

**BOW LAKE WIND FARM**

Ministry of Natural Resources  
Approval and Permitting Requirements  
Document (APRD) Report

January 31, 2013

Prepared by:

**Nodin Kitagan Limited Partnership and  
Nodin Kitagan 2 Limited Partnership**

200, 4723 -1 Street SW  
Calgary AB T2G 4Y8



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## Executive Summary

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Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership, through their General Partners Shongwish Nodin Kitagan GP Corp. and Shongwish Nodin Kitagan GP Corp., respectively (the “Proponent”) are proposing to develop Phase 1 and Phase 2 of the Bow Lake Wind Farm predominantly on Provincial Crown Land within the unorganized Townships of Smilsky and Peever, in the District of Algoma, Ontario (the “Project”). The Project is located approximately 80 km north of Sault Ste. Marie and roughly six kilometers east of Montreal River Harbour. The Project has three Feed-in Tariff Contracts with the Ontario Power Authority for the sale of electricity generated by the Project.

As part of the Project’s design, construction, and operational activities, and understanding the Project falls within the territory of the Batchewana First Nation of Ojibways (“BFN”), the Proponent has engaged directly with the BFN. As a result of these efforts, the BFN:

- Has entered the Project as partner;
- Has entered into various business and relationship agreements with the Proponent to guide Project activities; and
- Has issued a Development and Power Generation Permit, which provides the BFN’s approval to construct, operate, repower, and decommission the Project.

The English name of the Project is the *Bow Lake Wind Farm*, however, the BFN know and refer to the Project as *Chinodin Chigumi Nodin Kitagan*.

As proposed, the Project will include 36 wind turbines for a total maximum installed nameplate capacity of up to 58.32 megawatts (“MW”). In addition, the operation of the Project will require 34.5 kilovolt (“kV”) above and below ground electrical collector lines and communication lines, pad-mounted transformers, crane pads, two permanent meteorological towers, access roads, an operations and maintenance building, welfare buildings, a transformer station, construction compounds and laydown yards, and other ancillary facilities. The Project will connect to the provincial power grid via existing 115 kV transmission lines located adjacent to the Project’s transformer station.

This submission has been prepared in accordance with the Ontario Ministry of Natural Resources’ (“MNR”) *Approval and Permitting Requirements Document for Renewable Energy Projects*, September 2009 (“APRD”). This submission provides the necessary documentation to satisfy MNR information requirements related to the relevant permits, licenses, authorizations and approvals as described in the APRD.

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## 1.0 Introduction

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Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership, through their General Partners Shongwish Nodin Kitagan GP Corp. and Shongwish Nodin Kitagan GP Corp., respectively (the “Proponent”) are proposing to develop Phase 1 and Phase 2 of the Bow Lake Wind Farm predominantly on Provincial Crown Land within the unorganized Townships of Smilsky and Peever, in the District of Algoma, Ontario (the “Project”). The Project is located approximately 80 km north of Sault Ste. Marie and roughly six kilometers east of Montreal River Harbour. The Project has three Feed-in Tariff Contracts with the Ontario Power Authority for the sale of electricity generated by the Project.

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Under O. Reg. 359/09, the Ontario Ministry of Natural Resources (“MNR”) has the responsibility for administering the approvals and permits related to the following resources and land uses:

- Mineral Aggregate Resources
- Harvesting Crown-owned Forest Resources
- Natural Hazard Lands



- Projects in Provincial Parks or Nature Reserves
- Fish and Wildlife Conservation Act Authorization Requirements
- Petroleum Resources
- Far North Applicability
- Forest Resource Processing Facility Licensing
- Wildfire Prevention and Preparedness Requirements, and
- Species at Risk

This submission describes the applicability of each resource and land use described above and provides the necessary documentation to satisfy MNR information requirements related to the relevant permits, licenses, authorizations and approvals. This report has been prepared in accordance with the MNR Approval and Permitting Requirements Document for Renewable Energy Projects, September 2009 ("APRD").

In addition to the information contained in this report the following REA and MNR required reports have been submitted to the MNR as part of the APRD information requirements:

- Natural Heritage Assessment
- Crown Lands Interest Report
- Project Description Report
- Water Assessment and Water Body Report
- Design and Operations Report
- Construction Plan Report
- Decommissioning Plan Report
- Consultation Report
- Archeology and Heritage Report

## 2.0 MNR Approval and Permitting Requirements

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### 2.1 MINERAL AND AGGREGATE RESOURCES

Based upon record searches completed on 17 September 2012, of the Ministry of Northern Development and Mines (Sault Ste. Marie Mining Division), there are no active mining claims in the unorganized Townships of Smilsky or Peever (See ***Crown Lands Interest Report***). Through public consultation efforts, the Proponent has been made aware of mining claims that are located south of the Project, outside the Townships of Smilsky and Peever which would not be impacted by the Project. The various tenure instruments that will be issued by the MNR for the Project area will grant surface rights to the Project, however mineral rights still remain with the Crown and would continue to be managed in accordance with the *Mining Act*. The Bow Lake Wind Farm would be willing to consult with and work with prospecting and mining companies in accordance with the *Mining Act* such that the wind farm operations and potential future prospecting and mining activities could safely coexist in the vicinity of the Project with appropriate consultation and if appropriate mitigation measures are put in place. Further information on Mineral and Aggregate Resources is provided in the ***Crown Lands Interest Report***.

Pending test results, it is anticipated that aggregate material for Project construction will be extracted from three pits and one quarry located in the immediate vicinity of the Project, all of which are currently permitted under the Aggregate Resources Act. One pit (i.e., Radon Pit) is located on private land (Aggregate License #625256), the two other pits have Crown Permits (Permit #'s 625249 and #625250), and the quarry also has a Crown Permit (#625248).

### 2.2 HARVESTING CROWN-OWNED FOREST RESOURCES

The Project Location and surrounding area is primarily forested land and is actively harvested by Clergue pursuant to Sustainable Forest License No. 542257. This license was issued by the MNR, which grants Clergue the right to cut and remove timber on and from the area. Overlapping License Agreements have been executed between the Project and Clergue, which address the selective clearing required to facilitate construction of the Project and on-going clearing requirements (e.g., dangerous tree removal and tree re-growth trimming at wind turbine and electrical collector line locations) during operations. Further information regarding the Project and the Sustainable Forest License holder is provided in the ***Crown Lands Interest Report***.

The MNR has indicated that the Proponent may need to apply for an exemption(s) under the *Crown Forest Sustainability Act* for the clearing of areas of the Project beyond the allocated 20 m wide corridor width for the approved Forest Management Plan Roads. The Project will work with MNR to ensure the necessary exemption applications are made prior to construction.

## 2.3 NATURAL HAZARD LANDS

No natural hazard lands have been identified in the Project Location.

## 2.4 FISH AND WILDLIFE CONSERVATION ACT AUTHORIZATION REQUIREMENTS

The Proponent will work with MNR to obtain the applicable permits under the *Fish and Wildlife Conservation Act*. Based on the field surveys completed during the site investigation of the Natural Heritage Assessment, no beaver dams or black bear dens were identified in the Project area that would require disturbance or removal. The development of the Project will not affect beavers and/or their dams or the dens of black bears. If new or previously unidentified beaver dams are encountered and require removal, the Proponent will work with MNR to obtain the required permits.

It is anticipated that authorization under the *Fish and Wildlife Conservation Act* will be required for incidental take and collection of protected bird species and bats during the post-construction monitoring activities at the site. The Proponent will work with MNR to obtain the required permit(s) prior to commencement of the bird and bat post construction monitoring activities. In addition to Provincial Authorizations, the Proponent will obtain relevant permits from Environment Canada/ Canadian Wildlife Service under the *Migratory Birds Convention Act*, prior to commencement of post construction monitoring.

## 2.5 FISH AND FISH HABITAT

The Project will require a number of crossings of water bodies located in the Project area for infrastructure such as access roads and collector lines. A summary of water crossings at water bodies providing fish habitat and standard mitigation measures to minimize negative environmental effects to fish and fish habitat that may occur at these crossings are provided in the ***Water Assessment and Water Body Report*** as part of the REA submission. A copy of the Water Body Report forms part of the APRD submission to MNR.

In addition, a draft water crossing work permit application package, which provides the anticipated locations of proposed water crossings, typical cross sections, and general mitigation measures to minimize potential negative environmental effects to fish and fish habitat that may occur at these crossings, is provided in Appendix B.

## 2.6 PROJECTS IN PROVINCIAL PARKS

The Project is not located in a Provincial Park or Conservation Reserve and accordingly requirements under *The Provincial Parks and Conservation Reserves Act* are not applicable.

## 2.7 PETROLEUM RESOURCES

Public records searches completed on 20 July 2012, of the Ontario Oil, Gas and Salt Resource Library, did not identify any petroleum lease holders or petroleum resources in the vicinity of the Project Location (Ministry of Natural Resources, 2012b). Further information on Petroleum Resources can be found in the ***Crown Lands Interest Report***.

## 2.8 FAR NORTH APPLICABILITY

The proposed Project is not located in the Far North of Ontario and thus the Far North Land Use Planning Initiative and an Act with respect to land use planning and protection (*Bill 191*) does not apply to the Project.

## 2.9 FOREST RESOURCE PROCESSING FACILITY LICENSING

The Project is a Class 4 Wind Facility and does not include a biomass, biogas, or biofuel facility that will generate electricity and accordingly Forest Resource Processing Facility Licensing requirements under the APRD are not applicable to the Project.

## 2.10 WILDFIRE PREVENTION AND PREPAREDNESS REQUIREMENTS

Any renewable energy project proposed on Crown Land, or land within a fire region, must follow the MNR's APRD for forest fire prevention and preparedness. The requirements for the Fire Prevention and Preparedness Plan ("FPPP") are defined in Section 7.11 of the MNR APRD. Under the APRD, fire risks are to be addressed through all phases of a project, including land clearing and disposal of debris, providing information on:

- fire hazard assessment (e.g., identification of fuel sources at the project location);
- risk assessment of ignition;
- ignition prevention measures, and if necessary, mitigation of potential for ignitions when operational;
- fire preparedness plan, including a suppression plan and an emergency plan; and
- fire protection of the facility from wildfire threats.

The Modifying Industrial Operations Protocol, 2008 (the "Protocol") has also been used to guide the preparation of FPPP. The FPPP prepared for the Project is provided in Appendix C

The development of a burn plan and the acquisition of a burn permit are required by the MNR for any activities involving burning at the Project site. As Project activities are not presently envisioned to involve burning for the disposal of debris, neither a burn plan or burn permit are required for the Project. However, should this need change, a burn plan will be filed with and permit sought from the MNR.

### **3.0 Species at Risk**

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The Endangered Species Act, 2007 (“ESA”) came into force in Ontario on June 30, 2008. Species listed as endangered or threatened on the Species at Risk in Ontario (“SARO”) List, a regulation under the ESA, are protected by the ESA. Section 9 of the ESA prohibits killing, harming and harassing species that are listed as threatened, endangered or extirpated. Section 10 of the ESA prohibits damaging or destroying habitat of threatened or endangered species. Protected habitat is either based on the general definition in the Act or prescribed through regulation. The ESA defines general habitat as an area on which the species depends, directly or indirectly, to carry out its life processes, including reproduction, rearing, hibernation, migration or feeding.

The Committee on the Status of Species at Risk in Ontario (“COSSARO”) has very recently made a recommendation to the Minister of Natural Resources to include two species of bats, the Little Brown Myotis (*Myotis lucifugus*) and the Northern Myotis (*Myotis septentrionalis*) on the SARO List. The COSSARO recommendation is that both bat species be designated as endangered in the province. As soon as the SARO List is amended, any potential negative effects to these species and habitat must be avoided or an authorization under the ESA (i.e., permit or agreement) will be required before the project may proceed.

The sole reason for the status change to these species is the unprecedented mortality in native bat species from *Geomyces destructans*, the pathogen responsible for White-nose Syndrome (“WNS”). Populations of both species have declined precipitously due to the rapid spread of WNS. WNS was first identified in a cave in New York State in February, 2006. It was discovered in Canada in the winter of 2009/2010 and is now confirmed in Ontario, Quebec, New Brunswick and Nova Scotia. Recent population counts of Little Brown Myotis and Northern Myotis at hibernacula in Canada show declines of 90-99% within two years of exposure.

As part of the Natural Heritage Assessment, an evaluation of significance was undertaken for Bat Maternity Colonies. In keeping with guidance provided by MNR, extensive exit surveys at candidate maternity roost trees were conducted in June, 2012. Seventy exit surveys were completed in accordance with the Bat and Bat Habitats: Guidelines for Wind Power Projects (MNR, July 2011) throughout the project location and adjacent forested habitat. All 70 surveys consisted of two surveyors visually observing for bats exiting candidate roost trees, with 55 of the 70 surveys supported by broad-band acoustic bat detectors and 20 of the surveys supported by infrared video cameras. Over the 70 trees surveyed, no bats were observed exiting candidate maternity roosts, and therefore the Project Location and surrounding forest habitat are not considered significant for Bat Maternity Colonies. Both Little Brown Myotis and Northern Myotis (among other species) were, however, recorded flying around the survey area.

In order to mitigate and protect any potential maternity colonies that may occur within the Project Location from disturbance during the construction phase, Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership have committed to restrict the cutting of

any candidate roost trees from the beginning of May to the end of July, during the roosting period. Additionally, any direct effects from operating wind turbines on these two species will be assessed during a comprehensive post-construction monitoring program, developed in accordance with the Bat and Bat Habitats: Guidelines for Wind Power Projects (MNR, July 2011).

As of January 24, 2013, both the Little Brown Myotis and the Northern Myotis have been listed as endangered on the SARO List. Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership commits to working closely with MNR Sault Ste. Marie District and MNR's Species at Risk Branch to develop the framework for an Overall Benefit Permit(s) under clause 17(2)(c) of the ESA to ensure construction and operation of the Bow Lake Wind Farm will comply with either sections 9 or 10 of the ESA.

## **4.0 Summary**

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This report forms part of the APRD submission to address the MNR information requirements for other approval and permitting requirements that may be applicable to the development and/or operation of the Project and not addressed under Ontario Regulation 359/09. This submission has been prepared in accordance with the Ontario Ministry of Natural Resources' ("MNR") Approval and Permitting Requirements Document for Renewable Energy Projects, September 2009 ("APRD").

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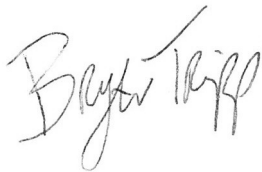
## **5.0 Signatures**

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This Crown Land Interests Report has been prepared by the Proponent in accordance with the MNR's APRD.

This Report has been prepared for the sole benefit of the Proponent, and may not be used by any third party without the express written consent of the Proponent.

### **Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership**



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Bryan Tripp, P.Eng.  
Regulatory Lead – East

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## **6.0 References**

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Ontario Ministry of Natural Resources, *Approval and Permitting Requirements Document for Renewable Energy Projects*, September 2009.

Ontario Ministry of Natural Resources, *Bat and Bat Habitats: Guidelines for Wind Power Projects*, July 2011.

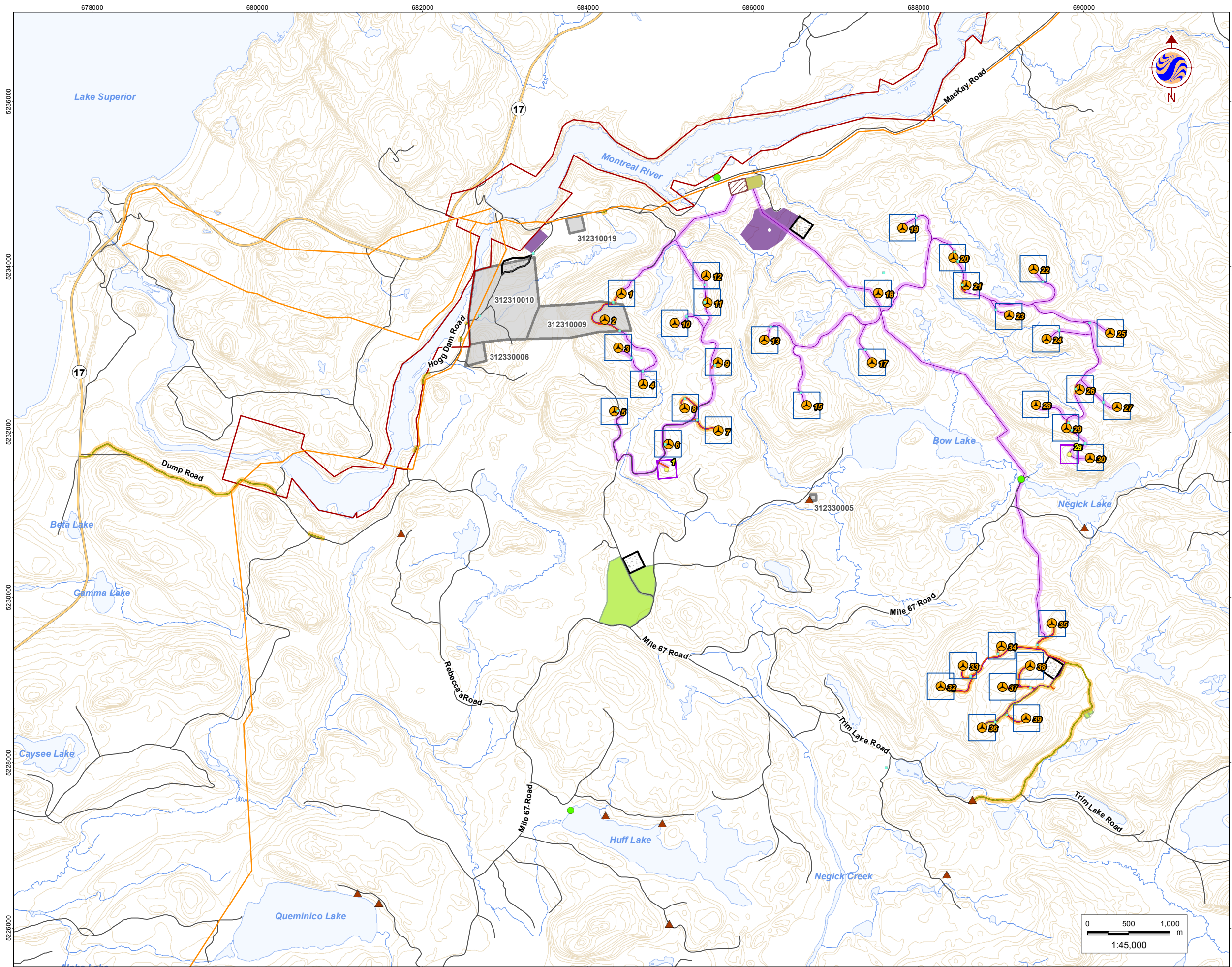
Ontario Ministry of Natural Resources, *Modifying Industrial Operations Protocol*, MNR#52136, 2008.



# **Appendix A**

## **Site Plan**





**Legend**

**Project Components**

Turbine Location

Gate Location

Meteorological Tower

Access Road (New)

Access Road (Upgrade)

Overhead/Underground Collector Line

Access Road Corridor (60m Easement)

Collector Line Corridor (60m Easement)

Construction Compound

Construction Compound & Welfare Building

Construction Compound & Transformer Station

Turbine Lease Area

Met Tower Lease/Land Use Permit

Operations and Maintenance Lease Area

**Existing Features**

Crown Land Tenure Location (Lease or LUP)

Access Point

Expressway / Highway

Road

Elevation Contour

Existing Transmission Line

Watercourse

Waterbody

Patent Land

Aggregate Site

Brookfield Power Lease Area

- Notes**
1. Coordinate System: NAD 1983 UTM Zone 16N

2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.

January 2013  
160960771

Client/Project

Bow Lake Wind Farm  
Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership, through their General Partners Shongwish Nodin Kitagan GP Corp. and Shongwish Nodin Kitagan 2 GP Corp.

Figure No.

1.0

Title

**Project Location & Study Area - Overview**

**DRAFT**



## **Appendix B**

# Preliminary Water Crossing Permit Application Package

10-212-32  
January 30, 2013

Nodin Kitagan Limited Partnerships  
34 Harvard Road  
Guelph, On  
N1G 4V8

**Attention: Mr. Bryan Tripp**

Dear Bryan,

**Regarding: Bow Lake Wind Farm  
Water Crossing Applications**

Please find enclosed four application packages for the four types of water crossings associated with the proposed Bow Lake Wind Farm development. The four water crossing types and a brief description are as follows.

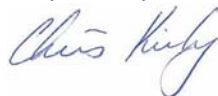
<u>Road Crossings</u>	New culverts or replacement of existing culverts to facilitate access road construction or improvements.
<u>Cable Crossings</u>	Electrical cable crossing installations to facilitate electrical collection network.
<u>Roads &amp; Cable Crossings</u>	New culvert installations to facilitate access road construction complete with electrical cable crossing installations at the same location.
<u>Temporary Crossings</u>	Temporary culverts or bridge installations to facilitate access trail construction for electrical transmission line construction.

These application packages are to be considered preliminary for the purposes of identifying the anticipated crossing locations and type, based on preliminary design information and field reviews completed to date.

It should be noted that the final design of each crossing will be completed by the Site Contractor, or Site Contractor's consultant in accordance with regulatory requirements. The final design packages will be submitted for review and approval upon completion of the detailed design activities.

Trusting this information is satisfactory for your purposes at this time. Should you have any questions or concerns please do not hesitate to contact me.

Respectfully Submitted,



Chris L. Kirby, P.Eng.,  
TULLOCH ENGINEERING INC.

Encls.



