



Renewable Energy Approval Documents

Long Lake Solar Project Executive Summary

January 17, 2013

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**Northland Power Inc.
Long Lake Solar Project**

Executive Summary

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Disclaimer

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1. Introduction

Northland Power Solar Long Lake L.P. (hereinafter referred to as “Northland”) is proposing to develop a 10-MW solar photovoltaic project titled Long Lake Solar Project (hereinafter referred to as the “Project”). As required, Northland is commencing with the Renewable Energy Approval (REA) process as required and described in Ontario Regulation 359/09 under the *Environmental Protection Act*. This Project Description Report has been prepared in accordance with O. Reg. 359/09. The Project location map is shown in Figure 1.

The Project is located within the unorganized township of Calder.

Northland is the proponent of the Project. The contact information is as follows:

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General Manager, Solar Development
Northland Power Inc.
30 St. Clair Ave. West, 17th Floor
Toronto, ON
M4V 3A1

Tel: 647-288-1045
Fax: 416-962-6266
Email: mike.lord@northlandpower.ca

Northland has retained Hatch Ltd. (Hatch) to assist Northland in meeting the REA requirements. Contact information for Hatch is as follows:

Sean Male
REA Coordinator, Environmental Assessment & Management
4342 Queen Street, Suite 500
Niagara Falls, ON
L2E 7J7

Tel: 905-374-0701, Ext. 5280
Fax: 905-374-1157
Email: smale@hatch.ca

Sustainability is a core value at Northland Power. All of their development efforts and operational practices focus on ensuring the ability to provide long-term benefits to their customers, investors, employees, communities and partners.

Sustainability has many dimensions for Northland Power.

- **Environmental:** Northland Power was founded on the belief that clean and green energy sources are vital to the future of our planet. Northland Power produces nothing else. Their construction and operational practices are engineered to meet the highest environmental standards, even in jurisdictions where lower standards are legislated.
- **Health and Safety:** Northland Power ensures that their staff has the knowledge, tools and time to work safely. This is Northland's first priority. Their culture of safety, respect and independence helps to ensure they attract and retain the people that they need to perform.
- **Operational:** Northland Power maintains and reinvests constantly in their operating assets to achieve maximum efficiency and economic life.
- **Community:** Northland Power takes an active interest in its host communities, to ensure they remain vibrant, healthy places to live.
- **Financial:** Northland Power consistently chooses long-term success over short-term gain. Northland Power only pursues projects that meet strict return thresholds and have creditworthy customers. As a result, they have paid stable monthly dividends since 1997.

Northland's business model is to develop, finance, construct, own and operate its facilities for the duration of the project's useful life. As such, Northland considers itself to be a member of the local community in which it operates and has a track record of being a good neighbour.

1.3 Project Benefits

Green Energy Act and Feed-in-Tariff (FIT) Program

The Ontario Government passed the "Green Energy and Green Economy Act" into law on May 14, 2009. The Act is expected to boost investment in renewable energy projects and increase conservation, creating green jobs and economic growth.

The Ontario Government lists the following objectives for the Ontario Green Energy Act:

- Spark growth in clean and renewable sources of energy such as solar, wind, hydro, biomass and biogas in Ontario.
- Create the potential for savings and better managed household energy expenditures through a series of conservation measures.
- Create 50,000 jobs for Ontarians in its first 3 years.

The FIT program was launched on October 1, 2009 to encourage use of renewable energy sources, and promote growth within the environmental industry. The Green Energy and Green Economy Act (2009) enabled the creation of the FIT program. Taken from the Program's website, the FIT program will create new jobs, boost economic activity and further the development of renewable energy technology and expertise in Ontario, while helping to phase out coal-fired electricity generation by 2014.

The Ontario Power Authority awarded 184 FIT contracts to renewable power developers in Ontario on April 8, 2010. Northland Power was awarded a total of 13 ground mount solar contracts for proposed development throughout the province. These projects are currently proceeding through the REA process.

Advantages of Solar Energy

Solar power has a multitude of advantages compared to fossil fuel powered energy plants. Most simplistically, the fuel is free. As many fossil fuels are expected to increase in price, having solar energy on the grid at a set price will give greater stability to future energy prices. Another key benefit is the lack of polluting emissions. With solar PV there are no emissions; this ensures that the surrounding local community will not have to live with poor air quality, disruptive sounds or noxious odours. Also, since solar PV is modular, it is well suited to distributed generation, meaning the power can be produced close to where it will be consumed. In addition, the solar PV systems are comprised of safe, common materials that will not affect the lands on which they are located, allowing for easy remediation upon decommissioning, unlike the vast majority of power plants.

As a source of electricity, solar PV has even more advantages when compared to other types of electricity generation. Peak power production with solar PV coincides with peak demand, during the middle of the day, reducing the need for gas fired peaking power plants.

