DNV·GL

NATION RISE WIND FARM

Renewable Energy Approval-Modification Report

Nation Rise Wind Farm Limited Partnership

Document No.: 10021027-CAMO-R-12
Issue: B**, Status:** FINAL
Date: 14 March 2019

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Project name:	Nation Rise Wind Farm	DNV GL - Energy
Report title:	Renewable Energy Approval-Modification Report	Advisory Americas
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Prepared by:	Verified by:	Approved by:
Gabriel Constantin Team Leader, Environmental and Permitting Services	Frederic Gagnon, Project Manager, Environmental and Permitting Services	Michael Roberge, Head of Section, Environmental and Permitting Services

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Issue	Date	Reason for Issue	Prepared by	Verified by	Approved by
A	20 February 2019	Initial report	G. Constantin	F. Gagnon	M. Roberge
B	14 March 2019	Update based on Customer comments	G. Constantin	F. Gagnon	M. Roberge

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Abbreviation	Meaning
DNV GL	GL Garrad Hassan Canada Inc.
EPA	*Environmental Protection Act*
IESO	Independent Electricity System Operator
LRP	Large Renewable Procurement
MECP	Ministry of the Environment, Conservation and Parks
MNRF	Ministry of Natural Resources and Forestry
MTCS	Ministry of Tourism, Culture and Sport
MW	Megawatt
NHA	Natural Heritage Assessment
NIA	Noise Impact Assessment
O.Reg.	Ontario Regulation
REA	Renewable Energy Approval

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 (REA) [1] under Part V.0.1 of the Ontario *Environmental Protection Act* (EPA)), 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 has received its Renewable Energy Approval (REA) [0871-AV3TFM] from the Ontario Ministry of the Environment, Conservation and Parks (MECP, formerly the Ontario Ministry of the Environment and Climate Change) on 4 May 2018 [2]. The Project will be owned and operated by Nation Rise Wind Farm Limited Partnership, a subsidiary of EDP Renewables Canada Ltd. The following sections of this Modification Report describe the proposed modifications to the Project and resulting changes to the originally approved REA reports.

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 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 in 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 is delimited by the municipality boundaries of Russell and The Nation. Courville Road and MacMillan Road are the east boundaries of the Project. The Project has a total 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 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

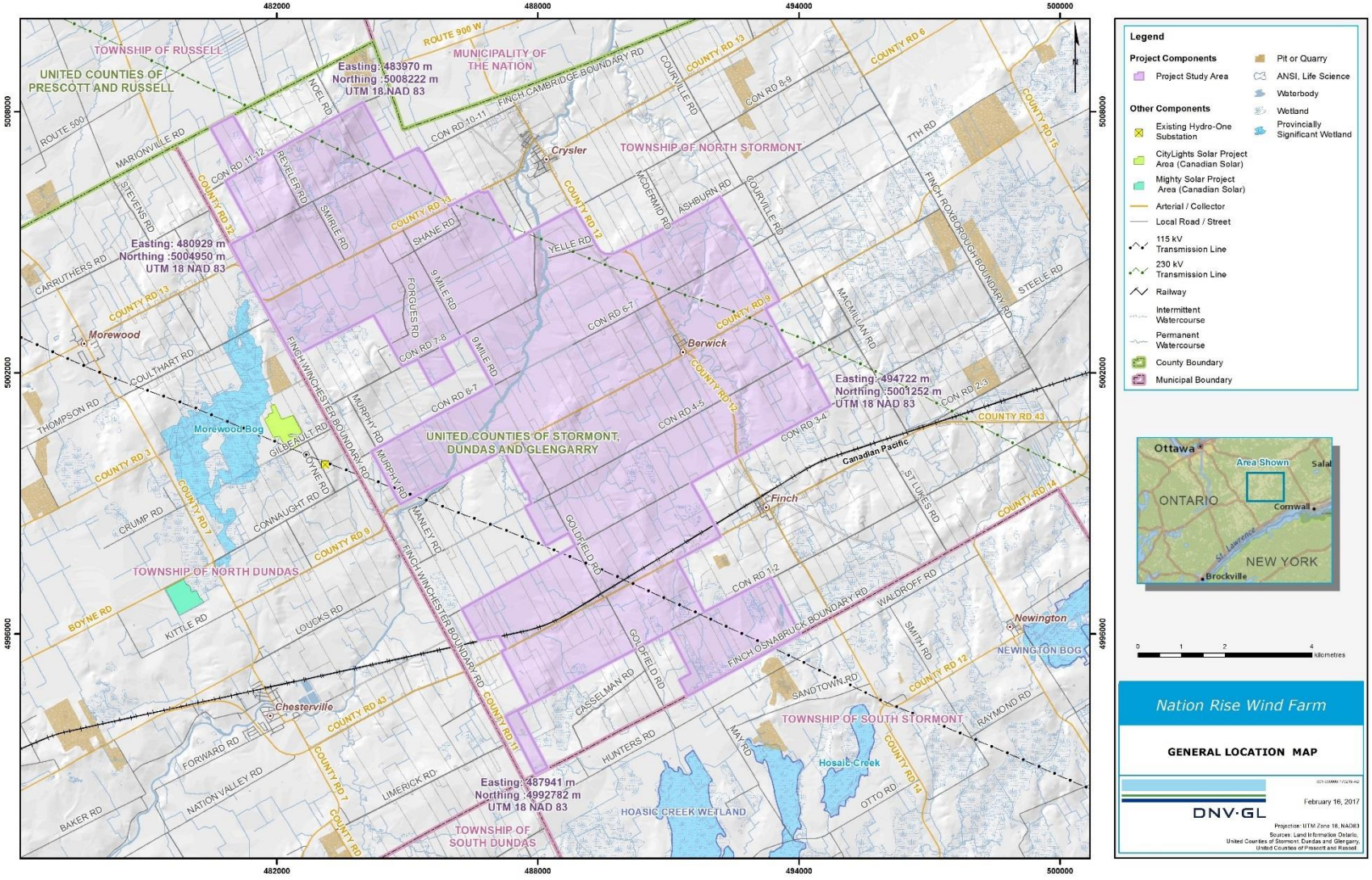

Figure 2-1: General Project study area

2.3 Contact Information

2.3.1 Project Proponent

The Project Proponent has not changed from the initial REA submission. The Proponent is the Nation Rise Wind Farm Limited Partnership, a renewable energy developer, owner and operator, with an office in Toronto, Ontario. The primary contact for this Project is:

Nathan Roscoe
Project Manager
Nation Rise Wind Farm Limited Partnership
219 Dufferin St. Unit 217C
Toronto, Ontario M6K 3J1
(416) 502-9463
Project email: nationrise@edpr.com
Project website: http://nationrisewindfarm.com/

2.3.2 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 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. This rule of operation is central to its philosophy, distinguishing it from many other players and underscoring its independence. DNV GL's contact information is as follows:

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Team Leader, Environmental and Permitting Services
DNV GL – Energy Advisory
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Montreal (QC), H1Y 3N1, Canada
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3 PROPOSED PROJECT MODIFICATIONS

The proposed modifications to the Project consist of the following items:

- Adding a collection route within the currently permitted Project Location of the temporary access road between concession road 10-11 and concession road 11-12 in the township of North Stormont;
- Additional access road to the central laydown yard;
- Additional construction disturbance area at Turbine 58 (T58);

- Confirmation that no blasting will be implemented;
- Confirmation that no H piles (i.e., steel piles having an h-shaped cross section) or pile driving will be employed for foundations installation; and
- Inclusion of additional mitigation measures related to blade icing.

The proposed Project modifications are summarized in Table 3-1 which documents the following:

1. A description of the modifications and a rationale for the proposed modifications; and
2. New potential environmental effects and corresponding mitigation measures.

Figure 3-1, Figure 3-2 and Figure 3-3 illustrate the proposed addition of the collection route between concession road 10-11 and concession road 11-12, additional access road to the central laydown yard, and additional construction disturbance area at T58, respectively.

Table 3-1: Summary of Project Modification

Proposed Modification	Rational for Proposed Modification	New Potential Environmental Effect	New Mitigation Measures
Addition of a collection route within the currently permitted Project Location of the temporary access road between concession road 10-11 and concession road 11-12 (see Figure 3-1).	Following further consultation with Construction and Engineering, the addition of this collection route option shortens the total length of the collection system and therefore reduce the Project footprint.	None: • There are no new natural heritage features within 120 m. A memo in Appendix A has been prepared to describe the modifications to the Natural Heritage Assessment (NHA) report; no additional adverse effects are anticipated on the natural environment as a result of the proposed change. MNRF re-confirmation email dating 12 February 2019 is included in Appendix A. • There are no new water body features within 120 m. A memo in Appendix B has been prepared to describe the modifications to the Water Body Assessment and Water Body Report; no additional adverse effects are anticipated on water bodies as a result of the proposed change. • The additional collection route is proposed to be within the already approved Project Location; therefore, the proposed collection route footprint was already considered in the approved Stage 2 Archaeological Assessment report for the Project [3] and no report updates are required. Correspondence dating 19 June 2018 with the Ministry of Tourism, Culture and Sport (MTCS) is presented in Appendix C. • The additional collection route is proposed to be within the already approved Project Location; therefore, the proposed collection route footprint and adjacent parcels were already considered in the approved Heritage Impact Assessment report [4] and no adverse impacts to any potential heritage attributes are anticipated. An addendum to the Project Heritage Impact Assessment, as well as a confirmation email provided by the MTCS on 12 February 2019 are included in Appendix D. • No impacts to the approved Noise Impact Assessment (NIA) [5] will result from this proposed change.	N/A
Additional access road to the central laydown yard (see Figure 3-2).	Following further consultation with internal Construction and Engineering teams, the additional access route will facilitate access to the central laydown yard.	• There are no new natural heritage features within 120 m. A memo in Appendix A has been prepared to describe the modifications to the Natural Heritage Assessment (NHA) report; no additional adverse effects are anticipated on the natural environment as a result of the proposed change. MNRF re-confirmation email dating 12 February 2019 is included in Appendix A. • There are no new water body features within 120 m. A memo in Appendix B has been prepared to describe the	N/A

Proposed Modification	Rational for Proposed Modification	New Potential Environmental Effect	New Mitigation Measures
		modifications to the Water Body Assessment and Water Body Report; no additional adverse effects are anticipated on water bodies as a result of the proposed change. • Stage 2 Archaeological Assessment report has been completed for the additional access road [6]; the MTCS is satisfied with the fieldwork and reporting for the archaeological assessments consistent with the Ministry's 2011 Standards and Guidelines [7], as shown in Appendix B. The new Stage 2 Archaeological Assessment report and MTCS satisfaction letter dated 24 September 2018 are located in Appendix C. • The additional access road is not near, nor will adversely impact, any identified cultural heritage resources as per the addendum to the Project Heritage Impact Assessment presented in Appendix D. A confirmation email provided by the MTCS on 12 February 2019 is also included in Appendix D. • No impacts to the approved Noise Impact Assessment (NIA) [5] will result from this proposed change.	
Additional disturbance area at T58 (see Figure 3-3).	Following further consultation with internal Construction and Engineering teams, additional construction disturbance area is suggested for the installation of T58.	• There are no new natural heritage features within 120 m. A memo in Appendix A has been prepared to describe the modifications to the Natural Heritage Assessment (NHA) report; no additional adverse effects are anticipated on the natural environment as a result of the proposed change. MNRF re-confirmation email dating 12 February 2019 is included in Appendix A. • There are no new water body features within 120 m. A memo in Appendix B has been prepared to describe the modifications to the Water Body Assessment and Water Body Report; no additional adverse effects are anticipated on water bodies as a result of the proposed change. • Stage 2 Archaeological Assessment report has been completed for the additional construction disturbance area [6]; the MTCS is satisfied with the fieldwork and reporting for the archaeological assessments consistent with the Ministry's 2011 Standards and Guidelines [7], as shown in Appendix B. The new Stage 2 Archaeological Assessment report and MTCS satisfaction letter dated 24 September 2018 are located in Appendix C. • The additional disturbance area is not near, nor will adversely impact, any identified cultural heritage	N/A

Proposed Modification	Rational for Proposed Modification	New Potential Environmental Effect	New Mitigation Measures
		resources as per the addendum to the Project Heritage Impact Assessment presented in Appendix D. A confirmation email provided by the MTCS on 12 February 2019 is also included in Appendix D. • No impacts to the approved Noise Impact Assessment (NIA) [5] will result from this proposed change.	
Confirmation that no blasting will be implemented.	Following further consultation with internal Construction and Engineering teams, no blasting will be implemented for the Project.	Because of the nature of this modification (confirmation that no blasting will occur), there are no new potential environmental effects as a result of this change.	N/A
Confirmation that no H piles (i.e., steel piles having an H-shaped cross section) or pile driving will be employed for foundations installation.	Following the completion of the geotechnical studies for the Project, it can be confirmed now that no H Piles (i.e., steel piles having an H-shaped cross section) or pile driving will be employed for foundation installation. This type of installation method can be removed from the Project REA reports, namely the Construction Plan Report.	Because of the nature of this modification (removal of a foundation installation method), there are no new potential environmental effects as a result of this change.	N/A
Inclusion of additional mitigation measures related to blade icing.	Additional commitment related to mitigation measures for potential blade icing have been made by the Proponent after the REA application submission and can be incorporated in the REA. The additional mitigation measures are the following: • Meteorological data at the Project site will be monitored daily to predict weather conditions. • When forecasts call for high humidity and below-freezing temperatures that could potentially lead to icing events, operators will monitor sensors to ensure that no ice buildup is occurring until such meteorological conditions have passed.	Because of the nature of this modification (additional mitigation measures), there are no new potential environmental effects as a result of this change.	N/A

Proposed Modification	Rational for Proposed Modification	New Potential Environmental Effect	New Mitigation Measures
	• During icing events, turbines are capable of detecting ice buildup through a variety of sensors and energy production monitoring. Some turbine models will also have the capability to prevent, reduce or safely shed ice buildup through induced heating of the blades or similar technologies. As applicable, these monitoring and heating features will be utilized to reduce the potential for ice buildup during icing events. • Turbines will restart automatically once systems detect that the icing conditions no longer exist that caused the turbine to shut itself down. If, at any time, it is determined that conditions may be favorable to return the turbine to service prior to the automatic restart, visual inspections will occur prior to restarting normal operations.		

Figure 3-1: Propose Layout Modification for the Addition of a Collection System

Figure 3-2: Propose Layout Modification for the Additional Access Road to the Central Laydown Yard

Figure 3-3: Propose Layout Modification for the Additional Disturbance Area at T58

4 EDITS TO REA REPORTS

There are no changes to the Project Description Report [8], Design and Operations Report [9], Construction Plan Report [10], Decommissioning Plan Report [11] and Consultation Report [12] resulting from the addition collection line, access road and construction disturbance area; however, changes to certain sections of the reports are necessary in relation to the abstention of any blasting, foundation installation method clarification and additional blade icing mitigation measures. This will be described in the following sections.

The Site Plan maps originally approved as provided in the Design and Operations Report [9] are presented in Appendix E and the modified Site Plan maps are illustrated in Appendix F to show the additional collection line, access road and construction disturbance area, also shown above in Figure 3-1, Figure 3-2 and Figure 3-3. Please note that only two of the four Site Plan maps (Site Plan 1 and 3) have been modified based on the proposed changes.

4.1 Edits to the Project Description Report

Table 4-1 documents the edits to the Project Description Report [8] from the modifications described above.

Table 4-1: Edits to the Project Description Report

Section / Page	Original Text	Revised Text
Section 4.1.1 / Page 24	Fugitive dust and debris from blasting within significant natural features and SWHs.	~~Fugitive dust and debris from blasting within significant natural features and SWHs.~~ ***This potential effect and related performance objective, mitigation measures, residual effect and monitoring / contingency are non-existent now that no blasting will be used.***
Section 4.1.2 / Page 49	Design turbine layout to respect a 20m setback from blade tip of any building. Implement Communications Plan namely to inform local communities of icing events and place signs in areas with safety concern, when applicable. In most cases, turbines automatically shutdown during icing events. Operation of turbines is resumed only after appropriate confirmation of safety.	Design turbine layout to respect a 20m setback from blade tip of any building. Implement Communications Plan namely to inform local communities of icing events and place signs in areas with safety concern, when applicable. ~~In most cases, turbines automatically shutdown during icing events. Operation of turbines is resumed only after appropriate confirmation of safety.~~ Meteorological data at the Project site will be monitored daily to predict weather conditions. When forecasts calls for high humidity and below-freezing temperatures that could potentially lead to icing events, operators will monitor sensors to ensure that no ice

Section / Page	Original Text	Revised Text
		buildup is occurring until such meteorological conditions have passed. During icing events, turbines are capable of detecting ice buildup through a variety of sensors and energy production monitoring. Some turbine models will also have the capability to prevent, reduce or safely shed ice buildup through induced heating of the blades or similar technologies. As applicable, these monitoring and heating features will be utilized to reduce the potential for ice buildup during icing events. Turbines will restart automatically once systems detect that the icing conditions no longer exist that caused the turbine to shut itself down. If, at any time, it is determined that conditions may be favorable to return the turbine to service prior to the automatic restart, visual inspections will occur prior to restarting normal operations.

4.2 Edits to the Design and Operations Report

Table 4-2 documents the edits to the Design and Operations Report [9] from the modifications described above.

Table 4-2: Edits to the Design and Operations Report

Section / Page	Original Text	Revised Text
Section 6.1.1 / Page 26	Fugitive dust and debris from blasting within significant natural features and SWHs.	~~Fugitive dust and debris from blasting within significant natural features and SWHs.~~ ***This potential effect and related performance objective, mitigation measures, residual effect and monitoring / contingency are non-existent now that no blasting will be used.***
Section 6.1.2 / Page 50-51	Design turbine layout to respect a 20m setback from blade tip of any building. Implement Communications Plan namely to inform local communities of icing events and place signs in areas with safety concern, when applicable. In most cases, turbines automatically shutdown during icing events. Operation of turbines is resumed only after appropriate confirmation of safety.	Design turbine layout to respect a 20m setback from blade tip of any building. Implement Communications Plan namely to inform local communities of icing events and place signs in areas with safety concern, when applicable. ~~In most cases, turbines automatically shutdown during icing events. Operation of turbines is resumed only after appropriate confirmation of safety.~~

Section / Page	Original Text	Revised Text
		Meteorological data at the Project site will be monitored daily to predict weather conditions. When forecasts call for high humidity and below-freezing temperatures that could potentially lead to icing events, operators will monitor sensors to ensure that no ice buildup is occurring until such meteorological conditions have passed. During icing events, turbines are capable of detecting ice buildup through a variety of sensors and energy production monitoring. Some turbine models will also have the capability to prevent, reduce or safely shed ice buildup through induced heating of the blades or similar technologies. As applicable, these monitoring and heating features will be utilized to reduce the potential for ice buildup during icing events. Turbines will restart automatically once systems detect that the icing conditions no longer exist that caused the turbine to shut itself down. If, at any time, it is determined that conditions may be favorable to return the turbine to service prior to the automatic restart, visual inspections will occur prior to restarting normal operations.

4.3 Edits to the Construction Plan Report

Table 4-3 documents the edits to the Construction Plan Report [10] from the modifications described above.

Table 4-3: Edits to the Construction Plan Report

Section / Page	Original Text	Revised Text
Section 4.5.1 / Page 11	While blasting could possible be required for spread footing turbine foundation, it is not anticipated to be required for the Project.	~~While blasting could possible be required for spread footing turbine foundation, it is not anticipated to be required for the Project.~~ No blasting will be required for foundation installation.
Section 4.5.2 / Page 11	In instances where soil conditions require deep foundations, case, steel, concrete or aggregate piles will be installed to support the turbine. Once piles have been installed to a suitable depth, a pile cap will be installed and a concrete slab will be poured to allow for the installation of steel rods and pouring of concrete foundations.	In instances where soil conditions require deep foundations, ~~case, steel, concrete or aggregate piles will be installed to support the turbine. Once piles have been installed to a suitable depth, a pile cap will be installed and a concrete slab will be poured to allow for the installation of steel rods and pouring of concrete foundations.~~ and/or ground improvement, drilled and/or mixed solutions will be utilized to support the pile caps and/or shallow footings.

Section / Page	Original Text	Revised Text
Section 11.1 / Page 31	Fugitive dust and debris from blasting within significant natural features and SWHs.	~~Fugitive dust and debris from blasting within significant natural features and SWHs.~~ ***This potential effect and related performance objective, mitigation measures, residual effect and monitoring / contingency are non-existent now that no blasting will be used.***

4.4 Edits to the Decommissioning Plan Report

Table 4-4 documents the edits to the Decommissioning Plan Report [11] from the modifications described above.

Table 4-4: Edits to the Decommissioning Plan Report

Section / Page	Original Text	Revised Text
Section 10.1.1 / Page 20	Fugitive dust and debris from blasting within significant natural features and SWHs.	~~Fugitive dust and debris from blasting within significant natural features and SWHs.~~ ***This potential effect and related performance objective, mitigation measures, residual effect and monitoring / contingency are non-existent now that no blasting will be used.***

4.5 Edits to the Consultation Report

There are no changes to the Consultation Report [12] resulting from the modifications described above.

5 SUMMARY AND CONCLUSIONS

The Project modifications described in this Modification Report does not change the overall conclusion of the REA Reports which states that the Project can be constructed, installed, operated and decommissioned without any significant adverse residual effects.

6 REFERENCES

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

[2] Ontario Ministry of the Environment and Climate Change, Renewable Energy Approval (0871-AV3TFM) – Nation Rise Wind Farm, 4 May 2018.

[3] Golder Associates Ltd., Stage 2 Archaeological Assessment - Nation Rise Wind Farm, 12 July 2017.

[4] Golder Associates Ltd., Heritage Impact Assessment - Nation Rise Wind Farm, 29 March 2017.

[5] DNV GL, Noise Impact Assessment – Nation Rise Wind Farm, 26 September 2017.

[6] Golder Associates Ltd., Additional Stage 2 Archaeological Assessment (Laydown Yard and T58 Additional CDA) - Nation Rise Wind Farm, 24 July 2018.

[7] Ontario Ministry of Tourism, Culture and Sports, Approval letter for Stage 2 Archaeological Assessment dated 24 July 2018 - Nation Rise Wind Farm, 24 September 2018.

[8] DNV GL, Project Description Report – Nation Rise Wind Farm, 29 November 2017.

[9] DNV GL, Design and Operations Report – Nation Rise Wind Farm, 29 November 2017.

[10] DNV GL, Construction Plan Report – Nation Rise Wind Farm, 25 April 2018.

[11] DNV GL, Decommissioning Plan Report – Nation Rise Wind Farm, 29 November 2017.

[12] DNV GL, Consultation Report – Nation Rise Wind Farm, 4 August 2017.

APPENDIX A – MNRF CORRESPONDENCE AND NATURAL HERITAGE ASSESSMENT ADDENDUM

From:	Poskin, Mike (MNRF)
To:	Andrew Ryckman
Cc:	Constantin, Gabriel; Roscoe, Nathan; Little, Ken; Lillian Knopf
Subject:	Re: Nation Rise WF; NHA Addendum II [Re-Submission]
Date:	Tuesday, February 12, 2019 4:29:46 PM
Attachments:	aefglfffpjmhjjbd.png olffoklobebkceoi.png jpdccedlpgkbkjci.png

Hi Andrew,

The Ministry of Natural Resources and Forestry (MNRF) has received the information in regards to the minor changes that have been proposed to the Nation Rise Wind Far Project's layout. MNRF note that the changes include the addition of one underground collection line; the addition of one access road; and the addition to one temporary turbine laydown area. These changes for the Nation Rise Wind Farm were made subsequent to MNRF's letter (July 11, 2017) confirming the Natural Heritage Assessment and re-confirmation letter (July 24, 2017) in respect of the project.

Upon review of the changes, MNRF is satisfied that the Natural Heritage Assessment requirements of Ontario Regulation 359/09 have been met. MNRF is satisfied that, as outlined in the documentation, the proposed project changes will not affect the Natural Heritage Assessment already confirmed by MNRF. If other mitigation is to be applied or if additional impacts are anticipated outside of the amendment documentation provided, an additional addendum to the NHA would be required.

An MNRF re-confirmation letter is not required for these changes to the Nation Rise Wind Farm Project. Please include this email as an addendum to the confirmation letter issued July 11, 2017 and to the re-confirmation letter dated July 24, 2017.

Thanks,
Mike

Mike Poskin
Regional Planner
Land Use Planning | Regional Resources Section | Southern Region
Ministry of Natural Resources and Forestry
T: 705-755-1362

From: Andrew Ryckman <aryckman@nrsi.on.ca>
Sent: January 21, 2019 2:14 PM
To: Poskin, Mike (MNRF)
Cc: Constantin, Gabriel; Roscoe, Nathan; Little, Ken; Lillian Knopf
Subject: Re: Nation Rise WF; NHA Addendum II [Re-Submission]

Good Afternoon Mike,

As a follow-up to my voicemail, I realized that in updating the Map set with the small additional area that I had discussed with you on Friday, I accidentally inserted the new map (Map 1-2) with waterbody layers instead of the NHA layers. I have corrected this mistake in the attached version which now shows the NHA layers on Map 1-2.

The memo remains consistent with all of our discussions to date and is fully compliant with NHA requirements, and still required no in-text edits (consistent with our call on Friday and my submission email below). The review of the added area was completed using all applicable NHA layers, but I had just mistakenly inserted the wrong revised map in the process of finalizing the version I submitted on Friday.

My apologies for the mix-up on my end. Please give me a call if you have any questions or would otherwise like to discuss.

Cheers,
Andrew

Our main office in Waterloo has moved! Please note change of address below.

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On 2019-01-18 3:50 p.m., Andrew Ryckman wrote:

> Hi Mike,
>
> Thanks for taking the time to talk with me this afternoon. As discussed, I've attached a re-submission of the *Nation Rise Wind Farm: NHA Addendum II* with very minor changes to reflect a small additional area that was examined by the archaeological team, but not previously included in our submission.
>
> The only change from what you have been previously reviewing is the addition of a strip of agricultural land approximately 16m wide that has been added to the east of the already presented access road addition on Map 1-2. Based on the location of the change, and the surrounding habitat, it has resulted in no change to the previously provided memo (i.e. no previously unsurveyed areas, no new features, no changed distances to candidate OR significant features, no new mitigation measures, etc. etc.). As such, the only change to the memo is the date

which has been updated to reflect today's date. The only mapping change is to Map 1-2 to include the narrow strip of additional land, as described above.

As outlined in the addendum, NRSI is confident that the minor proposed changes in this addendum (including this very minor addition since previous submission) have been considered comprehensively following the applicable NHA processes and that the changes, as proposed, will have no negative effects on the surrounding wildlife and habitat, and do not warrant any additional mitigation measures or monitoring commitments beyond those that are already detailed in the approved NHA.