Ministry of  
Natural  
Resources

Ministère des  
Richesses  
naturelles

# Application for Work Permit Demande de permis d'exploitation

Part 1  
Partie 1

**Applicant** (eg. landowner, licensee, permittee, etc.) (Cannot be a subcontractor)

**Demandeur** (ex. : propriétaires fonciers, détenteurs de permis, etc.) (Ne doit pas être un sous-traitant)

Name/Nom. <b>Nodin Kitagan Limited Partnership &amp; Nodin Kitagan 2 Limited Partnership</b>	Business Phone/Tél. (Bureau) <b>(403) 668-1575</b>	Residence Phone/Tél. (Résidence)
Mailing Address/Adresse postale <b>BluEarth Renewables Inc., 200, 4723 - 1st Street SW, Calgary, AB</b>		Postal Code/Code postal <b>T2G 4Y8</b>

## Site Contractor or Person in Charge/Entrepreneur ou responsable sur place

Name/Nom	Business Phone/Tél. (Bureau)	Residence Phone/Tél. (Résidence)	Radio Contact Available/Radio <input type="checkbox"/> Yes/Oui <input type="checkbox"/> No/Non
Mailing Address/Adresse postale <b>TO BE DETERMINED</b>			Postal Code/Code postal

**Type of Work Proposed** - Please indicate and complete the appropriate additional part(s)

**Type de travaux prévus** - Préciser et remplir la partie appropriée

- ☐ Building Construction  
Construction de bâtiments
 ☐ Work on Shorelands  
Travaux sur des terres
 ☐ Work Within a Waterbody  
travaux submergés
 ☒ Roads or Trails or Water Crossing  
Routes ou piste ou traverse de cours d'eau

## Location of Work Permit Area/Emplacement

Township, Municipality, Basemap No. or Lot and Concession, Location, Subdivision or Mining Claim or U.T.M. No. Canton, municipalité, carte de base n° ou parcelle, concession, emplacement, subdivision ou N° du MTU ou concession minère <b>Water Crossings #1, 2, 3, 4, 5, 6, 7 &amp; 8 as detailed on the enclosed Summary of Road Crossing Table</b>	
Other i.e. Waterbody (describe) Autre p. ex. cours d'eau (décrire) <b>Water Crossings #1, 2, 3, 4, 5, 6, 7 &amp; 8, as detailed on the enclosed Watercourse Description Table</b>	
Camp Location Emplacement du camp	No. or Workers on Site Nbre de travailleurs sur le site

## Private Land/Terres privées

Private Lands of - Applicant/Appartenant au demandeur	
<input type="checkbox"/> Yes Oui	<input checked="" type="checkbox"/> No Non
<input type="checkbox"/> Other (specify) À d'autres (préciser qui)	

## Effective Date(s)/Dates

Start Date/Date de début des travaux <b>Estimated as August 2013</b>	Finish Date/Date de fin des travaux <b>Estimated as December 2014</b>
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## Equipment to be Used/matériel qui sera utilisé

Please specify/Préciser <b>To Be Determined by the Contractor.</b>
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### Note:

The issuance of this permit does not relieve the applicant from the responsibility of acquiring any other agency, board, government, or other approvals as may be required.

If an applicant requires a copy of this application, he/she should retain copy prior to submitting.

Personal Information on this form is collected under the authority of Section 13 of the Public Lands Act, R.S.O. 1990 and Ontario Regulation 453/96 as amended and Ontario Regulation 975 as amended, and the information will be used for the purposes of the Act and Regulations. Questions about this information should be directed to the local MNR office. MNR office addresses and phone numbers are listed on the reverse of this form.

I/We hereby agree to rely solely upon the terms and conditions of the written work permit issued pursuant to this application. Any changes, amendments to the written work permit must be approved in writing by MNR.

I certify the information given in this application is true.

### Remarque:

La délivrance de ce permis n'exonère pas le détenteur d'obtenir les autorisations qui pourraient être exigées par d'autres gouvernements, organismes, commissions, etc.

Si le demandeur en a besoin, il doit conserver un exemplaire de cette demande avant de la soumettre.

Les renseignements personnels exigés dans les présentes sont recueillis en vertu de l'article 13 de la Loi sur les terres publiques, S.R.O. 1990 et du règlement de l'Ontario 453/96 tel que modifié et du règlement 975 de l'Ontario tel que modifié. Ils seront utilisés selon les termes de la Loi et des règlements. Veuillez adresser toute question à ce sujet au bureau local du MRN. Une liste des bureaux du MRN avec adresses et numéros de téléphone se trouve au verso.

J'accepte de me conformer strictement aux conditions écrites du permis d'exploitation émis pour la présente demande. Tout changement ou toute modification audit permis d'exploitation doit être approuvé par écrit par le MNR.

Je certifie que les renseignements donnés ici sont véridiques.

Signature of Applicant/Signé par	Position/Poste	Date
Signature of contractor (if applicable) Signature de l'entrepreneur (s'il y a lieu) <b>To Be Determined</b>	Position/Poste	Date
Date Application Received in Office Date de réception de la demande		



Ontario

1) Include a sketch showing:/Joindre un dessin indiquant :

- detailed location of road or trail (i.e. how close to waterbodies, etc.)  
l'empl.acement détaillé de la route ou du sentier (c. -à-d. distance à une surface d'eau, etc.);
- all water crossings  
toutes les traverses d'eau. **Please see attached Water Crossing Location Drawing 10-212-WC1 as well as Figure 1 - Typical Road Crossing & Notes**

2) Purpose/But

- Access to private property ☐ Yes ☒ No  
Accès aux propriétés privées ☐ Oui ☒ Non
- Access for resource extraction (e.g. mining, logging, mineral exploration)  
Accès pour extraction de ressources (p. ex. exploration minière, exploitation minière ou forestière) ☐ Yes ☒ No  
☐ Oui ☒ Non
- Other (specify) **Renewable Energy (Wind Farm) Development**  
Autres (préciser)

- 3) Type (check box) Summer Winter Year Round Haul Road Trail Other  
Type (cocher) ☐ Été ☐ Hiver ☒ Tout l'année ☐ Route de transport ☐ Piste ☐ Autre

4) Description

Length/Longueur	Travelled Road Width/ Largeur utile	Right-of-Way Width/ Largeur de l'emprise	5) Length of Time Required/Durée		
<b>To Be Determined During Detailed Design Stage</b>			<input checked="" type="checkbox"/> Long Term	<input type="checkbox"/> Short Term	No. of Months/Years N <sup>bre</sup> de mois/années
				<input type="checkbox"/> Cout terme	

6) Who will be responsible for maintenance?/Qui sera responsable de l'entretien?

Indicate Person, Company, Association, etc./Particulier, association, entreprise, etc.

**Nodin Kitagan Limited Partnership & Nodin Kitagan 2 Limited Partnership**

7) Source Gravel/Fill/Source de gravier/remblai

Please indicate intended source, if any/Nommer la source prévue, le cas échéant

**Gravel from within approved Right-of-Way, or from Permitted Aggregate Sites**

8) Water Crossing/Traverse d'eau (letters refer to sample sketch on reverse/les lettres correspondent à l'exemple de croquis au verso)

Stream Name/Nom du cours d'eau				<b>Please see attached summary tables</b>	
Road Name/Nom de la route			Type of Fill to be Used at Crossing/Type de remblai utilisé		
Site Conditions/Condition du site					
Flood plain width (A)/ Largeur de la plaine inondable	Water Width (B)/ Largeur de l'eau	Water Depths (C, D, E)/ Profondeur de l'eau	Measured Flow Velocity/ Vitesse Mesurée (ft/sec or m/sec) du courant pi/s. ou m/s		
Foundation Soil Description/Description du sous-sol					

8 a) Bridge/Pont **N/A**

Proposed Bridge – Length (F) Projet de pont – Longueur du pont	Clearance (G) Dégagement	Clear Span (H) Travée	Crib Height (I) Hauteur du berceau	Crib Width (J) Largeur du berceau	Deck Width (K) Largeur du tablier
Stringer Type/Type de longeron					
Stringer Spacing/Espacement des longerons					
Deck Details (L)/Détails du tablier					
Wear Surface (M)/Surface					
Curb Details (N)/Détails de la chaussée					
Guide Rail Details (O)/Détails du rail de guidage					

8 b) Culvert/Ponceau

Culvert Diameter/Diamètre du ponceau <b>Minimum 450mmØ</b>	Culvert Length/Longueur du ponceau <b>Based on Detailed Design</b>	Road Fill Height Above Creek Bottom/Hauteur du remblai de la route au fond du cours d'eau <b>Based on Detailed Design</b>
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Ministry of  
Natural  
Resources

Ministère des  
Richesses  
naturelles

## Application for Work Permit Demande de permis d'exploitation

Part 1  
Partie 1

**Applicant** (eg. landowner, licensee, permittee, etc.) (Cannot be a subcontractor)

**Demandeur** (ex. : propriétaires fonciers, détenteurs de permis, etc.) (Ne doit pas être un sous-traitant)

Name/Nom <b>Nodin Kitagan 2 Limited Partnership</b>	Business Phone/Tél. (Bureau) <b>(403) 668-1575</b>	Residence Phone/Tél. (Résidence)
Mailing Address/Adresse postale <b>BluEarth Renewables Inc., 200, 4723 - 1st Street SW, Calgary, AB</b>		Postal Code/Code postal <b>T2G 4Y8</b>

### Site Contractor or Person in Charge/Entrepreneur ou responsable sur place

Name/Nom	Business Phone/Tél. (Bureau)	Residence Phone/Tél. (Résidence)	Radio Contact Available/Radio <input type="checkbox"/> Yes/Oui <input type="checkbox"/> No/Non
Mailing Address/Adresse postale <b>TO BE DETERMINED</b>			Postal Code/Code postal

**Type of Work Proposed** - Please indicate and complete the appropriate additional part(s)

**Type de travaux prévus** - Préciser et remplir la partie appropriée

- ☐ Building Construction  
Construction de bâtiments
 ☐ Work on Shorelands  
Travaux sur des terres
 ☐ Work Within a Waterbody  
travaux submergés
 ☒ Roads or Trails or Water Crossing  
Routes ou piste ou traverse de cours d'eau

### Location of Work Permit Area/Emplacement

Township, Municipality, Basemap No. or Lot and Concession, Location, Subdivision or Mining Claim or U.T.M. No. Canton, municipalité, carte de base n° ou parcelle, concession, emplacement, subdivision ou N° du MTU ou concession minière <b>Water Crossings #9, 10 &amp; 11 as detailed on the enclosed Summary of Road Crossing Table</b>	
Other i.e. Waterbody (describe) Autre p. ex. cours d'eau (décrire) <b>Water Crossings #9, 10 &amp; 11, as detailed on the enclosed Watercourse Description Table</b>	
Camp Location Emplacement du camp	No. or Workers on Site Nbre de travailleurs sur le site

### Private Land/Terres privées

Private Lands of - Applicant/Appartenant au demandeur	
<input type="checkbox"/> Yes Oui	<input checked="" type="checkbox"/> No Non
<input type="checkbox"/> Other (specify) À d'autres (préciser qui)	

### Effective Date(s)/Dates

Start Date/Date de début des travaux <b>Estimated as August 2013</b>	Finish Date/Date de fin des travaux <b>Estimated as December 2014</b>
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### Equipment to be Used/matériel qui sera utilisé

Please specify/Préciser <b>To Be Determined by the Contractor.</b>
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#### Note:

The issuance of this permit does not relieve the applicant from the responsibility of acquiring any other agency, board, government, or other approvals as may be required.

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I certify the information given in this application is true.

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Si le demandeur en a besoin, il doit conserver un exemplaire de cette demande avant de la soumettre.

Les renseignements personnels exigés dans les présentes sont recueillis en vertu de l'article 13 de la Loi sur les terres publiques, S.R.O. 1990 et du règlement de l'Ontario 453/96 tel que modifié et du règlement 975 de l'Ontario tel que modifié. Ils seront utilisés selon les termes de la Loi et des règlements. Veuillez adresser toute question à ce sujet au bureau local du MRN. Une liste des bureaux du MRN avec adresses et numéros de téléphone se trouve au verso.

J'accepte de me conformer strictement aux conditions écrites du permis d'exploitation émis pour la présente demande. Tout changement ou toute modification audit permis d'exploitation doit être approuvé par écrit par le MNR.

Je certifie que les renseignements donnés ici sont véridiques.

Signature of Applicant/Signé par	Position/Poste	Date
Signature of contractor (if applicable) Signature de l'entrepreneur (s'il y a lieu) <b>To Be Determined</b>	Position/Poste	Date
Date Application Received in Office Date de réception de la demande		



Ontario

1) Include a sketch showing:/Joindre un dessin indiquant :

- detailed location of road or trail (i.e. how close to waterbodies, etc.)  
l'emplacement détaillé de la route ou du sentier (c. -à-d. distance à une surface d'eau, etc.);
- all water crossings  
toutes les traverses d'eau. **Please see attached Water Crossing Location Drawing 10-212-WC1 as well as Figure 1 - Typical Road Crossing & Notes**

2) Purpose/But

- Access to private property ☐ Yes ☒ No  
Accès aux propriétés privées ☐ Oui ☒ Non
- Access for resource extraction (e.g. mining, logging, mineral exploration)  
Accès pour extraction de ressources (p. ex. exploration minière, exploitation minière ou forestière) ☐ Yes ☒ No
- Other (specify) **Renewable Energy (Wind Farm) Development**  
Autres (préciser)

- 3) Type (check box) Summer Winter Year Round Haul Road Trail Other  
Type (cocher) ☐ Été ☐ Hiver ☒ Tout l'année ☐ Route de transport ☐ Piste ☐ Autre

4) Description

Length/Longueur	Travelled Road Width/ Largeur utile	Right-of-Way Width/ Largeur de l'emprise	5) Length of Time Required/Durée		
<b>To Be Determined During Detailed Design Stage</b>			<input checked="" type="checkbox"/> Long Term	<input type="checkbox"/> Short Term	No. of Months/Years N <sup>bre</sup> de mois/années

6) Who will be responsible for maintenance?/Qui sera responsable de l'entretien?

Indicate Person, Company, Association, etc./Particulier, association, entreprise, etc.

**Nodin Kitagan 2 Limited Partnership**

7) Source Gravel/Fill/Source de gravier/remblai

Please indicate intended source, if any/Nommer la source prévue, le cas échéant

**Gravel from within approved Right-of-Way, or from Permitted Aggregate Sites**

8) Water Crossing/Traverse d'eau (letters refer to sample sketch on reverse/les lettres correspondent à l'exemple de croquis au verso)

Stream Name/Nom du cours d'eau <b>Please see attached summary tables</b>			
Road Name/Nom de la route		Type of Fill to be Used at Crossing/Type de remblai utilisé	
Site Conditions/Condition du site			
Flood plain width (A)/ Largeur de la plaine inondable	Water Width (B)/ Largeur de l'eau	Water Depths (C, D, E)/ Profondeur de l'eau	Measured Flow Velocity/ Vitesse Mesurée du courant (ft/sec or m/sec) pi/s. ou m/s
Foundation Soil Description/Description du sous-sol			

8 a) Bridge/Pont **N/A**

Proposed Bridge – Length (F) Projet de pont – Longueur du pont	Clearance (G) Dégagement	Clear Span (H) Travée	Crib Height (I) Hauteur du berceau	Crib Width (J) Largeur du berceau	Deck Width (K) Largeur du tablier
Stringer Type/Type de longeron					
Stringer Spacing/Espacement des longerons					
Deck Details (L)/Détails du tablier					
Wear Surface (M)/Surface					
Curb Details (N)/Détails de la chaussée					
Guide Rail Details (O)/Détails du rail de guidage					

8 b) Culvert/Ponceau

Culvert Diameter/Diamètre du ponceau <b>Minimum 450mmØ</b>	Culvert Length/Longueur du ponceau <b>Based on Detailed Design</b>	Road Fill Height Above Creek Bottom/Hauteur du remblai de la route au fond du cours d'eau <b>Based on Detailed Design</b>
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**Bow Lake Wind Farm**  
**Summary of Road Crossings**  
**Prepared By: Tulloch Engineering**  
**January 28, 2013**






Water Body Number	Crossing Number	Crossing Type		Location	NAD 83 UTM Zone 16		Watercourse Characteristics	
					Northing	Easting	Thermal	Flow
0-3	1	Culvert	New	Dump Road	5231688	678524	Unknown	Intermittent
0-2	2	Culvert	New	Dump Road	5231541	678783	Unknown	Intermittent
9B-10	3	Culvert	Replacement	Hogg Dam Rd	5231799	681917	Cold	Permanent
9B-8	4	Culvert	Replacement	Hogg Dam Rd	5232704	682052	Cold	Permanent
9B-5	5	Culvert	Replacement	Hogg Dam Rd	5233218	682504	Unknown	Permanent
9B-2	6	Culvert	Replacement	Hogg Dam Rd	5233341	682573	Unknown	Intermittent
9B-3	7	Culvert	Replacement	Hogg Dam Rd	5233352	682589	Unknown	Intermittent
9B-1	8	Culvert	Replacement	Hogg Dam Rd	5233362	682625	Cold	Permanent
9F-9	9	Culvert	Replacement	2b Access	5227574	688808	Unknown	Intermittent
9F-3	10	Culvert	New	2b Access	5228259	689791	Cold	Intermittent
9F-3	11	Culvert	New	2b Access	5228757	690075	Cold	Intermittent


Notes

1. Water Body Number as identified in the Water Assessment and Water Body Report; Stantec
2. Crossing Number as identified on Water Crossing Locations Drawing, 10-212-WC1; Tulloch Engineering
3. Watercourse Description and Photographs Attached for Additional Information

**Bow Lake Wind Farm**  
**Watercourse Descriptions for Road Crossings**  
**Prepared By: Tulloch Engineering**  
**January 28, 2013**

Water Body Number	Crossing Number	Watercourse Description	Photo
0-3	1	Dry during field investigations. Steep gradient. Riparian area dominated by sugar maple and birch. Substrate= Sand, detritus, cobble, gravel, silt, and boulder. Bankfull width = 1.2 m.	
0-2	2	Isolated pools observed during field investigations. Steep gradient. Riparian area dominated by sugar maple and birch. Bankfull width = 0.6m, Wetted width = 0.4m, water depth = 2cm. Substrate= sand, silt, gravel, detritus, cobble and boulder.	
9B-10	3	Dominant riffle morphology. Upstream riparian dominated by white birch, sugar maple, eastern white cedar. Steep slopes and sparse vegetation downstream. Currently perched culvert. Bankfull width= 2.5m ,wetted width= 1.2m, water depth = 8cm. Substrate= Sand, cobble, gravel and detritus.	
9B-8	4	Dominant pool morphology. Riparian areas dominated by black spruce and white birch. Upstream watercourse is ponded and deep (>1m). Downstream is narrow and very shallow. Bankfull width (U/S) = 10m, Bankfull width (D/S)= 1 m Wetted width (U/S)= 10 m, wetted width (D/S)= 0.5 m, water depth = 5 cm. Substrate= cobble, gravel(U/S); silt, detritus, muck and sand (D/S).	
9B-5	5	Permanent flow along east side of Hogg Dam Road. Water body disappears approximately 5 m downstream of Hogg Dam Road. Currently perched culvert. Riparian dominated by mountain maple and mountain ash. Bankfull width = 0.7m, wetted width=0.6, water depth = 10cm. Substrate= gravel, sand, cobble, detritus, and boulder.	

Water Body Number	Crossing Number	Watercourse Description	Photo
9B-2	6	Isolated pools observed during field investigations. Pools contained floating pondweed. Riparian dominated by yellow birch. Bankfull width = 0.3m, wetted width = 0.3m, water depth = 5cm. Substrate= sand, gravel, silt, and cobble.	
9B-3	7	Dry during field investigations. Riparian area dominated by eastern white cedar, yellow birch. Bankfull width = 0.6m, substrate= sand, gravel, silt and cobble.	
9B-1	8	Dominant riffle and run morphology. Occasional undercut banks. Riparian area dominated by sugar maple and ferns. Bankfull width = 2.5m. Wetted width= 1.2m, water depth= 20cm, substrate= cobble, gravel, sand, boulder and detritus.	
9F-9	9	Cobble, gravel, sand and silt dry at the time investigations; signs of erosion and sediment transport throughout Riparian vegetation consisting of mixed forest. Bankfull width = 4 m	
9F-3	10	Dominated by flat morphology. Riparian vegetation dominated by maple and fern. Bankfull width = 1.6m, wetted width = 1.2m, water depth = 10cm. Substrate = cobble, gravel, sand, boulder and detritus.	

Water Body Number	Crossing Number	Watercourse Description	Photo
9F-3	11	Dominated by flat morphology. Riparian vegetation dominated by maple and fern. Bankfull width = 1.6m, wetted width = 1.2m, water depth = 10cm. Substrate = cobble, gravel, sand, boulder and detritus.	

