Assessment for Renewable Energy Projects of the Natural Heritage Assessment Guide for Renewable Energy Projects. (OMNR 2012).
2 - Candidate Significant Wildlife Habitats that have been Treated As Significant with a commitment to conduct pre-construction surveys to determine significance, or which access to the habitat to conduct surveys has been denied.
3 - Generalized Candidate Significant Wildlife Habitats that have been Treated As Significant following the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR 2012).



0 375 750 1,500 Meters

Nation Rise Wind Farm

SITE PLAN
MAP 2

001-10021027-170706

11 July 2017

DNV·GL

Projection: UTM Zone 18, NAD83

Sources: Land Information Ontario, ArcGIS Online, United Counties of Stormont, Dundas and Glengarry, United Counties of Prescott and Russell, DRAPE (Sept 2014), First Base Solutions (March 2017), NRSI, Golder.

480000 482000 484000 486000 488000

5002000 5000000 4998000 4996000

TOWNSHIP OF NORTH STORMONT

TOWNSHIP OF NORTH DUNDAS

UNITED COUNTIES OF STORMONT, DUNDAS AND GLENGARRY

Legend

Project Components
- Wind Turbine (33)
- Meteorological Mast
- Collection System
- Access Road
- Crane Path
- Turning Radii
- Project Location
- Laydown Area
- Property Boundary Setback (132 m)
- Road and Railway Setback (81 m)
- Noise Receptor Setback (550 m)
- Project Location (120 m)
- Project Location (300 m)

Waterbody Assessment *
- Watebody Assessment Point

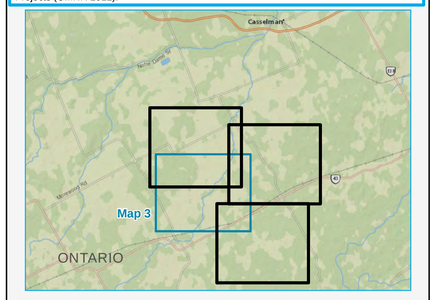
Natural Heritage Features*
- Significant Wetland[1]
- Significant Woodland
- Significant Habitats for Species of Conservation Concern
- Treated as Significant Specialized Wildlife Habitats and Rare Vegetation Communities [2]
- Significant Seasonal Concentration Areas
- Treated as Significant Seasonal Concentration Areas[2]
- Generalized Significant Wildlife Habitat[3]

Cultural Heritage Features
- Cultural Heritage Value Interest

Noise Receptor *
- 1 Storey Receptor
- 2 Storey Receptor
- 3 Storey Receptor
- Vacant Lot Receptor
- Participant Receptor

Other Components
- Arterial / Collector
- Local Road / Street
- Railway
- Existing HONI Transmission Line
- Intermittent Watercourse
- Permanent Watercourse
- Municipal Drain
- Contour (Interval: 5 m)
- County Boundary
- Municipal Boundary
- Property Boundary
- City Lights Solar Project Area
- Waterbody

* Natural Features Distance: See App. E Evaluation of Significance Report Table 7 and 8.
Waterbody Distance: See App. F Water Body Report Table 4.
Receptor Distance: See App. G NIA Table 7-2.
1 - Natural Features that have been Treated as Significant following Appendix C: Wetland Characteristics and Ecological Functions Assessment for Renewable Energy Projects of the Natural Heritage Assessment Guide for Renewable Energy Projects. (OMNR 2012).
2 - Candidate Significant Wildlife Habitats that have been Treated As Significant with a commitment to conduct pre-construction surveys to determine significance, or which access to the habitat to conduct surveys has been denied.
3 - Generalized Candidate Significant Wildlife Habitats that have been Treated As Significant following the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR 2012).