If you have any questions or would like to discuss any aspects of this document, please don't hesitate to let me know. Otherwise, we look forward to hearing confirmation that you are satisfied with the information we have provided on these minor changes.

Have a great weekend!
Andrew
--

Our main office in Waterloo has moved! Please note change of address below.

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NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Memo

Project No. 1756

To: **Mike Poskin**

From: **Lillian Knopf**

Date: **January 18, 2019**

Re: **Nation Rise Wind Farm**
Natural Heritage Assessment Addendum II

Natural Resource Solutions Inc. (NRSI) was retained to conduct a Natural Heritage Assessment (NHA) in accordance with the Renewable Energy Approval (REA) Regulation, Ontario Regulation (O. Reg.) 359/09, for the Nation Rise Wind Farm (Project). This assessment included a records review, site investigation, evaluation of significance, and environmental impact study (EIS) of any candidate significant natural features or wildlife habitats at a proposed wind energy generating facility of up to 33 permitted wind turbines, with a nameplate capacity of approximately 100 megawatts (MW).

The Project is located in eastern Ontario, within the Township of North Stormont and the United Counties of Stormont, Dundas, and Glengarry. More specifically, the Project is located in the western portion of North Stormont bounded to the south by the Township of South Stormont and to the west by the Township of North Dundas. The north portion of the Project is delimited by the municipality boundaries of Russell and The Nation, while Courville Road and MacMillan Road represent the eastern boundaries of the Project. Project components will be located primarily on privately owned land, with some components (e.g., electrical collector lines) being placed along public rights-of-way. As identified in the REA Regulation, the proposed layout of the turbines, supporting infrastructure, and development activities are collectively referred to as the 'Project Location'. For the purposes of this memo, NRSI will refer to the areas in and within 120m of the Project Location as the 'Project Area'.

The records review, site investigation, evaluation of significance, and EIS for the Project were completed by NRSI as part of the NHA, for which approval was received on July 11, 2017 from the Ministry of Natural Resources and Forestry's (MNRF) Southern Region. The NHA letter of confirmation is provided in Appendix I of this memo. As part of this confirmation, a commitment was identified for the proponent to inform the MNRF of any changes made to the Project that would alter the NHA.

Following the confirmation of the Project NHA, an addendum was prepared by NRSI on July 24, 2017 to present minor changes to the Project layout. Confirmation of the Nation Rise Wind Farm NHA Addendum was received on July 24, 2017 from the MNRF Southern Region. The NHA letter of re-confirmation is provided in Appendix II of this memo.

This memorandum has been prepared to identify and discuss three minor changes to the Project layout that have been proposed since receiving the NHA letters of confirmation and re-confirmation from the MNRF in July 2017.

Staff Roles

The requirements of the REA process indicate that the name and qualifications of staff participating in the NHA should be provided. This staffing information is provided in the Nation Rise Wind Farm NHA (NRSI 2017a) and the qualifications and roles of key staff participating in this specific addendum to the Project's NHA are outlined below.

Andrew Ryckman, B.Sc.
Andrew is a Senior Biologist with more than 13 years of experience working on a variety of environmental projects. He has considerable experience managing Environmental Assessments and NHAs for wind project developments across Canada, including experience with project management, report generation, data analysis, and considerable field monitoring. Andrew is certified in the Ecological Land Classification (ELC) system for southern Ontario (2010) and has extensive experience developing and implementing monitoring programs for birds, bats, reptiles, amphibians, butterflies, and large mammals.

Andrew's role in this Project was to act as the project advisor, overseeing all aspects of the NHA, including all associated field work and reporting. He was the main contact point for agency staff and assisted with the preparation of this addendum.

Lillian Knopf, B.Sc. (Env.)
Lillian is a Terrestrial and Wetland Biologist with more than six years of experience in the environmental field. She has managed renewable energy projects in Ontario, Saskatchewan, and Alberta, and has experience coordinating and conducting biological monitoring programs during the pre-construction and post-construction phases of wind project development. Lillian is experienced in project management, developing site-specific monitoring programs, leading wildlife surveys, analyzing data, and assessing potential impacts to wildlife and natural features. She has coordinated a range of field investigations, including bird, bat, reptile, and amphibian surveys and vegetation inventories. Lillian is also an M.Sc. Candidate in biology at the University of Waterloo.

Lillian's role in this Project was to act as the project manager, overseeing all aspects of the NHA, including all associated field work and reporting. She assisted with the preparation of all corresponding reports, including being the primary author of this addendum.

Description of Proposed Project Changes

Since the NHA letters of confirmation and re-confirmation were received from the MNRF for the Project in July 2017, three minor changes have been proposed to the Project's layout. The layout changes addressed within this memorandum consist of the following:

- Addition of one underground collection line,
- Addition of one access road, and
- Addition to one temporary turbine laydown area.

The updates to the Project layout are discussed in Table 1, and Maps 1-1 to 1-3 provide a visual overlay of the minor differences between the previously approved layout and the updated layout presented in this addendum.

Table 1. Changes to the Nation Rise Wind Farm Layout

Project Component	Location	Description of Change	Closer to Features or Habitat Within 120m (Y/N)	Affected Natural Features	Map
Underground Collection System	Between Concession Road 10-11 and Concession Road 11-12	Collection line has been added to the Project layout, at the same location as a previously approved temporary access road.	No new natural features or wildlife habitats overlap the Project Area because of this adjustment. The addition of this collection line results in a minor change in distance between Project components and one natural feature, but does not change the overall extent of Project footprint.	WOD-006	1-1
Access Road	Between proposed laydown area on Forgues Road and Concession Road 7-8	Access road has been added to the Project layout.	No new natural features or wildlife habitats overlap the Project Area because of this adjustment. There are also no resulting changes in distances between Project components and natural features.	None	1-2
Turbine Laydown Area	T58	The turbine laydown area associated with T58 has been expanded (added) to the north.	No new natural features or wildlife habitats overlap the Project Area because of this adjustment. There are also no resulting changes in distances between Project components and natural features.	None	1-3

Assessment of Impacts to Natural Features and Wildlife Habitats

In accordance with the REA Regulation, NRSI biologists have completed a comprehensive records review, site investigation, evaluation of significance, and EIS of the Project (NRSI 2017a). Following a review of the proposed changes to the Project layout (Table 1), NRSI biologists have re-considered applicable aspects of the NHA to determine if there are new natural features, changes in distances to the Project Location, or new mitigation measures or monitoring commitments required to ensure that potential permanent or adverse environmental impacts are mitigated or studied appropriately, relative to these specifically proposed changes.

Amendments to the Records Review

The study area examined within the *Nation Rise Wind Farm: Records Review Report* (NRSI 2017a) extended well beyond the previously proposed Project Area to provide flexibility for any later changes to the Project's layout. Upon review of the proposed changes to the Project's layout, it has been determined that all areas included in the current layout were previously studied and included with the earlier Records Review submission to the MNRF. Thus, there are no new natural features or wildlife habitats that need to be amended in the NHA.

Amendments to the Site Investigation

In reviewing the changes made to the Project layout since receiving the NHA letters of confirmation and re-confirmation, it has been verified that there is no change in distance from the overall Project Location to any candidate significant natural features or wildlife habitats that are in, or within 120m of, the Project Location. When considering individual Project

components, a change in distance has been noted from an underground collection line to one natural feature that is located within 120m of the Project Location; however, the proposed collection line will occur within an area already approved for placement of a temporary access road.

The proposed changes to the Project layout have not resulted in any new natural features being included in, or within 120m of, the Project Location. Since there are no new features within 120m of the Project Location, no further site investigation is required.

Amendments to the Evaluation of Significance

As part of this addendum, NRSI biologists have reviewed the potential for changes to the Evaluation of Significance of this Project. After examining the changes in distances between Project components and natural features, it has been determined that there are no new natural features that potentially exist in, or within 120m of, the Project Location that were not previously studied and addressed in the approved NHA. Therefore, no additional features require an evaluation of significance.

Given the minor changes to the Project layout, as described above, NRSI biologists have identified one instance where a specific Project component (i.e. underground collection line) is now closer to a significant natural feature than what had previously been identified in the approved NHA, although the Project footprint as a whole is no closer to any feature within the Project Area. This specific instance has been outlined in Table 2, including feature identification number, feature type, and a comparison of distances from Project component to natural feature between the presented layouts.

Table 2. Updated Distances between Project Components and Significant Natural Features within the Nation Rise Wind Farm Project Area

Feature ID	Feature Type	Distances (m) to Project Location in NHA Submission (NRSI 2017a)	Updated Distances (m)	Amendment to the Evaluation of Significance and/or EIS Required? (Y/N)
WOD-006	Woodland	WT – >120 AR – >120 CL – >120 CA – 4 SI – >120	WT – >120 AR – >120 **CL – 4** CA – 4 SI – >120	No – Evaluation of Significance was completed within the NHA. The closest distance of the Project Location to this feature has not changed and the individual Project component that is now closer to the identified natural feature results in no change in potential impact than the already approved Project activities. Therefore, no change to the Evaluation of Significance is necessary, and this feature still requires consideration within the EIS.

Legend
WT: Wind Turbine
AR: Access Road
CL: Collector Lines
CA: Construction Activity/Temporary Infrastructure/Laydown Area
SI: Supporting Infrastructure - Building/Substation/Meteorological Tower/Point of Interconnect

Amendments to the Environmental Impact Study

As part of the preparation of this addendum, construction plans have been reviewed and the proposed changes to the Project layout have been summarized above. These proposed changes consist of three minor modifications to the Project layout, in the form of the addition of

one underground collection line, one access road, and one temporary turbine laydown area. Although these minor adjustments have been noted, the construction details as presented in the original Natural Heritage EIS (i.e. site preparation and servicing, construction, operation, decommissioning, and approach to impact assessment) still provide relevant, accurate, and comprehensive information pertaining to the type, extent, duration, and details of the proposed construction activities associated with the Project.

For the purposes of this addendum, NRSI biologists have reviewed four separate aspects relating to the potential for change to the EIS, as follows:

- Changes to potential negative effects,
- Changes to mitigation measures (i.e. Project Location now closer to natural features),
- New mitigation measures (i.e. Project Location within 120m of a new feature), and
- Changes to monitoring requirements.

Changes to Potential Negative Effects

Based on the minor nature of the updates to the Project layout, including no additional significant natural features and no change in distance from the overall Project footprint to any natural feature or wildlife habitat within the Project Area, NRSI biologists have determined that there are no changes to the potential negative effects as identified in the Natural Heritage EIS (NRSI 2017a).

Changes to Mitigation Measures

NRSI biologists have reviewed the changes to the Project layout, including the distances of the updated Project layout to significant natural features, and have determined that the mitigation measures presented in the Natural Heritage EIS (NRSI 2017a) are still appropriate and suitable for the protection of the significant natural features from potential permanent and adverse impacts that may result from the development of the Project, if otherwise left unmitigated. No changes to already approved mitigation measures are proposed for features that had already been identified as significant.

New Mitigation Measures

As there are no additional significant natural features in or within 120m of the updated Project layout, and no change in distance from the overall Project footprint to any natural feature or wildlife habitat within the Project Area, no new mitigation measures need to be implemented for this Project.

Changes to Monitoring Requirements

Based on the minor nature of the updates to the Project layout, including no change in distance from the overall Project footprint to natural features within the Project Area, and no additional significant natural features or significant wildlife habitat, NRSI biologists have determined that the monitoring requirements identified in the Natural Heritage EIS (NRSI 2017a) are still suitable for monitoring potential environmental effects of the Project.

Summary of Natural Heritage Addendum

In accordance with the REA Regulation, NRSI biologists have completed a comprehensive records review, site investigation, evaluation of significance, and EIS of the Project (NRSI 2017a). Following a review of the proposed changes to the Project layout (as discussed above), NRSI biologists have re-considered all aspects of the NHA relative to these changes to determine if there are new natural features, changes in distances to the Project Location, or new mitigation measures or monitoring commitments required to ensure that potential permanent or

adverse environmental impacts are mitigated or studied appropriately. A summary of the results of this review is provided in Table 3.

Table 3. Summary of Natural Heritage Addendum II for the Nation Rise Wind Farm

Addendum Changes	Addendum Result
Significant Features	NRSI has not identified any additional significant natural features in, or within 120m of, the Project Location. Similarly, no previously identified significant natural features have been removed from the Project Area.
Changes in Distances to Project Location	No changes in distance from the Project Location to natural features results from this change. A change in distance from an individual Project component (underground collection line) to one woodland (WOD-006) has been identified, but it is no closer than the already approved Project Location from the NHA.
Potential Negative Effects	Based on no change in distance from the Project footprint to significant natural features or wildlife habitats within the Project Area, and no new significant natural features, NRSI biologists have determined that there are no changes to the potential negative effects as identified in the Natural Heritage EIS (NRSI 2017a).
Mitigation Measures	Based on no change in distance from the Project footprint to significant natural features or wildlife habitats within the Project Area, NRSI biologists have confirmed that no significant natural features in or within 120m of the Project Location require any additional mitigation measures. The mitigation measures outlined in the Natural Heritage EIS (NRSI 2017a) will provide the appropriate protection to significant natural features to ensure any potential permanent and adverse impacts are mitigated.
Monitoring Commitments	Based on no change in distance from the Project footprint to significant natural features or wildlife habitats within the Project Area, and no new significant natural features, NRSI biologists have confirmed that the monitoring commitments outlined in the Natural Heritage EIS (NRSI 2017a) are still appropriate to monitor any potentially adverse impacts resulting from the Project.

It is maintained that with the implementation of the planned mitigation measures, monitoring programs, and contingency plans, as presented in the *Nation Rise Wind Farm: Natural Heritage Environmental Impact Study Report* (NRSI 2017a), there are unlikely to be significant impacts to natural heritage features, including woodlands, wetlands, and significant wildlife habitats.

Given that the proposed minor changes have resulted in no material change to the content of the previously approved NHA, it is expected that the current letters of confirmation and re-confirmation remain relevant and adequate to cover the proposed changes to the Project layout. It is requested that MNRF provide a written response to confirm agreement with this approach.

References

Natural Resource Solutions Inc. (NRSI). 2017a. Nation Rise Wind Farm: Natural Heritage Assessment. July 2017.

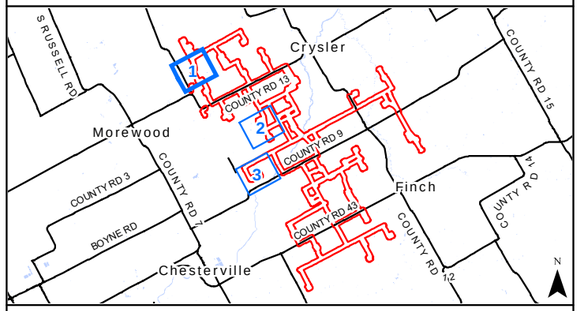
Natural Resource Solutions Inc. (NRSI). 2017b. Nation Rise Wind Farm: Natural Heritage Assessment Addendum Report. July 2017.

Maps

Map 1-1

Nation Rise Wind Farm

Comparative Layout



Legend

- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Previous Project Area
- New Project Area
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Laydown Areas
- Porposed Temporary Turning Radii
- Proposed Temporary Access Road for Construction
- New Proposed Undergound Collection System

Significant Natural Features

- Woodland (WOD)

Treated As Significant Natural Features

- Wetland (WET)

Treated as Significant Generalized Wildlife Habitats

- Generalized Wildlife Habitat

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 1756 Date: November 20, 2018	NAD83 - UTM Zone 18 Size: 11x17" **1:6,500**

0 100 200 300 400 Meters

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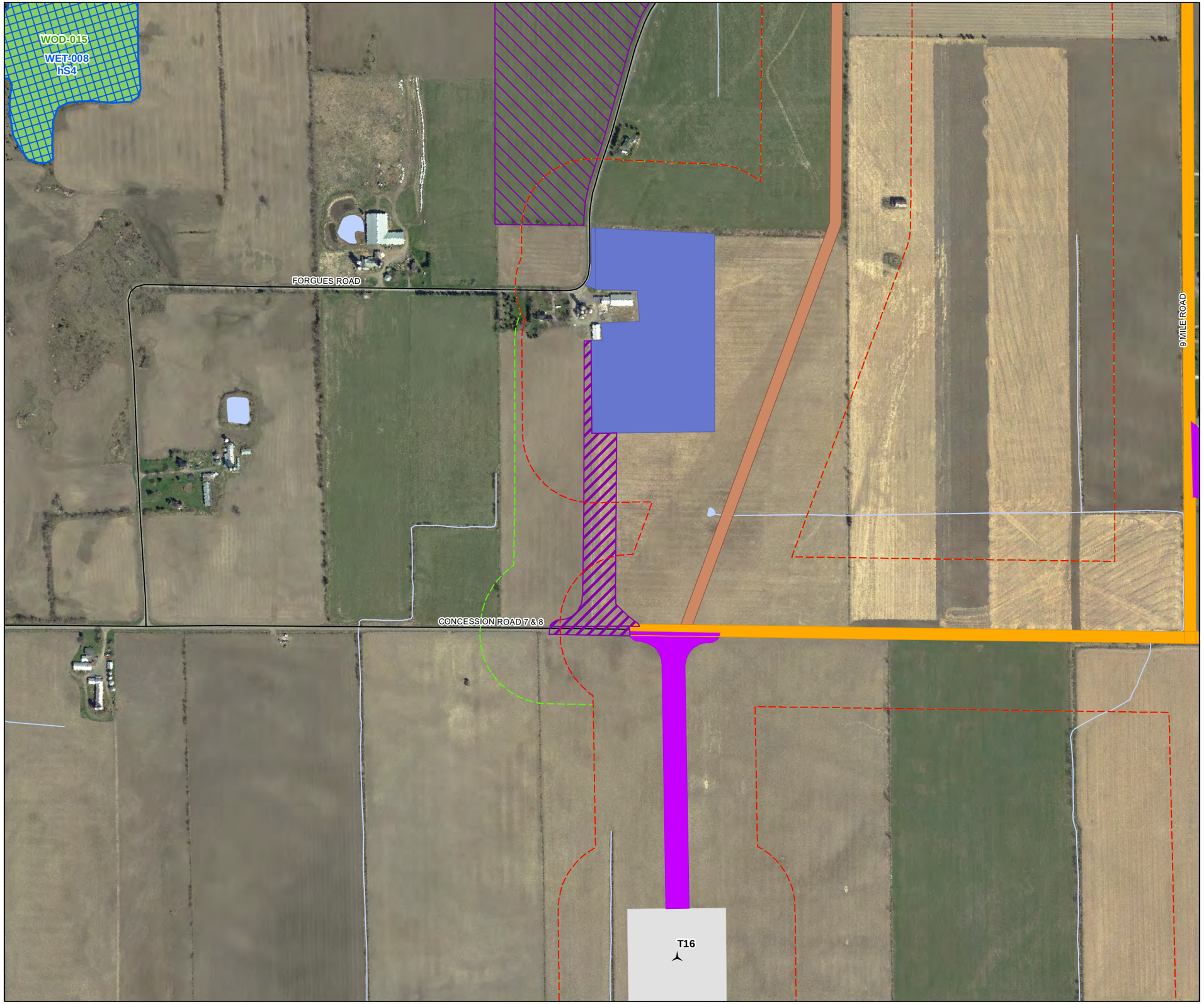
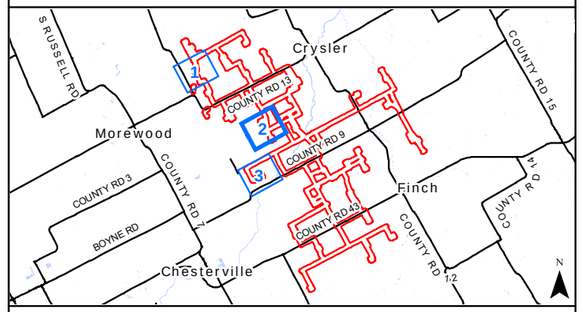


Map 1-2

Nation Rise Wind Farm

Comparative Layout



Legend

- Proposed Turbine
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Previous Project Area
- New Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Turbine Laydown Area, Access Roads, Collection Line
- Proposed Laydown Areas
- Proposed Crane Path
- New Proposed Access Road

Significant Natural Features

- Woodland (WOD)

Treated As Significant Natural Features

- Wetland (WET)

Treated as Significant Generalized Wildlife Habitats

- Generalized Wildlife Habitat

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 1756 Date: January 21, 2019	NAD83 - UTM Zone 18 Size: 11x17" **1:6,500**

0 100 200 300 400 Meters

N

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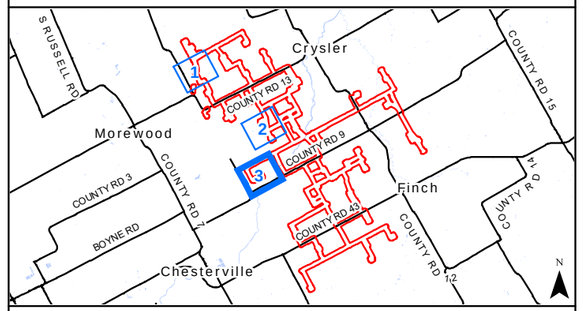
Map 1-3

Nation Rise Wind Farm

Comparative Layout



Legend

- Proposed Turbine
- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Previous Project Area
- New Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Turbine Laydown Area, Access Roads, Collection Line
- Proposed Meteorological Tower Footprint and Access Road
- New Proposed Laydown Area

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 1756 Date: November 20, 2018	NAD83 - UTM Zone 18 Size: 11x17" **1:6,500**

0 100 200 300 400 Meters

N

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Appendix I
Nation Rise Wind Farm NHA Letter of Confirmation

Ministry of
Natural Resources
Regional Resources Section
Southern Region
300 Water Street
4th Floor, South Tower
Peterborough, ON K9J 8M5

Ministère des
Richesses naturelles

Ontario

July 11, 2017

Nation Rise Wind Farm Limited Partnership
110 Spadina Ave, Suite 609
Toronto, ON
M5V 2K4

RE: NHA Confirmation for Nation Rise Wind Farm

Dear Kenneth Little:

In accordance with the Ministry of the Environment and Climate Change's (MOECC's) Renewable Energy Approvals (REA) Regulation (O.Reg.359/09), the Ministry of Natural Resources and Forestry (MNRF) has reviewed the natural heritage assessment (NHA) and environmental impact study (EIS) for the Nation Rise Wind Farm located in the Township of North Stormont and the United Counties of Stormont, Dundas and Glengarry, the final version of which was submitted by Nation Rise Wind Farm Limited Partnership on July 11, 2017.

In accordance with Section 28(2) and 38(2)(b) of the REA regulation, MNRF provides the following confirmations following review of the NHA and EIS:

1. The MNRF confirms that the determination of the existence of natural features and the boundaries of natural features was made using applicable evaluation criteria or procedures established or accepted by MNRF.
2. The MNRF confirms that the site investigation and records review were conducted using applicable evaluation criteria, or procedures established or accepted by MNRF if no natural features were identified.
3. The MNRF confirms that the evaluation of the significance or provincial significance of the natural features was conducted using applicable evaluation criteria or procedures established or accepted by MNRF.
4. The MNRF confirms that the project location is not in a provincial park or conservation reserve.
5. The MNRF confirms that the environmental impact assessment report has been prepared in accordance with procedures established by the MNRF.

In accordance with Section 28(3)(c) and 38(2)(c), MNRF also offers the following comments in respect of the project:

Pre-construction Monitoring

In accordance with Appendix D of the Natural Heritage Assessment Guide, a commitment has been made to complete pre-construction assessments of habitat use for the following candidate significant wildlife habitats:

- Bat Maternity Colony (features BMA-001, 003)
- Turtle Wintering Area (features TWA-001)
- Alvar Habitat (features ALV-001, 002)
- Savannah Habitat (feature SAV-001)
- Tallgrass Prairie Habitat (features TGP-001, 002)
- Amphibian Woodland Breeding Habitat (features AWO-001, 004, 006, 007, 008, 010, 011, 012, 013, 014, 015, 016, 017, 019, 020, 022, 023, 024)
- Open Country Bird Breeding Habitat (feature OCB-001)
- Common Nighthawk Habitat (features CONI-001, 002, 003, 004, 005, 006, 007, 008, 009)
- Eastern Wood Peewee Habitat (features EAWP-001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, 013, 014, 015, 016, 017, 018)
- Wood Thrush Habitat (features WOTH-001, 002, 004, 005)
- Mühlenberg's Weissia Habitat (features MUWE-001, 002, 003, 004, 005, 007, 009, 010)
- Monarch Butterfly Habitat (features MONA-001,002, 003, 004, 005, 006)

MNRF has reviewed and confirmed the assessment methods and the range of mitigation options. Pending completion of the assessments and determination of significance, the appropriate mitigation is expected to be implemented, as committed to in the EIS.

Post-construction Monitoring

A commitment has been made in the NHA and EIS to conduct post-construction monitoring, and if determined necessary, implement mitigation measures. For the Nation Rise Wind Farm this includes the following features if they are deemed significant following results of pre-construction monitoring requirements listed above:

- Bat Maternity Colony (features BMA-001, 003)
- Turtle Wintering Area (features TWA-001)
- Alvar Habitat (features ALV-001, 002)
- Savannah Habitat (feature SAV-001)
- Tallgrass Prairie Habitat (features TGP-001, 002)
- Amphibian Woodland Breeding Habitat (features AWO-001, 004, 006, 007, 008, 010, 011, 012, 013, 014, 015, 016, 017, 019, 020, 022, 023, 024)
- Open Country Bird Breeding Habitat (feature OCB-001)
- Common Nighthawk Habitat (features CONI-001, 002, 003, 004, 005, 006, 007, 008, 009)
- Eastern Wood Peewee Habitat (features EAWP-001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, 013, 014, 015, 016, 017, 018)
- Wood Thrush Habitat (features WOTH-001, 002, 004, 005)
- Mühlenberg's Weissia Habitat (features MUWE-001, 002, 003, 004, 005, 007, 009, 010)
- Monarch Butterfly Habitat (features MONA-001,002, 003, 004, 005, 006)

In addition, the following confirmed significant wildlife habitats will receive post-construction monitoring, and mitigation outlined in the NHA and EIS will be applied:

- Waterfowl Stopover and Staging Area – Aquatic Habitat (feature WSA-001)
- Amphibian Woodland Breeding Habitat (feature AWO-018)

In addition to the NHA, an Environmental Effects Monitoring Plans (EEMP) that address post-construction monitoring and mitigation for birds and bats must be prepared and implemented. EEMPs for birds and bats must be prepared in accordance with MNRF Guidelines and should be reviewed by MNRF in advance of submitting a REA application to MOECC to minimize potential delays in determining if the application is complete. Comments provided by MNRF with respect to the EEMP must be submitted as part of the application for a REA.