Notes

1. Water Body Number as identified in the Water Assessment and Water Body Report; Stantec
2. Crossing Number as identified on Water Crossing Locations Drawing, 10-212-WC1; Tulloch Engineering

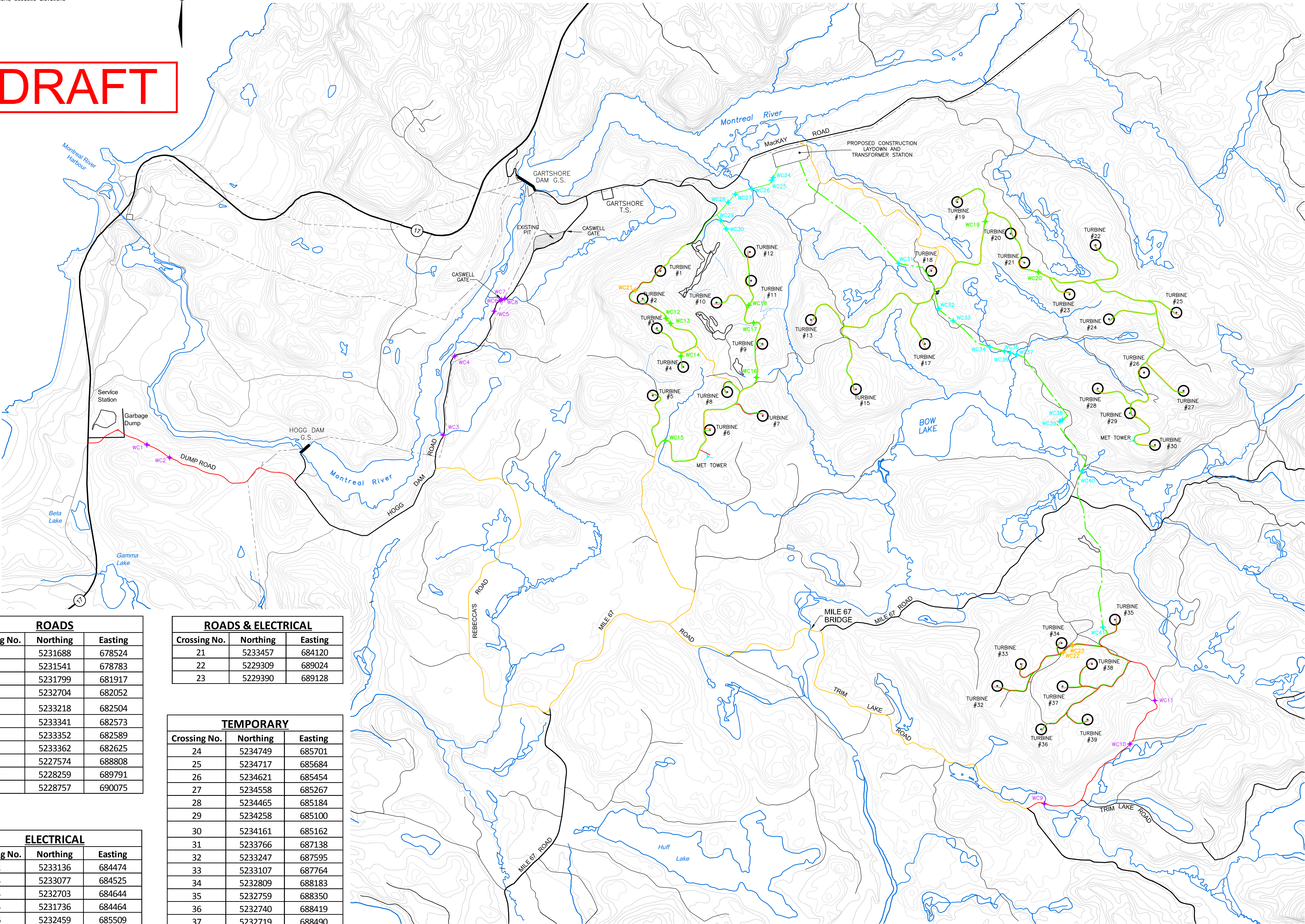


**Horizontal Datum:**  
North American Datum 1983 (NAD83)  
6 Degree Universal Transverse Mercator  
(UTM) Grid Coordinates, Zone 16.

**Vertical Datum:**  
Canadian Geodetic Vertical Datum,  
1928 Adjustment, Geodetic Elevations



DRAFT



ROADS		
Crossing No.	Northing	Easting
1	5231688	678524
2	5231541	678783
3	5231799	681917
4	5232704	682052
5	5233218	682504
6	5233341	682573
7	5233352	682589
8	5233362	682625
9	5227574	688808
10	5228259	689791
11	5228757	690075

ELECTRICAL		
Crossing No.	Northing	Easting
12	5233136	684474
13	5233077	684525
14	5232703	684644
15	5231736	684464
16	5232459	685509
17	5233083	685476
18	5233288	685422
19	5234245	688133
20	5233667	688740

ROADS & ELECTRICAL		
Crossing No.	Northing	Easting
21	5233457	684120
22	5229309	689024
23	5229390	689128

TEMPORARY		
Crossing No.	Northing	Easting
24	5234749	685701
25	5234717	685684
26	5234621	685454
27	5234558	685267
28	5234465	685184
29	5234258	685100
30	5234161	685162
31	5233766	687138
32	5233247	687595
33	5233107	687764
34	5232809	688183
35	5232759	688350
36	5232740	688419
37	5232719	688490
38	5231974	689015
39	5231953	688987
40	5231383	689237
41	5229595	689481



REVISIONS

No.	DATE	REMARKS

LEGEND

EXISTING PUBLIC ROAD	
EXISTING PUBLIC TRAIL	
EXISTING WATERCOURSE	
MARSH AREA	
EXISTING 115KV POWER LINE	
WIND TURBINE LOCATION	
PERMANENT MET TOWER LOCATION	
"REA" ROADS	
"FMP" ROADS	
ELECTRICAL LINE	
ROAD CROSSING LOCATIONS	
ROADS	
ELECTRICAL	
ROADS & ELECTRICAL	
TEMPORARY	

ROAD ALIGNMENTS AND TURBINE  
CONFIGURATION SUBJECT TO SITE  
MICRO-SITING AND GEOTECHNICAL  
INVESTIGATIONS.

**PRELIMINARY**  
ISSUED JANUARY 28, 2013

PROJECT TITLE

BOW LAKE WIND  
FARM

DRAWING TITLE

WATER CROSSING  
LOCATIONS

LOCATION

MONTREAL RIVER,  
ON.

DATE  
SEPT. 24, 2010

DRAWN  
DS

CHECKED  
CLK

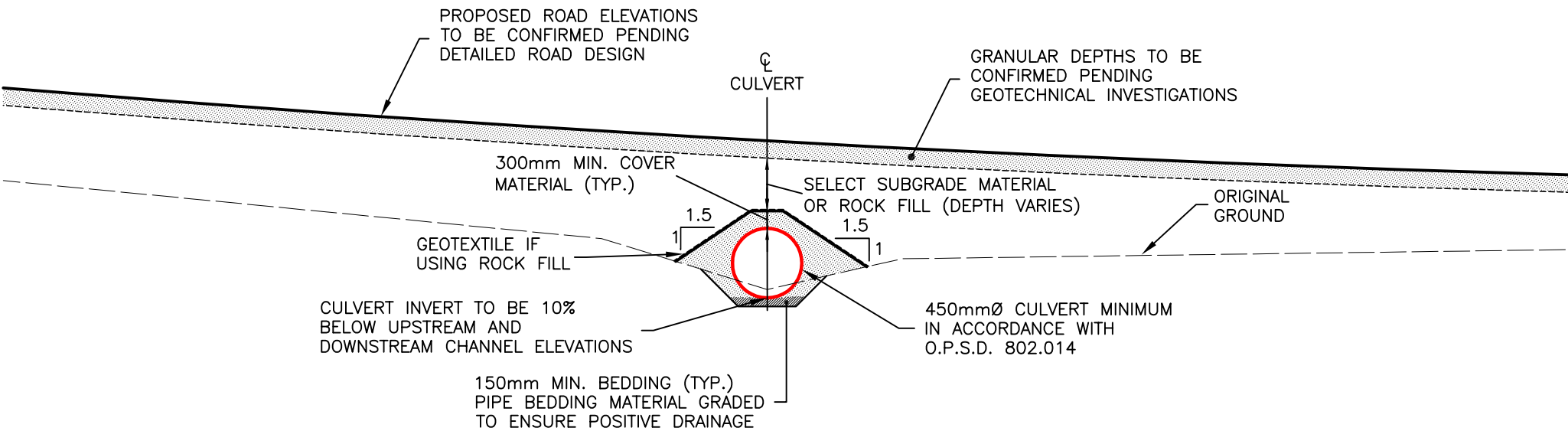
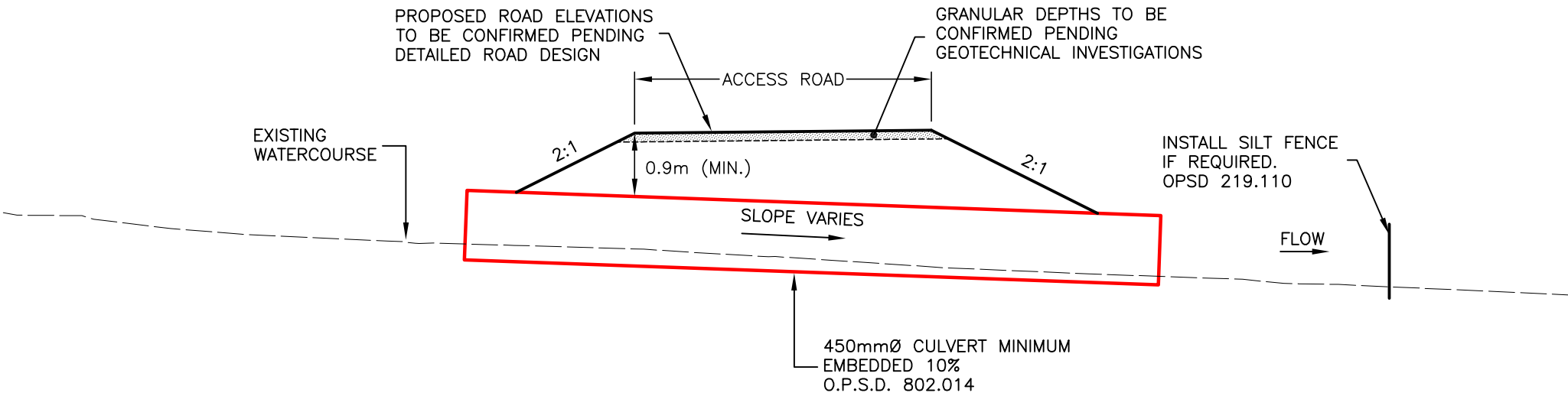
SCALE  
1:20,000

ISSUED FOR  
TENDER

ISSUED FOR  
CONSTRUCTION

DWG. No. PROJECT No. REV. No.  
WC1 10-212 0





**BOW LAKE WIND FARM WATER CROSSINGS**  
**FIGURE 1 - TYPICAL ROAD CROSSING**  
 N.T.S.

# BOW LAKE WIND FARM WATER CROSSINGS

## TYPICAL ROAD CROSSING

### GENERAL NOTES

1. FINAL CROSSING LOCATION AND ALIGNMENT TO BE DETERMINED PENDING DETAILED DESIGN OF ROAD AND GEOTECHNICAL INVESTIGATIONS.
2. ALL WORK SHALL ADHERE TO THE MNR'S GUIDELINES FOR ACCESS ROADS AND WATER CROSSINGS.
3. ALL WORK SHALL CONFORM TO THE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS) LATEST REVISION.
4. CONTRACTOR TO VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.
5. THE CONSTRUCTOR IS TO ADHERE TO THE REQUIREMENTS OF ALL REGULATORY WORK PERMITS.

### SEDIMENT CONTROL

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WHERE NECESSARY TO MINIMIZE ENVIRONMENTAL IMPACTS.
2. THE CONTRACTOR WILL BE IN CHARGE OF AND RESPONSIBLE FOR ALL ON-SITE WORK.
3. THE SITE SUPERVISOR WILL HOLD A MEETING OF ALL EQUIPMENT OPERATORS WORKING AT THE SITE TO MAKE THEM AWARE OF MINISTRY CONCERNS AND MEASURES TO CONTROL SEDIMENT. EXISTING VEGETATION IS TO BE PROTECTED TO THE MAXIMUM EXTENT POSSIBLE.
4. TO THE MAXIMUM EXTENT POSSIBLE, NO SEDIMENTS SHALL ENTER THE WATER DURING ANY ASPECT OF THE WORK. SHORT TERM INTRODUCTION OF SEDIMENTS SHALL BE KEPT TO THE LOWEST PRACTICAL LEVEL AND THERE SHOULD BE NO LONG TERM SOURCES OF SEDIMENT FROM THE COMPLETED PROJECT.
5. ANY EQUIPMENT WORKING NEAR THE WATER MUST BE FREE FROM ANY LEAKS OF OIL, GREASE OR OTHER CONTAMINANTS. THE EQUIPMENT SHALL BE CLEANED OF ALL CONTAMINATES PRIOR TO BEING BROUGHT ON SITE.
6. CONSTRUCTION OPERATIONS WILL BE UNDER THE DIRECTION OF THE SITE SUPERVISOR FOR THE CONTRACTOR AND INSPECTED BY THE SITE INSPECTOR FOR THE OWNER. ANY PROBLEMS OR CONCERNS WILL BE RESOLVED ON SITE WITH THE ENGINEER.

### CONSTRUCTION SEQUENCING (DRY CONDITION)

1. INSTALL SEDIMENT CONTROL MEASURES.
2. EXCAVATE FOR CULVERT BEDDING. EXCAVATED MATERIAL SHALL BE STOCKPILED FOR REUSE AWAY FROM WATERCOURSE.
3. INSTALL, COMPACT AND SHAPE BEDDING MATERIAL TO RECEIVE CULVERT.
4. INSTALL CULVERT AND EMBEDMENT MATERIAL COMPLETE WITH COMPACTION.
5. IF REQUIRED, INSTALL GEOTEXTILE PRIOR TO PLACING ROCK FILL.
6. COMPLETE PLACEMENT OF FILL MATERIAL TO SUBGRADE ELEVATION.
7. EXCAVATE CHANNEL REALIGNMENT, IF NECESSARY TO MATCH EXISTING CHANNEL DIMENSIONS.
8. RELOCATE ABANDONED CHANNEL SUBSTRATE TO REALIGNED CHANNEL, IF NECESSARY.

### CONSTRUCTION SEQUENCING (FLOWING CONDITION)

SHOULD INSTALLATION OF THE CULVERT BE REQUIRED DURING FLOWING CONDITIONS, THE DRY CONDITION SEQUENCING WOULD APPLY WITH THE FOLLOWING MODIFICATIONS FOR SITE DEWATERING.

- 1A. EXCAVATE SMALL SUMP IMMEDIATELY UPSTREAM OF CROSSING LOCATION.
- 1B. INSTALL APPROPRIATELY SIZED PUMPS AND HOSES, DISCHARGING TO A SEDIMENT DEWATERING BAG.
- 1C. SEDIMENT DEWATERING BAG SHALL BE LOCATED PRIOR TO THE DOWNSTREAM SEDIMENT CONTROL MEASURES.

ONCE FLOW HAS BEEN DIVERTED TO CULVERT, REMOVE THE PUMPS AND DEWATERING BAG AND REHABILITATE THE UPSTREAM SUMP TO PRECONSTRUCTION CONDITIONS.

### CULVERT INSTALLATION

1. CULVERT INSTALLATION WILL BE BY OPEN CUT.
2. BEDDING MATERIAL WILL BE GRANULAR A.
3. COVER AND EMBEDMENT MATERIAL WILL BE GRANULAR A, OR SAND WITH NO STONES LARGER THAN 25mm.
4. BACKFILL WILL BE SELECT SUBGRADE MATERIAL OR ROCK FILL.
5. CULVERT TO BE EMBEDDED 10% BELOW PROPOSED CHANNEL ELEVATIONS WITH INFILL COMPLETED BY NATURAL SEDIMENTATION.
6. PREFERRED INSTALLATION TO BE COMPLETED DURING DRY CONDITIONS. INSTALLATION DURING FLOWING CONDITION IS PERMISSIBLE WITH MODIFICATIONS TO THE CONSTRUCTION SEQUENCING, PENDING MNR APPROVAL.
7. CONSTRUCTION TO BE COMPLETED IN ACCORDANCE WITH OSPD 802.014.
8. SEDIMENT CONTROL MEASURES TO BE MONITORED CONTINUOUSLY DURING CONSTRUCTION.



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# Application for Work Permit Demande de permis d'exploitation

Part 1  
Partie 1

**Applicant** (eg. landowner, licensee, permittee, etc.) (Cannot be a subcontractor)

**Demandeur** (ex. : propriétaires fonciers, détenteurs de permis, etc.) (Ne doit pas être un sous-traitant)

Name/Nom <b>Nodin Kitagan Limited Partnership</b>	Business Phone/Tél. (Bureau) <b>(403) 668-1575</b>	Residence Phone/Tél. (Résidence)
Mailing Address/Adresse postale <b>BluEarth Renewables Inc., 200, 4723 - 1st Street SW, Calgary, AB</b>		Postal Code/Code postal <b>T2G 4Y8</b>

## Site Contractor or Person in Charge/Entrepreneur ou responsable sur place

Name/Nom	Business Phone/Tél. (Bureau)	Residence Phone/Tél. (Résidence)	Radio Contact Available/Radio <input type="checkbox"/> Yes/Oui <input type="checkbox"/> No/Non
Mailing Address/Adresse postale <b>TO BE DETERMINED</b>			Postal Code/Code postal

**Type of Work Proposed** - Please indicate and complete the appropriate additional part(s)

**Type de travaux prévus** - Préciser et remplir la partie appropriée

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Construction de bâtiments
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Travaux sur des terres
 ☐ Work Within a Waterbody  
travaux submergés
 ☒ Roads or Trails or Water Crossing  
Routes ou piste ou traverse de cours d'eau

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Township, Municipality, Basemap No. or Lot and Concession, Location, Subdivision or Mining Claim or U.T.M. No. Canton, municipalité, carte de base n° ou parcelle, concession, emplacement, subdivision ou N° du MTU ou concession minère <b>Water Crossings #12, 13, 14, 15, 16, 17 &amp; 18 as detailed on the enclosed Summary of Cable Crossing Table</b>	
Other i.e. Waterbody (describe) Autre p. ex. cours d'eau (décrire) <b>Water Crossings #12, 13, 14, 15, 16, 17 &amp; 18, as detailed on the enclosed Watercourse Description Table</b>	
Camp Location Emplacement du camp	No. or Workers on Site Nbre de travailleurs sur le site

## Private Land/Terres privées

Private Lands of - Applicant/Appartenant au demandeur <input type="checkbox"/> Yes Oui	<input checked="" type="checkbox"/> No Non	<input type="checkbox"/> Other (specify) À d'autres (préciser qui)
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## Effective Date(s)/Dates

Start Date/Date de début des travaux <b>Estimated as August 2013</b>	Finish Date/Date de fin des travaux <b>Estimated as December 2014</b>
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Please specify/Préciser <b>To Be Determined by the Contractor.</b>
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I certify the information given in this application is true.

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Je certifie que les renseignements donnés ici sont véridiques.

Signature of Applicant/Signé par	Position/Poste	Date
Signature of contractor (if applicable) Signature de l'entrepreneur (s'il y a lieu) <b>To Be Determined</b>	Position/Poste	Date
Date Application Received in Office Date de réception de la demande		





Ontario

1) Include a sketch showing:/Joindre un dessin indiquant :

- detailed location of road or trail (i.e. how close to waterbodies, etc.)  
l'emplacement détaillé de la route ou du sentier (c. -à-d. distance à une surface d'eau, etc.);
- all water crossings toutes les traverses d'eau. **Please see attached Water Crossing Location Drawing 10-212-WC1 as well as Figure 2 - Electrical Cabling & Notes**

2) Purpose/But

- Access to private property ☐ Yes ☒ No  
Accès aux propriétés privées ☐ Oui ☒ Non
- Access for resource extraction (e.g. mining, logging, mineral exploration) ☐ Yes ☒ No  
Accès pour extraction de ressources (p. ex. exploration minière, exploitation minière ou forestière) ☐ Oui ☒ Non
- Other (specify) **Renewable Energy (Wind Farm) Development**  
Autres (préciser)

- 3) Type (check box) Summer Winter Year Round Haul Road Trail Other  
Type (cocher) ☐ Été ☐ Hiver ☒ Tout l'année ☐ Route de transport ☐ Piste ☐ Autre

4) Description

Length/Longueur	Travelled Road Width/ Largeur utile	Right-of-Way Width/ Largeur de l'emprise	5) Length of Time Required/Durée		
<b>To Be Determined During Detailed Design Stage</b>			<input checked="" type="checkbox"/> Long Term	<input type="checkbox"/> Short Term	No. of Months/Years N <sup>bre</sup> de mois/années

6) Who will be responsible for maintenance?/Qui sera responsable de l'entretien?

Indicate Person, Company, Association, etc./Particulier, association, entreprise, etc.