Solar PV does not require any moving parts or water, unlike most other generation technologies, which greatly reduces its impact on the environment, its maintenance costs and its noise levels.

1.4 Project Description

Northland proposes to install ground mounted stationary photovoltaic panels which, when exposed to sunlight, will generate direct current (DC) electricity. The DC electricity will be conveyed through underground cabling to an inverter which converts the DC electricity to alternating current (AC) electricity. The electricity will then be conveyed to a single substation which will increase the voltage to 115 kV and a short transmission line will transfer the electricity to a connection tie-in point with the local distribution grid. The tie-in point is located immediately east of the Project location. The construction period is estimated to be approximately 8 to 12 months in duration, with Project commissioning anticipated by the end of 2013.

2. REA Process

Ontario Regulation (O. Reg.) 359/09 – Renewable Energy Approvals Under Part V.0.1 of the Act, (herein referred to as the REA Regulation) made under the *Environmental Protection Act* identifies the Renewable Energy Approval (REA) requirements for renewable energy projects in Ontario. The Project is considered to be a Class 3 facility, as it is ground mounted and has a nameplate capacity greater than 10 kW, and therefore requires a REA.

The REA Regulation details the required activities and reports to be completed and submitted in order to obtain the REA. The activities include Aboriginal, public, municipal and agency consultation in order to provide information on the Project to these groups and obtain feedback. Upon completion of these activities, they will be documented in the Consultation Report and submitted to the Ontario Ministry of the Environment (MOE) as part of the REA application.

The REA Regulation requires the preparation of reports, including:

- Project Description Report
- Construction Plan Report
- Design and Operations Report
- Decommissioning Plan Report
- Noise Assessment Study Report
- Natural Heritage Records Review, Site Investigations, Evaluation of Significance and Environmental Impact Study Reports
- Water Body Records Review, Site Investigation and Environmental Impact Study Reports
- Stage 1 and 2 Archaeological Assessment Reports.

As per Sections 16 and 17 of the REA Regulation, these draft documents are to be made available to the Aboriginal communities greater than 60 days from the second Public Meeting and to the public at least 60 days from the second Public Meeting. In addition, a summary of each document is to be prepared and sent to the Aboriginal communities.

In addition, a Letter of Confirmation is to be obtained from the Ontario Ministry of Natural Resources based on their review of the Natural Heritage Reports and is to be provided to the same groups aforementioned, at the same time as the draft documents. Similarly, a Letter of Confirmation is to be obtained from the Ontario Ministry of Tourism and Culture based on their review of the Stage 1 and 2 Archaeological Assessment Report and provided to the same groups and at the same time as the draft documents. In addition, an archaeological assessment was completed for the transmission line associated with the Project.

Also, as per section 20 of the REA Regulation, a determination is to be made as to whether or not a heritage resource is located on the Project site and whether an assessment is required.

Therefore, this package has been prepared to meet these requirements and the reports as listed above are contained within. For clarity and ease of understanding, the Natural Heritage and Water Body Reports should be read in the order in which they appear in the list above.

2.1 Brief Summary of the Long Lake Solar Project REA Reports

A brief summary of some of the Long Lake Solar REA Reports is provided below. A description of the purpose of each of the REA Reports is provided in Figure 2, while Figure 3 provides the location of the complete summary of each REA report, along with the required confirmation letters and report on heritage considerations.

The Natural Heritage and Water Body reports have been prepared to identify potential negative environmental effects the Project may have on existing significant natural features or waterbodies, respectively.

Environmental Impact Studies have been prepared to identify potential negative environmental effects that all phases of the Project may have on the significant natural features and waterbodies. Mitigation measures have been proposed to prevent these effects from occurring or minimize the magnitude, extent, duration and frequency in the event that they do occur to an acceptable level.

A Confirmation Letter from the Ontario Ministry of Natural Resources is included in Appendix O that confirms that the Natural Heritage reports satisfy the REA Regulation criteria.

An archaeological assessment has been conducted on the Project location which included a Stage 1 background study of past archaeological investigations and known archaeological sites within a 2-km radius of the Long Lake Solar Project location. It also included a systematic 5-m interval Stage 2 archaeological survey of all of the Leased Lands on the property.

The office of the Ministry of Tourism and Culture has reviewed the Archaeological Assessment Report in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18, and accepted its findings.

Research and agency consultation undertaken has not identified the need for a heritage impact assessment under Section 23 of the REA Regulation. A noise study has also been undertaken and identifies mitigation measures the project will incorporate in order to meet MOE requirements.