This confirmation letter is valid for the project as proposed in the NHA and EIS. Should any changes be made to the proposed project that would alter the NHA or EIS, MNRF may need to undertake additional review of the NHA and EIS.

Where specific commitments have been made by the applicant in the NHA and EIS with respect to project design, construction, rehabilitation, operation, mitigation, or monitoring, MNRF expects that these commitments will be considered in MOECC's Renewable Energy Approval decision and, if approved, be implemented by the applicant.

In accordance with S.12 (1) of the Renewable Energy Approvals Regulation, this letter must be included as part of your application submitted to the MOECC for a Renewable Energy Approval.

Please be aware that your project may be subject to additional legislative approvals as outlined in the Ministry of Natural Resources' *Approvals and Permitting Requirements Document*. These approvals are required prior to the construction of your renewable energy facility.

If you wish to discuss any part of this confirmation or additional comments provided, please contact Mike Poskin, A/Renewable Energy Coordinator, at 705-755-1362.

Sincerely,

Erin Cotnam
Land Use Planning Supervisor
Regional Operations Division
Ministry of Natural Resources and Forestry

cc. Dan Thompson, District Manager, MNR Kemptville District
cc. Mike Poskin, A/Renewable Energy Coordinator, MNRF
cc. Amy Cameron, Regional Planning Ecologist, MNRF
cc. Korey Walker, Regional Planner, MNRF
cc. Mohsen Keyvani, MOECC
cc. Nick Colella, MOECC
cc. Zeljko Romic, MOECC

Appendix II
Nation Rise Wind Farm NHA Letter of Re-confirmation

Ministry of
Natural Resources
Regional Resources Section
Southern Region
300 Water Street
4th Floor, South Tower
Peterborough, ON K9J 8M5

Ministère des
Richesses naturelles

Ontario

July 24, 2017

Nation Rise Wind Farm Limited Partnership
110 Spadina Ave, Suite 609
Toronto, ON
M5V 2K4

RE: NHA Re-Confirmation for Nation Rise Wind Farm (Addendum 1)

Dear Kenneth Little:

In accordance with the Ministry of the Environment and Climate Change's (MOECC's) Renewable Energy Approvals (REA) Regulation (O.Reg.359/09), the Ministry of Natural Resources and Forestry (MNRF) has reviewed the document titled *Nation Rise Wind Farm Natural Heritage Assessment Addendum Report* dated July 24, 2017. The document describes project modifications made subsequent to MNRF's letter confirming the Natural Heritage Assessment in respect of the project.

Upon review of these modifications, MNRF is satisfied the Natural Heritage Assessment requirements of O.Reg 359/09 have been met. Due to the removal of project infrastructure, the following natural features no longer require pre-construction or post-construction monitoring: EAWP-018, CONI-008, and MUWE-009.

Please add this letter as an addendum to the confirmation letter issued July 11, 2017 for the Nation Rise Wind Farm. If you wish to discuss any part of this re-confirmation, please contact Mike Poskin, A/Renewable Energy Coordinator, at 705-755-1362.

Sincerely,

Erin Cotnam
Land Use Planning Supervisor
Regional Operations Division
Ministry of Natural Resources and Forestry

cc. Dan Thompson, District Manager, MNR Kemptville District
cc. Mike Poskin, A/Renewable Energy Coordinator, MNRF
cc. Amy Cameron, Regional Planning Ecologist, MNRF
cc. Korey Walker, Regional Planner, MNRF
cc. Mohsen Keyvani, MOECC
cc. Nick Colella, MOECC

cc. Zeljko Romic, MOECC

APPENDIX B – WATER BODY ADDENDUM

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Memo

Project No. 1756

To: **Gabriel Constantin**

From: **Lillian Knopf**

Date: **January 21, 2019**

Re: **Nation Rise Wind Farm**
Water Body Addendum I

Natural Resource Solutions Inc. (NRSI) was retained to conduct a water body assessment in accordance with the Renewable Energy Approval (REA) Regulation, Ontario Regulation (O. Reg.) 359/09, for the Nation Rise Wind Farm (Project). This assessment included a records review, site investigation, and environmental impact study (EIS) of any potential water bodies at a proposed wind energy generating facility of up to 33 permitted wind turbines, with a nameplate capacity of approximately 100 megawatts (MW).

The Project is located in eastern Ontario, within the Township of North Stormont and the United Counties of Stormont, Dundas, and Glengarry. More specifically, the Project is located in the western portion of North Stormont bounded to the south by the Township of South Stormont and to the west by the Township of North Dundas. The north portion of the Project is delimited by the municipality boundaries of Russell and The Nation, while Courville Road and MacMillan Road represent the eastern boundaries of the Project. Project components will be located primarily on privately owned land, with some components (e.g., electrical collector lines) being placed along public rights-of-way. As identified in the REA Regulation, the proposed layout of the turbines, supporting infrastructure, and development activities are collectively referred to as the 'Project Location'. For the purposes of this memo, NRSI will refer to the areas in and within 120m of the Project Location as the 'Project Area'.

The records review, site investigation, and EIS for the Project were completed by NRSI as part of the requirements of the Water Body Assessment (WBA) and Water Body Report (WBR), which were submitted to the Ministry of Environment, Conservation and Parks (MECP) [formerly the Ministry of Environment and Climate Change] in August 2017. This memorandum has been prepared to identify and discuss three minor changes to the Project layout that have been proposed since the submission of the WBA and WBR to the MECP in August 2017 and since receiving the Project REA on May 4, 2018 (REA No. 0871-AV3TFM).

Staff Roles

The requirements of the REA process indicate that the name and qualifications of staff participating in the water body site investigation should be provided. This staffing information is

provided in the *Nation Rise Wind Farm: Water Body Assessment* (NRSI 2017a) and the qualifications and roles of key staff participating in this specific addendum to the Project's WBA and WBR are outlined below.

Andrew Ryckman, B.Sc.
Andrew is a Senior Biologist with more than 13 years of experience working on a variety of environmental projects. He has considerable experience managing Environmental Assessments, Natural Heritage Assessments (NHAs), and WBAs and WBRs for wind project developments across Canada, including experience with project management, report generation, data analysis, and considerable field monitoring. Andrew is certified in the Ecological Land Classification (ELC) system for southern Ontario (2010) and has extensive experience developing and implementing monitoring programs for birds, bats, reptiles, amphibians, butterflies, and large mammals.

Andrew's role in this Project was to act as the project advisor, overseeing all aspects of the Water Body Assessment and Report, including all associated field work and reporting. He was the main contact point for agency staff and assisted with the preparation of this addendum.

Lillian Knopf, B.Sc. (Env.)
Lillian is a Terrestrial and Wetland Biologist with more than six years of experience in the environmental field. She has managed renewable energy projects in Ontario, Saskatchewan, and Alberta, and has experience coordinating and conducting biological monitoring programs during the pre-construction and post-construction phases of wind project development. Lillian is experienced in project management, developing site-specific monitoring programs, leading wildlife surveys, analyzing data, and assessing potential impacts to wildlife and natural features. She has coordinated a range of field investigations, including avian, bat, reptile, and amphibian surveys, vegetation inventories, and water body assessments. Lillian is also an M.Sc. Candidate in biology at the University of Waterloo.

Lillian's role in this Project was to act as the project manager, overseeing all aspects of the Water Body Assessment and Report, including all associated field work and reporting. She assisted with the preparation of all corresponding reports, including being the primary author of this addendum.

Nyssa Hardie, M.Sc., E.Pt.
Nyssa is a Stream Corridor and Environmental Analyst with more than seven years of experience in the environmental field. Her areas of expertise include the assessment of headwater drainage features, municipal drains, watercourses, and stream corridors. She is experienced in identifying the function and connectivity of surface water drainage features with other environmental features such as wetlands, woodlands, and seepage areas. Nyssa frequently assesses watercourses and identifies flow regime, as well as identifies impacts to surface drainage features. She is certified in the Ontario Stream Assessment Protocol headwater drainage feature and stream barriers assessment modules, and has participated in workshops for headwater identification, assessment, and classification. Nyssa has experience conducting water body assessments for numerous wind projects in Ontario.

Nyssa's role in this Project was to act as the water body coordinator, responsible for overseeing all aspects of the water body records review, site investigation, data analysis, and report preparation. She assisted with the preparation of this addendum.

Description of Proposed Project Changes

Since the submission of the WBA and WBR to the MECP for the Project in August 2017, three minor changes have been proposed to the Project's layout. The layout changes addressed within this memorandum consist of the following:

- Addition of one underground collection line,
- Addition of one access road, and
- Addition to one temporary turbine laydown area.

The updates to the Project layout are discussed in Table 1, and Maps 1-1 to 1-3 provide a visual overlay of the minor differences between the previously approved layout and the updated layout presented in this addendum.

Table 1. Proposed Changes to the Nation Rise Wind Farm Layout

Project Component	Location	Description of Change	Closer to Water Bodies within 120m (Y/N)	Affected Water Bodies	Map
Underground Collection System	Between Concession Road 10-11 and Concession Road 11-12	Collection line has been added to the Project layout, at the same location as a previously approved temporary access road.	No new water bodies overlap the Project Area because of this adjustment. The addition of this collection line results in a minor change in distance between Project components and one water body, but does not change the overall extent of the Project footprint.	McConnell Steven Municipal Drain	1-1
Access Road	Between proposed laydown area on Forgues Road and Concession Road 7-8	Access road has been added to the Project layout.	No new water bodies overlap the Project Area because of this adjustment. There are also no resulting changes in distances between Project components and water bodies.	None	1-2
Turbine Laydown Area	T58	The turbine laydown area associated with T58 has been expanded (added) to the north.	No new water bodies overlap the Project Area because of this adjustment. There are also no resulting changes in distances between Project components and water bodies.	None	1-3

Assessment of Impacts to Water Bodies

In accordance with the REA Regulation, NRSI biologists have completed a comprehensive water body records review, site investigation, and EIS of the Project (NRSI 2017a; NRSI 2017b). Following a review of the proposed changes to the Project layout (Table 1), NRSI biologists have re-considered all aspects of the WBA and WBR relating to these proposed changes to determine if there are new water bodies, changes in distances to water bodies, or new mitigation measures or monitoring commitments required to ensure that potential permanent or adverse environmental impacts are mitigated or studied appropriately.

Amendments to the Water Body Assessment

The study area examined as part of the *Nation Rise Wind Farm: Water Body Assessment* (NRSI 2017a) extended well beyond the previously proposed Project Area to provide flexibility for any later changes to the Project's layout. Upon review of the proposed changes to the Project's layout, it has been determined that all areas included in the current layout were previously studied and included within the earlier WBA submission to the MECP. Thus, there are no new water bodies that require consideration as part of the records reviewed in the WBA.

In reviewing the changes made to the Project layout since the submission of the WBA, it has been verified that there is no change in distance from the overall Project Location to water bodies in or within 120m of the Project Location. When considering individual Project components, a change in distance has been noted from an underground collection line to one water body that is located within 120m of the Project Location. The proposed changes to the Project layout have not resulted in any new potential water bodies being included in or within 120m of the Project Location and have not changed the distance of the Project footprint as a whole to this water body. Since there are no new potential water bodies that need to be studied, it has been determined that further site investigation is not required.

Given the minor changes to the Project layout, as described above, NRSI biologists have identified one instance where a specific Project component (i.e. underground collection line) is now closer to a water body than what had previously been identified in the WBA. This specific instance has been outlined in Table 2, including the drain name, survey locations, and a comparison of distances from Project component to water body between the presented layouts.

Table 2. Updated Distances between Project Components and Confirmed Water Bodies within the Nation Rise Wind Farm Project Area

Drainage Feature Name	Survey Locations	Closest Distance to Project Component (m) in WBA (NRSI 2017a)	Updated Distances (m)	Amendment to the EIS Required? (Y/N)
McConnell Steven Municipal Drain	WB-003 WB-005 WB-006 WB-114[1]	WT – 40 AR – 5 CL – >120 CA – >0.1[2] SI – 42	WT – 40 AR – 5 **CL – >0.1[2]** CA – >0.1[2] SI – 42	No – No change from the overall Project footprint to the water body has occurred and the identified water body is still within 30m of the Project Location. Therefore this water body, and associated Project Location within 30m, still requires EIS consideration in the Water Body Report.

[1]*Alternative site investigation conducted for the survey location.*
[2]*On the mapping, this watercourse appears to be overlapped; however, all Project components, including the disturbance area, will be located adjacent to the watercourse (>0.1m).*

Legend
WT: Wind Turbine
AR: Access Road
CL: Collector Lines
CA: Construction Activity/Temporary Infrastructure/Laydown Area
SI: Supporting Infrastructure - Building/Substation/Meteorological Tower/Point of Interconnect

Amendments to the Water Body Report

As part of the preparation of this addendum, construction plans have been reviewed and the proposed changes to the Project layout have been summarized above. These proposed changes consist of three minor modifications to the Project layout, in the form of the addition of

one underground collection line, one access road, and one temporary turbine laydown area. In consideration of these minor adjustments, the construction details as presented in the original WBR (i.e. site preparation and servicing, construction, operation, decommissioning, and approach to impact assessment) have been reviewed and confirmed to still provide relevant, accurate, and comprehensive information pertaining to the type, extent, duration, and details of the proposed construction activities associated with the Project.

For the purposes of this addendum, NRSI biologists have reviewed four separate aspects relating to the potential for change to the Water Body Report, as follows:

- Changes to potential negative effects,
- Changes to mitigation measures (i.e. Project Location now closer to water bodies),
- New mitigation measures (i.e. Project Location within 120m of a new water body), and
- Changes to monitoring requirements.

Changes to Potential Negative Effects

Based on the minor nature of the updates to the Project layout, including no additional water bodies, NRSI biologists have determined that there are no changes to the potential negative effects as identified in the WBR (NRSI 2017b). The potential negative effects associated with underground collection lines will apply to one additional confirmed water body (McConnell Steven Municipal Drain), due to the modification of the Project layout described above, which has resulted in this specific Project component now occurring within 30m of this water body.

Changes to Mitigation Measures

NRSI biologists have reviewed the changes to Project layout, including the distances of the updated Project layout to confirmed water bodies, and have determined that the mitigation measures presented in the WBR (NRSI 2017b) are still appropriate and suitable for the protection of the confirmed water bodies from potential permanent and adverse impacts that may result from the development of the Project, if otherwise left unmitigated. Any mitigation measures outlined for collection lines (0.1m – 30m) should be implemented where the McConnell Steven Municipal Drain is located within 30m of, but not overlapping, the new proposed underground collection system.

New Mitigation Measures

As mitigation measures for collection lines have already been outlined in the WBR (NRSI 2017b), no new mitigation measures need to be outlined or implemented for this Project.

Changes to Monitoring Requirements

Based on the minor nature of the updates to the Project layout, including no changes in distance from the overall Project footprint to any water body and no additional potential water bodies, NRSI biologists have determined that the monitoring requirements identified in the WBR (NRSI 2017b) are still suitable for monitoring potential environmental effects of the Project. Any monitoring requirements outlined for collection lines (0.1m – 30m) should be implemented where the McConnell Steven Municipal Drain is located within 30m of the newly proposed underground collection system.

Summary of Water Body Addendum

In accordance with the REA Regulation, NRSI biologists have completed a comprehensive water body records review, site investigation, and EIS of the Project (NRSI 2017a; NRSI 2017b). Following a review of the proposed changes to the Project layout (as discussed above), NRSI biologists have re-considered all aspects of the Water Body Assessment and

Report, relative to these proposed changes, to determine if there are new water bodies, changes in distances to water bodies, or new mitigation measures or monitoring commitments required to ensure that potential permanent or adverse environmental impacts are mitigated or studied appropriately. A summary of the results of this review is provided in Table 3.

Table 3. Summary of Water Body Addendum for the Nation Rise Wind Farm

Addendum Changes	Addendum Result
Water Bodies	NRSI biologists have not identified any additional potential water bodies in, or within 120m of, the Project Location. Similarly, no previously identified water bodies have been removed from the Project Area.
Changes in Distances to Project Location	No change in distance from the Project Location to any water body within the Project Area has resulted from the proposed alterations to the Project layout. A change in distance from an individual Project component (i.e. underground collection line) to one water body (McConnell Steven Municipal Drain) has been identified, but no Project activity is closer than the closest distance presented in the previously approved WBR and WBA.
Potential Negative Effects	Based on no change in distance from the Project Location to any water body within the Project Area, NRSI biologists have determined that there are no changes to the potential negative effects as identified in the WBR (NRSI 2017b). The potential negative effects associated with collection lines presented in the WBR will now apply to the McConnell Steven Municipal Drain.
Mitigation Measures	Based on no change in distance from the Project Location to any water body within the Project Area, NRSI biologists have confirmed that the mitigation measures outlined in the WBR (NRSI 2017b) will provide the appropriate protection to confirmed water bodies to ensure any potential permanent and adverse impacts are mitigated. The mitigation measures associated with collection lines presented in the WBR will be required where the McConnell Steven Municipal Drain is located within 30m of the new proposed underground collection system.
Monitoring Commitments	Based on no change in distance from the Project Location to any water body within the Project Area, NRSI biologists have confirmed that the monitoring commitments outlined in the WBR (NRSI 2017b) are still appropriate to monitor any potentially adverse impacts resulting from the Project. The monitoring commitments presented in the WBR (NRSI 2017b) for collection lines will be required where the McConnell Steven Municipal Drain is located within 30m of the new proposed underground collection system.

It is maintained that with the implementation of the planned mitigation measures, monitoring programs, and contingency plans, as presented in the *Nation Rise Wind Farm: Water Body Report* (NRSI 2017b), there are unlikely to be significant impacts to water bodies in or within 120m of the Project Location.

Given that the proposed minor changes have resulted in no material change to the content of the previously approved Water Body Assessment and Report, it is expected that the current documents remain relevant and adequate to cover the proposed changes to the Project layout.

References

Natural Resource Solutions Inc. (NRSI). 2017a. Nation Rise Wind Farm: Water Body Assessment. August 2017.

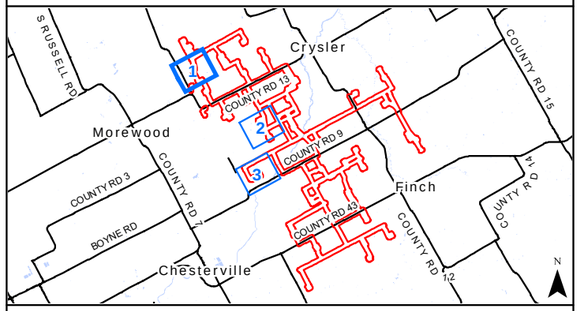
Natural Resource Solutions Inc. (NRSI). 2017b. Nation Rise Wind Farm: Water Body Report. August 2017.

Maps

Map 1-1

Nation Rise Wind Farm

Comparative Layout



Legend

- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Project Area
- New Project Area
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Laydown Areas
- Porposed Temporary Turning Radii
- Proposed Temporary Access Road for Construction
- New Proposed Undergound Collection System

Water Body Assessment

- Water Body Location (WB)
- Non-Water Body Location (NWB)

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 1756 Date: November 22, 2018	NAD83 - UTM Zone 18 Size: 11x17" **1:6,500**

0 100 200 300 400 Meters

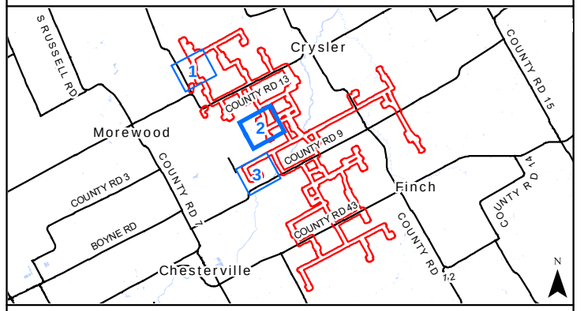
N

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_WB_Map1-1_ComparativeLayout_7K_2018_11_20_KEF.mxd

Map 1-2

Nation Rise Wind Farm

Comparative Layout



Legend

- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Previous Project Area
- New Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Turbine Laydown Area, Access Roads, Collection Line
- Proposed Laydown Areas
- Proposed Crane Path
- New Proposed Access Road

Water Body Assessment

- Water Body Location (WB)
- Non-Water Body Location (NWB)

FORGUES ROAD
9 MILE ROAD
CONCESSION ROAD 7 & 8
NWB-067
NWB-050
WB-047
WB-048
T16

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 1756 Date: January 21, 2019	NAD83 - UTM Zone 18 Size: 11x17" **1:6,500**

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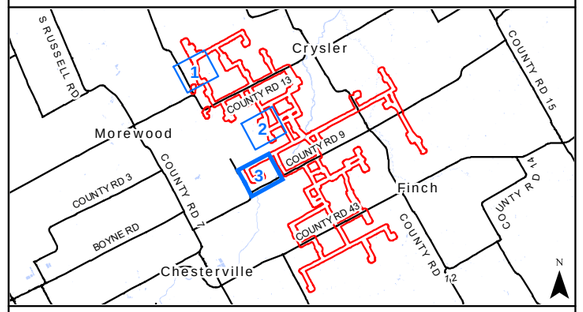
N

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_WB_Map1-2_ComparativeLayout_7K_2019_01_21_KEF.mxd

Map 1-3

Nation Rise Wind Farm

Comparative Layout



Legend

- Utility Line
- Primary Road
- Secondary Road
- Permanent Watercourse (LIO)
- Open Water (LIO)

Project Components

- Previous Project Area
- New Project Area
- Proposed Turbine
- Proposed Access Road and Collection System
- Proposed Above/Underground Collection System
- Proposed Turbine Laydown Area, Access Roads, Collection Line
- Proposed Meteorological Tower Footprint and Access Road
- New Proposed Laydown Area

Water Body Assessment

- Water Body Location (WB)
- Non-Water Body Location (NWB)

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 1756 Date: November 22, 2018	NAD83 - UTM Zone 18 Size: 11x17" **1:6,500**

0 100 200 300 400 Meters

N

Path: X:\1756_Nation_Rise_Wind_Project\NRSI_1756_WB_Map1-3_ComparativeLayout_7K_2018_11_20_KEF.mxd

APPENDIX C – MTCS CORRESPONDENCE AND NEW STAGE 2 ARCHAEOLOGICAL ASSESSMENT

Constantin, Gabriel

From: Prowse, Shari (MTCS) <Shari.Prowse@ontario.ca>
Sent: Tuesday, June 19, 2018 8:40 AM
To: Drouin, Bradley
Cc: Archaeology (MTCS)
Subject: RE: Report under PIFs P311-0313-2017, P311-0307-2016
Attachments: image003.jpg

Hi Bradly,

I apologize for your wait. We do not need notification of the change in use unless it changes the assessment or mitigation requirements. This email will serve as the notification and I will attach it to the file. Thanks.

From: Drouin, Bradley [mailto:Bradley_Drouin@golder.com]
Sent: June 19, 2018 8:34 AM
To: Prowse, Shari (MTCS) <Shari.Prowse@ontario.ca>
Cc: Archaeology (MTCS) <archaeology@ontario.ca>
Subject: FW: Report under PIFs P311-0313-2017, P311-0307-2016

Hi Shari,

I was wondering if you had a chance to review my e-mail below? Maybe you are out of the office – just in case, I've cc'd Archaeology@Ontario.

Looking forward to hearing from you (or someone at the MTCS),

-Brad-

From: Drouin, Bradley
Sent: June 13, 2018 7:05 PM
To: Prowse, Shari (MTCS) <Shari.Prowse@ontario.ca>
Subject: Report under PIFs P311-0313-2017, P311-0307-2016

Hi Shari,

I hope this e-mail finds you well. Last July you reviewed the Stage 2 report for the Nation Rise Wind Farm project under the above noted PIFs. We assessed the area below in brown as a potential access road/crane path. The client has decided that they'd like to put a collection line (blue/green line) in that same area. There is a site at the southern end that will need to be Stage 3 assessed (and possibly Stage 4 depending on the results).

Is there any documentation that MTCS requires to note the change in proposed use of the area already assessed? The client fully understands that regardless, the site will need to be further investigated prior to development.

All the best,

Bradley Drouin (M.A.)
Associate, Senior Archaeologist

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Work Safe, Home Safe

Ministry of Tourism, Culture and Sport

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Ontario

Sep 24, 2018

Aaron Mior (P1077)
Golder Associates Ltd.
1931 Robertson Ottawa ON K2H 5B7

RE: Review and Entry into the Ontario Public Register of Archaeological Reports: Archaeological Assessment Report Entitled, "Stage 2 Archaeological Assessment, Additional Locations (Laydown Yard and T58 Additional CDA), Nation Rise Wind Farm Project, Various Lots and Concessions, Historic Finch Township, United Counties of Stormont, Dundas and Glengarry, Ontario", Dated Jul 24, 2018, Filed with MTCS Toronto Office on Aug 7, 2018, MTCS Project Information Form Number P1077-0048-2018, MTCS File Number 0005413

Dear Mr. Mior:

This office has reviewed the above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18.[1] This review has been carried out in order to determine whether the licensed professional consultant archaeologist has met the terms and conditions of their licence, that the licensee assessed the property and documented archaeological resources using a process that accords with the 2011 Standards and Guidelines for Consultant Archaeologists set by the ministry, and that the archaeological fieldwork and report recommendations are consistent with the conservation, protection and preservation of the cultural heritage of Ontario.

The report documents the Stage 2 assessment of the study area as depicted in Map 10 of the above titled report and recommends the following:

1) No further archaeological assessment is required for the additional locations (Laydown Yard and T58 Additional CDA) as depicted on Map 2; and,

2) Any areas within the original project study area determined to have archaeological potential as per the Stage 1 archaeological assessment completed under PIF Number P311-305-2010, should undergo Stage 2 archaeological assessment if they are to be impacted.

The Ontario Ministry of Tourism, Culture and Sport is asked to review the results and recommendations presented herein, accept this report into the Provincial Register of archaeological reports, and issue a standard letter of compliance with the Ministry's 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licencing.

Based on the information contained in the report, the ministry is satisfied that the fieldwork and reporting for the archaeological assessment are consistent with the ministry's 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licences. This report has been entered into the Ontario Public Register of Archaeological Reports. Please note that the ministry makes no representation or warranty as to the completeness, accuracy or quality of reports in the register.

Should you require any further information regarding this matter, please feel free to contact me.

Sincerely,

Shari Prowse
Archaeology Review Officer

cc. Archaeology Licensing Officer
Kennith Little,EDP Renewables Canada Ltd.
TBD TBD,MOECC

[1]In no way will the ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.