**Nodin Kitagan Limited Partnership**

7) Source Gravel/Fill/Source de gravier/remblai

Please indicate intended source, if any/Nommer la source prévue, le cas échéant

**Gravel from within approved Right-of-Way, or from Permitted Aggregate Sites**

8) Water Crossing/Traverse d'eau (letters refer to sample sketch on reverse/les lettres correspondent à l'exemple de croquis au verso)

Stream Name/Nom du cours d'eau <b>Please see attached summary tables</b>			
Road Name/Nom de la route		Type of Fill to be Used at Crossing/Type de remblai utilisé	
Site Conditions/Condition du site			
Flood plain width (A)/ Largeur de la plaine inondable	Water Width (B)/ Largeur de l'eau	Water Depths (C, D, E)/ Profondeur de l'eau	Measured Flow Velocity/ Vitesse Mesurée du courant (ft/sec or m/sec) pi/s. ou m/s
Foundation Soil Description/Description du sous-sol			

8 a) Bridge/Pont **N/A**

Proposed Bridge – Length (F) Projet de pont – Longueur du pont	Clearance (G) Dégagement	Clear Span (H) Travée	Crib Height (I) Hauteur du berceau	Crib Width (J) Largeur du berceau	Deck Width (K) Largeur du tablier
Stringer Type/Type de longeron					
Stringer Spacing/Espacement des longerons					
Deck Details (L)/Détails du tablier					
Wear Surface (M)/Surface					
Curb Details (N)/Détails de la chaussée					
Guide Rail Details (O)/Détails du rail de guidage					

8 b) Culvert/Ponceau

Culvert Diameter/Diamètre du ponceau <b>Minimum 450mmØ</b>	Culvert Length/Longueur du ponceau <b>Based on Detailed Design</b>	Road Fill Height Above Creek Bottom/Hauteur du remblai de la route au fond du cours d'eau <b>Based on Detailed Design</b>
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# Application for Work Permit Demande de permis d'exploitation

Part 1  
Partie 1

**Applicant** (eg. landowner, licensee, permittee, etc.) (Cannot be a subcontractor)

**Demandeur** (ex. : propriétaires fonciers, détenteurs de permis, etc.) (Ne doit pas être un sous-traitant)

Name/Nom. <b>Nodin Kitagan 2 Limited Partnership</b>	Business Phone/Tél. (Bureau) <b>(403) 668-1575</b>	Residence Phone/Tél. (Résidence)
Mailing Address/Adresse postale <b>BluEarth Renewables Inc., 200, 4723 - 1st Street SW, Calgary, AB</b>		Postal Code/Code postal <b>T2G 4Y8</b>

## Site Contractor or Person in Charge/Entrepreneur ou responsable sur place

Name/Nom	Business Phone/Tél. (Bureau)	Residence Phone/Tél. (Résidence)	Radio Contact Available/Radio <input type="checkbox"/> Yes/Oui <input type="checkbox"/> No/Non
Mailing Address/Adresse postale <b>TO BE DETERMINED</b>			Postal Code/Code postal

**Type of Work Proposed** - Please indicate and complete the appropriate additional part(s)

**Type de travaux prévus** - Préciser et remplir la partie appropriée

- ☐ Building Construction  
Construction de bâtiments
 ☐ Work on Shorelands  
Travaux sur des terres
 ☐ Work Within a Waterbody  
travaux submergés
 ☒ Roads or Trails or Water Crossing  
Routes ou piste ou traverse de cours d'eau

## Location of Work Permit Area/Emplacement

Township, Municipality, Basemap No. or Lot and Concession, Location, Subdivision or Mining Claim or U.T.M. No. Canton, municipalité, carte de base n° ou parcelle, concession, emplacement, subdivision ou N° du MTU ou concession minère <b>Water Crossings #19 &amp; 20 as detailed on the enclosed Summary of Cable Crossing Table</b>	
Other i.e. Waterbody (describe) Autre p. ex. cours d'eau (décrire) <b>Water Crossings #19 &amp; 20, as detailed on the enclosed Watercourse Description Table</b>	
Camp Location Emplacement du camp	No. or Workers on Site Nbre de travailleurs sur le site

## Private Land/Terres privées

Private Lands of - Applicant/Appartenant au demandeur	
<input type="checkbox"/> Yes Oui	<input checked="" type="checkbox"/> No Non
<input type="checkbox"/> Other (specify) À d'autres (préciser qui)	

## Effective Date(s)/Dates

Start Date/Date de début des travaux <b>Estimated as August 2013</b>	Finish Date/Date de fin des travaux <b>Estimated as December 2014</b>
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## Equipment to be Used/matériel qui sera utilisé

Please specify/Préciser <b>To Be Determined by the Contractor.</b>
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### Note:

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I/We hereby agree to rely solely upon the terms and conditions of the written work permit issued pursuant to this application. Any changes, amendments to the written work permit must be approved in writing by MNR.

I certify the information given in this application is true.

### Remarque:

La délivrance de ce permis n'exonère pas le détenteur d'obtenir les autorisations qui pourraient être exigées par d'autres gouvernements, organismes, commissions, etc.

Si le demandeur en a besoin, il doit conserver un exemplaire de cette demande avant de la soumettre.

Les renseignements personnels exigés dans les présentes sont recueillis en vertu de l'article 13 de la Loi sur les terres publiques, S.R.O. 1990 et du règlement de l'Ontario 453/96 tel que modifié et du règlement 975 de l'Ontario tel que modifié. Ils seront utilisés selon les termes de la Loi et des règlements. Veuillez adresser toute question à ce sujet au bureau local du MRN. Une liste des bureaux du MRN avec adresses et numéros de téléphone se trouve au verso.

J'accepte de me conformer strictement aux conditions écrites du permis d'exploitation émis pour la présente demande. Tout changement ou toute modification audit permis d'exploitation doit être approuvé par écrit par le MNR.

Je certifie que les renseignements donnés ici sont véridiques.

Signature of Applicant/Signé par	Position/Poste	Date
Signature of contractor (if applicable) Signature de l'entrepreneur (s'il y a lieu) <b>To Be Determined</b>	Position/Poste	Date
Date Application Received in Office Date de réception de la demande		



Ontario

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**Bow Lake Wind Farm**  
**Summary of Cable Crossings**  
**Prepared By: Tulloch Engineering**  
**January 28, 2013**




Water Body Number	Crossing Number	Crossing Type		Location	NAD 83 UTM Zone 16		Watercourse Characteristics	
					Northing	Easting	Thermal	Flow
10-6	12	Cable	New	P1	5233136	684474	Cold	Permanent
10-7	13	Cable	New	P1	5233077	684525	Cold	Permanent
10-2	14	Cable	New	P1	5232703	684644	Cold	Intermittent
11-4	15	Cable	New	P1	5231736	684464	Unknown	Intermittent
11-3	16	Cable	New	P1	5232459	685509	Cold	Permanent
12-1	17	Cable	New	P1	5233083	685476	Unknown	Permanent
10-21	18	Cable	New	P1	5233288	685422	Unknown	Intermittent
2-1	19	Cable	New	2a	5234245	688133	Unknown	Unknown
2-3	20	Cable	New	2a	5233667	688740	Cold	Intermittent

Notes

1. Water Body Number as identified in the Water Assessment and Water Body Report; Stantec
2. Crossing Number as identified on Water Crossing Locations Drawing, 10-212-WC1; Tulloch Engineering
3. Watercourse Description and Photographs Attached for Additional Information

**Bow Lake Wind Farm**  
**Watercourse Descriptions for Cable Crossings**  
**Prepared By: Tulloch Engineering**  
**January 28, 2013**

Water Body Number	Crossing Number	Watercourse Description	Photo
10-6	12	Flow originating from a seep, channel dominated by pool and run morphology. Riparian area dominated by sugar maple, white birch, jewelweed. Bankfull width = 1m, Wetted width = 0.4m , Water depth = 5cm, Substrate = Gravel, cobble, detritus, bedrock, boulder, and muck	
10-7	13	Flow originating from a seep. Channel dominated by pool morphology. Riparian area dominated by sugar maple, white birch, and jewelweed. Bankfull width = 0.6m, wetted width = 0.4m, substrate= detritus, sand, gravel, cobble and muck.	
10-2	14	Groundwater seepage at origin with steep grade and isolated pools separated by frequent falls. Riparian vegetation consisted of mature mixed forest. Bankfull width =0.5m, wetted width = 0.3m, water depth = 15cm. Substrate= boulder, cobble and detritus.	
11-4	15	High gradient, dominated by step-pool morphology. Riparian vegetation dominated by sugar maple. Bankfull width= 1m, wetted width= 0.4m, water depth = 5cm. Substrate= cobble, boulder, gravel, sand and detritus	
11-3	16	Flow originating from a seep. Dominated by step pool morphology. Riparian vegetation consisting of mixed forest. Bankfull width= 1.4m, wetted width= 1.2m, water depth = 3cm, substrate= boulder, cobble, gravel, detritus and silt.	

Water Body Number	Crossing Number	Watercourse Description	Photo
12-1	17	Dominant pool morphology. Riparian vegetation consisting of mature deciduous forest. Bankfull width= 1.4m, wetted width = 0.8m, water depth = 5cm. Substrate= gravel, silt, sand, boulder and detritus	
10-21	18	High gradient, dominated by steep-pool morphology. Riparian vegetation dominated by sugar maple. Bankfull width= 1.0m, wetted width = 0.4m, water depth = 5cm. Substrate = cobble, boulder, gravel, sand and detritus.	
2-1	19	no information; ephemeral watercourse?	not available
2-3	20	Pool, riparian vegetation fern and sugar maple. Bankfull width= 1.6m, pool depth = 15cm. Substrate = cobble, boulder, gravel, detritus.	

#### Notes

1. Water Body Number as identified in the Water Assessment and Water Body Report; Stantec
2. Crossing Number as identified on Water Crossing Locations Drawing, 10-212-WC1; Tulloch Engineering

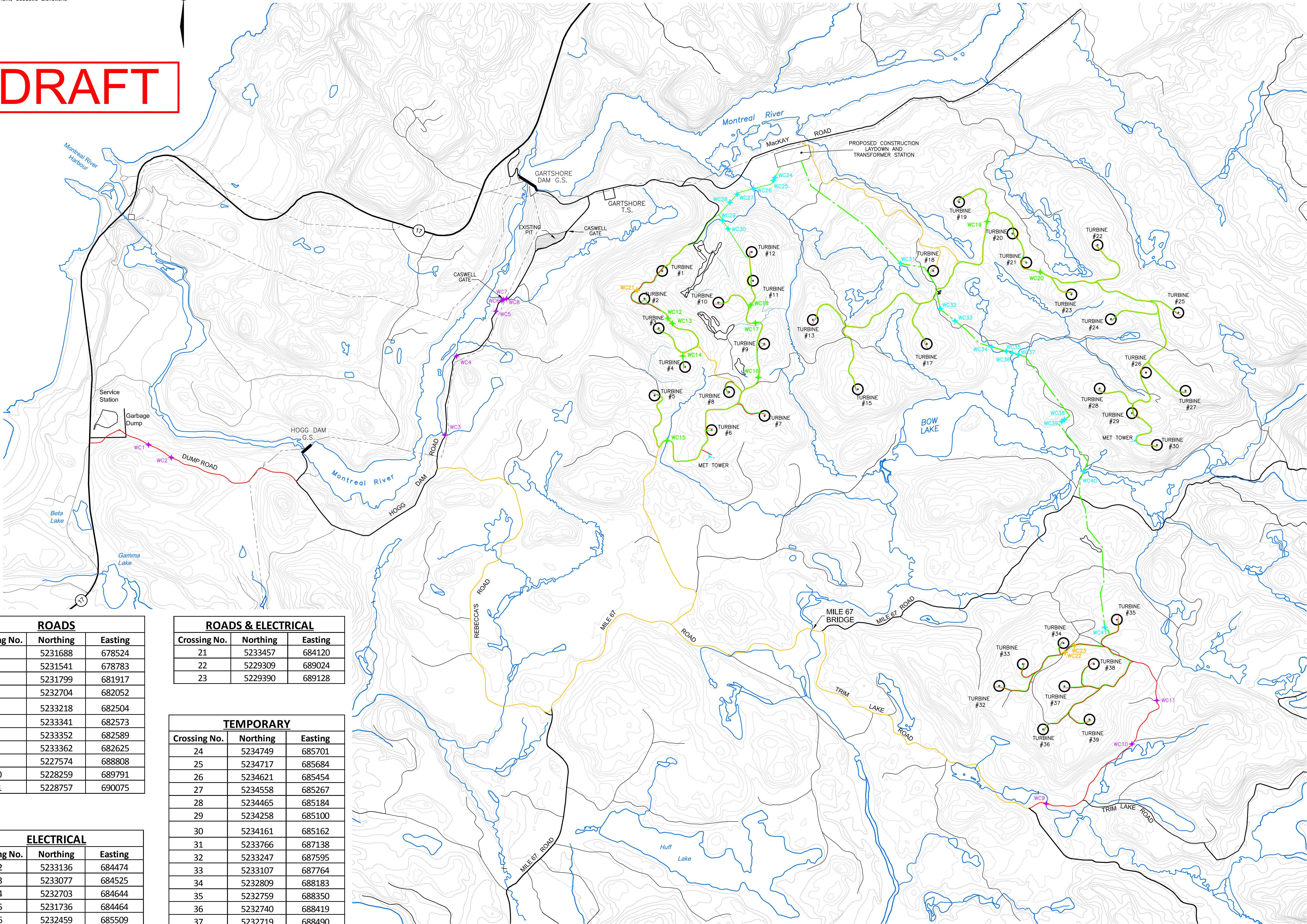


**Horizontal Datum:**  
North American Datum 1983 (NAD83)  
6 Degree Universal Transverse Mercator  
(UTM) Grid Coordinates, Zone 16.

**Vertical Datum:**  
Canadian Geodetic Vertical Datum,  
1928 Adjustment, Geodetic Elevations



**DRAFT**



ROADS		
Crossing No.	Northing	Easting
1	5231688	678524
2	5231541	678783
3	5231799	681917
4	5232704	682052
5	5233218	682504
6	5233341	682573
7	5233352	682589
8	5233362	682625
9	5227574	688808
10	5228259	689791
11	5228757	690075

ELECTRICAL		
Crossing No.	Northing	Easting
12	5233136	684474
13	5233077	684525
14	5232703	684644
15	5231736	684464
16	5232459	685509
17	5233083	685476
18	5233288	685422
19	5234245	688133
20	5233667	688740

ROADS & ELECTRICAL		
Crossing No.	Northing	Easting
21	5233457	684120
22	5229309	689024
23	5229390	689128

TEMPORARY		
Crossing No.	Northing	Easting
24	5234749	685701
25	5234717	685684
26	5234621	685454
27	5234558	685267
28	5234465	685184
29	5234258	685100
30	5234161	685162
31	5233766	687138
32	5233247	687595
33	5233107	687764
34	5232809	688183
35	5232759	688350
36	5232740	688419
37	5232719	688490
38	5231974	689015
39	5231953	688987
40	5231383	689237
41	5229595	689481



REVISIONS

No.	DATE	REMARKS

LEGEND

EXISTING PUBLIC ROAD	
EXISTING PUBLIC TRAIL	
EXISTING WATERCOURSE	
MARSH AREA	
EXISTING 115KV POWER LINE	
WIND TURBINE LOCATION	
PERMANENT MET TOWER LOCATION	
"REA" ROADS	
"FMP" ROADS	
ELECTRICAL LINE	
ROAD CROSSING LOCATIONS	
ROADS	
ELECTRICAL	
ROADS & ELECTRICAL	
TEMPORARY	

ROAD ALIGNMENTS AND TURBINE  
CONFIGURATION SUBJECT TO SITE  
MICRO-SITING AND GEOTECHNICAL  
INVESTIGATIONS.

**PRELIMINARY**  
ISSUED JANUARY 28, 2013

PROJECT TITLE

BOW LAKE WIND  
FARM

DRAWING TITLE

WATER CROSSING  
LOCATIONS

LOCATION

MONTREAL RIVER,  
ON.

DATE  
SEPT. 24, 2010

DRAWN  
DS

CHECKED  
CLK

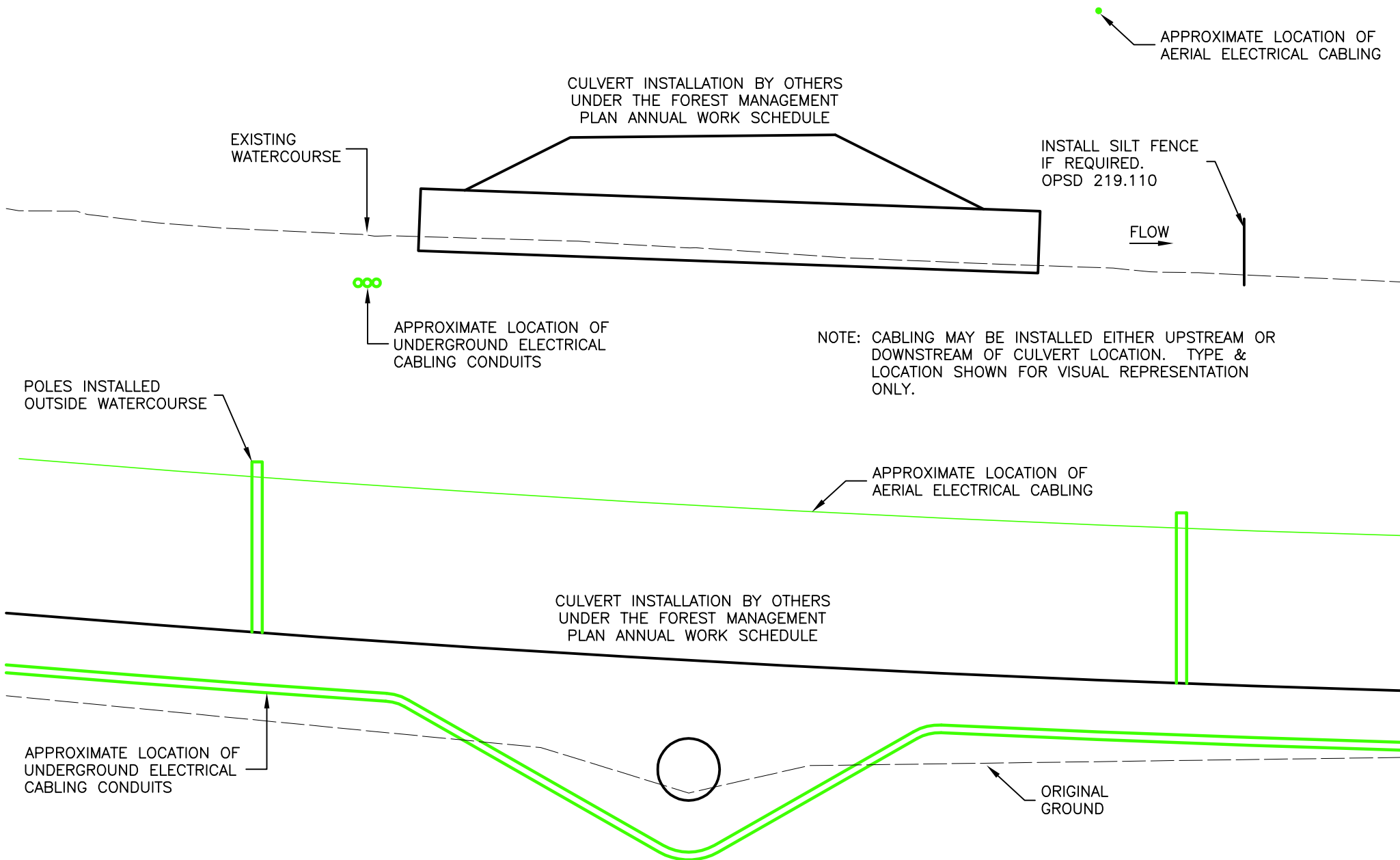
SCALE  
1:20,000

ISSUED FOR  
TENDER

ISSUED FOR  
CONSTRUCTION

DWG. No. PROJECT No. REV. No.  
WC1 10-212 0





**BOW LAKE WIND FARM WATER CROSSINGS**  
**FIGURE 2 - ELECTRICAL CABLING**

N.T.S.



# BOW LAKE WIND FARM WATER CROSSINGS

## ELECTRICAL CABLING

### GENERAL NOTES

1. FINAL CROSSING LOCATION AND ALIGNMENT TO BE DETERMINED PENDING DETAILED DESIGN OF ROAD AND GEOTECHNICAL INVESTIGATIONS.
2. ALL WORK SHALL ADHERE TO THE MNR'S GUIDELINES FOR ACCESS ROADS AND WATER CROSSINGS.
3. ALL WORK SHALL CONFORM TO THE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS) LATEST REVISION.
4. CONTRACTOR TO VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.
5. THE CONSTRUCTOR IS TO ADHERE TO THE REQUIREMENTS OF ALL REGULATORY WORK PERMITS.

### SEDIMENT CONTROL

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WHERE NECESSARY TO MINIMIZE ENVIRONMENTAL IMPACTS.
2. THE CONTRACTOR WILL BE IN CHARGE OF AND RESPONSIBLE FOR ALL ON-SITE WORK.
3. THE SITE SUPERVISOR WILL HOLD A MEETING OF ALL EQUIPMENT OPERATORS WORKING AT THE SITE TO MAKE THEM AWARE OF MINISTRY CONCERNS AND MEASURES TO CONTROL SEDIMENT. EXISTING VEGETATION IS TO BE PROTECTED TO THE MAXIMUM EXTENT POSSIBLE.
4. TO THE MAXIMUM EXTENT POSSIBLE, NO SEDIMENTS SHALL ENTER THE WATER DURING ANY ASPECT OF THE WORK. SHORT TERM INTRODUCTION OF SEDIMENTS SHALL BE KEPT TO THE LOWEST PRACTICAL LEVEL AND THERE SHOULD BE NO LONG TERM SOURCES OF SEDIMENT FROM THE COMPLETED PROJECT.
5. ANY EQUIPMENT WORKING NEAR THE WATER MUST BE FREE FROM ANY LEAKS OF OIL, GREASE OR OTHER CONTAMINANTS. THE EQUIPMENT SHALL BE CLEANED OF ALL CONTAMINATES PRIOR TO BEING BROUGHT ON SITE.
6. CONSTRUCTION OPERATIONS WILL BE UNDER THE DIRECTION OF THE SITE SUPERVISOR FOR THE CONTRACTOR AND INSPECTED BY THE SITE INSPECTOR FOR THE OWNER. ANY PROBLEMS OR CONCERNS WILL BE RESOLVED ON SITE WITH THE ENGINEER.