3. Next Steps

A second Public Meeting will be held for the Project; the date and location of this meeting will be published at a later date. Everyone is welcome to attend this meeting and they are also welcome to ask questions about the Project during this comment period. Questions or concerns related to these reports should be sent to:

Sean Male, MSc
REA Coordinator
Hatch Ltd.
4342 Queen Street, Suite 500
Niagara Falls, ON
L2E 7J7

Tel: 905-374-0701, Ext. 5280
Fax: 905-374-1157
Email: smale@hatch.ca

Once the comments have been received, a Consultation Report will be prepared to show how those comments have been addressed and included in the design of the Project.

After the second Public Meeting, all the Reports and a REA Application Form will be sent to MOE for review and processing. The MOE has 6 months to review and make a decision on the Project. The MOE's decision will be posted for a 15-day review period on the Environmental Registry. Provided no appeal requests have been submitted, the Project will commence, pending receipt of all other required permits and approvals.

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Figure 2: Report Name and Purpose

Report Name	Purpose
Project Description Report	Summarizes Project location, construction and operational activities, potential environmental effects and mitigation, and social and environmental benefits.
Construction Plan Report	Provides details on the construction activities, timelines, materials, temporary uses of land and waste materials generated and environmental effects, mitigation and monitoring during construction.
Design and Operations Report	Provides the site layout plan, Project components, operations and maintenance activities, communications and emergency response plan, and environmental effects monitoring plan.
Decommissioning Plan Report	Provides the activities to be undertaken during decommissioning and restoring the Project site.
Natural Heritage Records Review Report	Provides information from existing documentation on natural heritage features including wetlands, Areas of Natural and Scientific Interest and wildlife habitat.
Natural Heritage Site Investigations Report	Documents the results of the site investigations to identify and confirm natural heritage features on and within 120 m of the Project.
Natural Heritage Evaluation of Significance Report	Evaluates the significance of any natural heritage features located within 120 m of the Project.
Natural Heritage Environmental Impact Study	Identifies potential adverse environmental effects on significant natural heritage features, proposes mitigation measures to prevent or minimize adverse effects and provides monitoring program.
Water Body Records Review Report	Provides information from existing documentation on waterbodies including lakes, permanent and intermittent streams and groundwater seepage areas.
Water Body Site Investigation Report	Documents the results of the site investigations to identify and confirm water body features on and within 120 m of the Project.
Water Body Environmental Impact Study	Identifies potential adverse environmental effects on waterbodies, proposes mitigation measures to prevent or minimize adverse effects and provides monitoring program.
Stage 1 and 2 Archaeological Assessment Report	Documents the results of the Stage 1 assessment which is a desktop study identifying any archaeological potential and the Stage 2 assessment which is a site investigation confirming the archaeological potential.
Heritage Resources	Documents the results of the assessment of potential effects on protected properties and heritage resources.
Noise Assessment Study Report	Documents the results of noise modeling to identify noise emissions levels at nearby sensitive receptors and mitigation requirements to meet MOE noise emissions guidelines.

Figure 3: Appendices of Project Report Summaries

Contained as appendices to this Executive Summary are as follows:

- Appendix A: Project Description Report Summary
- Appendix B: Construction Plan Report Summary
- Appendix C: Design and Operations Report Summary
- Appendix D: Decommissioning Plan Report Summary
- Appendix E: Natural Heritage Records Review Report Summary
- Appendix F: Natural Heritage Site Investigation Report Summary
- Appendix G: Natural Heritage Evaluation of Significance Report Summary
- Appendix H: Natural Heritage Environmental Impact Study Summary
- Appendix I: Water Body Records Review Report Summary
- Appendix J: Water Body Site Investigation Report Summary
- Appendix K: Water Body Environmental Impact Study Summary
- Appendix L: Stage 1 and 2 Archaeological Assessment Report Summary
- Appendix M: Stage 1 and 2 Archaeological Assessment for Transmission Line Report Summary
- Appendix N: Noise Assessment Study Summary
- Appendix O: Protected Properties and Heritage Resource Information
- Appendix P: Letter of Confirmation – Ontario Ministry of Natural Resources
- Appendix Q: Letter of Confirmation – Ontario Ministry of Tourism and Culture

Appendix A
Project Description
Report Summary

**Northland Power Inc.
Long Lake Solar Project****Summary****Project Description Report****1. Introduction**

As per Section 17 of the Renewable Energy Approvals Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Project Description Report for the Long Lake Solar Project.

Northland Power Solar Long Lake L.P. (hereinafter referred to as “Northland”) is proposing to develop a Class 3 10-megawatt (MW) ground mounted solar photovoltaic (Solar PV) facility in the unorganized township of Calder (hereinafter referred to as the “Project”). The Project will be located on approximately 123 hectares (ha) of land located on Lots 2 and 3, in the unorganized Township of Calder. The Project location is situated on Calder, Concession Road 8.