ORIGINAL REPORT

Stage 2 Archaeological Assessment

Additional Locations (Laydown Yard and T58 Additional CDA), Nation Rise Wind Farm Project, Various Lots and Concessions, Historic Finch Township, United Counties of Stormont, Dundas and Glengarry, Ontario

PIF Number: P1077-0048-2018

Submitted to:

Kenneth Little
EDP Renewables Canada Ltd.
110 Spadina Ave, Suite 609
Toronto, Ontario
M5V 2K4

Submitted by:

Golder Associates Ltd.
1931 Robertson Road Ottawa, Ontario, K2H 5B7 Canada

+1 (613) 592 9600

1655180 - 2

July 24, 2018

Distribution List

1 e-copy - EDP Renewables Canada Ltd.

1 e-copy - Ministry of Tourism, Culture and Sport

1 e-copy - Golder Associates Ltd.

Executive Summary

The Executive Summary highlights key points from the report only; for complete information and findings, as well as the limitations, the reader should examine the complete report.

Golder Associates Ltd. (Golder) was retained by Nation Rise Wind Farm Limited Partnership (Nation Rise Wind), a wholly owned subsidiary of EDP Renewables Canada Ltd., to undertake an additional Stage 2 archaeological assessment for the proposed Nation Rise Wind Farm Project (the "Project") located on Lot 5 Concession 8 and Lot 2 Concession 6 in North Stormont Township (Historic Finch Township), United Counties of Stormont, Dundas and Glengarry, Ontario. This assessment was undertaken as part of the requirements for Nation Rise Wind's application for a Renewable Energy Approval (REA), as outlined in Ontario Regulation 359/09 Section 22(3) of the *Environmental Protection Act* (Government of Ontario 1990c).

Two Stage 1 archaeological background studies previously determined that the entire Project study area had archaeological potential for both pre-contact Aboriginal and historic Euro-Canadian sites (Golder 2016a and 2017a). Given these findings, it was recommended that a Stage 2 archaeological assessment be completed for all areas that may be impacted by the project. As such, Golder conducted a Stage 2 archaeological assessment of the Project study area in the fall of 2016 and the spring of 2017 under archaeological PIFs P311-0307-2016 and P311-0313-2017. These assessments resulted in the identification of 21 find locations, 10 of which were determined to have Cultural Heritage Value or Interest and were recommended for Stage 3 site specific archaeological assessment.

This report details the Stage 2 archaeological assessment of two additional areas that were added to the Project area following the original Stage 2 assessment of the Project area. The first additional area is identified as the Laydown Yard (1.62 hectares) and the second is the Turbine 58 (T58) Additional Construction Disturbance Area (0.47 hectares) (Map 2). The methodology used was pedestrian survey at 5m intervals.

No cultural resources were identified during the Stage 2 archaeological assessment of the two additional locations, therefore these locations have been determined to have no Cultural Heritage Value or Interest. Based on the results of the additional Stage 2 assessments the following is recommended;

1) No further archaeological assessment is required for the additional locations (Laydown Yard and T58 Additional CDA) as depicted on Map 2; and,

2) Any areas within the original project study area determined to have archaeological potential as per the Stage 1 archaeological assessment completed under PIF Number P311-305-2010, should undergo Stage 2 archaeological assessment if they are to be impacted.

The Ontario Ministry of Tourism, Culture and Sport is asked to review the results and recommendations presented herein, accept this report into the Provincial Register of archaeological reports, and **issue a standard letter of compliance with the Ministry's 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licencing.**

Project Personnel

Client Contact	Kenneth Little, EDP Renewables Canada Ltd Nathan Roscoe, EDP Renewables Canada Ltd
Project Director	Hugh Daechsel, M.A. (P051)
Project Manager/Senior Review	Bradley Drouin, M.A. (P311)
Licencee	Aaron Mior, M.A. (P1077)
Field Director	Ibrahim Noureddine, PhD. (P350)
First Nation Participants	Mason Lazore – Mohawk Council of Akwesasne Stephen Hunter – Algonquins of Ontario
Report Preparation	Heather Tulloch, M.A. (P270)
GIS/Mapping	Bojan Radojevic, B.A.
Administration	Courtney Adey

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TABLES

IMAGES

MAPS

1.0 PROJECT CONTEXT

1.1 Development Context

Golder Associates Ltd. (Golder) was retained by Nation Rise Wind Farm Limited Partnership (Nation Rise Wind), a wholly owned subsidiary of EDP Renewables Canada Ltd., to undertake a Stage 2 archaeological assessment of additional locations (Laydown Yard and T58 Additional CDA) for the proposed Nation Rise Wind Farm Project (the "Project") located on Lot 5 Concession 8 and Lot 2 Concession 6, North Stormont Township (Historic Finch Township), United Counties of Stormont, Dundas and Glengarry, Ontario (Maps 1-3).

This Stage 2 assessment was undertaken as part of the requirements of the client's application for a Renewable Energy Approval (REA), as outlined in Ontario Regulation 359/09 Section 22(3) of the *Environmental Protection Act* (Government of Ontario 1990c). The *Green Energy Act* (Government of Ontario 2009) enabled legislation governing project assessments and approvals to be altered to allow for a more streamlined Renewable Energy Approval (REA) process. Under Section 21 and 22 of the REA, an archaeological assessment must be conducted if the proponent concludes that engaging in the project may have an impact on archaeological resources. Currently, Ontario Regulation 359/09 of the *Environmental Protection Act* governs the REA process for renewable energy projects such as wind, anaerobic digestions, solar and thermal treatment facilities.

The original Project area is spread out of an area of approximately 10,947 hectares of mostly privately owned land with some publicly owned lands situated in North Stormont Township (Historic Township of Finch), United Counties of Stormont, Dundas and Glengarry, Ontario (Map 1). The original Stage 2 assessment area is generally bounded by Concession Road 12 to the north, MacMillan Road to the east, Finch Osnabruck Boundary Road to the south and Finch Winchester Boundary Road to the west. The two additional Stage 2 assessment areas are located centrally on the west side of the original study area. The Laydown Yard is located within Lot 5 Concession 8 of North Stormont Township and is accessed from Ashburn Road (Concession Road 7-8) and the Turbine 58 (T58) Additional CDA is located within Lot 2 Concession 6 with access off Murphy Road (Map 2).

The Project is anticipated to be categorized as a Class 4 wind facility with a total nameplate capacity of up to 100 MW. The major components of this project are expected to include commercial wind turbines with concrete turbine foundations, pad mounted step-up transformers, turbine access roads, buried and overhead collector lines, a collector substation, a microwave tower, meteorological towers, and interconnection station, temporary construction areas for the erection of wind turbines, and an operations and maintenance building. Approximately 33 wind turbine locations are being permitted as part of the REA process.

The objective of the additional Stage 2 assessment was to identify and document any archaeological resources at two new locations within the original project study area to be impacted by the project, to determine whether there are any cultural resources with Cultural Heritage Value or Interest, and to provide specific direction for the protection, management and/or recovery of these resources.

The objectives of a Stage 2 assessment, as outlined by the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011), are as follows:

- To document all archaeological resources within the portions of the study area to be impacted by the project;
- To determine whether the portions of the study area to be impacted by the project contains archaeological resources requiring further assessment; and,
- To recommend appropriate Stage 3 assessment strategies for archaeological sites identified.

To meet these objectives, Golder archaeologists employed the following research strategies:

- Stage 2 pedestrian survey at 5m intervals;
- Documentation of fieldwork through field notes, maps, and photographs.

The Stage 2 archaeological assessment of the additional locations was conducted under archaeological consulting licence P1077, issued to Aaron Mior, M.A. of Golder by the Ontario Ministry of Tourism, Culture and Sport, PIF# P1077-0048-2018. Permission to enter the optioned parcels within the study area and remove archaeological resources was provided by Nation Rise Wind.

1.2 Historical Context

Our understanding of the local sequence of human activity in the study area following the recession of the last ice sheet and the Champlain Sea is incomplete. It is possible, however, to provide a general outline of Pre-Contact occupation in the Ottawa region based on the archaeological investigations conducted throughout eastern Ontario.

1.2.1 Regional Pre-Contact Aboriginal History

Human occupation of southern Ontario dates back approximately 10,000 years before present (BP). These first peoples, known as Paleo-Indians, moved into Ontario as the last of the glaciers retreated northward. The former shores of the vast glacial lakes such as Lake Algonquin in the area that is now southern Georgian Bay, and along the north shore of present day Lake Ontario, contain remnants of some of their sites. Isolated finds of the distinctive, parallel-flaked Paleo-Indian spear points have been recorded in the Rideau Lakes and north of Kingston (Watson 1982). Although there is limited information on the lifestyle of the Paleo-Indians, what little evidence that is available suggests that they were highly mobile hunters and gatherers relying on caribou, small game, fish and wild plants found in the sub-arctic environment (Ellis and Deller 1990).

The Ottawa Valley remained very much on the fringe of occupation at this time. The ridges and old shorelines of the Champlain Sea and early Ottawa River channels would be areas most likely to contain evidence of Paleo-Indian occupation in this region. What is believed by some to be late Paleo-Indian material has been found in several locations within the City of Ottawa including a site in Honey Gables as well as near Albion Road and Rideau Road, Innes Road, north of the Mer Bleue close to the intersection of Navan Road and Page Road (Swayze 2001, 2003 & 2004) and a late Paleo Dovetail Point was recovered in Ottawa South (Pilon and Fox 2015).

It was not until the succeeding Archaic Period (*ca*. 9,000 to 3,000 BP), that the environment of southern Ontario approached modern conditions. While more land became available for occupation as the glacial lakes drained, archaic populations continued as hunter-gatherers; however, they appear to have focused more on local food resources, abandoning the highly mobile lifestyle of their predecessors. Although Paleo-Indian workmanship of stone tools was also lost, the Archaic Period tool kit became more diversified, reflecting the change to a temperate forest environment. Ground stone tools such as adzes and gouges first appeared and may indicate the construction of the dug-out canoes or other heavy wood working activities. Extensive trade networks had developed by the middle to late Archaic Period. Items such as copper from the north shore of Lake Superior were exchanged during this time.

The first significant evidence for occupation in the Ottawa Valley appears at this time. Archaic sites have been identified on Allumettes and Morrison Islands on the Ottawa River near Pembroke, and within the boundaries of Leamy Lake Park within the City of Gatineau (Pilon 1999: 43-53, 64). Late Archaic sites have also been identified to the west in the Rideau Lakes, and the east at Jessup Falls and Pendleton along the South Nation River (Daechsel 1980). A few other documented finds of archaic artifacts have been made within the city limits (Jamieson 1989; Golder 2016b). Sites at Honey Gables and at Albion Road and Rideau Road may contain Early Archaic material (Swayze 2004). At the south end of the South Nation River Drainage Basin near its watershed with the St. Lawrence Late Archaic “Old Copper” culture burials have been identified.

The Woodland Period (*ca*. 3,000 to 400 BP) is distinguished by the introduction of ceramics. Early Woodland groups continued to live as hunters, gatherers and fishers in much the same way as earlier populations had done. They also shared an elaborate burial ceremonialism evidenced by the inclusion of exotic artifacts within graves (Spence *et al* 1990: 129). Extensive trade networks continued through the early part of this period and Early Woodland populations in Ontario appear to have been heavily influenced by groups to the south, particularly the Adena people of the Ohio Valley. By 1,700 BP, the trade networks had reached their peak and covered much of North America.

Through the Middle Woodland Period (*ca*. 2,400 to 1,100 BP) there was an increase in the decorative styles found on ceramic pots and changes in the shapes and types of tools used. For the first time, it is possible to identify regional cultural traditions within the province, with “Point Peninsula” being the distinctive variant found in eastern and south-central Ontario. A greater number of known sites from this period have allowed archaeologists to develop a better picture of the seasonal round followed in order to exploit a variety of resources within a home territory. Through the late fall and winter, small groups would occupy an inland “family” hunting area. In the spring, these dispersed families would congregate at specific lakeshore sites to fish, hunt in the surrounding forest, and socialize. This gathering would last through to the late summer when large quantities of food would be stored for the approaching winter. The proliferation of sites suggests an increase in the population of Eastern Ontario, although the Ottawa area has yet to yield as many sites as other parts of south-eastern Ontario. Middle Woodland sites have been noted in the South Nation Drainage Basin near Casselman and further south near Winchester and along the Ottawa River including the northwest end of Ottawa at Marshall’s and Sawdust Bays (Daechsel 1980; Daechsel 1981), as well as at Leamy Lake and along the Rideau River.

Another significant development of the Woodland Period was the appearance of domesticated plants *ca*. 1,450 BP. Initially, only a minor addition to the diet, the cultivation of corn, beans, squash, sunflowers and tobacco gained economic importance for Late Woodland peoples. Along with this shift in subsistence, settlements located adjacent to the corn fields began to take on greater permanency as sites with easily tillable farmland became more important. Eventually, semi-permanent and permanent villages were built, many of which were surrounded by palisades, evidence of growing hostilities between neighbouring groups. By the end of the Late Woodland Period, distinct regional populations occupied specific areas of Southern Ontario separated by vast stretches of largely unoccupied land, including the Huron along the north shore of Lake Ontario, and the St. Lawrence Iroquois along the St. Lawrence River.

While there is clear evidence of these latter developments in much of southern Ontario, the Ottawa Valley remained a sparsely occupied region utilized by mobile hunter-gatherers. In part, this was because the terrain was less than suitable for early agriculture. It was also a reflection of the increased pressure on hunting territories and conflict over trade routes at the end of the Woodland Period. Facing persistent hostilities with Iroquoian populations based in what is now New York State, the Huron moved from their traditional lands on the north shore of Lake Ontario to the Lake Simcoe and Georgian Bay region. Algonquin groups, who had occupied the lands north of the Huron, also appear to have retreated further northward in order to place greater distance between themselves and the Iroquois.

Woodland sites have been recorded throughout the Ottawa Valley. Two small Late Woodland sites were identified on a property near the Village of Cumberland to the east of the study area (Ferris, 2002). A significant Woodland occupation has also been identified at the Leamy Lake site (Pilon 1999: 76-80) and an ossuary burial identified near the Chaudière Falls in the 1840s dates to this period. Although ossuaries are a burial practice normally associated with Iroquoian speaking populations, especially the Huron, this internment may have been Algonquin. Once again, a number of poorly documented Woodland find spots are known for the general study area (Jamieson 1989).

There is a cluster of Late Woodland St. Lawrence Iroquoian sites at the south end of the Drainage Basin including the Roebuck site one of the earliest systematically excavated sites in Canada having been investigation by W.J. Wintemberg in 1912 and again in 1914.

1.2.2 Regional Euro-Canadian History

Samuel de Champlain was the first European to document his explorations of the Ottawa Valley, initially in 1613 and again in 1615. He was preceded, however, by two of his emissaries, Etienne Brule around 1610 and Nicholas de Vigneau in 1611. It is likely that all three travelled at least the lower reaches of the Rideau River. In the wake of Champlain's voyages, the Ottawa River became the principal route for explorers, missionaries and fur traders travelling from the St. Lawrence to the interior, and throughout the seventeenth and eighteenth centuries this route remained an important link in the French fur trade.

At the time of initial contact, the French documented three Algonquin groups residing in the vicinity of the study area (Heidenreich & Wright 1987: Plate 18). These included the Matouweskarini along the Madawaska River to the west, the Onontchataronon in the Gananoque River basin to the southwest, and the Weskarini, the largest of the three, situated in the Petite Nation River basin northeast of the study area. While prolonged occupation of the region may have been avoided as a result of hostilities with Iroquoian speaking populations to the south, at least the northern reaches of the South Nation River basin were undoubtedly used as hunting territories by the Algonquin at this time. The recovery of European trade goods (i.e., iron axes, copper kettle pieces and glass beads) from aboriginal sites throughout the Ottawa River drainage basin has provided evidence of the extent of contact between aboriginals and the fur traders during this period. The English, upon assuming possession of New France, continued to use the Ottawa River as an important transportation corridor.

Significant European settlement of the region did not occur until United Empire Loyalists and other immigrants began to move to lands along the Ottawa River in the late eighteenth and early nineteenth centuries. The need for land on which to settle the Loyalists led the British government into hasty negotiations with their indigenous military allies, the Mississauga who were erroneously assumed to be the only Aboriginal peoples inhabiting eastern Ontario. Captain William Redford Crawford, who enjoyed the trust of the Mississauga chiefs living in the Bay of Quinte region, negotiated on behalf of the British government. In the so-called "Crawford Purchase," the Mississauga were pressed into giving up Aboriginal title to most of eastern Ontario, including what would become the counties of Stormont, Dundas, Glengarry, Prescott, Russell, Leeds, Grenville and Prince Edward, as well as the front Townships of Frontenac, Lennox, Addington and Hastings and much of what is now the City of Ottawa (including the Geographic Townships of Gloucester, Nepean, Osgoode, Marlborough and North Gower) (Lockwood 1996: 24). Two years after the 1791 division of the Province of Québec into Upper and Lower Canada, John Stegmann, the Deputy Surveyor for the Province of Upper Canada, undertook an initial survey of four Townships (Nepean, Gloucester, North Gower and Osgoode) on both sides of the Rideau River near its junction with the Ottawa River.

Commonly acknowledged as the first permanent European resident in the area, Philemon Wright settled in Hull Township with five families and 33 men in 1800 (Bond 1984:24). The community along the north shore of the Ottawa River grew over the next few years and by 1805 Wright had begun significant lumbering activity in the region. It would take several more years for permanent settlement to spread to the south side of the Ottawa River.

1.2.3 Historic Finch Township (North Stormont Township)

Early settlement of Finch Township dates back to 1789 originally as part of the Royal Township of Osnabruck. In 1802 eight families (Four Cameron's and four MacMillan's) following a charter group organized by Allen MacMillan, emigrated from Scotland and settled in the area. The original name for the first settlement was Gray's Corners named for Nelson Gray, a store owner who operated on the corner of Front and Victoria Streets. The name was later changed to South Finch after a school master by the name of Joseph Finch and then shortened to Finch after the railway passed through the town in 1885 (Hough 1989).

The town grew to eventually include a temperance hotel, cheese factory, store, a blacksmith shop, a large sash and amp, door factory, and other buildings. In 1850 the first school was constructed west of the village. A second school known as the Pink School was constructed in 1900 and would later be the site of the North Stormont District High School. In 1897 the Ottawa and New York Rail Line was constructed (later known as the New York Central) and was operational until 1957.

In 1906 the Hamlet of Finch was incorporated as a village with its own government body. It was later amalgamated as part of the North Stormont Township in January 1998. (Hough 1989).

The community of Berwick also lies within the study area and is located in the centre of Historic Finch Township between the Village of Finch and Crysler. The Hamlet was first settled by four brothers Adam, Peter, James, and Isaac Cockburn from Scotland in the early 1800's. They initially constructed a school, a store, a blacksmith shop, and their homes along the bank of the Payne River. This community was originally established as Cockburn Corners but later renamed to Berwick after the village in Scotland from which the Cockburn brothers had emigrated. Later a water powered sawmill was constructed as well as a hotel, cheese factory, tannery, a butcher shop, and other businesses were established in the village.

Berwick became the administrative home for Finch Township and remained so after January 1998 when Finch Township became part of the Township of North Stormont. The Township of North Stormont office and the North Stormont Public School are located in Berwick.

1.2.3.1 Historic Structures and Heritage Properties

The 1862 Walling Map of Historic Finch Township (Map 4) and the 1881 Belden Historical Map (Map 5) indicate the presence of various types of structures and transportation routes within the original project area. Specifically in regards to the additional Stage 2 locations; the Laydown Yard is in the vicinity of multiple historic structures as well as an early transportation route, while the T58 Additional CDA appears to be farther away from historic development (more than 300m to the closest historic structures). Within close proximity to the Laydown Yard (within 300m) there is a structure to the northwest as early as 1862 (Map 4). By 1881 there are several more structures nearby, including a church to the north (Map 5). The early transportation route, now called Forgues Road, which connected Winchester to Cahore and Crysler, is located to the north and west of the Laydown Yard. This road is thought to be particularly early because its irregular alignment does not conform to the grid system of the later Lot and Concession Roads.

In addition to the above noted structures identified on the historical atlas maps, a review of the Township and County databases was completed and no designated or listed heritage properties were found.

1.3 Archaeological Context

1.3.1 Project Area Overview

A general overview of the land uses within the limits of the Project study area was compiled by inspecting topographical as well as soil, physiographical and surficial geological maps (Maps 6 to 8). In general, the land use within the original project area is primarily devoted to agriculture; the majority of the land has been cleared with only a few minor wooded areas remaining. In addition to agricultural fields, the farm properties located across the project area typically include a residential area with various associated outbuildings (e.g., barns, sheds) situated in close proximity to the concession roads. In some cases, the farm properties have also been severed to accommodate non-farm residential or commercial uses. It is likely that manicured lawns and/or overgrown areas are associated with many of the residential or commercial areas. Minor portions of the project area are also classified as rural settlements (i.e., Berwick).

The road network traversing the original project area includes a combination of local, rural collector, and rural arterial roads, which generally correspond to the original 19th century survey grids. In order to improve the natural drainage of the landscape, many of the roads situated within the original assessment area are flanked by municipal drains that ultimately outlet into the South Nation River. In addition to these drains, several natural watercourses also meander through the assessment area (see Section 1.4.2 below). Finally, a branch of the former New York Central Railway runs in a southeasterly to northwesterly direction through the eastern portion of the original assessment area.

The additional project locations are situated in agricultural fields and there is a previously disturbed area (gravel driveway) within the additional assessment area for the Laydown Yard.

1.3.2 The Natural Environment

The physiography of the project study area is primarily flat with the majority lying within the Winchester Clay Plains physiographic region (Map 6). The northwest and south is characterized as the Glengarry Till Plain (drumlinized) which is typically flat to slightly undulating (Map 6) (Chapman & Putnam 1984). The Laydown Yard area has portions within both the Clay Plains and the Till Plain while the T58 Additional CDA area is solely within the Clay Plains (Map 6).

Natural drainage of the project area is largely provided by the South Nation River and its many tributaries. Due to the relatively flat topography of the area, sections of these watercourses have been artificially straightened to improve drainage capacity.

The majority of the soils found within the study are generally poorly drained or imperfectly drained soils (Map 7). The North Gower Clay dominates the northwest section of the project study area while the soil matrix within the remainder of the assessment area is complex. The additional project locations are within the North Gower Clay soil region with Welford Till present in the northern half of the Laydown Yard assessment area (Map 7).

The project study area is within the Upper St. Lawrence sub-region of the Great Lake-St. Lawrence Forest Region. Trees characteristic of this sub-region include red maple, elm, yellow birch, white birch, basswood, black and white ash, black alder, and bur oak (Rowe 1977). There are few limitations for the production of ungulates (deer) (Brassard & Bouchard 1971) but severe limitations for the production of waterfowl (Arsenault & Johnston 1970). These factors are important in considering pre-contact site potential. The area soils have moderately severe limitations to moderate limitations for crops due to poor drainage (Marshall *et. al.* 1979).

1.3.3 Previous Research and Archaeological Investigations

Prior to the original Stage 2 assessment of the project study area, there had been several archaeological assessments done in the general region of the study area (to the north and south) though none of the previous assessments had been directly within the project area. Several Pre-Contact sites were identified along the South Nation River primarily reported on by Hugh Daechsel's 1980's study titled "An Archaeological Evaluation of the South Nation River Drainage Basin" (Daechsel 1980). This study discusses several sites previously identified by Wintemberg in 1912 along with others. In total, the 1980 study identified 19 confirmed sites and 36 unconfirmed. Most of the research conducted in the area, prior to this project, has been concentrated around a cluster of St. Lawrence Iroquoian Village sites southwest of Crysler along the South Nation River. North of Crysler, several archaeological assessments have been conducted at Vars (Daechsel 1988a), Clarence-Thurso Ferry Road (Daechsel 1988b), and Alfred (Daechsel 1980). Pendergast excavated a St. Lawrence Iroquoian site in 1966 and 1984 (Daechsel 1988a). In addition, to the work described above, Jean-Luc Pilon has documented Pre-Contact sites along the banks and upper terraces of the South Nation River. In particular, he document a large Pre-Contact site located south of Westminster and 600 m north of the bank of the South Nation River on an upper terrace. The site produced a large number of ground stone axes and adzes as well as other lithic material (Personal Communication, Jean-Luc Pilon, 23 November 2015).

Other studies in the area include a Heritage and Archaeological Evaluation of the Proposed Sewage and Transmission Lines in Crysler (Daechsel 1989). Table 1 summarizes the results of a number of other relevant archaeological assessments located near the study area.

An examination of the MTCS archaeological sites database prior to the original Stage 2 assessment of the project study area, revealed no registered archaeological sites within the project area or within 1 km. In order to better understand site patterning along the South Nation River, Golder requested known archaeological sites within 1 km of the edge of the River banks. A total of 13 previously recorded archaeological sites were identified, all located within 700 m along the South Nation River (Table 1). None of these sites were located within 1 km of the study area.

The original Stage 2 archaeological assessment of the project study area resulted in the identification of 20 find locations producing cultural material and one find location that produced a natural geological sample (21 find locations in total). Historic Euro-Canadian artifacts were found at 20 locations and one natural geological sample, which was initially thought in the field to be a Pre-Contact Indigenous artifact. Ten of the 21 archaeological locations identified within the original study area were determined to exhibit Cultural Heritage Value or Interest and, as such, were recommended for Stage 3 site specific archaeological assessment and have been registered as archaeological sites with the Ministry of Tourism, Culture and Sport. Details on the findings and recommendations for each archaeological site identified during the original Stage 2 assessment of the project study area are detailed in Golder's 2017 report for the Project (Golder 2017b). Relevant to the additional project locations, two of the registered archaeological sites identified in the original Stage 2 assessment of the project study area are within 1km of the Laydown Yard while the closest sites to T58 Additional CDA are over 2km away.

To the best of our knowledge, no additional archaeological assessments have been conducted within 50 m of the current project area.

Information concerning specific site locations is protected by provincial policy and is not fully subject to the Freedom of Information Act. The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to all media capable of conveying location, including maps, drawings, or textual descriptions of a site location. For this reason maps and data that provide information on archaeological site locations are provided as supplementary documentation and do not form part of this public report.

The Ministry of Tourism, Culture and Sport will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests.

Table 1: Previous Archaeological Assessments in the Vicinity of the Project Study Area.