### CABLING

1. UNDERGROUND CABLING IS PROPOSED TO BE INSTALLED BELOW GROUND, OUTSIDE OF THE PROPOSED CULVERT OCCUPATION.
2. UNDERGROUND CABLING WILL BE INSTALLED VIA THE DRY OPEN-CUT STREAM CROSSING OR ISOLATED OPEN-CUT STREAM CROSSING METHOD DEPENDING ON THE FLOW CONDITIONS AT TIME OF INSTALLATION.
3. UNDERGROUND CABLING WILL BE INSTALLED WITHIN CONDUITS SET APPROXIMATELY 1.0m BELOW GRADE AND COMMUNICATIONS CABLING MAY BE INSTALLED WITHIN THE SAME TRENCH.
4. LOCATION OF CABLING MAY BE EITHER UPSTREAM OR DOWNSTREAM OF THE CULVERT.
5. POLES FOR AERIAL CABLING WILL BE OUTSIDE THE WATERCOURSE.

### CONSTRUCTION SEQUENCING (DRY CONDITION)

1. INSTALL SEDIMENT CONTROL MEASURES.
2. EXCAVATE FOR CULVERT BEDDING. EXCAVATED MATERIAL SHALL BE STOCKPILED FOR REUSE AWAY FROM WATERCOURSE.
3. INSTALL, COMPACT AND SHAPE BEDDING MATERIAL TO RECEIVE CULVERT.
4. INSTALL CULVERT AND EMBEDMENT MATERIAL COMPLETE WITH COMPACTION.
5. IF REQUIRED, INSTALL GEOTEXTILE PRIOR TO PLACING ROCK FILL.
6. COMPLETE PLACEMENT OF FILL MATERIAL TO SUBGRADE ELEVATION.
7. EXCAVATE CHANNEL REALIGNMENT, IF NECESSARY TO MATCH EXISTING CHANNEL DIMENSIONS.
8. RELOCATE ABANDONED CHANNEL SUBSTRATE TO REALIGNED CHANNEL, IF NECESSARY.

### CONSTRUCTION SEQUENCING (FLOWING CONDITION)

SHOULD INSTALLATION OF THE CULVERT BE REQUIRED DURING FLOWING CONDITIONS, THE DRY CONDITION SEQUENCING WOULD APPLY WITH THE FOLLOWING MODIFICATIONS FOR SITE DEWATERING.

- 1A. EXCAVATE SMALL SUMP IMMEDIATELY UPSTREAM OF CROSSING LOCATION.
- 1B. INSTALL APPROPRIATELY SIZED PUMPS AND HOSES, DISCHARGING TO A SEDIMENT DEWATERING BAG.
- 1C. SEDIMENT DEWATERING BAG SHALL BE LOCATED PRIOR TO THE DOWNSTREAM SEDIMENT CONTROL MEASURES.

ONCE FLOW HAS BEEN DIVERTED TO CULVERT, REMOVE THE PUMPS AND DEWATERING BAG AND REHABILITATE THE UPSTREAM SUMP TO PRECONSTRUCTION CONDITIONS.



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# Application for Work Permit Demande de permis d'exploitation

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Name/Nom	Business Phone/Tél. (Bureau)	Residence Phone/Tél. (Résidence)	Radio Contact Available/Radio <input type="checkbox"/> Yes/Oui <input type="checkbox"/> No/Non
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Si le demandeur en a besoin, il doit conserver un exemplaire de cette demande avant de la soumettre.

Les renseignements personnels exigés dans les présentes sont recueillis en vertu de l'article 13 de la Loi sur les terres publiques, S.R.O. 1990 et du règlement de l'Ontario 453/96 tel que modifié et du règlement 975 de l'Ontario tel que modifié. Ils seront utilisés selon les termes de la Loi et des règlements. Veuillez adresser toute question à ce sujet au bureau local du MRN. Une liste des bureaux du MRN avec adresses et numéros de téléphone se trouve au verso.

J'accepte de me conformer strictement aux conditions écrites du permis d'exploitation émis pour la présente demande. Tout changement ou toute modification audit permis d'exploitation doit être approuvé par écrit par le MNR.

Je certifie que les renseignements donnés ici sont véridiques.

Signature of Applicant/Signé par	Position/Poste	Date
Signature of contractor (if applicable) Signature de l'entrepreneur (s'il y a lieu) <b>To Be Determined</b>	Position/Poste	Date
Date Application Received in Office Date de réception de la demande		



Ontario

1) Include a sketch showing:/Joindre un dessin indiquant :

- detailed location of road or trail (i.e. how close to waterbodies, etc.)  
l'emplacement détaillé de la route ou du sentier (c. -à-d. distance à une surface d'eau, etc.);
- all water crossings  
toutes les traverses d'eau. **Please see attached Water Crossing Location Drawing 10-212-WC1 as well as Figure 3 - Typical Road Crossing c/w Electrical Cabling & Notes**

2) Purpose/But

- Access to private property ☐ Yes ☒ No  
Accès aux propriétés privées ☐ Oui ☒ Non
- Access for resource extraction (e.g. mining, logging, mineral exploration)  
Accès pour extraction de ressources (p. ex. exploration minière, exploitation minière ou forestière) ☐ Yes ☒ No  
☐ Oui ☒ Non
- Other (specify) **Renewable Energy (Wind Farm) Development**  
Autres (préciser)

- 3) Type (check box) Summer Winter Year Round Haul Road Trail Other  
Type (cocher) ☐ Été ☐ Hiver ☒ Tout l'année ☐ Route de transport ☐ Piste ☐ Autre

4) Description

Length/Longueur	Travelled Road Width/ Largeur utile	Right-of-Way Width/ Largeur de l'emprise	5) Length of Time Required/Durée		
<b>To Be Determined During Detailed Design Stage</b>			<input checked="" type="checkbox"/> Long Term	<input type="checkbox"/> Short Term	No. of Months/Years N <sup>bre</sup> de mois/années
				<input type="checkbox"/> Cout terme	

6) Who will be responsible for maintenance?/Qui sera responsable de l'entretien?

Indicate Person, Company, Association, etc./Particulier, association, entreprise, etc.

**Nodin Kitagan Limited Partnership**

7) Source Gravel/Fill/Source de gravier/remblai

Please indicate intended source, if any/Nommer la source prévue, le cas échéant

**Gravel from within approved Right-of-Way, or from Permitted Aggregate Sites**

8) Water Crossing/Traverse d'eau (letters refer to sample sketch on reverse/les lettres correspondent à l'exemple de croquis au verso)

Stream Name/Nom du cours d'eau <b>Please see attached summary tables</b>			
Road Name/Nom de la route		Type of Fill to be Used at Crossing/Type de remblai utilisé	
Site Conditions/Condition du site			
Flood plain width (A)/ Largeur de la plaine inondable	Water Width (B)/ Largeur de l'eau	Water Depths (C, D, E)/ Profondeur de l'eau	Measured Flow Velocity/ Vitesse Mesurée du courant (ft/sec or m/sec) pi/s. ou m/s
Foundation Soil Description/Description du sous-sol			

8 a) Bridge/Pont **N/A**

Proposed Bridge – Length (F) Projet de pont – Longueur du pont	Clearance (G) Dégagement	Clear Span (H) Travée	Crib Height (I) Hauteur du berceau	Crib Width (J) Largeur du berceau	Deck Width (K) Largeur du tablier
Stringer Type/Type de longeron					
Stringer Spacing/Espacement des longerons					
Deck Details (L)/Détails du tablier					
Wear Surface (M)/Surface					
Curb Details (N)/Détails de la chaussée					
Guide Rail Details (O)/Détails du rail de guidage					

8 b) Culvert/Ponceau

Culvert Diameter/Diamètre du ponceau <b>Minimum 450mmØ</b>	Culvert Length/Longueur du ponceau <b>Based on Detailed Design</b>	Road Fill Height Above Creek Bottom/Hauteur du remblai de la route au fond du cours d'eau <b>Based on Detailed Design</b>
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# Application for Work Permit Demande de permis d'exploitation

Part 1  
Partie 1

**Applicant** (eg. landowner, licensee, permittee, etc.) (Cannot be a subcontractor)

**Demandeur** (ex. : propriétaires fonciers, détenteurs de permis, etc.) (Ne doit pas être un sous-traitant)

Name/Nom. <b>Nodin Kitagan 2 Limited Partnership</b>	Business Phone/Tél. (Bureau) <b>(403) 668-1575</b>	Residence Phone/Tél. (Résidence)
Mailing Address/Adresse postale <b>BluEarth Renewables Inc., 200, 4723 - 1st Street SW, Calgary, AB</b>	Postal Code/Code postal <b>T2G 4Y8</b>	

## Site Contractor or Person in Charge/Entrepreneur ou responsable sur place

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Mailing Address/Adresse postale <b>TO BE DETERMINED</b>			Postal Code/Code postal

**Type of Work Proposed** - Please indicate and complete the appropriate additional part(s)

**Type de travaux prévus** - Préciser et remplir la partie appropriée

- ☐ Building Construction  
Construction de bâtiments
 ☐ Work on Shorelands  
Travaux sur des terres
 ☐ Work Within a Waterbody  
travaux submergés
 ☒ Roads or Trails or Water Crossing  
Routes ou piste ou traverse de cours d'eau

## Location of Work Permit Area/Emplacement

Township, Municipality, Basemap No. or Lot and Concession, Location, Subdivision or Mining Claim or U.T.M. No. Canton, municipalité, carte de base n° ou parcelle, concession, emplacement, subdivision ou N° du MTU ou concession minière <b>Water Crossings #22 &amp; 23 as detailed on the enclosed Summary of Roads &amp; Cable Crossing Table</b>	
Other i.e. Waterbody (describe) Autre p. ex. cours d'eau (décrire) <b>Water Crossings #22 &amp; 23, as detailed on the enclosed Watercourse Description Table</b>	
Camp Location Emplacement du camp	No. or Workers on Site Nbre de travailleurs sur le site

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Private Lands of - Applicant/Appartenant au demandeur <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other (specify) Oui Non À d'autres (préciser qui)
--

## Effective Date(s)/Dates

Start Date/Date de début des travaux <b>Estimated as August 2013</b>	Finish Date/Date de fin des travaux <b>Estimated as December 2014</b>
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Please specify/Préciser <b>To Be Determined by the Contractor.</b>
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### Note:

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Personal Information on this form is collected under the authority of Section 13 of the Public Lands Act, R.S.O. 1990 and Ontario Regulation 453/96 as amended and Ontario Regulation 975 as amended, and the information will be used for the purposes of the Act and Regulations. Questions about this information should be directed to the local MNR office. MNR office addresses and phone numbers are listed on the reverse of this form.

I/We hereby agree to rely solely upon the terms and conditions of the written work permit issued pursuant to this application. Any changes, amendments to the written work permit must be approved in writing by MNR.

I certify the information given in this application is true.

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**Bow Lake Wind Farm**  
**Summary of Roads & Cable Crossings**  
**Prepared By: Tulloch Engineering**  
**January 28, 2013**




Water Body Number	Crossing Number	Crossing Type		Location	NAD 83 UTM Zone 16		Watercourse Characteristics	
					Northing	Easting	Thermal	Flow
10-33	21	Culvert & Cable	New	Private P1	5233457	684120	Unknown	Intermittent
5-2	22	Culvert & Cable	New	2b	5229309	689024	Unknown	Intermittent
5-2	23	Culvert & Cable	New	2b	5229390	689128	Unknown	Intermittent

Notes

1. Water Body Number as identified in the Water Assessment and Water Body Report; Stantec
2. Crossing Number as identified on Water Crossing Locations Drawing, 10-212-WC1; Tulloch Engineering
3. Watercourse Description and Photographs Attached for Additional Information



**Bow Lake Wind Farm**  
**Watercourse Descriptions for Roads & Cable Crossings**  
**Prepared By: Tulloch Engineering**  
**January 28, 2013**

Crossing Number	Water Body Number	Watercourse Description	Photo
10-33	21	High gradient channel; riparian dominated by yellow birch, balsam fir, and maple. Bankfull width = 0.5 m Water depth = 10 cm (isolated areas) Substrate = Detritus, silt, sand, boulder, and gravel	
5-2	22	Dry at time of field investigations. Permanent shallow pond at the downstream end of the channel within 10m of existing road. Riparian vegetation dominated by mature deciduous forest. Bankfull= 1.4m. Substrate= gravel, detritus, muck, cobble, and boulder	
5-2	23	Dry at time of field investigations. Permanent shallow pond at the downstream end of the channel within 10m of existing road. Riparian vegetation dominated by mature deciduous forest. Bankfull= 1.4m. Substrate= gravel, detritus, muck, cobble, and boulder	

Notes

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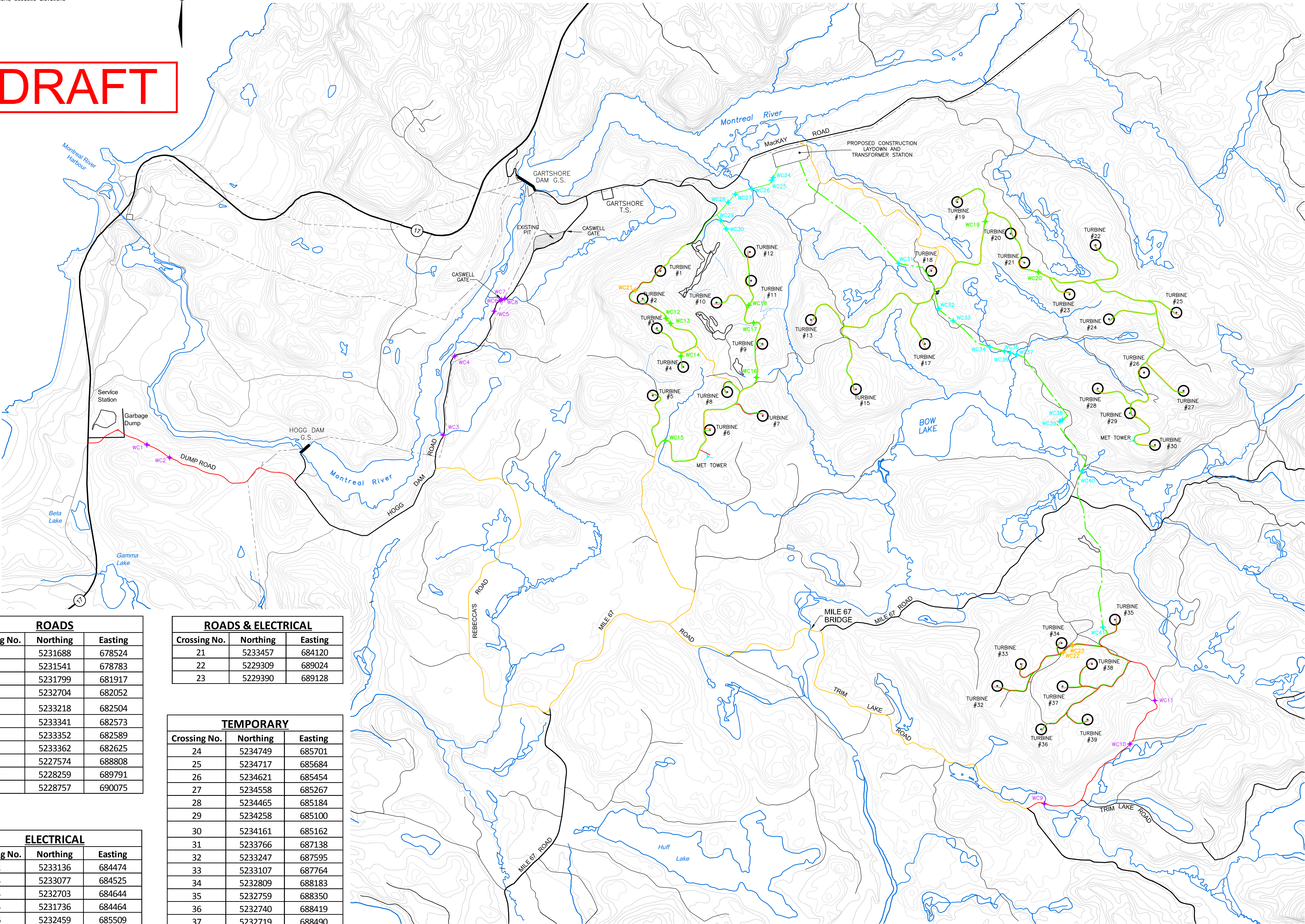


**Horizontal Datum:**  
North American Datum 1983 (NAD83)  
6 Degree Universal Transverse Mercator  
(UTM) Grid Coordinates, Zone 16.

**Vertical Datum:**  
Canadian Geodetic Vertical Datum,  
1928 Adjustment, Geodetic Elevations



DRAFT



ROADS		
Crossing No.	Northing	Easting
1	5231688	678524
2	5231541	678783
3	5231799	681917
4	5232704	682052
5	5233218	682504
6	5233341	682573
7	5233352	682589
8	5233362	682625
9	5227574	688808
10	5228259	689791
11	5228757	690075

ELECTRICAL		
Crossing No.	Northing	Easting
12	5233136	684474
13	5233077	684525
14	5232703	684644
15	5231736	684464
16	5232459	685509
17	5233083	685476
18	5233288	685422
19	5234245	688133
20	5233667	688740

ROADS & ELECTRICAL		
Crossing No.	Northing	Easting
21	5233457	684120
22	5229309	689024
23	5229390	689128

TEMPORARY		
Crossing No.	Northing	Easting
24	5234749	685701
25	5234717	685684
26	5234621	685454
27	5234558	685267
28	5234465	685184
29	5234258	685100
30	5234161	685162
31	5233766	687138
32	5233247	687595
33	5233107	687764
34	5232809	688183
35	5232759	688350
36	5232740	688419
37	5232719	688490
38	5231974	689015
39	5231953	688987
40	5231383	689237
41	5229595	689481



REVISIONS

No.	DATE	REMARKS

LEGEND

EXISTING PUBLIC ROAD	
EXISTING PUBLIC TRAIL	
EXISTING WATERCOURSE	
MARSH AREA	
EXISTING 115KV POWER LINE	
WIND TURBINE LOCATION	
PERMANENT MET TOWER LOCATION	
"REA" ROADS	
"FMP" ROADS	
ELECTRICAL LINE	
ROAD CROSSING LOCATIONS	
ROADS	
ELECTRICAL	
ROADS & ELECTRICAL	
TEMPORARY	

ROAD ALIGNMENTS AND TURBINE  
CONFIGURATION SUBJECT TO SITE  
MICRO-SITING AND GEOTECHNICAL  
INVESTIGATIONS.

**PRELIMINARY**  
ISSUED   JANUARY 28, 2013  

PROJECT TITLE

BOW LAKE WIND  
FARM

DRAWING TITLE

WATER CROSSING  
LOCATIONS

LOCATION

MONTREAL RIVER,  
ON.

DATE  
SEPT. 24, 2010

DRAWN  
DS

CHECKED  
CLK

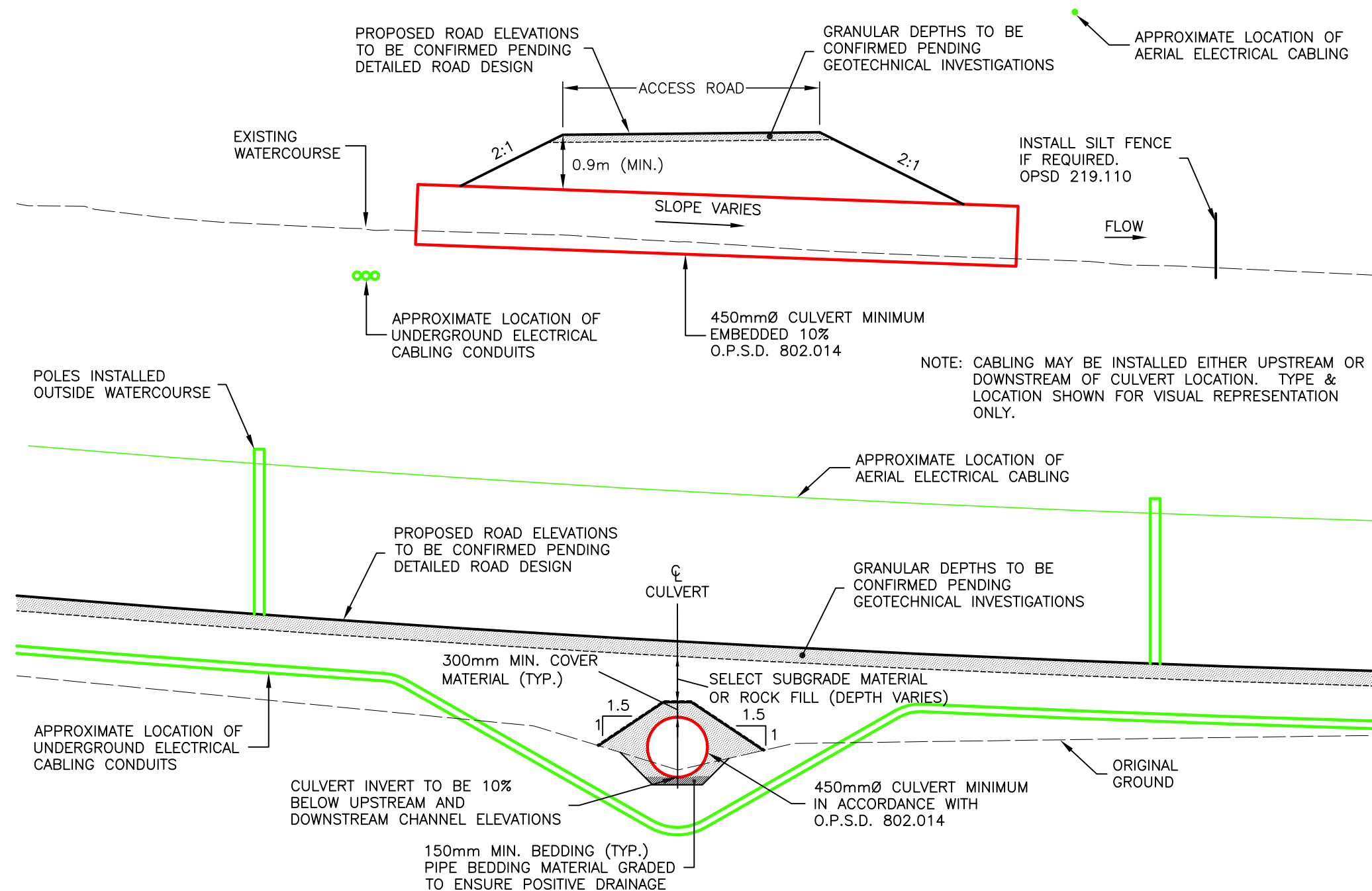
SCALE  
1:20,000

ISSUED FOR  
TENDER

ISSUED FOR  
CONSTRUCTION

DWG. No. PROJECT No. REV. No.  
WC1 10-212 0





**BOW LAKE WIND FARM WATER CROSSINGS**  
**FIGURE 3 - TYPICAL ROAD CROSSING c/w ELECTRICAL CABLING**  
 N.T.S.

# BOW LAKE WIND FARM WATER CROSSINGS

## TYPICAL ROAD CROSSING c/w ELECTRICAL CABLING

### GENERAL NOTES

1. FINAL CROSSING LOCATION AND ALIGNMENT TO BE DETERMINED PENDING DETAILED DESIGN OF ROAD AND GEOTECHNICAL INVESTIGATIONS.
2. ALL WORK SHALL ADHERE TO THE MNR'S GUIDELINES FOR ACCESS ROADS AND WATER CROSSINGS.
3. ALL WORK SHALL CONFORM TO THE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS) LATEST REVISION.
4. CONTRACTOR TO VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.
5. THE CONSTRUCTOR IS TO ADHERE TO THE REQUIREMENTS OF ALL REGULATORY WORK PERMITS.