0 375 750 1,500 Meters

Nation Rise Wind Farm

SITE PLAN
MAP 3

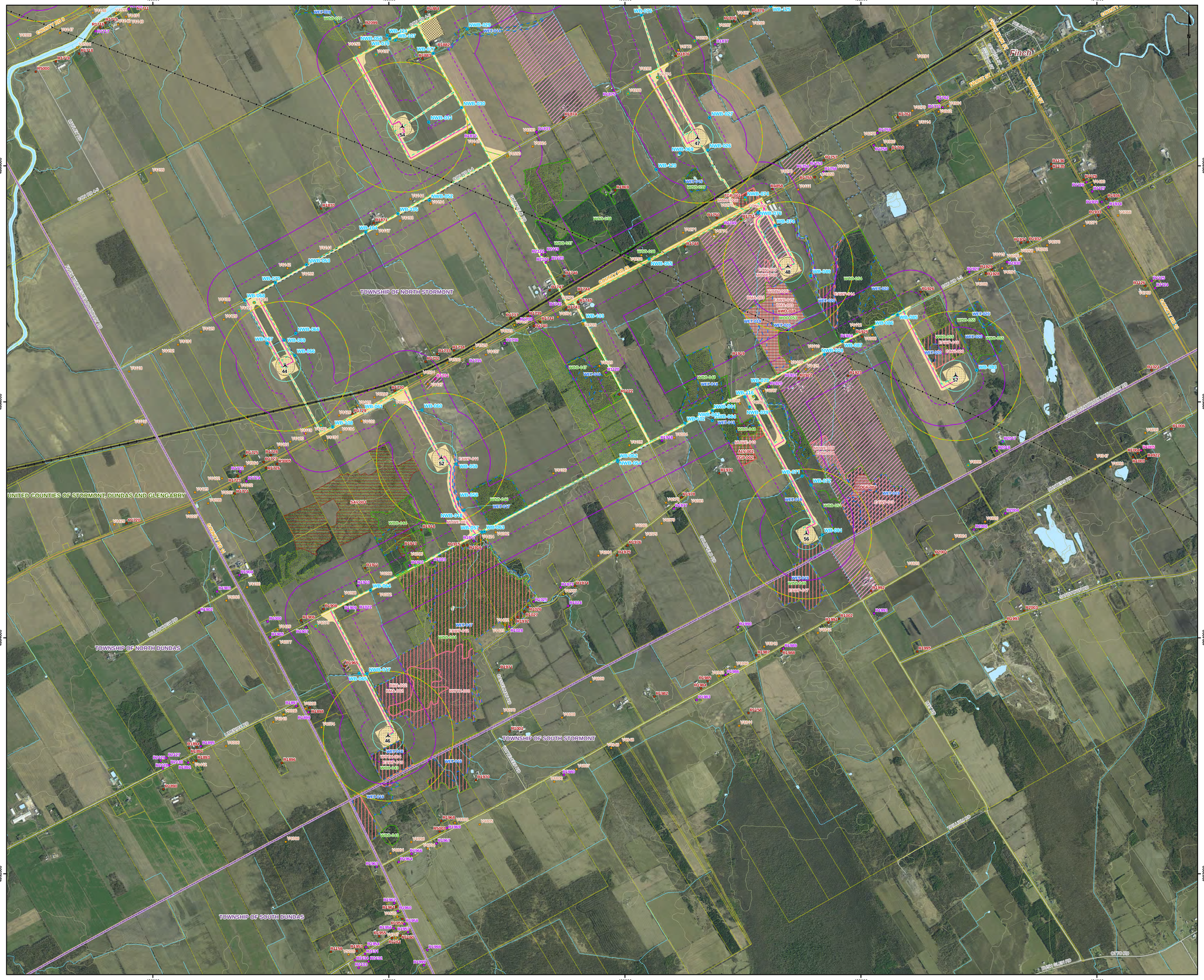
001-10021027-170706

11 July 2017

DNV·GL

Projection: UTM Zone 18, NAD83

Sources: Land Information Ontario, ArcGIS Online, United Counties of Stormont, Dundas and Glengarry, United Counties of Prescott and Russell, DRAPE (Sept 2014), First Base Solutions (March 2017), NRSI, Golder.



Legend

Project Components

- Wind Turbine (33)
- Substation, Switchyard
- Meteorological Mast
- Collection System
- Access Road
- Project Location
- Laydown Area
- Substation Area
- Property Boundary Setback (132 m)
- Road and Railway Setback (81 m)
- Noise Receptor Setback (550 m)
- Project Location (120 m)
- Project Location (300 m)

Waterbody Assessment *

- Watebody Assessment Point

Natural Heritage Features*

- Significant Wetland[1]
- Significant Woodland
- Significant Habitats for Species of Conservation Concern
- Significant Specialized Wildlife Habitats and Rare Vegetation Communities
- Treated as Significant Specialized Wildlife Habitats and Rare Vegetation Communities[2]
- Treated as Significant Seasonal Concentration Areas [2]
- Generalized Significant Wildlife Habitat [3]

Cultural Heritage Features

- Cultural Heritage Value Interest

Noise Receptor *

- 1 Storey Receptor
- 2 Storey Receptor
- 3 Storey Receptor
- Vacant Lot Receptor
- Participant Receptor

Other Components

- Arterial / Collector
- Local Road / Street
- Railway
- Existing HONI Transmission Line
- Intermittent Watercourse
- Permanent Watercourse
- Municipal Drain
- Contour (Interval: 5 m)
- County Boundary
- Municipal Boundary
- Property Boundary
- City Lights Solar Project Area
- Waterbody

* Natural Features Distance: See App. E Evaluation of Significance Report Table 7 and 8.
Waterbody Distance: See App. F Water Body Report Table 4.
Receptor Distance: See App. G NIA Table 7-2.
1 - Natural Features that have been Treated as Significant following Appendix C: Wetland Characteristics and Ecological Functions Assessment for Renewable Energy Projects of the Natural Heritage Assessment Guide for Renewable Energy Projects. (OMNR 2012).
2 - Candidate Significant Wildlife Habitats that have been Treated As Significant with a commitment to conduct pre-construction surveys to determine significance, or which access to the habitat to conduct surveys has been denied.
3 - Generalized Candidate Significant Wildlife Habitats that have been Treated As Significant following the Natural Heritage Assessment Guide for Renewable Energy Projects (OMNR 2012).

Nation Rise Wind Farm

SITE PLAN
MAP 4

001-10021027-170706

11 July 2017

DNV·GL

Projection: UTM Zone 18, NAD83

Sources: Land Information Ontario, ArcGIS Online, United Counties of Stormont, Dundas and Glengarry, United Counties of Prescott and Russell, DRAPE (Sept 2014), First Base Solutions (March 2017), NRSI, Golder.

About DNV GL

Driven by our purpose of safeguarding life, property and the environment, DNV GL enables organizations to advance the safety and sustainability of their business. We provide classification and technical assurance along with software and independent expert advisory services to the maritime, oil and gas, and energy industries. We also provide certification services to customers across a wide range of industries. Operating in more than 100 countries, our 16,000 professionals are dedicated to helping our customers make the world safer, smarter, and greener.