PIF #	Stage	Location/Site	Consultant	Year	Identified Sites	Recommendation	Distance from Study Area	Distance from South Nation River
N/A		South Mountain (pre-contact)	N/A	1997	Wilson-Webster (BfFu-2)	No further information	25.4 km	16 m
N/A	1	West of Winchester Springs (Euro-Canadian House)	Hugh Daechsel (1980-f-0452)	1980	Shane Site (BgFt-2)	Presumed to be destroyed. No further work needed.	15 km	781 m
N/A	1	North bank of South Nation River	Hugh Daechsel (1980-f-0425)	1980	Kittle Creel (BgFt-3)	Presumed destroyed. No further work needed.	7.1	66 m
N/A	1	East of South Nation River (Pre-Contact)	Hugh Daechsel (1980-f-0425)	1980	Chesterville 1 (BgFt-4)	No Further Information.	3.6 km	242 m
N/A	1	South Bend of South Nation River (unconfirmed) (Pre-Contact)	Hugh Daechsel (1980-f-0425)	1980	Forward 1 (BgFt-5)	Originally identified by Wintemberg in 1912. Nothing located in 1980. Site may have been destroyed by construction activities.	6.4 km	190 m
N/A	1	North bank of South Nation River (Unconfirmed) (Pre-Contact)	Hugh Daechsel (1980-f-0425)	1980	Chesterville 2 (BgFt-6)	Exact Location of the site was not identified.	4.2 km	167 m
N/A		East of Chesterville South Nation River (Pre-Contact and Euro-Canadian)	Phillip Wright (2002-008)	2002	Droppo (BgFt-7)	Further Cultural Heritage Value Investigation required.	6.0 km	230 m
N/A	1	South Nation River North of Casselman (Euro-Canadian)	Hugh Daechsel (1980-0425)	1980	Casselman Dam (BhFs-2)	No further information.	14.0 km	90 m
N/A		South Nation River (Pre-Contact)	Cataraqui Archaeological Research Foundation (CARF)	1989	Crysler 1 (BhFs-3)	Indeterminate.	3.0 km	70 m
N/A		(Euro-Canadian)	Cataraqui Archaeological Research Foundation (CARF)	1990	Bennoit (BhFs-4)	Indeterminate	3.7 km	273 m
P378-008-2013	2	West of the South Nation River (Pre-Contact)	Nadine Kopp (P378)	2013	Casselman (BhFs-7)	Further investigation required.	13.9 km	56 m
N/A		South Nation River (Pre-Contact)	Jean-Luc Pilon (1992-117)	1992	Muldoon (BiFs-1)	No further information.	29.0 km	600 m
N/A		South Nation River (Pre-contact)	Hugh Daechsel (2001-033)	2002	Lamoureux (BiFs-2)	No further information.	30.0 km	130 m

1.3.4 Stage 1 Archaeological Assessment Results

A Stage 1 archaeological assessment (PIF P311-305-2010) for the project was completed by Golder in 2016. The results of the study lead to the following recommendations for Stage 2 property survey:

1) *A Stage 2 archaeological assessment will be conducted by a licenced archaeologist using the pedestrian survey method at 5 m intervals in all areas that will be impacted by the project and where ploughing is possible (e.g., agricultural fields). This assessment will occur when the agricultural fields have been recently ploughed, weathered, and exhibit at least 80% surface visibility;*

2) *A Stage 2 archaeological assessment will be conducted by a licenced archaeologist using the test pit survey method at 5 m intervals in all areas that will be impacted by the project and where ploughing is not possible (e.g., wood lots, overgrown areas, manicured lawns);*

3) *Poorly drained areas, areas of steep slope and areas of previous disturbance (e.g., road ROWs, buildings) identified within all areas that will be impacted by the project are to be mapped and photo-documented, but are not recommended for Stage 2 archaeological assessment as they possess low to no archaeological potential; and,*

4) *The Stage 2 archaeological assessment will follow the requirements set out in the Standards and Guidelines for Consultant Archaeologists (MTCS 2011).*

2.0 STAGE 2 FIELD ASSESSMENT METHODS

2.1 Definition of Terms

For the purposes of the present report, the term **study area** describes all the land encompassed within Nation Rise Wind Project (Map 1).

Project components are defined as all infrastructure related to the wind farm layout, including but not limited to, wind turbines, turbine access roads, staging areas, substations, operations and maintenance buildings, towers, and buried and overhead collector cables, which form part of the project limits. Project components could impact potential archaeological resources within the study area during construction, operation, or decommissioning of the Nation Rise Wind Project. The current layout, as provided by the client, is illustrated on Map 2.

The term **original project area** will be used in the context of the present report to define all areas that were subjected to the previous Stage 2 archaeological assessments (P311-0307-2016 and P311-0313-2017) while **additional project locations** refers to the two areas assessed as part of the current Stage 2 Assessment (P1077-048-2018).

2.2 Methodology Overview

The Stage 2 archaeological assessment of the additional locations (Laydown Yard and T58 Additional CDA) was conducted by Golder on July 5, 2018 under archaeological consulting license P1077 issued to Aaron Mior, M.A. of Golder, PIF # P1077-0048-2018. All Stage 2 archaeological work was conducted in accordance with the 2011 *Standards and Guidelines for Consulting Archaeologists* (MTCS 2011) and the *Archaeology of Rural Farmsteads Technical Bulletin* (MTCS 2014).

The weather on July 5, 2018 was sunny with a high temperature of 38°C. At no time were the conditions detrimental to the recognition and recovery of archaeological material; field visibility and lighting conditions were appropriate.

The original project study area cumulatively measured approximately 10,947 hectares (27,050 acres) in size. These areas predominantly consisted of agricultural fields, with some minor wooded areas, overgrown areas, municipal ROWs, and areas with no to low archaeological potential (i.e., water courses, previously disturbed areas). The construction disturbance area for the project components could disturb approximately 456.7 hectares (1127 acres) in size.

The additional project locations consisted mainly of agricultural fields which were assessed by standard pedestrian survey method at 5m intervals, as per Section 2.1.1 of the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011). At the time of the pedestrian surveys, the agricultural fields were recently ploughed and weathered with surface visibility of approximately 85%.

One previously disturbed area, a gravel driveway, was identified at the Laydown Yard location. This area was interpreted as having no or low archaeological potential and was only visually assessed. This interpretation is consistent with Standard 2, Section 2.1 of the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011).

2.3 Summary of Property Assessment

A summary of the survey methods, field conditions and results of the Stage 2 archaeological assessment performed for each additional location has been provided in Table 2 below (see Map 9).

The table identifies the assessed properties by their property identification number (PIN), as well as the associated project component. Other details included are the date, area, methods, and surface visibility.

The eighth column indicates the topographic features observed at each property assessed as well as current land use. Soil descriptions for the project area are covered in Section 1.3.2.

The last two columns of the table present the results of the Stage 2 archaeological assessments performed at each property. Specifically, the ninth column presents the type of cultural resources identified on each property (i.e., pre-contact Indigenous, historic Euro-Canadian, none), and the tenth column presents the site location number. For further description and analysis of each archaeological location, see Section 3.0.

Table 2: Summary of additional Stage 2 Property Assessment.

PIN	Project Components	Map #	Date(s) Assessed	Area Assessed (ha.)	Methods	Surface Visibility	Property Description	Cultural Resources Identified	Find Location/ Borden Number
601010086	Laydown and collection (Laydown Yard)	9	5-July-18	1.62	95% - Pedestrian survey at 5 metre transects Images 1-2, p.21 5% Visually assessed – disturbed (gravel driveway) Images 4-5, pp.22-23	85% Image 3, p.22	Flat agricultural field. Soils consisted of brown/grey sandy loam. Driveway consists of hard packed gravel.	None	n/a
601010133	Turbine 58 (Additional CDA)	9	5-July-18	0.47	100% - Pedestrian survey at 5 metre transects. Images 6-7, pp.23-24	85% Image 8, p.24	Flat to gently undulating agricultural field. Soils consist of brown/grey sandy loam.	None	n/a

2.4 GPS Coordinates

All photo locations and features of topographic or archaeological significance were surveyed with Garmin GPS MAP64 units and documented with digital photographs. The Garmin MAP64 GPS unit is a 12 channel SiRFstar III high-sensitivity GPS receiver (WAAS-enabled), which continuously tracks and uses up to 12 satellites to compute and update plotted positons. The accuracy of the unit is 1 – 3 metres 95% typical, when averaged. The positions recorded for this Stage 2 investigation were typically accurate to 1 - 3 metres. The projection used was Universal Transverse Mercator (UTM), Grid Zone 18, and referenced to the North American Datum (NAD) 1983.

Field data collection also incorporated the ArcGIS Collector application loaded on iPad's, connected to a Garmin GPS booster which provided average positional accuracy of approximately 5 metres, to record spatial data of archaeological interest and photographic locations. The additional project location boundaries were uploaded to the iPad and an accompanying Garmin GPS handheld unit to ensure the areas represented on Map 2 were tested. All spatial field data was recorded using the Collector application, including previous disturbed areas, which were delineated and mapped in the field.

3.0 RECORD OF FINDS

The Stage 2 archaeological assessment of the additional project locations was conducted employing the methods described in Section 2.0. Maps 9 and 10 illustrate the areas assessed and techniques employed, while Images 1 to 8, pp.21-24 illustrate the Stage 2 survey conditions.

No historic Euro-Canadian nor pre-contact Indigenous artifacts or features were identified during the additional Stage 2 assessment. An inventory of the documentary record generated by the fieldwork at all sites is provided in Table 3.

Table 3: Inventory of Documentary Record.

Document Type	Current Location of Document	Additional Comments
Field Notes	Golder Office in Ottawa	Hard copies stored in project folder and digitally in project file.
Maps provided by Client	Golder Office in Ottawa	Files stored digitally in project file.
Digital Photographs	Golder Office in Ottawa	A total of 8 photos digitally in project file.

3.1 Laydown Yard

The Laydown Yard was located on PIN 601010086 with access from Ashburn Road (Concession Road 7-8) (Map 2). The majority of this location was assessed by pedestrian survey at 5m intervals (Map 9). The narrow strip of land that comprised the northwest portion of the additional Stage 2 area was identified as a gravel road/driveway. This portion of the additional project location was visually assessed and determined to have been previous disturbed (Map 9). No cultural resources were identified during the additional Stage 2 at the Laydown Yard location.

3.2 T58 Additional Construction Disturbance Area (CDA)

The T58 Additional CDA was located on PIN 601010133 with access to the Turbine 58 location from Murphy Road (Map 2). The entirety of the additional Stage 2 at this location was assessed by pedestrian survey at 5m intervals (Map 9) and no cultural resources were identified.

4.0 ANALYSIS AND CONCLUSIONS

A Stage 1 archaeological background study previously determined that the entire Nation Rise Wind project study area had archaeological potential for both pre-contact Aboriginal and historic Euro-Canadian sites (Golder 2016a). Given these findings, it was recommended that a Stage 2 archaeological assessment be completed for all areas that may be impacted by the project. The original Stage 2 archaeological assessment was carried out by Golder in the fall of 2016 and spring of 2017 (Golder 2017b). Additional Stage 2 assessment was required for two locations within the project study area (Laydown Yard and T58 Additional CDA), these assessments were completed by Golder in July 2018 and the results are detailed in this report.

The additional Stage 2 archaeological assessment involved pedestrian survey of both locations at 5m intervals. A portion of one location was determined to have been previously disturbed, as there was a gravel driveway present. No cultural resources were identified during the additional Stage 2 archaeological assessment and as such, these locations (Map 2) are not considered to exhibit Cultural Heritage Value or Interest (CHVI) and a Stage 3 assessment is not recommended.

5.0 RECOMMENDATIONS

No find spots or archaeological sites were identified during the Stage 2 archaeological assessment of the additional project locations for the Nation Rise Wind Project. Based on the results of this assessment the following is recommended;

1) No further archaeological assessment is required for the additional project locations (Laydown Yard and T58 Additional CDA) as depicted on Map 2; and,

2) Any areas within the original project study area determined to have archaeological potential as per the Stage 1 archaeological assessment completed under PIF Number P311-305-2010, should undergo Stage 2 archaeological assessment if they are to be impacted.

The Ontario Ministry of Tourism, Culture and Sport is asked to review the results and recommendations presented herein, accept this report into the Provincial Register of archaeological reports, and **issue a standard letter of compliance with the Ministry's 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licencing.**

6.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Minister of Tourism and Culture as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18 (Government of Ontario 1990a). The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism and Culture, a letter will be issued by the ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.

It is an offence under Section 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alterations to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological reports referred to in Section 65.1 of the *Ontario Heritage Act* (Government of Ontario 1990a).

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990a).

The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Consumer Services is also immediately notified.

Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48(1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological licence (Government of Ontario 1990a).

7.0 IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

Golder Associates Ltd. (Golder) has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the archaeological profession currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied is made.

This report has been prepared for the specific site, design objective, developments and purpose described to Golder by Nation Rise Wind Farm Limited Partnership, a wholly-owned subsidiary of EDP Renewables Canada (the Client). The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location.

The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Golder's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the client, Golder may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Golder. The report, all plans, data, drawings and other documents as well as all electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder, who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder. The Client acknowledges the electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore the Client cannot rely upon the electronic media versions of Golder's report or other work products.

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project.

Special risks occur whenever archaeological investigations are applied to identify subsurface conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain archaeological resources. The sampling strategies incorporated in this study comply with those identified in the Ministry of Tourism, Culture and Sports' *Standards and Guidelines for Consultant Archaeologists* (2011).

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Golder Associates Ltd.

2017a **Stage 1 Archaeological Assessment Nation Rise Wind Farm Project Additional Lands Part of Lot 2, Concession 3, Historic Finch Township, United Counties of Stormont, Dundas and Glengarry, Ontario.** Archaeological Consultants report submitted to EDP Renewables Canada Ltd.

2017b **Stage 2 Archaeological Assessment Nation Rise Wind Farm Project Various Lots and Concessions Historic Finch Township, United Counties of Stormont, Dundas and Glengarry, Ontario.** Archaeological Consultants report submitted to EDP Renewables Canada Ltd.

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9.0 IMAGES

Image 1: View north of Pedestrian Survey in Progress at the Laydown Yard.

Image 2: View south of Pedestrian Survey in progress at the Laydown Yard

Image 3: View of the surface visibility at the Laydown Yard.

Image 4: View north of the gravel driveway at the Laydown Yard

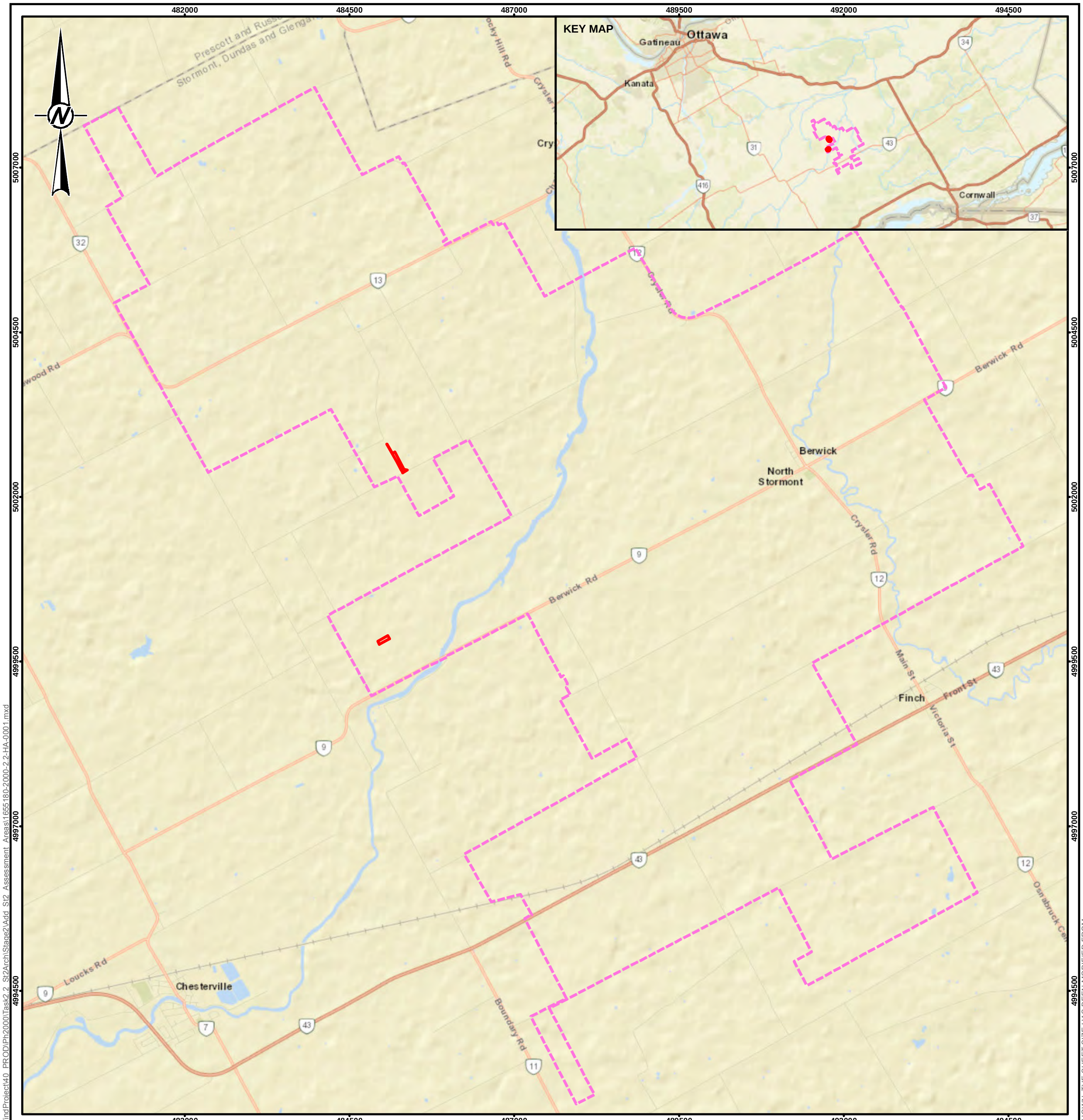
Image 5: View south of the gravel driveway at the Laydown Yard.

Image 6: View east of Pedestrian Survey in progress at T58 Additional CDA.

Image 7: View southwest of Pedestrian Survey in progress at T58 Additional CDA.

Image 8: View of the surface visibility at T58 Additional CDA.

10.0 MAPS



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ORIGINAL ASSESSMENT AREA – P311-0313-2017

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NOTE(S)
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CLIENT
NATION RISE WIND FARM LIMITED PARTNERSHIP

PROJECT
STAGE 2 ARCHAEOLOGICAL ASSESSMENT ADDITIONAL LOCATIONS (LAYDOWN YARD AND T58 ADDITIONAL CDA), NATION RISE WIND FARM PROJECT

TITLE
KEY PLAN

CONSULTANT

GOLDER

YYYY-MM-DD	2018-07-24
DESIGNED	HT
PREPARED	BR
REVIEWED	BD
APPROVED	HJD

PROJECT NO.	PHASE/TASK	REV.	MAP
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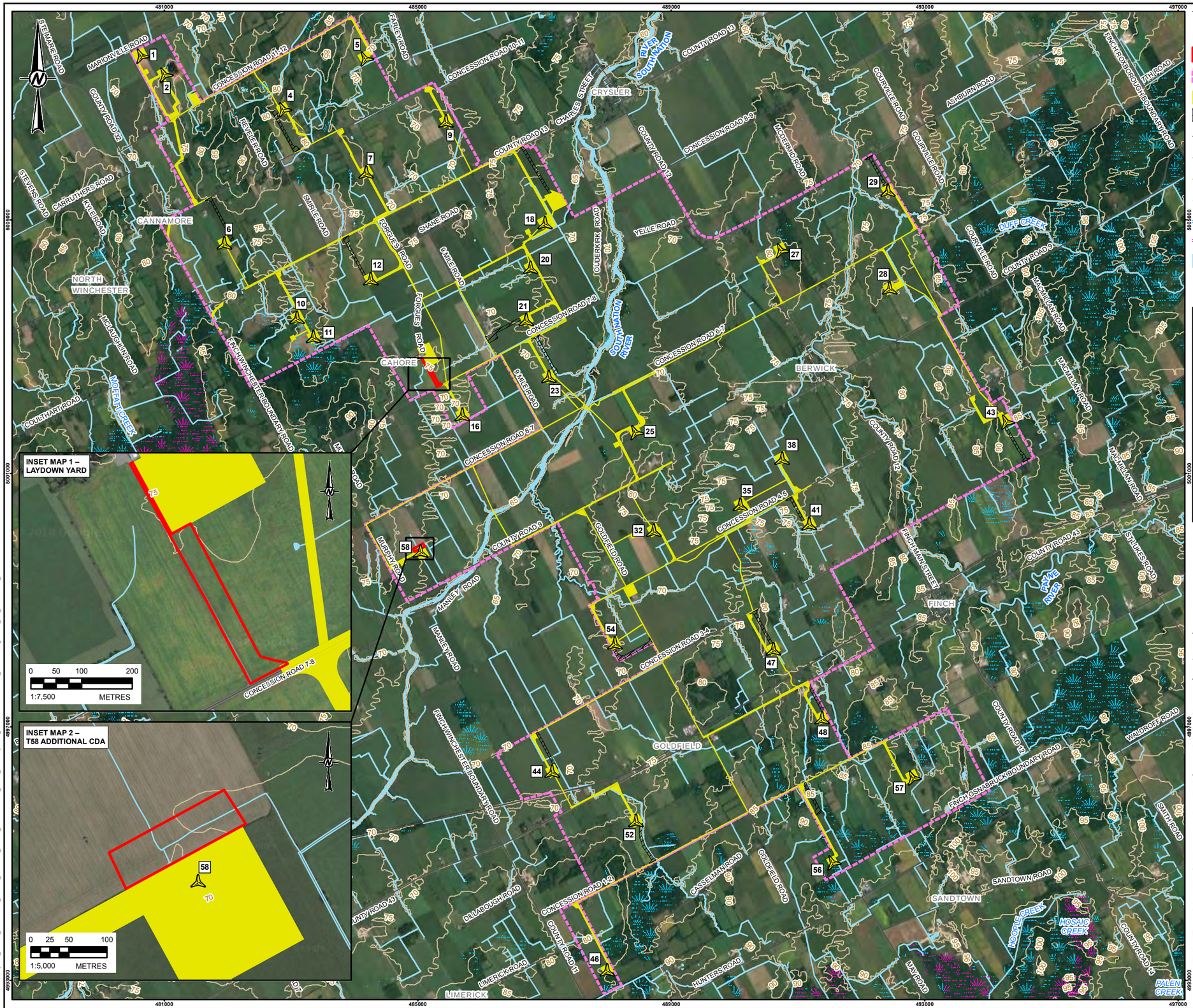

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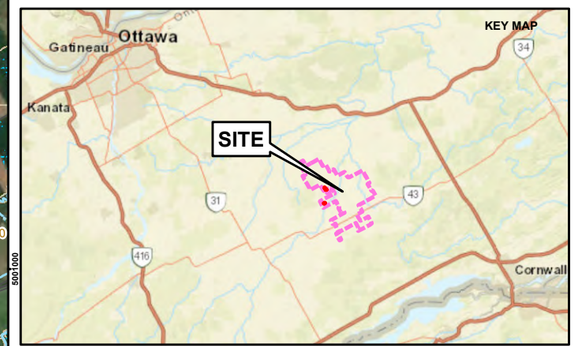
- ORIGINAL ASSESSMENT AREA – P311-0313-2017
- PROJECT LOCATION
- SECONDARY OPTION
- ROADWAY
- RAILWAY
- TOPOGRAPHIC CONTOUR, metres
- WATERCOURSE
- WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- WATERBODY



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CLIENT
NATION RISE WIND FARM LIMITED PARTNERSHIP

PROJECT
STAGE 2 ARCHAEOLOGICAL ASSESSMENT ADDITIONAL LOCATIONS (LAYDOWN YARD AND T58 ADDITIONAL CDA), NATION RISE WIND FARM PROJECT

TITLE
SITE PLAN

CONSULTANT
GOLDER

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REVIEWED	BD
APPROVED	HJD

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INSET MAP 1 – LAYDOWN YARD

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INSET MAP 2 – T58 ADDITIONAL CDA

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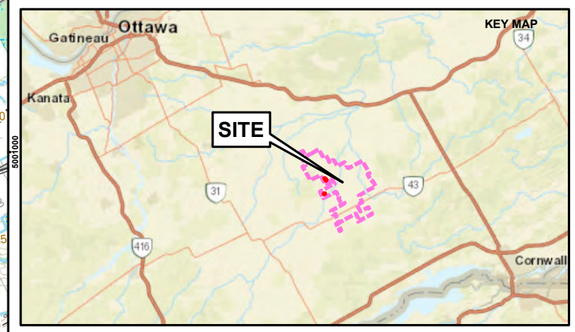
- WIND TURBINE LOCATIONS
- ADDITIONAL ST. 2 ASSESSMENT AREA – P1077-0048-2018
- ORIGINAL ASSESSMENT AREA – P311-0313-2017
- PROJECT LOCATION
- SECONDARY OPTION
- ROADWAY
- RAILWAY
- HYDRO LINE
- TOPOGRAPHIC CONTOUR, metres
- WATERCOURSE
- WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- WATERBODY
- BUILDING FOOTPRINT
- MUNICIPALITY BOUNDARY
- LOT FABRIC
- WOODED AREA

KEY MAP



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NATION RISE WIND FARM LIMITED PARTNERSHIP

PROJECT
STAGE 2 ARCHAEOLOGICAL ASSESSMENT ADDITIONAL LOCATIONS (LAYDOWN YARD AND T58 ADDITIONAL CDA), NATION RISE WIND FARM PROJECT