### SEDIMENT CONTROL

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WHERE NECESSARY TO MINIMIZE ENVIRONMENTAL IMPACTS.
2. THE CONTRACTOR WILL BE IN CHARGE OF AND RESPONSIBLE FOR ALL ON-SITE WORK.
3. THE SITE SUPERVISOR WILL HOLD A MEETING OF ALL EQUIPMENT OPERATORS WORKING AT THE SITE TO MAKE THEM AWARE OF MINISTRY CONCERNS AND MEASURES TO CONTROL SEDIMENT. EXISTING VEGETATION IS TO BE PROTECTED TO THE MAXIMUM EXTENT POSSIBLE.
4. TO THE MAXIMUM EXTENT POSSIBLE, NO SEDIMENTS SHALL ENTER THE WATER DURING ANY ASPECT OF THE WORK. SHORT TERM INTRODUCTION OF SEDIMENTS SHALL BE KEPT TO THE LOWEST PRACTICAL LEVEL AND THERE SHOULD BE NO LONG TERM SOURCES OF SEDIMENT FROM THE COMPLETED PROJECT.
5. ANY EQUIPMENT WORKING NEAR THE WATER MUST BE FREE FROM ANY LEAKS OF OIL, GREASE OR OTHER CONTAMINANTS. THE EQUIPMENT SHALL BE CLEANED OF ALL CONTAMINATES PRIOR TO BEING BROUGHT ON SITE.
6. CONSTRUCTION OPERATIONS WILL BE UNDER THE DIRECTION OF THE SITE SUPERVISOR FOR THE CONTRACTOR AND INSPECTED BY THE SITE INSPECTOR FOR THE OWNER. ANY PROBLEMS OR CONCERNS WILL BE RESOLVED ON SITE WITH THE ENGINEER.

### CONSTRUCTION SEQUENCING (DRY CONDITION)

1. INSTALL SEDIMENT CONTROL MEASURES.
2. EXCAVATE FOR CULVERT BEDDING. EXCAVATED MATERIAL SHALL BE STOCKPILED FOR REUSE AWAY FROM WATERCOURSE.
3. INSTALL, COMPACT AND SHAPE BEDDING MATERIAL TO RECEIVE CULVERT.
4. INSTALL CULVERT AND EMBEDMENT MATERIAL COMPLETE WITH COMPACTION.
5. IF REQUIRED, INSTALL GEOTEXTILE PRIOR TO PLACING ROCK FILL.
6. COMPLETE PLACEMENT OF FILL MATERIAL TO SUBGRADE ELEVATION.
7. EXCAVATE CHANNEL REALIGNMENT, IF NECESSARY TO MATCH EXISTING CHANNEL DIMENSIONS.
8. RELOCATE ABANDONED CHANNEL SUBSTRATE TO REALIGNED CHANNEL, IF NECESSARY.

### CONSTRUCTION SEQUENCING (FLOWING CONDITION)

SHOULD INSTALLATION OF THE CULVERT BE REQUIRED DURING FLOWING CONDITIONS, THE DRY CONDITION SEQUENCING WOULD APPLY WITH THE FOLLOWING MODIFICATIONS FOR SITE DEWATERING.

- 1A. EXCAVATE SMALL SUMP IMMEDIATELY UPSTREAM OF CROSSING LOCATION.
- 1B. INSTALL APPROPRIATELY SIZED PUMPS AND HOSES, DISCHARGING TO A SEDIMENT DEWATERING BAG.
- 1C. SEDIMENT DEWATERING BAG SHALL BE LOCATED PRIOR TO THE DOWNSTREAM SEDIMENT CONTROL MEASURES.

ONCE FLOW HAS BEEN DIVERTED TO CULVERT, REMOVE THE PUMPS AND DEWATERING BAG AND REHABILITATE THE UPSTREAM SUMP TO PRECONSTRUCTION CONDITIONS.

### CULVERT INSTALLATION

1. CULVERT INSTALLATION WILL BE BY OPEN CUT.
2. BEDDING MATERIAL WILL BE GRANULAR A.
3. COVER AND EMBEDMENT MATERIAL WILL BE GRANULAR A, OR SAND WITH NO STONES LARGER THAN 25mm.
4. BACKFILL WILL BE SELECT SUBGRADE MATERIAL OR ROCK FILL.
5. CULVERT TO BE EMBEDDED 10% BELOW PROPOSED CHANNEL ELEVATIONS WITH INFILL COMPLETED BY NATURAL SEDIMENTATION.
6. PREFERRED INSTALLATION TO BE COMPLETED DURING DRY CONDITIONS. INSTALLATION DURING FLOWING CONDITION IS PERMISSIBLE WITH MODIFICATIONS TO THE CONSTRUCTION SEQUENCING, PENDING MNR APPROVAL.
7. CONSTRUCTION TO BE COMPLETED IN ACCORDANCE WITH OSPD 802.014.
8. SEDIMENT CONTROL MEASURES TO BE MONITORED CONTINUOUSLY DURING CONSTRUCTION.

### CABLING

1. UNDERGROUND CABLING IS PROPOSED TO BE INSTALLED BELOW GROUND, OUTSIDE OF THE PROPOSED CULVERT OCCUPATION.
2. UNDERGROUND CABLING WILL BE INSTALLED VIA THE DRY OPEN-CUT STREAM CROSSING OR ISOLATED OPEN-CUT STREAM CROSSING METHOD DEPENDING ON THE FLOW CONDITIONS AT TIME OF INSTALLATION.
3. UNDERGROUND CABLING WILL BE INSTALLED WITHIN CONDUITS SET APPROXIMATELY 1.0m BELOW GRADE AND COMMUNICATIONS CABLING MAY BE INSTALLED WITHIN THE SAME TRENCH.
4. LOCATION OF CABLING MAY BE EITHER UPSTREAM OR DOWNSTREAM OF THE CULVERT.
5. POLES FOR AERIAL CABLING WILL BE OUTSIDE THE WATERCOURSE.



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# Application for Work Permit Demande de permis d'exploitation

Part 1  
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I/We hereby agree to rely solely upon the terms and conditions of the written work permit issued pursuant to this application. Any changes, amendments to the written work permit must be approved in writing by MNR.

I certify the information given in this application is true.

### Remarque:

La délivrance de ce permis n'exonère pas le détenteur d'obtenir les autorisations qui pourraient être exigées par d'autres gouvernements, organismes, commissions, etc.

Si le demandeur en a besoin, il doit conserver un exemplaire de cette demande avant de la soumettre.

Les renseignements personnels exigés dans les présentes sont recueillis en vertu de l'article 13 de la Loi sur les terres publiques, S.R.O. 1990 et du règlement de l'Ontario 453/96 tel que modifié et du règlement 975 de l'Ontario tel que modifié. Ils seront utilisés selon les termes de la Loi et des règlements. Veuillez adresser toute question à ce sujet au bureau local du MRN. Une liste des bureaux du MRN avec adresses et numéros de téléphone se trouve au verso.

J'accepte de me conformer strictement aux conditions écrites du permis d'exploitation émis pour la présente demande. Tout changement ou toute modification audit permis d'exploitation doit être approuvé par écrit par le MNR.

Je certifie que les renseignements donnés ici sont véridiques.

Signature of Applicant/Signé par	Position/Poste	Date
Signature of contractor (if applicable) Signature de l'entrepreneur (s'il y a lieu) <b>To Be Determined</b>	Position/Poste	Date
Date Application Received in Office Date de réception de la demande		



Ontario

1) Include a sketch showing:/Joindre un dessin indiquant :

- detailed location of road or trail (i.e. how close to waterbodies, etc.)  
l'emplacement détaillé de la route ou du sentier (c. -à-d. distance à une surface d'eau, etc.);
- all water crossings  
toutes les traverses d'eau. **Please see attached Water Crossing Location Drawing 10-212-WC1 as well as Figure 4 - Temporary Crossing for Transmission Line & Notes**

2) Purpose/But

- Access to private property ☐ Yes ☒ No  
Accès aux propriétés privées ☐ Oui ☒ Non
- Access for resource extraction (e.g. mining, logging, mineral exploration)  
Accès pour extraction de ressources (p. ex. exploration minière, exploitation minière ou forestière) ☐ Yes ☒ No  
☐ Oui ☒ Non
- Other (specify) **Renewable Energy (Wind Farm) Development**  
Autres (préciser)

- 3) Type (check box) Summer Winter Year Round Haul Road Trail Other  
Type (cocher) ☐ Été ☐ Hiver ☒ Tout l'année ☐ Route de transport ☐ Piste ☐ Autre

4) Description

Length/Longueur	Travelled Road Width/ Largeur utile	Right-of-Way Width/ Largeur de l'emprise	5) Length of Time Required/Durée		
<b>To Be Determined During Detailed Design Stage</b>			<input checked="" type="checkbox"/> Long Term	<input type="checkbox"/> Short Term	No. of Months/Years N <sup>bre</sup> de mois/années
				<input type="checkbox"/> Cout terme	

6) Who will be responsible for maintenance?/Qui sera responsable de l'entretien?

Indicate Person, Company, Association, etc./Particulier, association, entreprise, etc.

**Nodin Kitagan Limited Partnership**

7) Source Gravel/Fill/Source de gravier/remblai

Please indicate intended source, if any/Nommer la source prévue, le cas échéant

**Gravel from within approved Right-of-Way, or from Permitted Aggregate Sites**

8) Water Crossing/Traverse d'eau (letters refer to sample sketch on reverse/les lettres correspondent à l'exemple de croquis au verso)

Stream Name/Nom du cours d'eau <b>Please see attached summary tables</b>			
Road Name/Nom de la route		Type of Fill to be Used at Crossing/Type de remblai utilisé	
Site Conditions/Condition du site			
Flood plain width (A)/ Largeur de la plaine inondable	Water Width (B)/ Largeur de l'eau	Water Depths (C, D, E)/ Profondeur de l'eau	Measured Flow Velocity/ Vitesse Mesurée du courant (ft/sec or m/sec) pi/s. ou m/s
Foundation Soil Description/Description du sous-sol			

8 a) Bridge/Pont **N/A**

Proposed Bridge – Length (F) Projet de pont – Longueur du pont	Clearance (G) Dégagement	Clear Span (H) Travée	Crib Height (I) Hauteur du berceau	Crib Width (J) Largeur du berceau	Deck Width (K) Largeur du tablier
Stringer Type/Type de longeron					
Stringer Spacing/Espacement des longerons					
Deck Details (L)/Détails du tablier					
Wear Surface (M)/Surface					
Curb Details (N)/Détails de la chaussée					
Guide Rail Details (O)/Détails du rail de guidage					

8 b) Culvert/Ponceau

Culvert Diameter/Diamètre du ponceau <b>Minimum 450mmØ</b>	Culvert Length/Longueur du ponceau <b>Based on Detailed Design</b>	Road Fill Height Above Creek Bottom/Hauteur du remblai de la route au fond du cours d'eau <b>Based on Detailed Design</b>
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Ministry of  
Natural  
Resources

Ministère des  
Richesses  
naturelles

# Application for Work Permit Demande de permis d'exploitation

Part 1  
Partie 1

**Applicant** (eg. landowner, licensee, permittee, etc.) (Cannot be a subcontractor)

**Demandeur** (ex. : propriétaires fonciers, détenteurs de permis, etc.) (Ne doit pas être un sous-traitant)

Name/Nom. <b>Nodin Kitagan 2 Limited Partnership</b>	Business Phone/Tél. (Bureau) <b>(403) 668-1575</b>	Residence Phone/Tél. (Résidence)
Mailing Address/Adresse postale <b>BluEarth Renewables Inc., 200, 4723 - 1st Street SW, Calgary, AB</b>	Postal Code/Code postal <b>T2G 4Y8</b>	

## Site Contractor or Person in Charge/Entrepreneur ou responsable sur place

Name/Nom	Business Phone/Tél. (Bureau)	Residence Phone/Tél. (Résidence)	Radio Contact Available/Radio <input type="checkbox"/> Yes/Oui <input type="checkbox"/> No/Non
Mailing Address/Adresse postale <b>TO BE DETERMINED</b>			Postal Code/Code postal

**Type of Work Proposed** - Please indicate and complete the appropriate additional part(s)

**Type de travaux prévus** - Préciser et remplir la partie appropriée

- ☐ Building Construction  
Construction de bâtiments
 ☐ Work on Shorelands  
Travaux sur des terres
 ☐ Work Within a Waterbody  
travaux submergés
 ☒ Roads or Trails or Water Crossing  
Routes ou piste ou traverse de cours d'eau

## Location of Work Permit Area/Emplacement

Township, Municipality, Basemap No. or Lot and Concession, Location, Subdivision or Mining Claim or U.T.M. No. Canton, municipalité, carte de base n° ou parcelle, concession, emplacement, subdivision ou N° du MTU ou concession minère <b>Water Crossings #31, 32, 33, 34, 35, 36, 37, 38, 39, 40 &amp; 41, as detailed on the enclosed Summary of Temporary Crossings Table</b>	
Other i.e. Waterbody (describe) Autre p. ex. cours d'eau (décrire) <b>Water Crossings #31, 32, 33, 34, 35, 36, 37, 38, 39, 40 &amp; 41, as detailed on the enclosed Watercourse Description Table</b>	
Camp Location Emplacement du camp	No. or Workers on Site Nbre de travailleurs sur le site

## Private Land/Terres privées

Private Lands of - Applicant/Appartenant au demandeur <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other (specify) Oui Non À d'autres (préciser qui)
--

## Effective Date(s)/Dates

Start Date/Date de début des travaux <b>Estimated as August 2013</b>	Finish Date/Date de fin des travaux <b>Estimated as December 2014</b>
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## Equipment to be Used/matériel qui sera utilisé

Please specify/Préciser <b>To Be Determined by the Contractor.</b>
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### Note:

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I certify the information given in this application is true.

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Je certifie que les renseignements donnés ici sont véridiques.

Signature of Applicant/Signé par	Position/Poste	Date
Signature of contractor (if applicable) Signature de l'entrepreneur (s'il y a lieu) <b>To Be Determined</b>	Position/Poste	Date
Date Application Received in Office Date de réception de la demande		



Ontario

1) Include a sketch showing:/Joindre un dessin indiquant :

- detailed location of road or trail (i.e. how close to waterbodies, etc.)  
l'emplacement détaillé de la route ou du sentier (c. -à-d. distance à une surface d'eau, etc.);
- all water crossings  
toutes les traverses d'eau.

Please see attached Water Crossing Location Drawing 10-212-WC1 as well as Figure 4 - Temporary Crossing for Transmission Line & Notes. Temporary Bridge (WC#40) will be in accordance with MNR's Portable Bridge Specifications.

2) Purpose/But

- Access to private property Yes ☐ No ☒  
Accès aux propriétés privées ☐ Oui ☒ Non
- Access for resource extraction (e.g. mining, logging, mineral exploration) Yes ☐ No ☒  
Accès pour extraction de ressources (p. ex. exploration minière, exploitation minière ou forestière) ☐ Oui ☒ Non
- Other (specify) Renewable Energy (Wind Farm) Development  
Autres (préciser)

- 3) Type (check box) Summer ☐ Winter ☐ Year Round ☒ Haul Road ☐ Trail ☐ Other ☐  
Type (cocher) ☐ Été ☐ Hiver ☒ Tout l'année ☐ Route de transport ☐ Piste ☐ Autre

4) Description

Length/Longueur	Travelled Road Width/ Largeur utile	Right-of-Way Width/ Largeur de l'emprise	Long Term <input checked="" type="checkbox"/> Long terme	Short Term <input type="checkbox"/> Court terme	No. of Months/Years N <sup>bre</sup> de mois/années
To Be Determined During Detailed Design Stage					

5) Length of Time Required/Durée

6) Who will be responsible for maintenance?/Qui sera responsable de l'entretien?

Indicate Person, Company, Association, etc./Particulier, association, entreprise, etc.

Nodin Kitagan 2 Limited Partnership

7) Source Gravel/Fill/Source de gravier/remblai

Please indicate intended source, if any/Nommer la source prévue, le cas échéant

Gravel from within approved Right-of-Way, or from Permitted Aggregate Sites

8) Water Crossing/Traverse d'eau (letters refer to sample sketch on reverse/les lettres correspondent à l'exemple de croquis au verso)

Stream Name/Nom du cours d'eau		Please see attached summary tables			
Road Name/Nom de la route			Type of Fill to be Used at Crossing/Type de remblai utilisé		
Site Conditions/Condition du site					
Flood plain width (A)/ Largeur de la plaine inondable	Water Width (B)/ Largeur de l'eau	Water Depths (C, D, E)/ Profondeur de l'eau	Measured Flow Velocity/ Vitesse Mesurée (ft/sec or m/sec) du courant pi/s. ou m/s		
Foundation Soil Description/Description du sous-sol					

8 a) Bridge/Pont

Proposed Bridge – Length (F) Projet de pont – Longueur du pont	Clearance (G) Dégagement	Clear Span (H) Travée	Crib Height (I) Hauteur du berceau	Crib Width (J) Largeur du berceau	Deck Width (K) Largeur du tablier
Stringer Type/Type de longeron					
Stringer Spacing/Espacement des longerons					
Deck Details (L)/Détails du tablier					
The temporary bridge at WC#40 will be in accordance with MNR's Portable Bridge Standards and Specifications. Dimensions to be determined during detailed design.					
Wear Surface (M)/Surface					
Curb Details (N)/Détails de la chaussée					
Guide Rail Details (O)/Détails du rail de guidage					

8 b) Culvert/Ponceau

Culvert Diameter/Diamètre du ponceau Minimum 450mmØ	Culvert Length/Longueur du ponceau Based on Detailed Design	Road Fill Height Above Creek Bottom/Hauteur du remblai de la route au fond du cours d'eau Based on Detailed Design
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**Bow Lake Wind Farm**  
**Summary of Temporary Crossings**  
**Prepared By: Tulloch Engineering**  
**January 28, 2013**

Water Body Number	Crossing Number	Crossing Type		Location	NAD 83 UTM Zone 16		Watercourse Characteristics	
					Northing	Easting	Thermal	Flow
7-15	24	Culvert	New	T-Line 1	5234749	685701	Cold	Permanent
7-16	25	Culvert	New	T-Line 1	5234717	685684	Cold	Permanent
10-25	26	Culvert	New	T-Line 1	5234621	685454	Cold	Permanent
10-28	27	Culvert	New	T-Line 1	5234558	685267	Cold	Permanent
10-27	28	Culvert	New	T-Line 1	5234465	685184	Unknown	Permanent
10-13	29	Culvert	New	T-Line 1	5234258	685100	Unknown	Permanent
10-16	30	Culvert	New	T-Line 1	5234161	685162	Unknown	Permanent
1-10	31	Culvert	New	T-Line 2a	5233766	687138	Unknown	Intermittent
1-9	32	Culvert	New	T-Line 2b	5233247	687595	Unknown	Intermittent
1-7	33	Culvert	New	T-Line 2b	5233107	687764	Unknown	Intermittent
1-8	34	Culvert	New	T-Line 2b	5232809	688183	Cold	Permanent
1-8	35	Culvert	New	T-Line 2b	5232759	688350	Cold	Permanent
1-8	36	Culvert	New	T-Line 2b	5232740	688419	Cold	Permanent
0-9	37	Culvert	New	T-Line 2b	5232719	688490	Cold	Permanent
0-4	38	Culvert	New	T-Line 2b	5231974	689015	Cold	Intermittent
0-4	39	Culvert	New	T-Line 2b	5231953	688987	Cold	Intermittent
0-10	40	Bridge	New	T-Line 2b	5231383	689237	Warm	Permanent
5-3	41	Culvert	New	T-Line 2b	5229595	689481	Unknown	Intermittent






Notes






1. Water Body Number as identified in the Water Assessment and Water Body Report; Stantec
2. Crossing Number as identified on Water Crossing Locations Drawing, 10-212-WC1; Tulloch Engineering
3. Watercourse Description and Photographs Attached for Additional Information




**Bow Lake Wind Farm**  
**Watercourse Descriptions for Temporary Crossings**  
**Prepared By: Tulloch Engineering**  
**January 28, 2013**

Crossing Number	Water Body Number	Watercourse Description	Photo
7-15	24	Flow originating from upstream seep. Channel dominated by riffle morphology with sections of sub-surface flow. Riparian vegetation consisting of mature mixed forest. Bankfull width= 4m, wetted width =0.3m, water depth = 5cm. Substrate= sand, silt and detritus.	
7-16	25	Flow originating from upstream seep. Channel dominated by riffle morphology with sections of sub-surface flow. Riparian vegetation consisting of mature mixed forest. Bankfull width= 3m, wetted width =1.2m, water depth = 5cm. Substrate= sand, silt and detritus.	
10-25	26	Flow dominated by riffle and run morphology. Undercut banks observed during field investigations. Riparian area dominated by mountain maple, yellow birch, and sugar maple. Bankfull width = 4.5m, wetted width= 2.5 m. Substrate= cobble, gravel, sand, and boulder.	
10-28	27	Seep originating from side of steep slope. Generally unchannelized and disappears underground before crossing McKay Rd.	
10-27	28	Dominant run morphology. Riparian areas dominated by sugar maple and yellow birch. Bankfull width= 2m, wetted width = 0.7m, water depth = 8cm.	



Crossing Number	Water Body Number	Watercourse Description	Photo
10-13	29	Dominant pool morphology. Riparian area dominated by sugar maple and ferns. Several locations with undercut banks. Bankfull width = 3m, wetted width = 0.6m, water depth = 4 cm. Substrate= cobble, gravel, sand, boulder, and detritus.	
10-16	30	Dominant run morphology. Riparian area dominated by maple and ferns. Low gradient area with jewelweed and grasses adjacent to, and on edge of poorly defined channel. Bankfull width= 1.5m, wetted width= 0.7m, substrate- silt and detritus.	
1-10	31	Shallow channel with small pools; Riparian vegetation dominated by immature sugar maple and eastern white cedar. Bankfull width = 0.6 m Substrate = Clay, boulder, silt and muck	
1-9	32	High gradient. Channel dominated by pool morphology. Riparian vegetation dominated by fern and sugar maple. Bankfull width = 1m, wetted width= 0.5m, water depth= 4cm. Substrate= boulder, cobble, gravel and detritus.	
1-7	33	High gradient, upstream of reach of 1-8. Surface water confined to a series of isolated pools at the time of field investigations. Riparian vegetation was dominated by fern and sugar maple. Bankfull width = 0.7m, wetted width = 0.5m, water depth = 2cm. Substrate = cobble, boulder, sand and detritus.	

Crossing Number	Water Body Number	Watercourse Description	Photo
1-8	34	Flow dominated by pool morphology. Riparian vegetation dominated by jewelweed, yellow birch, sugar maple and fern. Bankfull width= 1m, wetted width = 0.5m, water depth =7 cm. Substrate= gravel, detritus, boulder and cobble.	
1-8	35	Flow dominated by pool morphology. Riparian vegetation dominated by jewelweed, yellow birch, sugar maple and fern. Bankfull width= 1m, wetted width = 0.5m, water depth =7 cm. Substrate= gravel, detritus, boulder and cobble.	
1-8	36	Flow dominated by pool morphology. Riparian vegetation dominated by jewelweed, yellow birch, sugar maple and fern. Bankfull width= 1m, wetted width = 0.5m, water depth =7 cm. Substrate= gravel, detritus, boulder and cobble.	
0-9	37	Stream with riffle, run and pool sequences; minor undercutting of banks; riparian dominated by yellow birch, sugar maple, fern. Bankfull width = 3.0 m Wetted width = 2.0 m Water depth = 10 cm Substrate = Boulder, cobble, gravel and sand.	
0-4	38	Low water at the time of field investigations restricted to pools and flats. Riparian vegetation dominated by sugar maple, balsam fir and fern. Bankfull width = 1.5m, wetted width = 0.7m, water depth = 5cm. Substrate= sand, boulder, cobble, detritus and gravel.	

Crossing Number	Water Body Number	Watercourse Description	Photo
0-4	39	Low water at the time of field investigations restricted to pools and flats. Riparian vegetation dominated by sugar maple, balsam fir and fern. Bankfull width = 1.5m, wetted width = 0.7m, water depth = 5cm. Substrate= sand, boulder, cobble, detritus and gravel.	
0-10	40	Lake and wetland. Bankfull width = 30 m, wetted width = 25m, water depth = >1.2m. Substrate= gravel, sand, detritus and muck.	
5-3	41	Dominant flat morphology. Riparian vegetation dominated by maple and fern. Bankfull width = 1.3m, wetted width= 0.5m, water depth = 4cm, substrate= gravel, detritus, muck, cobble and boulder.	

#### Notes

1. Water Body Number as identified in the Water Assessment and Water Body Report; Stantec
2. Crossing Number as identified on Water Crossing Locations Drawing, 10-212-WC1; Tulloch Engineering

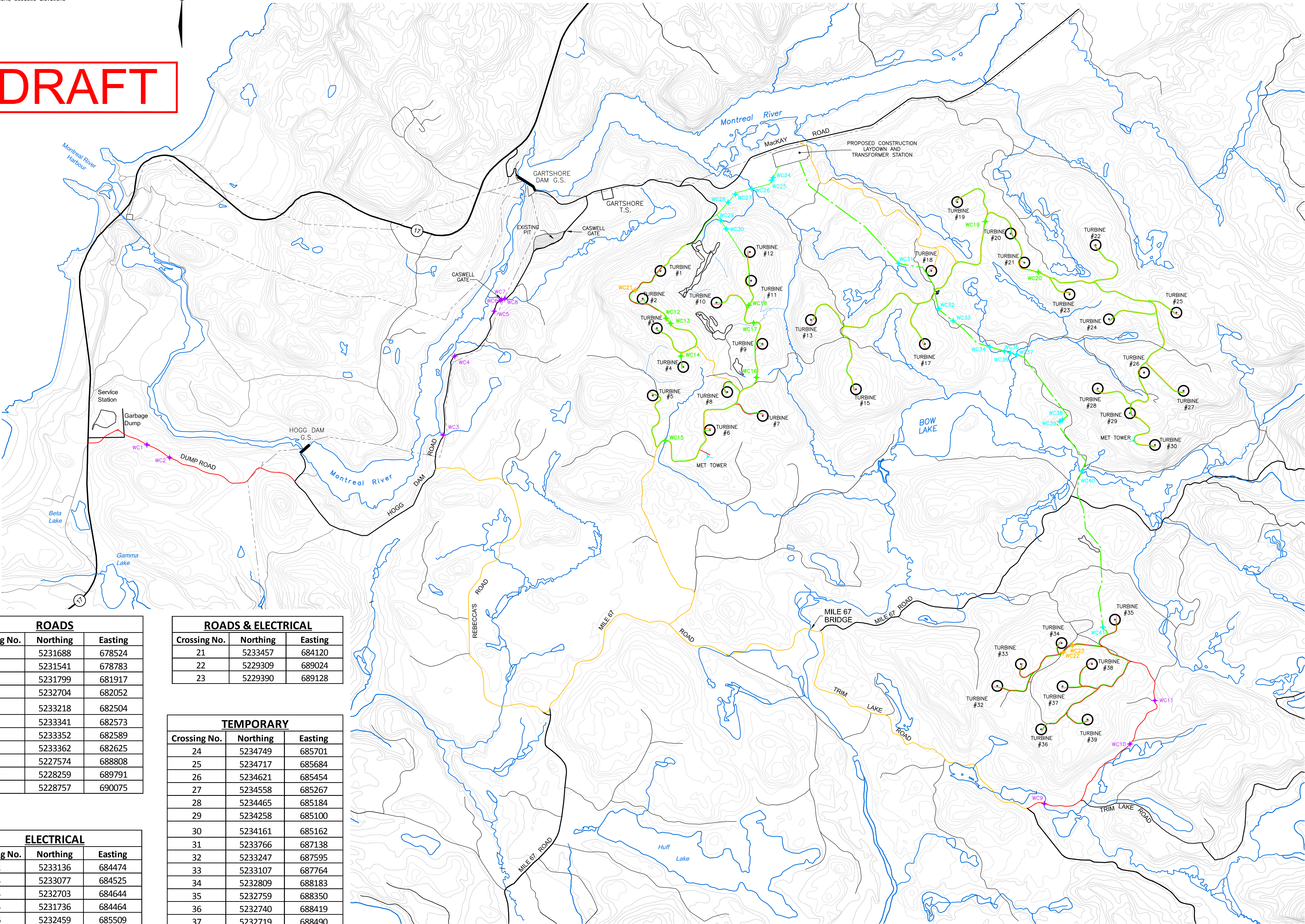


**Horizontal Datum:**  
North American Datum 1983 (NAD83)  
6 Degree Universal Transverse Mercator  
(UTM) Grid Coordinates, Zone 16.

**Vertical Datum:**  
Canadian Geodetic Vertical Datum,  
1928 Adjustment, Geodetic Elevations



DRAFT



ROADS		
Crossing No.	Northing	Easting
1	5231688	678524
2	5231541	678783
3	5231799	681917
4	5232704	682052
5	5233218	682504
6	5233341	682573
7	5233352	682589
8	5233362	682625
9	5227574	688808
10	5228259	689791
11	5228757	690075

ROADS & ELECTRICAL		
Crossing No.	Northing	Easting
21	5233457	684120
22	5229309	689024
23	5229390	689128

TEMPORARY		
Crossing No.	Northing	Easting
24	5234749	685701
25	5234717	685684
26	5234621	685454
27	5234558	685267
28	5234465	685184
29	5234258	685100
30	5234161	685162
31	5233766	687138
32	5233247	687595
33	5233107	687764
34	5232809	688183
35	5232759	688350
36	5232740	688419
37	5232719	688490
38	5231974	689015
39	5231953	688987
40	5231383	689237
41	5229595	689481

ELECTRICAL		
Crossing No.	Northing	Easting
12	5233136	684474
13	5233077	684525
14	5232703	684644
15	5231736	684464
16	5232459	685509
17	5233083	685476
18	5233288	685422
19	5234245	688133
20	5233667	688740



REVISIONS

No.	DATE	REMARKS

LEGEND

EXISTING PUBLIC ROAD	
EXISTING PUBLIC TRAIL	
EXISTING WATERCOURSE	
MARSH AREA	
EXISTING 115KV POWER LINE	
WIND TURBINE LOCATION	
PERMANENT MET TOWER LOCATION	
"REA" ROADS	
"FMP" ROADS	
ELECTRICAL LINE	
ROAD CROSSING LOCATIONS	
ROADS	
ELECTRICAL	
ROADS & ELECTRICAL	
TEMPORARY	

ROAD ALIGNMENTS AND TURBINE  
CONFIGURATION SUBJECT TO SITE  
MICRO-SITING AND GEOTECHNICAL  
INVESTIGATIONS.

PRELIMINARY

ISSUED JANUARY 28, 2013

PROJECT TITLE

BOW LAKE WIND  
FARM

DRAWING TITLE

WATER CROSSING  
LOCATIONS

LOCATION

MONTREAL RIVER,  
ON.

DATE  
SEPT. 24, 2010

DRAWN  
DS

CHECKED  
CLK

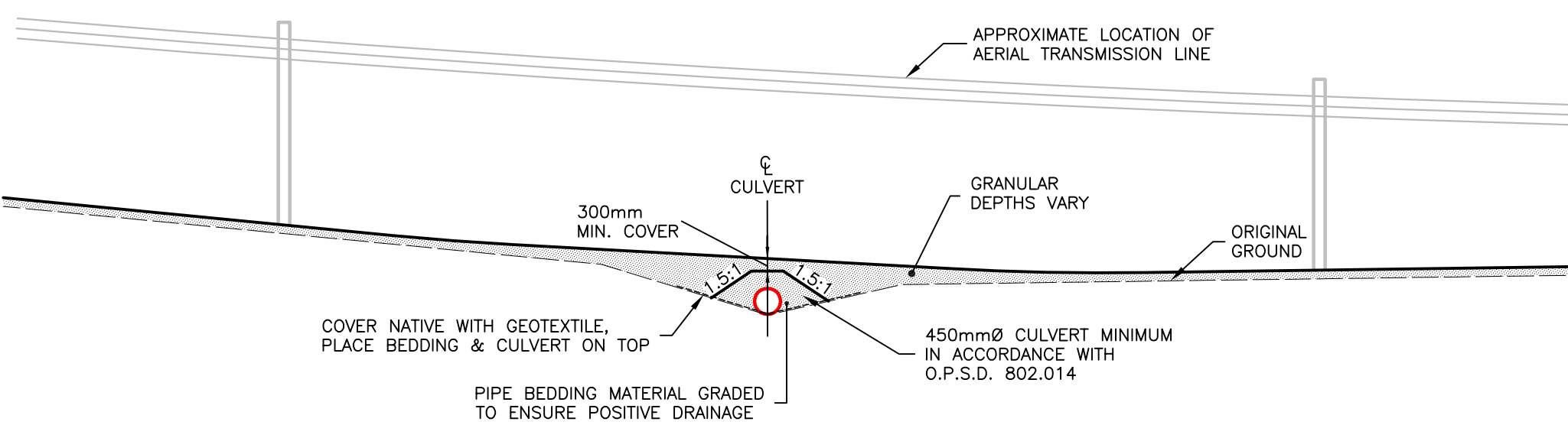
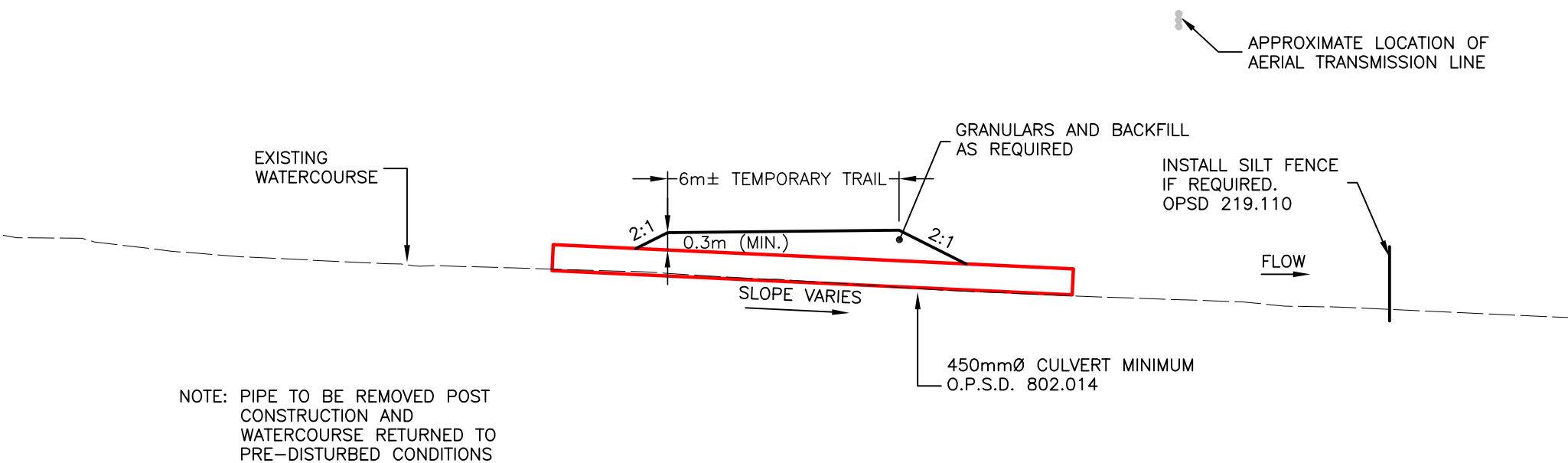
SCALE  
1:20,000

ISSUED FOR  
TENDER

ISSUED FOR  
CONSTRUCTION

DWG. No. PROJECT No. REV. No.  
WC1 10-212 0





**BOW LAKE WIND FARM WATER CROSSINGS**  
**FIGURE 4 - TEMPORARY CROSSING for TRANSMISSION LINE**  
 N.T.S.

# BOW LAKE WIND FARM WATER CROSSINGS

## TEMPORARY CROSSING for TRANSMISSION LINE

### GENERAL NOTES

1. FINAL CROSSING LOCATION AND ALIGNMENT TO BE DETERMINED PENDING ROUTING OF ACCESS TRAIL.
2. ALL WORK SHALL ADHERE TO THE MNR'S GUIDELINES FOR ACCESS ROADS AND WATER CROSSINGS.
3. ALL WORK SHALL CONFORM TO THE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS) LATEST REVISION.
4. CONTRACTOR TO VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.
5. THE CONSTRUCTOR IS TO ADHERE TO THE REQUIREMENTS OF ALL REGULATORY WORK PERMITS.

### SEDIMENT CONTROL

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED WHERE NECESSARY TO MINIMIZE ENVIRONMENTAL IMPACTS.
2. THE CONTRACTOR WILL BE IN CHARGE OF AND RESPONSIBLE FOR ALL ON-SITE WORK.
3. THE SITE SUPERVISOR WILL HOLD A MEETING OF ALL EQUIPMENT OPERATORS WORKING AT THE SITE TO MAKE THEM AWARE OF MINISTRY CONCERNS AND MEASURES TO CONTROL SEDIMENT. EXISTING VEGETATION IS TO BE PROTECTED TO THE MAXIMUM EXTENT POSSIBLE.
4. TO THE MAXIMUM EXTENT POSSIBLE, NO SEDIMENTS SHALL ENTER THE WATER DURING ANY ASPECT OF THE WORK. SHORT TERM INTRODUCTION OF SEDIMENTS SHALL BE KEPT TO THE LOWEST PRACTICAL LEVEL AND THERE SHOULD BE NO LONG TERM SOURCES OF SEDIMENT FROM THE COMPLETED PROJECT.
5. ANY EQUIPMENT WORKING NEAR THE WATER MUST BE FREE FROM ANY LEAKS OF OIL, GREASE OR OTHER CONTAMINANTS. THE EQUIPMENT SHALL BE CLEANED OF ALL CONTAMINATES PRIOR TO BEING BROUGHT ON SITE.
6. CONSTRUCTION OPERATIONS WILL BE UNDER THE DIRECTION OF THE SITE SUPERVISOR FOR THE CONTRACTOR AND INSPECTED BY THE SITE INSPECTOR FOR THE OWNER. ANY PROBLEMS OR CONCERNS WILL BE RESOLVED ON SITE WITH THE ENGINEER.

### TEMPORARY CROSSINGS

1. GEOTEXTILE SHALL BE LAID OVER WATERCOURSE AND SURROUNDING HABITAT AREA PRIOR TO PLACEMENT OF GRANULARS AND CULVERTS.
2. ALL MATERIALS SHALL BE REMOVED POST CONSTRUCTION INCLUDING GEOTEXTILE TO RETURN SITE TO PRE-CONSTRUCTION CONDITIONS.

### CONSTRUCTION SEQUENCING (DRY CONDITION)

1. INSTALL SEDIMENT CONTROL MEASURES.
2. EXCAVATE FOR CULVERT BEDDING. EXCAVATED MATERIAL SHALL BE STOCKPILED FOR REUSE AWAY FROM WATERCOURSE.
3. INSTALL, COMPACT AND SHAPE BEDDING MATERIAL TO RECEIVE CULVERT.
4. INSTALL CULVERT AND EMBEDMENT MATERIAL COMPLETE WITH COMPACTION.
5. IF REQUIRED, INSTALL GEOTEXTILE PRIOR TO PLACING ROCK FILL.
6. COMPLETE PLACEMENT OF FILL MATERIAL TO SUBGRADE ELEVATION.
7. EXCAVATE CHANNEL REALIGNMENT, IF NECESSARY TO MATCH EXISTING CHANNEL DIMENSIONS.
8. RELOCATE ABANDONED CHANNEL SUBSTRATE TO REALIGNED CHANNEL, IF NECESSARY.

### CONSTRUCTION SEQUENCING (FLOWING CONDITION)

SHOULD INSTALLATION OF THE CULVERT BE REQUIRED DURING FLOWING CONDITIONS, THE DRY CONDITION SEQUENCING WOULD APPLY WITH THE FOLLOWING MODIFICATIONS FOR SITE DEWATERING.

- 1A. EXCAVATE SMALL SUMP IMMEDIATELY UPSTREAM OF CROSSING LOCATION.
- 1B. INSTALL APPROPRIATELY SIZED PUMPS AND HOSES, DISCHARGING TO A SEDIMENT DEWATERING BAG.
- 1C. SEDIMENT DEWATERING BAG SHALL BE LOCATED PRIOR TO THE DOWNSTREAM SEDIMENT CONTROL MEASURES.

ONCE FLOW HAS BEEN DIVERTED TO CULVERT, REMOVE THE PUMPS AND DEWATERING BAG AND REHABILITATE THE UPSTREAM SUMP TO PRECONSTRUCTION CONDITIONS.