TITLE
TOPOGRAPHIC MAP

CONSULTANT
GOLDER

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APPROVED	HJD

PROJECT NO.	PHASE/TASK	REV.	MAP
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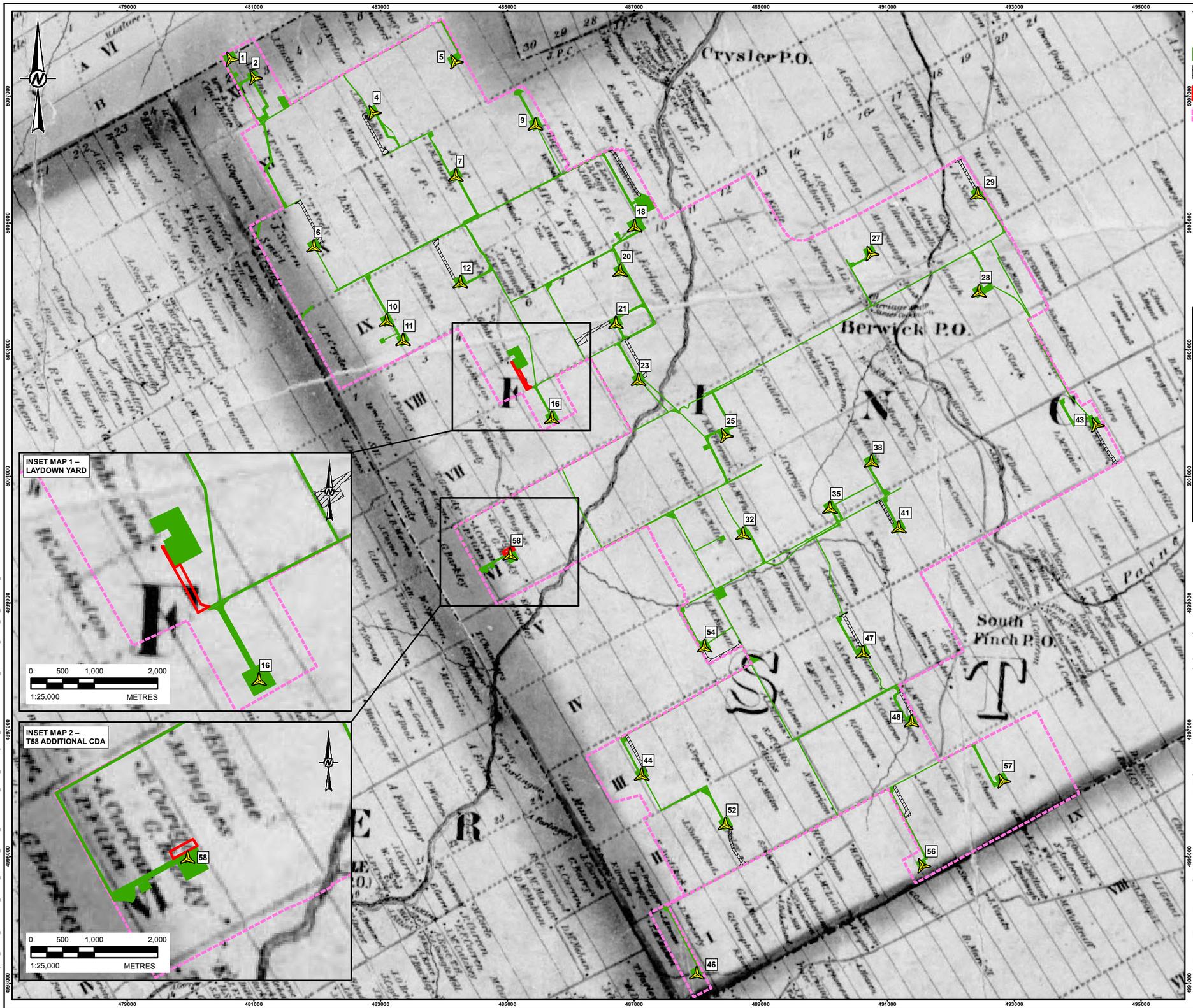

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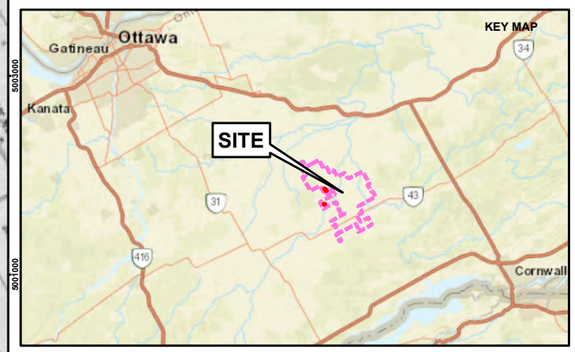

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COORDINATE SYSTEM: UTM ZONE 18 VERTICAL DATUM: CGVD28

CLIENT

NATION RISE WIND FARM LIMITED PARTNERSHIP

PROJECT

STAGE 2 ARCHAEOLOGICAL ASSESSMENT ADDITIONAL LOCATIONS (LAYDOWN YARD AND T58 ADDITIONAL CDA), NATION RISE WIND FARM PROJECT

TITLE

WALLING 1862 HISTORICAL MAP

CONSULTANT

GOLDER

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PREPARED	BR
REVIEWED	BD
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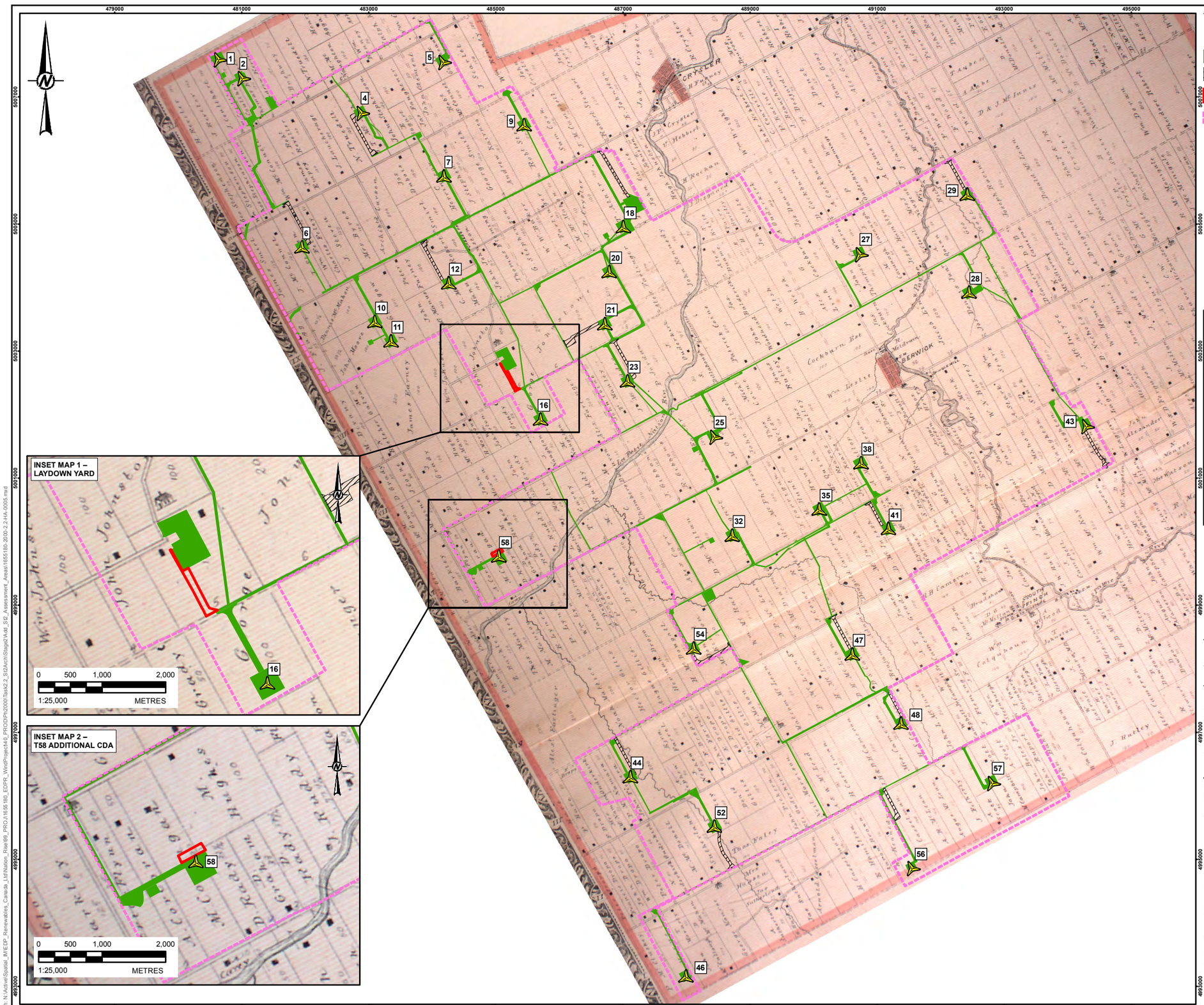

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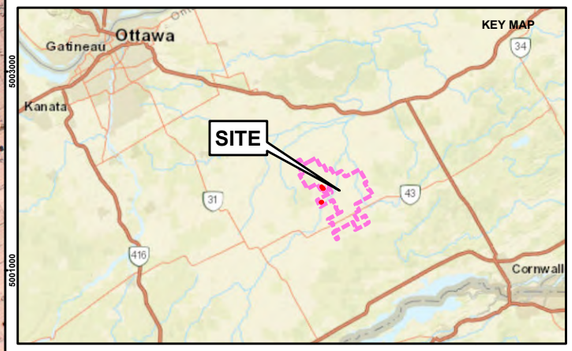

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1:60,000 METRES

NOTE(S)

1. THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GOLDER ASSOCIATES LTD. REPORT NO. 1655180-2000-2.2

REFERENCE(S)

1. 1881 WALLING MAP - MAP OF FINCH TOWNSHIP. ILLUSTRATED HISTORICAL ATLAS OF THE COUNTIES OF STORMONT, DUNDAS AND GLENGARRY, ONT. TORONTO: BELDEN CO., 1879.
2. SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
3. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
COORDINATE SYSTEM: UTM ZONE 18 VERTICAL DATUM: CGVD28

CLIENT
NATION RISE WIND FARM LIMITED PARTNERSHIP

PROJECT
STAGE 2 ARCHAEOLOGICAL ASSESSMENT ADDITIONAL LOCATIONS (LAYDOWN YARD AND T58 ADDITIONAL CDA), NATION RISE WIND FARM PROJECT

TITLE
BELDEN 1881 HISTORICAL MAP

CONSULTANT
GOLDER

YYYY-MM-DD	2018-07-24
DESIGNED	HT
PREPARED	BR
REVIEWED	BD
APPROVED	HJD

PROJECT NO.	PHASE/TASK	REV.	MAP
1655180	2000/2.1	0	5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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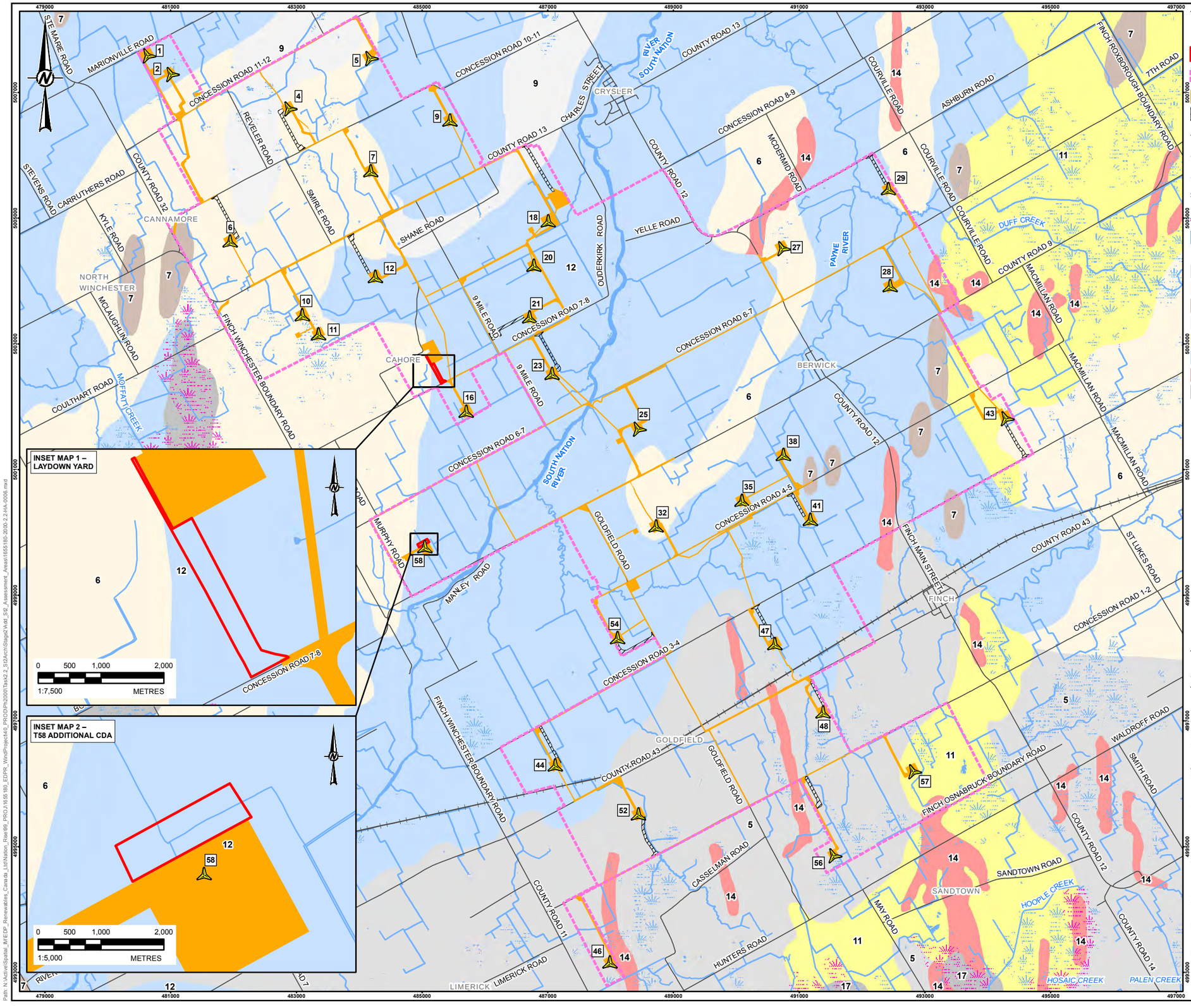

LEGEND

- WIND TURBINE LOCATIONS
- ADDITIONAL ST. 2 ASSESSMENT AREA – P1077-0048-2018
- ORIGINAL ASSESSMENT AREA – P311-0313-2017
- PROJECT LOCATION
- SECONDARY OPTION
- ROADWAY
- RAILWAY
- WATERCOURSE
- WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- WATERBODY

PHYSIOGRAPHY

- 5: TILL PLAINS (UNDRUMLINIZED)
- 6: TILL PLAINS (DRUMLINIZED)
- 7: DRUMLINS
- 9: LIMESTONE PLAINS
- 11: SAND PLAINS
- 12: CLAY PLAINS
- 14: BEACHES
- 17: PEAT AND MUCK

0 500 1,000 2,000

1:60,000 METRES

NOTE(S)

1. THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GOLDER ASSOCIATES LTD. REPORT NO. 1655180-2000-2.2

REFERENCE(S)

1. CHAPMAN, L.J. AND PUTNAM, D.F. 2007. PHYSIOGRAPHY OF SOUTHERN ONTARIO; ONTARIO GEOLOGICAL SURVEY, MISCELLANEIOUS RELEASE-DATA 228
2. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
3. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18 VERTICAL DATUM: CGVD28

CLIENT

NATION RISE WIND FARM LIMITED PARTNERSHIP

PROJECT

STAGE 2 ARCHAEOLOGICAL ASSESSMENT ADDITIONAL LOCATIONS (LAYDOWN YARD AND T58 ADDITIONAL CDA), NATION RISE WIND FARM PROJECT

TITLE

PHYSIOGRAPHY MAP

CONSULTANT

GOLDER

YYYY-MM-DD	2018-07-24
DESIGNED	HT
PREPARED	BR
REVIEWED	BD
APPROVED	HJD

PROJECT NO.	PHASE/TASK	REV.	MAP
1655180	2000/2.1	0	6

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 0 25mm

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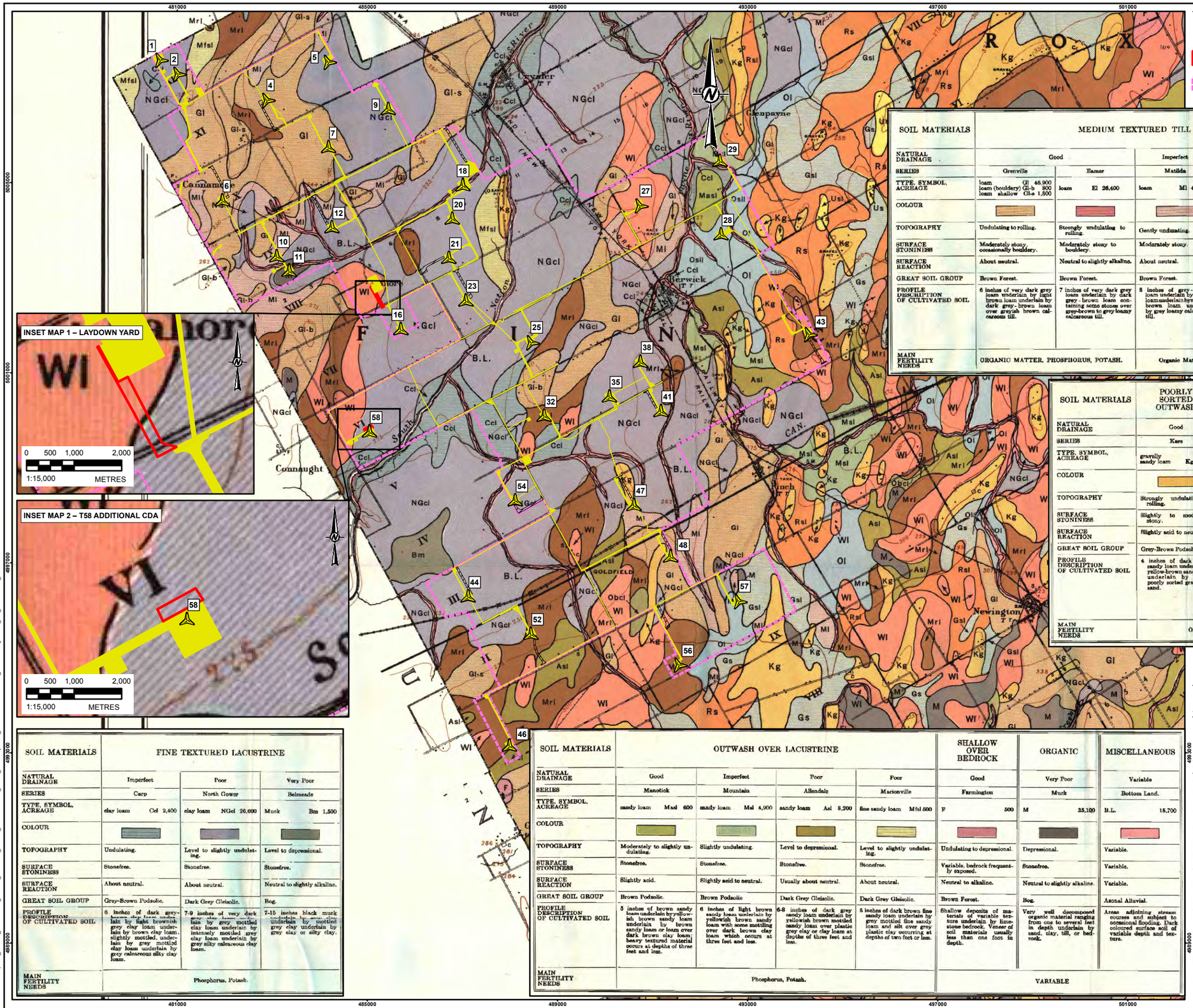

LEGEND

- WIND TURBINE LOCATIONS
- ADDITIONAL ST. 2 ASSESSMENT AREA – P1077-0048-2018
- ORIGINAL ASSESSMENT AREA – P311-0313-2017
- PROJECT LOCATION
- SECONDARY OPTION

INSET MAP 1 – LAYDOWN YARD

0 500 1,000 2,000
1:15,000 METRES

INSET MAP 2 – T58 ADDITIONAL CDA

0 500 1,000 2,000
1:15,000 METRES

SOIL MATERIALS	MEDIUM TEXTURED TILL				HEAVY TEXTURED TILL		
NATURAL DRAINAGE	Good		Imperfect	Poor	Good	Imperfect	Poor
SERIES	Grenville	Eamer	Matilda	Lyons	Wolford	Morrisburg	Osnabruck
TYPE, SYMBOL, ACREAGE	loam Gl 46,900 loam (bouldery) Gl-b 800 loam shallow Gl-s 1,800	loam El 26,400	loam Ml 4,600	loam Ll 1,300	clay loam Wl 13,000	clay loam Mrl 20,500	clay loam Obcl 3,400
COLOUR							
TOPOGRAPHY	Undulating to rolling.	Strongly undulating to rolling.	Gently undulating.	Usually depressional.	Gently undulating to rolling.	Gently undulating.	Level to depressional.
SURFACE STONINESS	Moderately stony, occasionally bouldery.	Moderately stony to bouldery.	Moderately stony.	Moderately stony.	Moderately stony, occasionally bouldery.	Moderately stony.	Moderately stony.
SURFACE REACTION	About neutral.	Neutral to slightly alkaline.	About neutral.	Neutral to slightly alkaline.	Neutral to slightly alkaline.	Alkaline.	Alkaline.
GREAT SOIL GROUP	Brown Forest.	Brown Forest.	Brown Forest.	Dark Grey Gleisolic.	Brown Forest.	Brown Forest.	Dark Grey Gleisolic.
PROFILE DESCRIPTION OF CULTIVATED SOIL	6 inches of very dark grey loam underlain by light brown loam underlain by dark grey-brown loam over greyish brown calcareous till.	7 inches of very dark grey loam underlain by dark grey-brown loam containing some stones over grey-brown to grey loamy calcareous till.	8 inches of grey-brown loam underlain by mottled grey loam underlain by grey loamy calcareous till.	8-10 inches of very dark brown loam underlain by mottled grey loam underlain by grey loamy calcareous till.	6 inches of very dark brown clay loam underlain by dark brown clay loam underlain by very dark greyish brown clay loam underlain by brownish grey clay loam till.	6 inches of dark brown clay loam underlain by dark yellowish brown clay loam underlain by brown clay loam slightly mottled underlain by grey compacted, calcareous clay loam till.	7-9 inches of very dark brown clay loam underlain by light brownish grey, mottled clay loam underlain by grey, calcareous clay loam till.
MAIN FERTILITY NEEDS	ORGANIC MATTER, PHOSPHORUS, POTASH.		Organic Matter, PHOSPHORUS, POTASH.		Organic Matter, PHOSPHORUS, Potash.		PHOSPHORUS, Potash.

SOIL MATERIALS	POORLY SORTED OUTWASH	WELL SORTED OUTWASH			MEDIUM TEXTURED LACUSTRINE
NATURAL DRAINAGE	Good	Good	Imperfect	Poor	Poor
SERIES	Kars	Uplands	Rubicon	Granby	Osgoode
TYPE, SYMBOL, ACREAGE	gravelly sandy loam Kg 19,100	sandy loam Us 2,400 sandy loam Usl 1,200	Sand Rs 7,200 sandy loam Rsl 4,200	sand Gs 4,900 sandy loam Gsl 3,700	loam Ol 5,300 silt loam Osil 900
COLOUR					
TOPOGRAPHY	Strongly undulating to rolling.	Strongly undulating to rolling.	Undulating to level.	Level to depressional.	Level to slightly undulating.
SURFACE STONINESS	Slightly to moderately stony.	Stonefree.	Stonefree.	Stonefree.	Stonefree.
SURFACE REACTION	Slightly acid to neutral.	Moderately to slightly acid.	Moderately to slightly acid.	About neutral.	About neutral.
GREAT SOIL GROUP	Grey-Brown Podzolic.	Podzol.	Ground water Podzol.	Dark Grey Gleisolic.	Dark Grey Gleisolic.
PROFILE DESCRIPTION OF CULTIVATED SOIL	4 inches of dark brown sandy loam underlain by yellow-brown sandy loam underlain by rough, poorly sorted gravel and sand.	3-4 inches of dark brown sand or sandy loam underlain by grey sand underlain by brown sand or sandy loam underlain by grey sand or sandy loam.	4-6 inches dark grey sand and sandy loam underlain by reddish brown sandy loam over grey sand. Occasionally the grey podzol A2 layer shown in freshly plowed fields but usually becomes incorporated with other horizons when cultivated.	7 inches of very dark brown sand or sandy loam underlain by grey mottled sand underlain by grey sand occasionally stratified with some silt and clay.	6 inches of dark grey loam underlain by light brownish grey loam slightly mottled underlain by grey-brown mottled loam underlain by grey loam.
MAIN FERTILITY NEEDS	ORGANIC MATTER, PHOSPHORUS, POTASH.			PHOSPHORUS, POTASH.	Phosphorus, Potash.

0 500 1,000 2,000
1:80,000 METRES

SOIL MATERIALS	FINE TEXTURED LACUSTRINE		
NATURAL DRAINAGE	Imperfect	Poor	Very Poor
SERIES	Carp	North Gower	Belmeade
TYPE, SYMBOL, ACREAGE	clay loam Cel 2,400	clay loam NGcl 26,000	Muck Bm 1,500
COLOUR			
TOPOGRAPHY	Undulating.	Level to slightly undulating.	Level to depressional.
SURFACE STONINESS	Stonefree.	Stonefree.	Stonefree.
SURFACE REACTION	About neutral.	About neutral.	Neutral to slightly alkaline.
GREAT SOIL GROUP	Grey-Brown Podzolic.	Dark Grey Gleisolic.	Bog.
PROFILE DESCRIPTION OF CULTIVATED SOIL	6 inches of dark grey-brown clay loam underlain by light brownish grey clay loam underlain by brown clay loam, slightly mottled, underlain by grey mottled clay loam underlain by grey calcareous silty clay loam.	7-9 inches of very dark grey clay loam underlain by mottled grey clay loam underlain by intensely mottled grey clay loam underlain by grey silty calcareous clay loam.	7-15 inches black muck underlain by mottled grey clay underlain by mottled grey clay or silty clay.
MAIN FERTILITY NEEDS	Phosphorus, Potash.		