### CULVERT INSTALLATION

1. CULVERT INSTALLATION WILL BE BY OPEN CUT.
2. BEDDING MATERIAL WILL BE GRANULAR A.
3. COVER AND EMBEDMENT MATERIAL WILL BE GRANULAR A, OR SAND WITH NO STONES LARGER THAN 25mm.
4. BACKFILL WILL BE SELECT SUBGRADE MATERIAL OR ROCK FILL.
5. PREFERRED INSTALLATION TO BE COMPLETED DURING DRY CONDITIONS. INSTALLATION DURING FLOWING CONDITION IS PERMISSIBLE WITH MODIFICATIONS TO THE CONSTRUCTION SEQUENCING, PENDING MNR APPROVAL.
6. CONSTRUCTION TO BE COMPLETED IN ACCORDANCE WITH OSPD 802.014.
7. SEDIMENT CONTROL MEASURES TO BE MONITORED CONTINUOUSLY DURING CONSTRUCTION.



# **Appendix C**

## **Fire Prevention and Preparedness Plan**



# **Bow Lake Wind Farm**

## *Fire Prevention and Preparedness Plan*

30 January, 2013

Prepared By:

Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership

200, 4723 -1 Street SW

Calgary AB T2G 4Y8

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# 1 INTRODUCTION

## 1.1 Project Description

Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership, through its General Partners Shongwish Nodin Kitagan GP Corp. and Shongwish Nodin Kitagan 2 GP Corp. (the “Proponent”) are proposing to develop Phase 1 and Phase 2 of the Bow Lake Wind Farm on Provincial Crown Land within the unorganized Townships of Smilsky and Peever, in the District of Algoma, Ontario (the “Project”). The Project is located approximately 80 km north of Sault Ste. Marie and roughly six kilometers east of Montreal River Harbour. The Project has three Feed-in Tariff Contracts with the Ontario Power Authority for the sale of electricity generated by the Project.

As part of the Project’s design, construction, and operational activities, and understanding the Project falls within the territory of the Batchewana First Nation of Ojibways (“BFN”), the Project has engaged directly with the BFN. As a result of these efforts, the BFN:

- Has entered the Project as partner;
- Has entered into various business and relationship agreements with the Project to guide Project activities; and
- Has issued a Development and Power Generation Permit, which provides the BFN’s approval to construct, operate, repower, and decommission the Project.

The English name of the Project is the *Bow Lake Wind Farm*, however, the BFN know and refer to the Project as *Chinodin Chigumi Nodin Kitagan*.

As proposed, the Project will include 36 wind turbines for a total maximum installed nameplate capacity of up to 58.32 MW. In addition, the operation of the Project will require 34.5 kV above and below ground electrical collector and communication lines, pad-mounted transformers, crane pads, two permanent meteorological towers, access roads, operations and maintenance building, welfare buildings, a transformer station, construction compounds and laydown areas, and other ancillary facilities. The Project will connect to the provincial power grid via existing 115 kV transmission lines located adjacent to the Project’s transformer station.

The requirements for this *Fire Prevention and Preparedness Plan* (“FPPP”) are defined in Section 7.11 of the Ministry Natural Resources’ (“MNR”) *Approval and Permitting Document for Renewable Energy Projects* (September, 2009) (“APRD”). The *Modifying Industrial Operations Protocol, 2008* (the “Protocol”) has also been used to guide the preparation of this report. The FPPP identifies potential fire risks throughout the Project’s lifecycle and provides protection and mitigation measures to address these potential risks. The FPPP forms one of the component pieces of the APRD and REA application.

## **1.2 Guidance Documents**

### **1.2.1 Approval and Permitting Requirements Document**

Any renewable energy project proposed on Crown Land, or land within a fire region, must follow the MNR's APRD for forest fire prevention and preparedness. Under the APRD, fire risks are to be addressed through all phases of a project, including land clearing and disposal of debris, providing information on:

- fire hazard assessment (e.g., identification of fuel sources at the project location);
- risk assessment of ignition;
- ignition prevention measures, and if necessary, mitigation of potential for ignitions when operational;
- fire preparedness plan, including a suppression plan and an emergency plan; and
- fire protection of the facility from wildfire threats.

**Section 2** covers the first three requirements above; **Sections 3** and **4** address the last two requirements above.

### **1.2.2 Modifying Industrial Operations Protocol**

The Protocol provides direction to forest managers and industrial operators for the prevention and suppression of wildfires in forested areas where operations take place during the fire season, normally April 1– October 31.

The main goals of the protocol are twofold: (i) ensure that industrial operations are conducted in a manner that best prevents wildfires from starting; and (ii) ensure that industrial operators are adequately trained and have appropriate equipment available so as to safely control and extinguish fires resulting from their operations.

### **1.2.3 Burn Plan & Permit**

The development of a burn plan and the acquisition of a burn permit are required by the MNR for any activities involving burning at the Project site. As Project activities are not presently envisioned to involve burning for the disposal of debris, neither a burn plan or burn permit are required for the Project. However, should this need change, a burn plan will be filed with and permit sought from the MNR.

## **2 FIRE HAZARD ASSESSMENT**

### **2.1 Construction Phase**

#### **2.1.1 Land Clearing**

*Overview*

Development of the Project requires land clearing at the following work areas: WTG sites, transformer station, collector lines, the operation and maintenance building, and concrete batch plants, among other ancillary facilities.

### ***Risk of Ignition***

Of the anticipated Project activities, tree clearing presents the greatest risk for fire when conducted during the fire season, normally April 1– October 31. However, the Project area is predominantly deciduous forest, and according to the Protocol, “Deciduous dominated mixed woods (<25% conifer)” are considered to be a “Low Hazard” fuel group. As the areas requiring clearing are relatively small compared to forest harvest operations, the fuel group is considered “Low Hazard” and clearing contractors will have experience with fire prevention measures, the risk of ignition is expected to be small.

### ***Mitigation and Ignition Prevention Measures***

Land clearing will be performed in accordance with the Protocol. Specifically, during clearing activities in the fire season, the fire prevention and preparedness requirements specified in the Annual Work Schedule of the Sustainable Forest License holder will be met, including the following general prevention measures:

- Open fires for cooking are not permitted. Fires are permitted in wood stoves approved under the Forest Fire Prevention Act.
- No smoking is permitted in a forested area while walking, working or operating skidders. Smoking materials will be thoroughly extinguished on mineral soil or bare rock. On all other vehicles, smoking is permitted provided the equipment has a suitable ashtray and is not an open cab or canopy.
- All power saws must have approved mufflers and each operator will have a serviceable fire extinguisher rated for ABC type fires with a minimum 225 grams of dry chemical. Hot power saws will be set down on stumps, bare rocks or mineral soil away from refueling sites. Power saws will not be started within 3 metres of a refueling site. Power saws must be allowed to cool before refueling.
- No welding is to be done within three metres of a forested area or flammable material unless the article or machine is situated on or over mineral soil. If this is impossible, welding blankets must be used under the area being welded. Welding blankets are also to be used whenever there is a chance of any hot embers falling onto or into any combustible material. No welding will be conducted within 7.6 metres of a fuelling area. A serviceable 6A80BC fire extinguisher will be readily available.
- Heavy equipment will be equipped with a serviceable 6A80BC fire extinguisher. Haul trucks, buses, vans, ½ tons, ¾ tons and 1 ton trucks will have serviceable 5 lb. A.B.C. extinguishers.
- Any equipment engaged in site preparation shall have a 20-gallon canopy tank or a pack pump full of water that is readily available and serviceable at a minimum. Site preparation operations will also have readily available communications equipment in place to report a fire.
- All mechanical equipment must be equipped with a proper spark arrestor and be kept free of accumulations of flammable debris.
- Supervisory staff must be familiar with operating fire suppression equipment.
- When required, fire equipment caches will be located no more than 20 minutes (round trip) from the operation.



## **2.1.2 Operation of Heavy Machinery**

### ***Overview***

General construction activities at the Project site will involve the operation of heavy machinery and large vehicles. Gasoline and diesel will be the primary fuels used on-site.

### ***Risk of Ignition***

The presence of gasoline and diesel in any setting poses some risk of ignition. However, all such fuels will be handled with care according to the provisions in the *Environmental Effects Monitoring Plan*. Therefore, the risk of ignition is expected to be low. More specifically, fuel storage and refuelling activities will be undertaken on gravel-covered road and work surfaces, which, according to the Protocol, classifies the activities as Low Risk.

### ***Mitigation and Ignition Prevention Measures***

On-site storage of fuel will be necessary for certain construction equipment and will be securely stored as per provincial and federal codes and guidelines for the storage of fuel, oil, and lubricants. As mentioned fuel storage and refueling will be undertaken on gravel-covered road and work surfaces. Additional measures are set out in the *Environmental Effects Monitoring Plan* contained in the *Design and Operations Report*.

## **2.1.3 Disposal of Debris and Waste**

### ***Overview***

General construction and tree removal activities taking place during construction are expected to generate waste in the form of trees, brush, wood, rough lumber including pallets and other wood packaging materials, bark, wood chips or bark chips, and firewood of local tree species. Lumber will be hauled and delivered in accordance with the terms of the Forest Resource License obtained for the Project. All non-toxic and non-hazardous waste will be disposed of at the Montreal River Waste Facility, the nearest waste facility within the District of Algoma. With the exception of slash and chipped tree and brush materials from clearing activities, all waste will be removed off-site for disposal and no slash will be burned on-site.

### ***Risk of Ignition***

As no burning will occur on-site, the risk of ignition as a result of generated waste and debris is minimal.

### ***Mitigation and Ignition Prevention Measures***

Waste and debris will be removed off-site for disposal, thus negating the need for any burning activities on-site.

## **2.1.4 Increased Activity in the Area**

### ***Overview***

Increased activity in the Project area will occur upon the arrival of construction personnel. If unmitigated, such activity increases the risk of human caused fires.

### ***Risk of Ignition***

Construction personnel will be experienced in working on sites where best practices for safety are in place. Necessary precautions will be taken where risk of fire or other hazards present a concern. Therefore, the risk of fire as a result of human activity in the area is expected to be low.

### ***Mitigation and Ignition Prevention Measures***

Construction personnel will be made aware of preventative measures to reduce risk of fire and will behave in a manner that is in accordance to the *Forest Fire Prevention Act*. The safety management plan for the site will include site-specific fire prevention and response measures as required by the Protocol and industry practice. The on-site safety manager will be responsible for ensuring that the prevention measures are adhered to, and that equipment required for prompt response to fires is readily accessible. Prevention signage and increased security and site monitoring will be implemented on-site during periods of high fire hazard. The Emergency Plan presented in the Project's *Design and Operations Report* includes the MNR Forest Fire Reporting Number 310-3473 (310-FIRE).

## **2.2 Operations and Maintenance Phase**

The following sections discuss the potential for ignition risk and specific mitigation measures associated with the operations phase of the Project. In addition to these specific mitigations, the operation of the Project will result in increased monitoring of fire conditions and an anticipated increased speed of reporting of any fires that may develop as a result of the ongoing daytime presence of operations staff at the Project location. Forest fire reporting protocols and fire response responsibilities will be part of the Project's site Environment, Health and Safety Plan. The Project operations staff will have constant secure communications to facilitate notification of the appropriate fire authorities. The presence of well maintained and well constructed access roads will also facilitate access for firefighting crews in the event that a forest fire does occur.

### **2.2.1 Increased Public Access**

#### ***Overview***

Improved access to the Project area from new roads and road upgrades may result in an increased risk of human caused forest fires. Poorly maintained ATVs and similar vehicles using trails along dried grasses in overhead transmission line or road corridors may present a further risk of ignition.

#### ***Risk of Ignition***

The forested area in the vicinity of the Project is already accessible to the public as a result of number of existing roads. Additional access roads constructed for the Project will also be publically accessible, with the exception of limited stretches of roads gated to prevent access for safety or environmental reasons.

The access roads constructed for the project will have a gravel surface, reducing the potential for ignition of vegetation from vehicle travel on these access roads. It is expected that the risk of ignition, due to the incremental increase in human traffic and activity, will be low.

### ***Mitigation and Ignition Prevention Measures***

Additional access roads constructed for the purpose of the Project will be generally publically accessible. However, the ongoing operation of the Project will require constant daytime presence of Project staff which is anticipated to improve the ability to identify, report and respond to any fires that may develop. Further, the road surfaces that are anticipated to be travelled by the public within the Project location are gravelled, reducing the potential for fire ignition associated with vehicle travel.

## **2.2.2 Electrical Generation**

### ***Overview***

The Project may increase the risk of forest fires due to fires occurring at project infrastructure. Fires at WTGs or the associated electrical infrastructure can be caused by lightning strike, mechanical breakdown or failure in electrical installations.

### ***Risk of Ignition***

WTGs are regularly struck by lightning due to their size and material. As such, it is standard practice to design WTGs with lightning protection measures (i.e. grounding systems) to minimize the potential for equipment damage and fire ignition. As a result fires ordinarily do not occur due to grounding systems that are specifically designed to handle the voltages and currents associated with lightning strikes. A similar system is integrated into the design and construction of the WTGs proposed for the Project, and is discussed in greater detail below. In the event of the grounding system breaking down or otherwise not functioning as intended, there is a risk that the blades could ignite, with combustible material falling to the ground. By maintaining a cleared area around the base of each WTG, the risk that such a fire would then spread to the surrounding forest is minimized.

Although very rare, and as is the case for any equipment with moving parts, mechanical breakdown creates a potential fire risk for WTGs. Examples of mechanical breakdowns that could result in fires occurring include failure of cooling fans or pumps, failures of oil pumps, or failures of gears or bearings within gearboxes or generators, however these types of significant failures are detectable by the WTG monitoring system sensors located in the nacelle and the electronics system and the WTG would automatically shut down. Only in the event that the WTG's monitoring system failed to detect the malfunction, heat generated from friction could either not be adequately dissipated or could exceed the capacity of the cooling systems. The resulting buildup of heat could ignite combustible materials (of which there are very few) within the nacelle.

The majority of materials within the nacelle are not combustible, consisting of largely steel. Only lubricants, some electronics and cable insulators would be susceptible to combustion in such an event. Fires occurring within the nacelle ordinarily burn out within the nacelle although a small risk exists that combustible material could fall to the ground below. In either instance, the WTG monitoring system will have notified the operations staff of an problem with the WTG in question, and operations staff would implement the Project's fire notification and response procedures.

Improper electrical installations can pose a fire risk, however, like mechanical failures, they are rare. Improper tightening of contacts, resulting in high contact resistance and heat generation is one of the more common causes of fires due to electrical failure. This type of failure can occur within WTGs or within the associated electrical infrastructure. Protocols, pre-operations testing and commissioning, and training for WTG installers are very robust and these types of failures within WTGs are very rare today. The installation of electrical equipment such as transformers, switchgear and metering is similarly guided by stringent codes and protocols, and failures within equipment of that nature is similarly rare in modern installations. Nevertheless, for each of the components of the Project discussed above, a risk exists that improper installation or electrical contact failure could result in a fire.

For fires within the nacelle, the risks of the fire spreading are identical to those discussed above for mechanical failure. For electrical fires along the collector system route, or within the transformer station, the operationally cleared area is considered to be a “Very Low Hazard” fuel group by the Protocol. The risk of fire spreading to the surrounding forest is therefore also considered to be minimal for these areas.

### ***Mitigation and Ignition Prevention Measures***

Lighting protection is a passive system that is integrated into the design of each WTG. The role of the lighting protection (grounding) system is to safely transfer the electrical energy from a lightning strike to the earth while protecting personnel and not damaging the WTG. The lightning protection system also interconnects with the WTG grounding system to allow for the normal operation of the electrical equipment within the WTG. To achieve the required lightning protection, a system of blade receptors, connections and conductors create pathway of low electrical resistance for the energy delivered by a lightning strike.

A WTG lightning protection system generally includes:

- Blade receptors and grounding conductors (either cable or metal braiding) within each blade to provide a path for the electrical energy in the event of a lightning strike to one of the blades;
- Grounding conductors are installed at various locations within the nacelle;
- Grounding conductors connecting the blade and nacelle are routed down the WTG tower to carry the electricity safely from the nacelle and blades to the foundation grounding system;
- Foundation grounding system (including multiple grounding rods and conductors) is installed in the earth immediately surrounding the WTG foundation and may be connected to the metal foundation reinforcement structure, delivering the energy from the lightning strike to the earth. All WTGs in the park are also interconnected with a grounding conductor to further lower the electrical resistance to earth.

Beyond protections inherent in the WTGs themselves, the Project area is predominantly deciduous forest, and according to the Protocol, “Deciduous dominated mixed woods (<25% conifer)” are considered to be a “Low Hazard” fuel group. Furthermore, operational areas will remain cleared for the lifetime of the Project. These include an area beneath each WTG approximately 100 m in diameter, a 40 m radius around the transformer station, and a 15 m to 20 m corridor around collector lines. In these operationally cleared areas, trees will be removed regularly, but live grasses and shrubs will remain. All slash from operationally cleared areas will be removed. According to the Protocol, sites of this nature are considered to be “Very Low Hazard” fuel groups.



## **2.2.3 Disposal of Debris and Waste**

### ***Overview***

During the operation phase of the Project certain areas will be maintained clear. These areas include a 100 m diameter area around the base of each WTG, a 15 m to 20 m corridor around collector lines and roads, and a 40 m radius around the transformer station. Clearing will be undertaken regularly enough such that large trees do not establish. Slash will be removed off-site for disposal and no slash will be burned on-site.

### ***Risk of Ignition***

As no burning will occur on-site, the risk of ignition as a result of generated waste and debris is minimal. Slash will not be left within the operationally cleared corridors, and will therefore not increase the risk of forest fire. Areas dominated by slash are considered to be a “Very High Hazard” fuel group, whereas areas dominated by live grasses, as operationally cleared areas will be after clearing, are considered to be a “Very Low Hazard” fuel group.

### ***Mitigation and Ignition Prevention Measures***

Waste and debris will be removed off-site for disposal, thus negating the need for any burning activities on-site and maintaining the areas as a “Very Low Risk” fuel group.

## **2.3 Decommissioning Phase**

### **2.3.1 Operation of Heavy Trucks and Machinery**

#### ***Overview***

General decommissioning activities at the Project will involve the operation of heavy machinery and large vehicles. Gasoline and diesel will be the primary fuels used on-site.

#### ***Risk of Ignition***

The presence of gasoline and diesel in any setting poses some risk of ignition. However, the fuels are expected to be present in relatively small quantities and all such fuels will be handled with care according to the prescriptions in the *Environmental Effects Monitoring Plan*, therefore the risk of ignition is expected to be low. Specifically, fuel storage and refuelling activities will be undertaken on gravel-covered road and work surfaces, which according to the Protocol classifies the activities as Low Risk.

#### ***Mitigation and Ignition Prevention Measures***

On-site storage of fuel will be necessary for certain decommissioning equipment and will be securely stored as per provincial and federal codes and guidelines for the storage of fuel, oil, and lubricants. As mentioned fuel storage and refueling will be undertaken on gravel-covered road and work surfaces. Additional measures are set out in the *Environmental Effects Monitoring Plan* contained in the *Design and Operations Report*.

## **2.3.2 Disposal of Debris and Waste**

### ***Overview***

General activities taking place during decommissioning are expected to generate waste in the form of used WTG components, such as the turbine nacelle and equipment contained therein, turbine blades, tower structures, pieces of foundations, collector lines and poles, operations and maintenance building and transformer station building materials, transformers and electrical equipment, and packaging and miscellaneous construction waste.

As practicable, these components will be reconditioned, reused, or recycled. All non-toxic and non-hazardous waste will be disposed of at the Montreal River Waste Disposal Facility, the nearest waste facility within the District of Algoma, or at a similar type of facility in existence at the time of decommissioning. All waste will be removed off-site for disposal and no slash will be burned.

### ***Risk of Ignition***

As no burning will occur on-site, the risk of ignition as a result of generated waste and debris is minimal.

### ***Mitigation and Ignition Prevention Measures***

Waste and debris will be removed off-site for disposal, thus negating the need for any burning activities on-site.

## **3 FIRE PREPAREDNESS PLAN**

### **3.1 Preparedness**

Further to the fire hazard mitigation measures that will be implemented throughout the Project lifecycle, all contractors and on-site personnel will also be made aware of responsibilities to report forest fires as required by the *Forest Fires Prevention Act* as well as standard procedures to be followed in the event of a forest fire.

Fire suppression equipment will be kept on-site at all times and in visible locations as outlined by the *Forest Fires Prevention Act* and the Protocol as appropriate.

In the event that a forest fire is detected, it will immediately be reported to MNR Fire Reporting Number: 310-3473 (310-FIRE). An emergency response plan is contained in the Project's *Design and Operations Report*.

### **3.2 Site Evacuation**

All site personnel will be aware of fire preparedness protocols per the *Forest Fires Prevention Act* and will be aware of procedures for site evacuation in the event of a fire.

Regular briefings of construction personnel, regarding emergency evacuation procedures, will be carried out. Operations and decommissioning personnel will also be briefed and reminded from time-to-time as to the emergency evacuation procedures.

In the event of a fire, site personnel will immediately notify the MNR Fire Reporting Centre by calling 310-FIRE (3473) and will evacuate the site in a safe manner. Communication between on-site staff will occur by means of two-way radios to ensure all staff are able to evacuate the site immediately.

## **4 WILDFIRE PROTECTION**

Wildfire protection will be achieved by the Project through implementation of the methods described herein. Additionally, a buffer will also be maintained around each WTG which will be kept cleared of vegetative re-growth to reduce the risk of the Project being impacted by wildfires.

## **5 QUALIFICATIONS AND LIMITATIONS**

Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership have prepared this report in accordance with the applicable REA requirements and technical guidance documents issued by the MNR and MOE. The information and analysis contained herein is for the sole benefit of the Bow Lake Wind Farm and save for regulatory review purposes may not be relied upon by any other person.

The contents of this report are based upon our understanding of guidelines and regulations which we believe to be current at this time.

While we have referred to and made use of reports and specifications prepared by others, we assume no liability for the accuracy of the information contained within those reports and specifications.