SOIL MATERIALS	OUTWASH OVER LACUSTRINE				SHALLOW OVER BEDROCK	ORGANIC	MISCELLANEOUS
NATURAL DRAINAGE	Good	Imperfect	Poor	Poor	Good	Very Poor	Variable
SERIES	Manotick	Mountain	Allendale	Marionville	Farmington	Muck	Bottom Land.
TYPE, SYMBOL, ACREAGE	sandy loam Msal 600	sandy loam Mal 4,900	sandy loam Asl 8,200	fine sandy loam Mfsl 500	F 500	M 35,100	B.L. 15,700
COLOUR							
TOPOGRAPHY	Moderately to slightly undulating.	Slightly undulating.	Level to depressional.	Level to slightly undulating.	Undulating to depressional.	Depressional.	Variable.
SURFACE STONINESS	Stonefree.	Stonefree.	Stonefree.	Stonefree.	Variable, bedrock frequently exposed.	Stonefree.	Variable.
SURFACE REACTION	Slightly acid.	Slightly acid to neutral.	Usually about neutral.	About neutral.	Neutral to alkaline.	Neutral to slightly alkaline.	Variable.
GREAT SOIL GROUP	Brown Podzolic.	Brown Podzolic	Dark Grey Gleisolic.	Dark Grey Gleisolic.	Brown Forest.	Bog.	Azonal Alluvial.
PROFILE DESCRIPTION OF CULTIVATED SOIL	5 inches of brown sandy loam underlain by yellowish brown sandy loam underlain by brown sandy loam or loam over dark brown clay loam; heavy textured material occurs at depths of three feet and less.	6 inches of light brown sandy loam underlain by yellowish brown sandy loam with some mottling over dark brown clay loam which occurs at three feet and less.	6-8 inches of dark grey sandy loam underlain by yellowish brown mottled sandy loam over plastic grey clay or clay loam at depths of three feet and less.	5 inches of dark brown fine sandy loam underlain by grey mottled fine sandy loam and silt over grey plastic clay occurring at depths of two feet or less.	Shallow deposits of materials of variable texture underlain by limestone bedrock. Veneer of soil materials usually less than one foot in depth.	Very well decomposed organic material ranging from one to several feet in depth underlain by sand, clay, till, or bedrock.	Areas adjoining stream courses and subject to occasional flooding. Dark coloured surface soil of variable depth and texture.
MAIN FERTILITY NEEDS	Phosphorus, Potash.				VARIABLE		

NOTE(S)

1. THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GOLDER ASSOCIATES LTD. REPORT NO. 1655180-2000-2.2

REFERENCE(S)

1. SOIL MAP OF STORMONT COUNTY, ONTARIO; SOIL SURVEY REPORT NO. 20; SOIL SURVEY BY THE DEPARTMENT OF SOILS, ONTARIO AGRICULTURAL COLLEGE, GUELPH, AND THE EXPERIMENTAL FARMS SERVICE, DOMINION DEPARTMENT OF AGRICULTURE, OTTAWA. 1954.
2. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
COORDINATE SYSTEM: UTM ZONE 18 VERTICAL DATUM: CGVD28

CLIENT
NATION RISE WIND FARM LIMITED PARTNERSHIP

PROJECT
STAGE 2 ARCHAEOLOGICAL ASSESSMENT ADDITIONAL LOCATIONS (LAYDOWN YARD AND T58 ADDITIONAL CDA), NATION RISE WIND FARM PROJECT

TITLE
SOIL SURVEY COMPLEX

CONSULTANT
GOLDER

YYYY-MM-DD	2018-07-24
DESIGNED	HT
PREPARED	BR
REVIEWED	BD
APPROVED	HJD

PROJECT NO.	PHASE/TASK	REV.	MAP
1655180	2000/2.1	0	7

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 279mm

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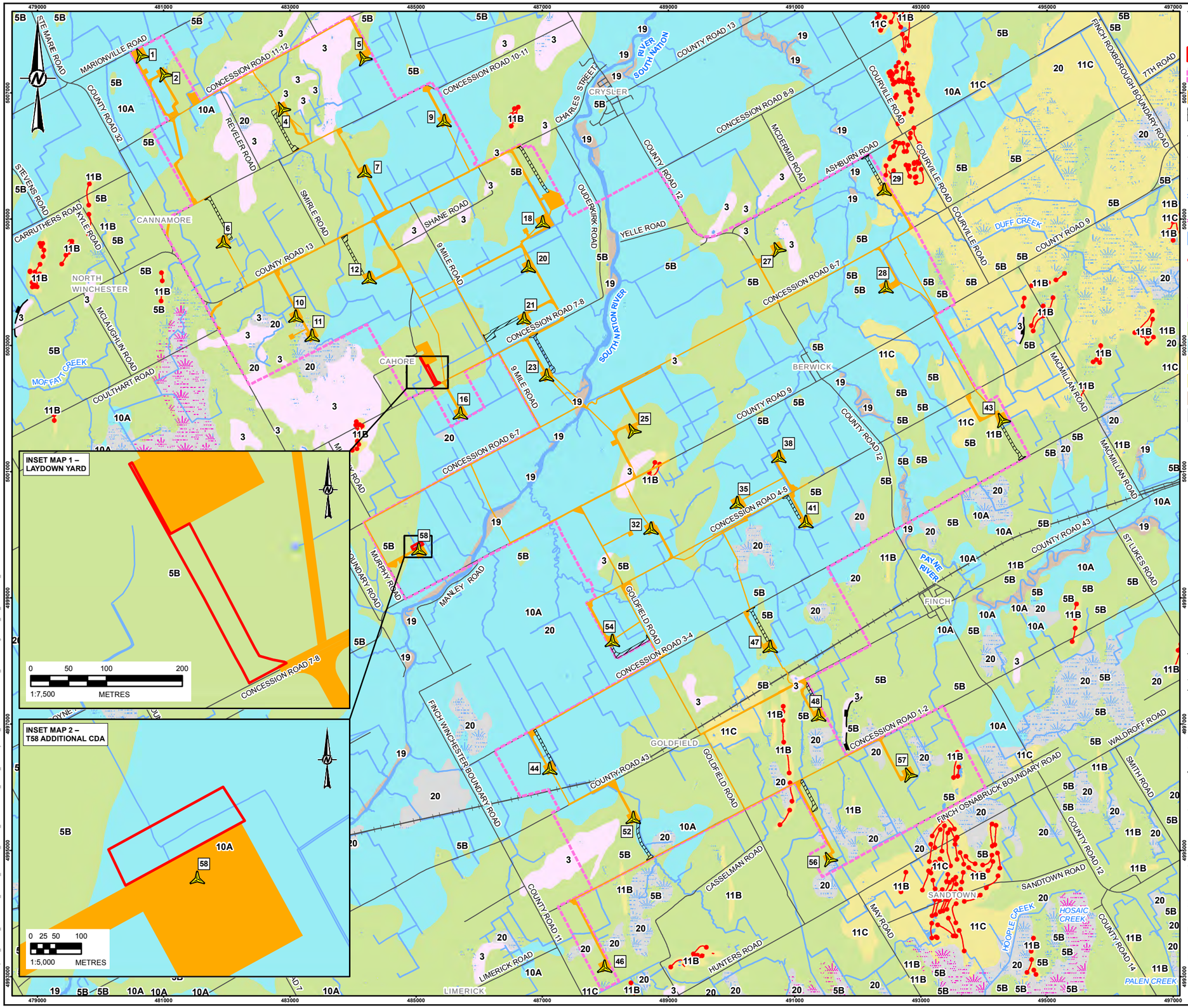

LEGEND

- WIND TURBINE LOCATIONS
- ADDITIONAL ST. 2 ASSESSMENT AREA – P1077-0048-2018
- ORIGINAL ASSESSMENT AREA – P311-0313-2017
- PROJECT LOCATION
- SECONDARY OPTION
- ROADWAY
- RAILWAY
- WATERCOURSE
- WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- WATERBODY
- BEACH RIDGES AND NEAR SHORE BARS
- BEDROCK SCARP OR ESCARPMENT

SURFICIAL GEOLOGY

- 3: PALEOZOIC BEDROCK
- 5B: STONE-POOR, CARBONATE-DERIVED SILTY TO SANDY TILL
- 10A: MASSIVE-WELL LAMINATED
- 11B: LITTORAL-FORESHORE DEPOSITS
- 11C: FORESHORE-BASINAL DEPOSITS
- 19: MODERN ALLUVIAL DEPOSITS
- 20: ORGANIC DEPOSITS

NOTE(S)

1. THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GOLDER ASSOCIATES LTD. REPORT NO. 1655180-2000-2.2

REFERENCE(S)

1. ONTARIO GEOLOGICAL SURVEY 2010. SURFICIAL GEOLOGY OF SOUTHERN ONTARIO; ONTARIO GEOLOGICAL SURVEY, MISCELLANEOUS RELEASE--DATA 128-REV
2. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
3. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18 VERTICAL DATUM: CGVD28

CLIENT

NATION RISE WIND FARM LIMITED PARTNERSHIP

PROJECT

STAGE 2 ARCHAEOLOGICAL ASSESSMENT ADDITIONAL LOCATIONS (LAYDOWN YARD AND T58 ADDITIONAL CDA), NATION RISE WIND FARM PROJECT

TITLE

SURFICIAL GEOLOGY

CONSULTANT

GOLDER

YYYY-MM-DD	2018-07-24
DESIGNED	HT
PREPARED	BR
REVIEWED	BD
APPROVED	HJD

PROJECT NO.	PHASE/TASK	REV.	MAP
1655180	2000/2.1	0	8

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

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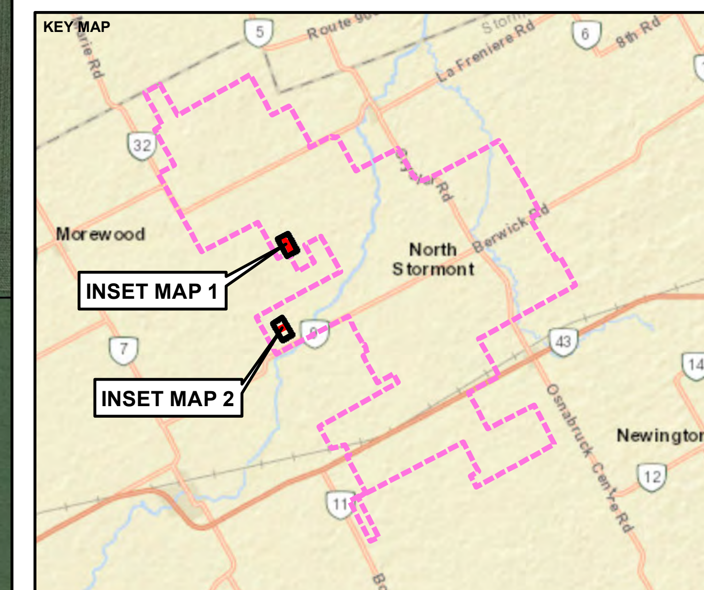
LEGEND

- WIND TURBINE LOCATIONS
- ADDITIONAL ST. 2 ASSESSMENT AREA – P1077-0048-2018
- ORIGINAL ASSESSMENT AREA – P311-0313-2017
- PROJECT LOCATION
- ROADWAY
- WATERCOURSE
- DISTURBED, VISUALLY ASSESSED
- PEDESTRIAN SURVEY AT 5 m INTERVAL
- PROPERTY PARCEL



0 25 50 100

1:2,500 METRES

NOTE(S)

1. THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GOLDER ASSOCIATES LTD. REPORT NO. 1655180-2000-2.2

REFERENCE(S)

1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
2. SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
3. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18 VERTICAL DATUM: CGVD28

CLIENT

NATION RISE WIND FARM LIMITED PARTNERSHIP

PROJECT

STAGE 2 ARCHAEOLOGICAL ASSESSMENT ADDITIONAL LOCATIONS (LAYDOWN YARD AND T58 ADDITIONAL CDA), NATION RISE WIND FARM PROJECT

TITLE

METHODS AND RESULTS OF THE ADDITIONAL STAGE 2 SURVEY

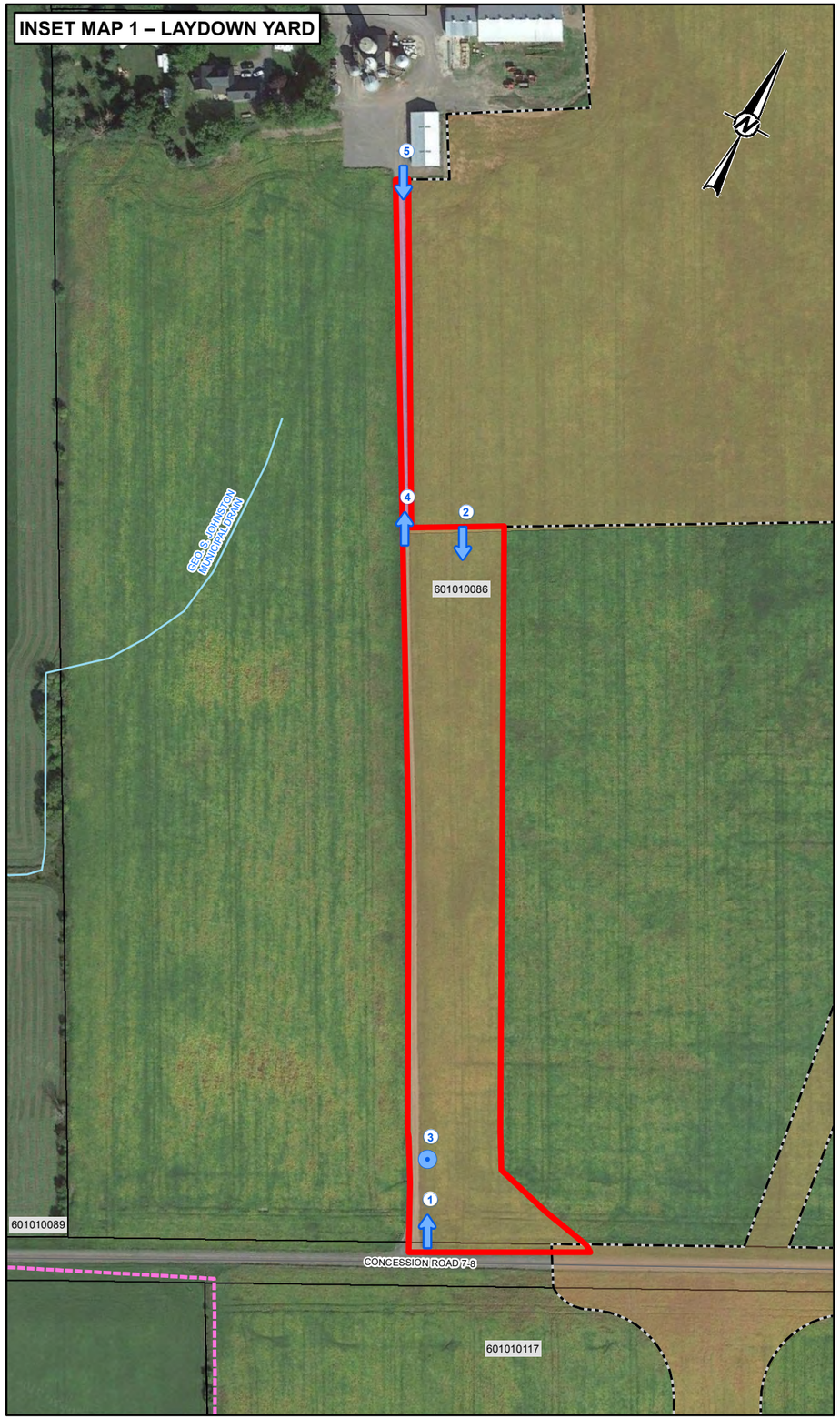
CONSULTANT

GOLDER

YYYY-MM-DD	2018-07-24
DESIGNED	HT
PREPARED	BR
REVIEWED	BD
APPROVED	HJD

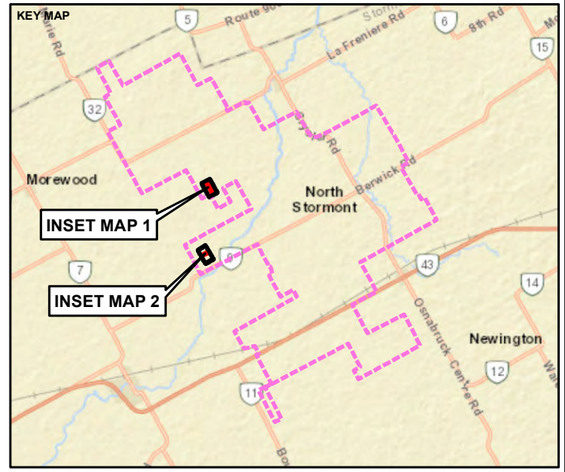
PROJECT NO.	PHASE/TASK	REV.	MAP
1655180	2000/2.2	0	9

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm



LEGEND

- WIND TURBINE LOCATIONS
- PHOTO LOCATION AND DIRECTION
- PHOTO LOCATION POINTING DOWN
- ADDITIONAL ST. 2 ASSESSMENT AREA – P1077-0048-2018
- ORIGINAL ASSESSMENT AREA – P311-0313-2017
- PROJECT LOCATION
- ROADWAY
- WATERCOURSE
- DISTURBED, VISUALLY ASSESSED
- PEDESTRIAN SURVEY AT 5 m INTERVAL
- PROPERTY PARCEL



0 25 50 100

1:2,500 METRES

NOTE(S)

1. THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GOLDER ASSOCIATES LTD. REPORT NO. 1655180-2000-2.2

REFERENCE(S)

1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
2. SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
3. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
COORDINATE SYSTEM: UTM ZONE 18 VERTICAL DATUM: CGVD28

CLIENT

NATION RISE WIND FARM LIMITED PARTNERSHIP

PROJECT

STAGE 2 ARCHAEOLOGICAL ASSESSMENT ADDITIONAL LOCATIONS (LAYDOWN YARD AND T58 ADDITIONAL CDA), NATION RISE WIND FARM PROJECT

TITLE

PHOTOGRAPHIC LOCATION AND DIRECTION

CONSULTANT

GOLDER

YYYY-MM-DD	2018-07-24
DESIGNED	HT
PREPARED	BR
REVIEWED	BD
APPROVED	HJD

PROJECT NO.	PHASE/TASK	REV.	MAP
1655180	2000/2.2	0	10

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

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Signature Page

We trust that this report meets your current needs. If you have any questions, or if we may be of further assistance, please contact the undersigned.

Golder Associates Ltd.

Heather A. Tulloch
Archaeologist

Bradley Drouin, M.A.
Associate, SeniorArchaeologist

HT/BD/ca

n:\active\2016\3 proj\1655180 edp nation rise wind farm ontario\03 stage 2 assessment\05 - report\07 addit lands june 2018\original\p1077-0048-2018_draft_18july2018.docx

golder.com

APPENDIX D – MTCS CORRESPONDENCE AND HERITAGE IMPACT ASSESSMENT ADDENDUM

From:	Mior, Aaron
To:	Nathaniel Roscoe
Cc:	Constantin, Gabriel; Jayaswal,Hersh; Drouin, Bradley; Holthof, Benjamin
Subject:	MTCS Response: Nation Rise Wind Farm cultural heritage addendum
Date:	Tuesday, February 12, 2019 10:45:02 AM

Good Morning Nathan,

Please find the MTCS response regarding the Cultural Heritage Addendum below. The MTCS has concurred that the original MTCS written comments letter dated April 18, 2017, is still valid. Please let me know if this response provides the confirmation you require or if there is anything else you need for your submission.

All the best,

Aaron

Aaron Mior (M.MA)
Staff Archaeologist

Golder Associates Ltd.
1931 Robertson Road, Ottawa, Ontario, Canada, K2H 5B7
T: +1 613 592 9600 | **D:** +1 613 592-9600 x4274 | **C:** +1 613 852-2842 | **golder.com**
LinkedIn | Facebook | Twitter

Work Safe, Home Safe

From: Hatcher, Laura (MTCS) <Laura.E.Hatcher@ontario.ca>
Sent: February 12, 2019 10:38 AM
To: Holthof, Benjamin <Benjamin_Holthof@golder.com>
Cc: Drouin, Bradley <Bradley_Drouin@golder.com>; Mior, Aaron <Aaron_Mior@golder.com>; Cary, Henry <Henry_Cary@golder.com>; Barboza, Karla (MTCS) <Karla.Barboza@ontario.ca>
Subject: RE: Nation Rise Wind Farm cultural heritage addendum

EXTERNAL EMAIL

Project : Nation Rise Wind Farm
OPA Reference Number : L-006351-WIN-001-100
Subject : REA Heritage Assessment addendum

Report Title : Heritage Impact Assessment Nation Rise Wind Farm Project

North Stormont Township, United Counties of Stormont, Dundas and Glengarry, Ontario
MTCS File No. : 0006490

Good morning Benjamin,

Thank you for submitting the Addendum for the Nation Rise Wind Farm Heritage Assessment to the Ministry of Tourism, Culture and Sport (MTCS) for review. The Heritage Assessment was originally prepared on March 29, 2017, and MTCS issued written comments on April 18, 2017 for the purposes of the 23(3)(a) of the REA regulation.

I have reviewed the addendum and based on the information and analysis provided, I can confirm that the original MTCS written comments letter dated April 18, 2017 is still valid.

Should you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Laura

Laura Hatcher, MCIP, RPP
Heritage Planner
Heritage Planning Unit | Programs and Services Branch | Ministry of Tourism, Culture and Sport
401 Bay Street Suite 1700 Toronto ON M7A 0A7
Tel. 416.314.3108 | email: laura.e.hatcher@ontario.ca

From: Holthof, Benjamin <Benjamin_Holthof@golder.com>
Sent: February 8, 2019 3:27 PM
To: Barboza, Karla (MTCS) <Karla.Barboza@ontario.ca>; Hatcher, Laura (MTCS) <Laura.E.Hatcher@ontario.ca>
Cc: Drouin, Bradley <Bradley_Drouin@golder.com>; Mior, Aaron <Aaron_Mior@golder.com>; Cary, Henry <Henry_Cary@golder.com>
Subject: Nation Rise Wind Farm cultural heritage addendum

Good afternoon Karla and Laura
EDP Renewables Canada Ltd. is requesting an expedited review of the recently submitted addendum to the Heritage Impact Assessment. The request letter is attached to this email.
Note, the request letter asks for a review by today. We acknowledge that today is not possible, the letter was drafted last week in case it was needed. We do ask that the review be expedited to be done as quickly as possible and ask if a date next week would be feasible for a review?

Thank you for considering this request.

Ben

Benjamin Holthof (M.Pl., M.M.A., CAHP)
Cultural Heritage Specialist

Golder Associates Ltd.
683 Innovation Drive, Unit 1, Kingston, Ontario, Canada K7K 7E6
T: +1 613 542 0029 | **D:** 613 542 0029 x5203 | **C:** 613 328 5598 | **golder.com**
LinkedIn | Facebook | Twitter

Work Safe, Home Safe

TECHNICAL MEMORANDUM

DATE January 29, 2019 **Project No.** 1655180

TO Kenneth Little
EDP Renewables Canada Ltd.

CC Bradley Drouin, M.A.; Henry Cary, Ph.D., CAHP

FROM Benjamin Holthof, M.Pl., M.M.A., CAHP **EMAIL Benjamin_Holthof@golder.com**

ADDENDUM TO THE HERITAGE IMPACT ASSESSMENT, NATION RISE WIND FARM PROJECT, NORTH STORMONT TOWNSHIP, UNITED COUNTIES OF STORMONT, DUNDAS AND GLENGARY, ONTARIO.

1.0 EXECUTIVE SUMMARY

In January 2019, Nation Rise Wind Farm Limited Partnership (Nation Rise) requested that Golder Associates Ltd. (Golder) assess whether cultural heritage resources would be affected by project modifications outlined in a Renewable Energy Approval Modifications Report for the Nation Rise Wind Farm Project in the Township of North Stormont, United Counties of Stormont, Dundas and Glengary, Ontario. After Golder submitted a Heritage Impact Assessment (HIA) for the project on March 29, 2017, Nation Rise added three new components within the Township of North Stormont including a collector line to a proposed access road, an access road to a laydown yard, and a construction disturbance area (CDA).

An addendum to the HIA is therefore required to describe the new components and assess if they will impact cultural heritage resources. Review of the modifications found that:

- the new collection line is adjacent to a property of potential cultural heritage value or interest (14114 Concession 10-11 Road) but its construction and operation is not predicted to result in adverse effects to the property's potential heritage attributes, nor those of other identified cultural heritage resources;
- the new access road for an existing laydown yard area is not near any properties of known or potential cultural heritage value or interest, and therefore its construction and operation is not predicted to result in adverse effects to any identified cultural heritage resources; and,
- the new CDA is not near any properties of known or potential cultural heritage value or interest, and therefore its construction and operation is not predicted to result in adverse effects to any identified cultural heritage resources.

Based on these findings, Golder determined that there are no changes to the recommendations presented in the 2017 HIA.

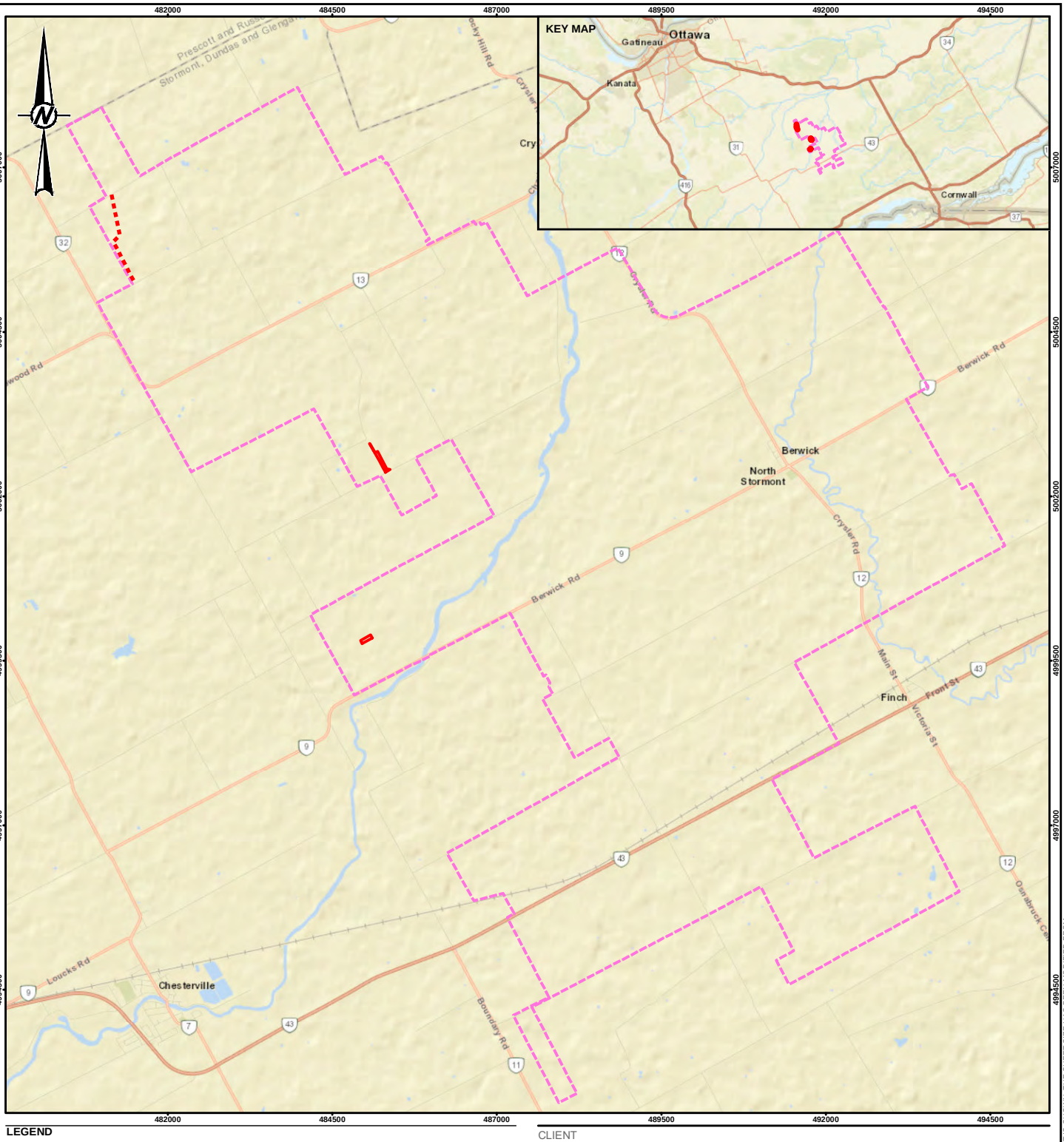
2.0 INTRODUCTION

In January 2019, Nation Rise Wind Farm Limited Partnership (Nation Rise), a wholly owned subsidiary of EDP Renewables Canada Ltd., retained Golder Associates Ltd. (Golder) to assess whether cultural heritage resources would be affected by project modifications outlined in a Renewable Energy Approval Modifications Report for the Nation Rise Wind Farm Project in the Township of North Stormont, United Counties of Stormont, Dundas and Glengary, Ontario. After Golder submitted a Heritage Impact Assessment (HIA) for the project on March 29, 2017, Nation Rise added three new components including a collector line to a proposed access road, an access road to a laydown yard, and a construction disturbance area (CDA).

The 2017 HIA had been undertaken as part of the requirements for Nation Rise's application for a Renewable Energy Approval (REA) as outlined in *Ontario Regulation 359/09* Section 22(3) of the *Environmental Protection Act* (Government of Ontario 1990c). The original project area encompasses an area of approximately 10,947 hectares of mostly privately-owned land with some publicly owned lands situated in North Stormont Township (Historic Township of Finch) (Figure 1). The project is anticipated to be categorized as a Class 4 wind facility with a total nameplate capacity of up to 100 MW. The major components of this project are expected to include commercial wind turbines with concrete turbine foundations, pad mounted step-up transformers, turbine access roads, buried and overhead collector lines, a collector substation, a microwave tower, meteorological towers, and interconnection station, temporary construction areas for the erection of wind turbines, and an operations and maintenance building. Approximately 33 wind turbine locations are being permitted as part of the REA process.

The new proposed components and associated locations within the Township of North Stormont are listed below and mapped in Figure 2.

- A collection line along a proposed access road on Lot 2, Concession 11;
- A new access road for an existing Laydown yard on Lot 5 Concession 8; and,
- A CDA to turbine T58 on Lot 2, Concession 6.



LEGEND

- ADDITIONAL COLLECTION SYSTEM
- ADDITIONAL ASSESSMENT AREA
- ORIGINAL ASSESSMENT AREA – P311-0313-2017

0 1,000 2,000 4,000

1:85,000 METRES

NOTE(S)

1. THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GOLDER ASSOCIATES LTD. REPORT NO. 1655180-2000-2.3

REFERENCE(S)

1. SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
2. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
COORDINATE SYSTEM: UTM ZONE 18 VERTICAL DATUM: CGVD28

CLIENT
NATION RISE WIND FARM LIMITED PARTNERSHIP

PROJECT
HERITAGE IMPACT ASSESSMENT
NATION RISE WIND FARM PROJECT

TITLE
KEY PLAN

CONSULTANT
GOLDER

YYYY-MM-DD	2019-01-29
DESIGNED	BH
PREPARED	BR
REVIEWED	BH
APPROVED	HJD

PROJECT NO.	PHASE/TASK	REV.	MAP
1655180	2000/2.3	0	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

Path: N:\Active\Spatial IM\EDP Renewables Canada Ltd\Nation Rise\99 PROJ\1655180 EDPR WindProject\40 PROD\PH2000\Task2.3 GoldHeritage\Addendum HeritageReport\1655180-2000-2_3-HA-0001.mxd

INSET MAP 1 – ACCESS ROAD TO A LAYDOWN YARD

0 500 1,000 2,000
1:7,500 METRES

INSET MAP 2 – T58 ADDITIONAL CDA

0 500 1,000 2,000
1:5,000 METRES

INSET MAP 3 – ADDITIONAL COLLECTION SYSTEM

0 25 50 100
1:15,000 METRES

LEGEND

- WIND TURBINE LOCATIONS
- ADDITIONAL COLLECTION SYSTEM
- ADDITIONAL ASSESSMENT AREA
- ORIGINAL ASSESSMENT AREA – P311-0313-2017
- PROJECT LOCATION
- SECONDARY OPTION
- ROADWAY
- RAILWAY
- HYDRO LINE
- TOPOGRAPHIC CONTOUR, metres
- WATERCOURSE
- WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND (PSW)
- WATERBODY
- BUILDING FOOTPRINT
- MUNICIPALITY BOUNDARY
- LOT FABRIC
- WOODED AREA

KEY MAP

0 500 1,000 2,000
1:60,000 METRES

NOTE(S)

1. THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GOLDER ASSOCIATES LTD. REPORT NO. 1655180-2000-2.3

REFERENCE(S)

1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
2. SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
3. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
COORDINATE SYSTEM: UTM ZONE 18 VERTICAL DATUM: CGVD28

CLIENT
NATION RISE WIND FARM LIMITED PARTNERSHIP

PROJECT
HERITAGE IMPACT ASSESSMENT
NATION RISE WIND FARM PROJECT

TITLE
TOPOGRAPHIC MAP

CONSULTANT
GOLDER

YYYY-MM-DD	2019-01-29
DESIGNED	BH
PREPARED	BR
REVIEWED	BH
APPROVED	HJD

PROJECT NO.	PHASE/TASK	REV.	FIGURE
1655180	2000/2.3	0	2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

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3.0 RESULTS OF ASSESSMENT

3.1 Existing Conditions

Following guidance provided in the Ministry of Tourism, Culture and Sport (MTCS) *REA Checklist: Consideration of Potential Cultural Heritage Resources* (2012) and the *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* (2015), Golder's HIA identified 43 properties on or adjacent to project areas that met the criteria for potential cultural heritage value or interest (CHVI). Upon further evaluation against the criteria of *Ontario Regulation 9/06* of the *Ontario Heritage Act*, Golder determined that only 18 of these are properties of potential CHVI. As of 2017, no properties in the project study area are listed on the Township of North Stormont municipal heritage register.

The properties of potential CHVI identified in Golder's 2017 are listed below and mapped on Figure 3. Each of these have residences and farm buildings surrounded by fields and woodlots. The placement and orientation of buildings on each property reflect the common spatial arrangement of farms dating from the 19th through early 20th centuries. Most of the properties are still inhabited and farmed, representing a continuity of historical land use patterns.

- 14600 Concession 11-12 Road
- 14114 Concession 10-11 Road
- 14073 Concession 10-11 Road
- 14770 County Road 13
- 14186 County Road 13
- 14950 County Road 9/Berwick Road
- 14685 County Road 9/Berwick Road
- 14645 County Road 9/Berwick Road
- 14630 County Road 9/Berwick Road
- 14905 Concession 3-4 Road
- 14577 Concession 3-4 Road
- 14745 County Road 43
- 14698 County Road 43
- 14310 County Road 43
- 14708 Concession 1-2 Road
- 14672 Concession 1-2 Road
- 14064 Concession 1-2 Road
- 14621 Hunter's Road

INSET MAP 1 – ACCESS ROAD TO A LAYDOWN YARD

INSET MAP 2 – T58 ADDITIONAL CDA

INSET MAP 3 – ADDITIONAL COLLECTION SYSTEM

KEY MAP

SCALE 1:1,200,000

LEGEND

- ADDITIONAL COLLECTION SYSTEM
- ADDITIONAL ASSESSMENT AREA
- ORIGINAL ASSESSMENT AREA – P311-0313-2017
- PROJECT LOCATION
- SECONDARY OPTION
- PROPERTIES WITH CULTURAL HERITAGE VALUE OR INTEREST
- ROADWAY
- RAILWAY
- WATERCOURSE
- WATERBODY

NOTE(S)

1. THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GOLDER ASSOCIATES LTD. REPORT NO. 1655180-2000-2.3

REFERENCE(S)

1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
2. SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
3. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18 VERTICAL DATUM: CGVD28

CLIENT
NATION RISE WIND FARM LIMITED PARTNERSHIP

PROJECT
HERITAGE IMPACT ASSESSMENT
NATION RISE WIND FARM PROJECT

TITLE
PROPERTIES WITH CULTURAL HERITAGE VALUE OR INTEREST

CONSULTANT
GOLDER

YYYY-MM-DD	2019-01-29
DESIGNED	BH
PREPARED	BR
REVIEWED	BH
APPROVED	HJD

PROJECT NO.	PHASE/TASK	REV.	FIGURE
1655180	2000/2.3	0	3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

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3.2 Lot 2 Concession 11 Collection Line

The new collection line on Lot 2 Concession 11 (Figure 4) will be installed in an area proposed for an access road. It is across the road and north of the property of potential CHVI at 14114 Concession 10-11 Road, and approximately 150 m east of the property of potential CHVI at 14073 Concession 10-11 Road.

However, the collection line will run within a previously assessed access road, which Golder determined in the 2017 HIA as having no direct or indirect impacts to the potential heritage attributes identified for 14114 and 14073 Concession 10-11 Road. The proposed collection line area is across an existing road and is over 100m from the farm building complex at 14114 Concession 10-11 Road; at that distance, any vibration produced during construction of the collection line will not impact the farm complex buildings. Therefore, construction of the new collection line on Lot 2 Concession 11 will not result in impacts to the properties of potential CHVI at 14114 and 14073 Concession 10-11 Road.

3.3 Lot 5 Concession 8 New Access Road to a Laydown Yard

The new access road to a laydown yard area on Lot 5 Concession 8 (Figure 5) is an area approximately 500m long by 50m wide and connects Ashburn Road (Concession 7-8 Road) at the south to a large laydown yard to the north next to a farm complex on Forgues Road. This area covers an existing gravel driveway and part of the fields on either side.

Neither the fields crossed by the access road, the farm complex next to the north end of the access road, nor any adjacent properties were identified as having potential CHVI. Therefore, construction of the new access road to a laydown yard on Lot 5 Concession 8 will not result in impacts to any identified properties of potential CHVI.

3.4 Lot 2 Concession 6 Turbine 58 CDA

The new CDA at turbine 58 will be placed on a field in Lot 2 Concession 6 (Figure 6) and measure approximately 175m long by 50m wide. It will be approached from an access road extending east from Murphy Road and north of the CDA originally planned for turbine 58.

The new CDA is not on or adjacent to any properties identified as having potential CHVI and therefore will not result in impacts to any cultural heritage resources.

480500 480750 481000 481250 481500 481750 482000

5006500 5006250 5006000 5005750 5005500 5005250 5005000

CONCESSION ROAD 11-12

REVELER ROAD

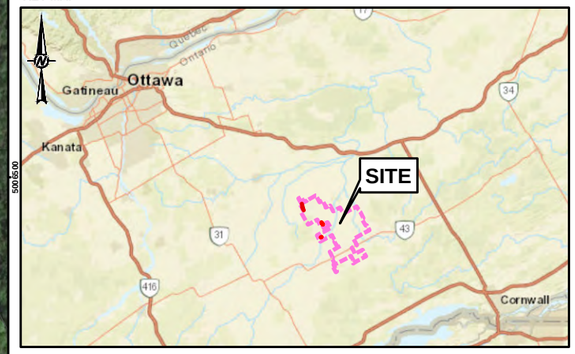
COUNTY ROAD 32

CONCESSION ROAD 10-11

3

2

KEY MAP



SCALE 1:1,200,000

LEGEND

- ADDITIONAL COLLECTION SYSTEM
- ORIGINAL ASSESSMENT AREA – P311-0313-2017
- PROJECT LOCATION
- SECONDARY OPTION
- PROPERTIES WITH CULTURAL HERITAGE VALUE OR INTEREST
- ROADWAY
- RAILWAY
- WATERCOURSE
- WATERBODY

NOTE(S)

1. THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GOLDER ASSOCIATES LTD. REPORT NO. 1655180-2000-2.3

REFERENCE(S)

1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
2. SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
3. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
COORDINATE SYSTEM: UTM ZONE 18 VERTICAL DATUM: CGVD28

0 50 100 200

1:6,000 METRES

CLIENT

NATION RISE WIND FARM LIMITED PARTNERSHIP

PROJECT

HERITAGE IMPACT ASSESSMENT
NATION RISE WIND FARM PROJECT

TITLE

NEW COLLECTION LINE AREA

CONSULTANT

GOLDER

YYYY-MM-DD	2019-01-29
DESIGNED	BH
PREPARED	BR
REVIEWED	BH
APPROVED	HJD

PROJECT NO.	PHASE/TASK	REV.	FIGURE
1655180	2000/2.3	0	**4**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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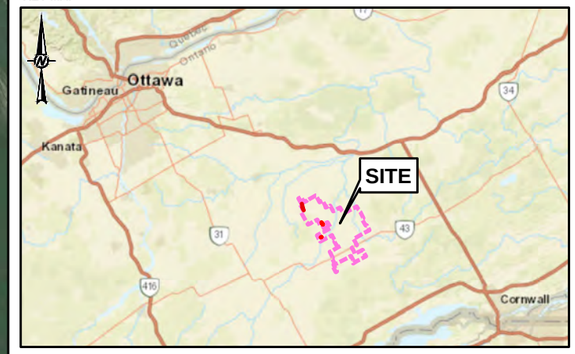
485000
485250
485500
5002750
5002500
5002250
FORGUES ROAD
FORGUES ROAD
CONCESSION ROAD 7-8

KEY MAP



SCALE 1:1,200,000

LEGEND

- ADDITIONAL ASSESSMENT AREA
- ORIGINAL ASSESSMENT AREA – P311-0313-2017
- PROJECT LOCATION
- ROADWAY
- WATERCOURSE
- WATERBODY

NOTE(S)

1. THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GOLDER ASSOCIATES LTD. REPORT NO. 1655180-2000-2.3

REFERENCE(S)

1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
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3. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
COORDINATE SYSTEM: UTM ZONE 18 VERTICAL DATUM: CGVD28

0 25 50 100
1:3,000 METRES

CLIENT
NATION RISE WIND FARM LIMITED PARTNERSHIP

PROJECT
HERITAGE IMPACT ASSESSMENT
NATION RISE WIND FARM PROJECT

TITLE
NEW ACCESS ROAD TO A LAYDOWN YARD AREA

CONSULTANT
GOLDER

YYYY-MM-DD	2019-01-29
DESIGNED	BH
PREPARED	BR
REVIEWED	BH
APPROVED	HJD

PROJECT NO.	PHASE/TASK	REV.	FIGURE
1655180	2000/2.3	0	5

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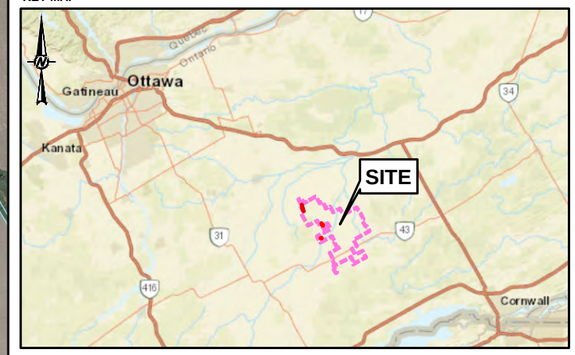
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM:
0 25mm

484750
485000
485250
5000000
4999750
4999500
58
MURPHY ROAD

KEY MAP



SCALE 1:1,200,000

LEGEND

- WIND TURBINE LOCATIONS
- ADDITIONAL ASSESSMENT AREA
- ORIGINAL ASSESSMENT AREA – P311-0313-2017
- PROJECT LOCATION
- ROADWAY
- WATERCOURSE

NOTE(S)

1. THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GOLDER ASSOCIATES LTD. REPORT NO. 1655180-2000-2.3

REFERENCE(S)

1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
2. SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
3. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
COORDINATE SYSTEM: UTM ZONE 18 VERTICAL DATUM: CGVD28

0 25 50 100
1:3,000 METRES

CLIENT
NATION RISE WIND FARM LIMITED PARTNERSHIP

PROJECT
HERITAGE IMPACT ASSESSMENT
NATION RISE WIND FARM PROJECT

TITLE
NEW TURBINE 58 CDA

CONSULTANT
GOLDER

YYYY-MM-DD	2019-01-29
DESIGNED	BH
PREPARED	BR
REVIEWED	BH
APPROVED	HJD

PROJECT NO.	PHASE/TASK	REV.	FIGURE
1655180	2000/2.3	0	6

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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4.0 SUMMARY

Review of the project components within the Township of North Stormont proposed in 2019 for the Nation Rise Wind Farm Project determined that:

- Although the collection line on Lot 2, Concession 11 is adjacent to a property identified as having potential CHVI (14114 Concession 10-11 Road), its construction and operation is not predicted to result in adverse impacts to any potential heritage attributes;
- the access road to a new laydown yard on Lot 5 Concession 8 is not near, nor will adversely impact, any identified cultural heritage resources; and,
- the CDA on Lot 2 Concession 6 is not near, nor will adversely impact, any cultural heritage resources.

Therefore, there are no changes to Golder's recommendations as presented in the 2017 HIA.

5.0 CLOSURE

We trust that this report meets your current needs. If you have any questions, or if we may be of further assistance, please contact the undersigned at Benjamin_Holthof@golder.com.

GOLDER ASSOCIATES LTD.

Benjamin Holthof, M.Pl., M.M.A., CAHP
Cultural Heritage Specialist

Bradley Drouin, M.A.
Associate, Senior Archaeologist

BH/BD/hw

\\golder.gds\gal\ottawa\active\2016\3 proj\1655180 edp nation rise wind farm ontario\04 cultural heritage\06 - jan 2019 addendum\1655180 jan 29 19 nation rise n stormont wind farm hia addendum_rev1.docx

APPENDIX E – SITE PLAN MAPS ORIGINALLY APPROVED

476000 480000 484000 488000 492000 496000

5008000 5004000 5000000 4996000 4992000

TOWNSHIP OF RUSSELL
MUNICIPALITY OF THE NATION
TOWNSHIP OF NORTH STORMONT
TOWNSHIP OF NORTH DUNDAS
TOWNSHIP OF SOUTH STORMONT
TOWNSHIP OF SOUTH DUNDAS

MAP 1
MAP 2
MAP 3
MAP 4

ROUTE 400
STE MARIE RD
ROUTE 500
ALBERT RD W
ROUTE 900 W
FINCH CAMBRIDGE BOUNDARY RD
COUNTY RD 6
S RUSSELL RD
STE CATHERINE RD
ST ANDRE RD
NOEL RD
CON RD 8-9
COUNTY RD 13
MARIONVILLE RD
GROVES RD
STEVENS RD
COUNTY RD 32
ASHBURN RD
CON RD 6-7
CARRUTHERS RD
KYLE RD
9 MILE RD
COUNTY RD 9
COUTHART RD
CON RD 7-8
CON RD 4-5
CON RD 3-4
CON RD 2-3
COUNTY RD 13
THOMPSON RD
COUNTY RD 7
COYNE RD
STEEN RD
CRUMP RD
CONNAUGHT RD
KELLY RD
COUNTY RD 3
S WING RD
KITTLE RD
LOUCKS RD
ST LUKES RD
CON RD 1-2
WALDROFF RD
SMITH RD
COUNTY RD 12
BOYNE RD
COUNTY RD 43
BELANGER RD
RIVER RD
FORWARD RD
NATION VALLEY RD
LIMERICK RD
HUNTERS RD
MAY RD
SANDTOWN RD
COUNTY RD 14
ZERAN RD
RAYMOND
OTTO RD

Crysler
Berwick
Finch
Newington
Chesterville

1 2 4 5 9 7 18 6 12 20 10 11 21 23 16 25 29 27 28 43 38 35 41 32 58 54 47 48 44 52 57 56 46

N

Legend

Project Components

- 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

001-10021027-190117-AB

17 January 2019

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

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

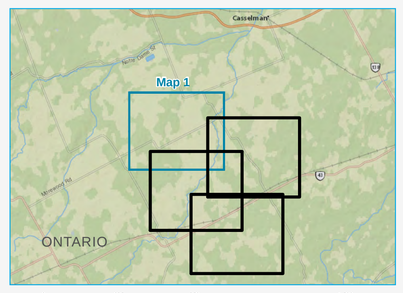
Noise Receptor *

- 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).



Nation Rise Wind Farm

SITE PLAN
MAP 1

001-10021027-190117

17 January 2019

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).

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.

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

001-10021027-190117

17 January 2019

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.
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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

001-10021027-181210

12 December 2018

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.

APPENDIX F – SITE PLAN MAPS MODIFIED

476000 480000 484000 488000 492000 496000

5008000 5004000 5000000 4996000 4992000

TOWNSHIP OF RUSSELL
MUNICIPALITY OF THE NATION
TOWNSHIP OF NORTH STORMONT
TOWNSHIP OF NORTH DUNDAS
TOWNSHIP OF SOUTH STORMONT
TOWNSHIP OF SOUTH DUNDAS

MAP 1
MAP 2
MAP 3
MAP 4

ROUTE 400
STE MARIE RD
ROUTE 500
ALBERT RD W
ROUTE 900 W
FINCH CAMBRIDGE BOUNDARY RD
COUNTY RD 6
S RUSSELL RD
STE CATHERINE RD
ST ANDRE RD
NOEL RD
CON RD 8-9
COUNTY RD 13
MARIONVILLE RD
GROVES RD
STEVENS RD
COUNTY RD 32
ASHBURN RD
CON RD 6-7
CARRUTHERS RD
KYLE RD
9 MILE RD
COUNTY RD 9
COUTHART RD
CON RD 7-8
CON RD 4-5
CON RD 3-4
CON RD 2-3
COUNTY RD 13
THOMPSON RD
COUNTY RD 7
COYNE RD
STEEN RD
CRUMP RD
CONNAUGHT RD
KELLY RD
COUNTY RD 3
S WING RD
KITTLE RD
LOUCKS RD
ST LUKES RD
CON RD 1-2
WALDROFF RD
SMITH RD
COUNTY RD 12
BOYNE RD
COUNTY RD 43
BELANGER RD
RIVER RD
FORWARD RD
NATION VALLEY RD
LIMERICK RD
HUNTERS RD
MAY RD
SANDTOWN RD
COUNTY RD 14
ZERAN RD
RAYMOND
OTTO RD

Crysler
Berwick
Finch
Newington
Chesterville

1 2 4 5 9 7 18 6 12 20 10 11 21 23 16 25 29 27 28 43 38 35 41 32 58 54 47 48 44 52 57 56 46

N

Legend

Project Components

- 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

001-10021027-190117-AB

17 January 2019

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
- Additional Collection System
- Access Road
- Crane Path
- Temporary Construction Access Road
- Additional Temporary Construction Access Road
- Turning Radii
- Project Location
- Additional Access Road
- 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)
- Updated Project Location (120 m)
- Updated 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.
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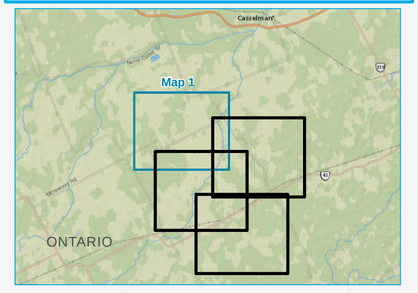

Nation Rise Wind Farm

SITE PLAN
MAP 1

001-10021027-190117

17 January 2019

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)
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- Property Boundary
- Waterbody

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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 2

001-10021027-170706

11 July 2017

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
- Additional Temporary Construction Access Road
- Turning Radii
- Project Location
- Additional Access Road
- Additional Disturbance 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)
- Updated Project Location (120 m)
- Updated Project Location (300 m)

Waterbody Assessment *
- Waterbody 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.
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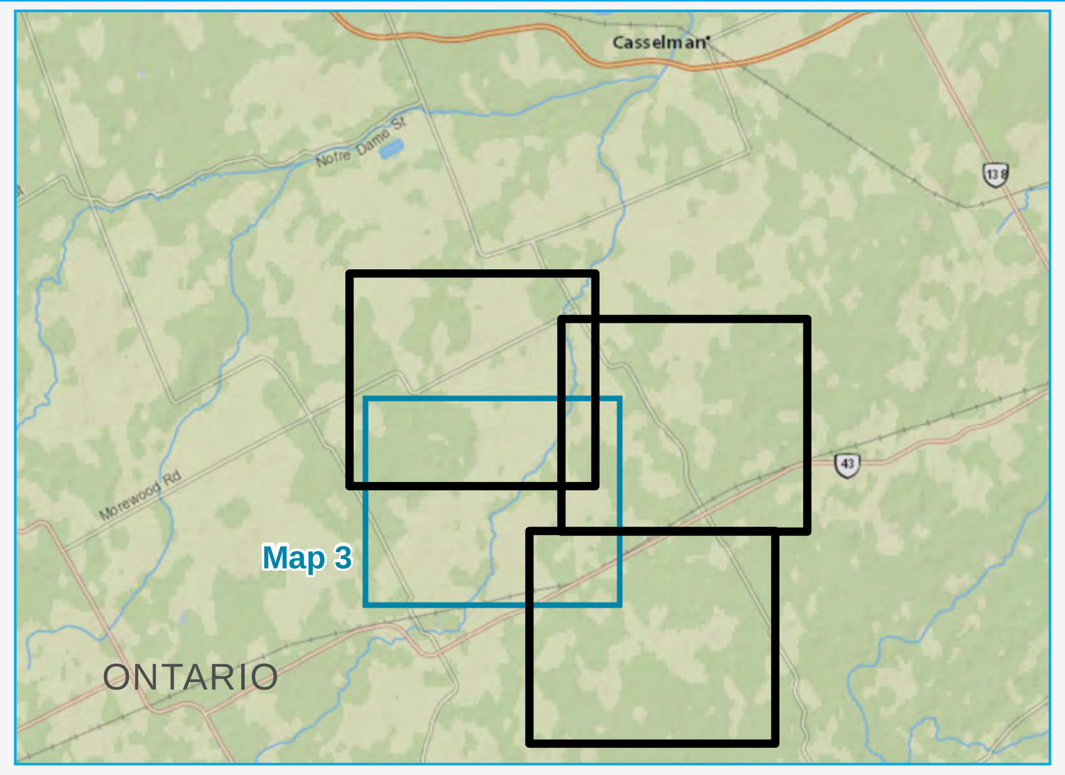

0 375 750 1,500 Meters

Nation Rise Wind Farm

SITE PLAN
MAP 3

001-10021027-190117

17 January 2019

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.
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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

001-10021027-181210

12 December 2018

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.