Table 1 of the REA Regulation requires proponents of Class 3 solar projects to prepare a Project Description Report (PDR). The PDR is prepared as one of the first Project documents once the REA process commences and is made available for public review prior to the first public meeting. The purpose of the PDR is to provide preliminary information regarding the Project to members of the public, Aboriginal groups, municipalities and other government agencies. The contents of the PDR are summarized in the following sections.

2. Summary of Project

The proposed Project consists of a 10-MW Class 3 solar facility, constructed on privately owned land in the unorganized Township of Calder. Long Lake Solar Project has entered into an option to purchase agreement with the private landowner for the duration of operation. Long Lake Solar Project has obtained a contract from the Ontario Power Authority (OPA) to buy the power produced by the proposed facility under the Feed-In-Tariff (FIT) program for a period of 20 years.

Construction of the proposed facility would occur over an 8- to 12-month period with major construction activities including site preparation, access road construction, installation of solar panels (including footings, support structures and panels), installation of inverters and transformer and all electrical cabling and site rehabilitation following construction.

The facility would operate 365 d/yr, generating electricity when sufficient solar irradiation conditions exist. Inspection and maintenance activities would be conducted periodically (every 2 to 3 months) through the year, with primary activities including inspection the structures, and interconnections. The proposed facility would not consume any fuels nor produce any waste as a result of generation activities.

3. Potential Environmental Effects

The PDR summarized the existing environmental features on the Project site.

The PDR also identified preliminary potential environmental effects of the Project including

- potential erosion and sedimentation due to construction activities
- temporary loss of agricultural lands due to facility installation and operation
- removal of natural vegetation communities on the Project site
- noise emissions from the invertors and transformer.

Mitigation measures were identified to prevent or eliminate those effects. Potential effects and mitigation measures were assessed in more detail in other Project reports.

Appendix B
Construction Plan
Report Summary

**Northland Power Inc.
Long Lake Solar Project****Summary****Construction Plan Report****1. Introduction**

As per Section 17 of the Renewable Energy Approvals (REA) Ontario Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Construction Plan Report for the Long Lake Solar Project.

Northland Power Solar Long Lake L.P. (hereinafter referred to as “Northland”) is proposing to develop a Class 3 10-megawatt (MW) ground mounted solar photovoltaic (Solar PV) facility in the unorganized township of Calder (hereinafter referred to as the “Project”). The Project will be located on approximately 123 hectares (ha) of land located on Lots 2 and 3, in the unorganized Township of Calder. The Project location is situated on Calder, Concession Road 8.

The proposed Project will use solar photovoltaic technology to generate electricity. The solar modules will be mounted on fixed steel supports and arranged in the form of 14 arrays, each of 0.714 MW AC. Northland will continue to consider mounting solar modules onto a solar tracking support system; however, the report has been prepared assuming a fixed steel support system will be used. Electricity generated by solar photovoltaic modules from each array will be converted from direct current (DC) to alternating current (AC) by an inverter, and subsequently stepped up from a medium voltage to 115 kV in order to connect to the nearby transmission line. The interconnection point will be at the intersection of Concessions 8 and 9 and Highway 668.

2. Construction

The construction process of the Project consists of four phases:

- Phase 1 – Site Preparation
- Phase 2 – Construction and Installation of Plant
- Phase 3 – Testing and Commissioning
- Phase 4 – Site Restoration.

The site work is scheduled to start at the beginning of 2013 and have an estimated 8 to 12 months construction period.

2.1 Phase 1 - Site Preparation

Site preparation refers to all necessary activities prior to the construction of foundations, substation, and installation of the PV modules. It includes surveying/staking, site clearing and grubbing,

construction of access roads and drainage systems, installation of security gate and fencing, and construction of a staging area.

The site preparation work is forecasted to take place in January 2013.

2.2 Phase 2 - Construction and Installation of Plant

Construction and installation of the facility consists of building foundations, trenches for cabling, structural support and finally installation of the panels on the structural support. The substation and associated electrical equipment will also be installed. This includes the underground and above ground cabling on the Project site. In addition, an overhead distribution line to transmit power from the Project substation to the local distribution network will be installed.

The construction and installation of the plant is forecasted to take place from April 2013 to September 2013.

2.3 Phase 3 – Testing and Commissioning

Testing and commissioning will be performed on the installation prior to start-up and connection to the power grid. Solar modules, inverters, collection system, and substation will be checked for system continuity, reliability, and performance standards. If problems or issues are identified, modifications will be made prior to start-up.

2.4 Phase 4 – Site Restoration

Site restoration will be applicable for the entire Project location. The main objective will be to reinstate the area to the original pre-construction condition, such as the ecosystem, vegetation, and drainage. All construction material, equipment, temporary facilities, and waste will be removed from the site. Topsoil will be backfilled where required, including landscaping to achieve proper drainage. Revegetation will include planting of native plants and hydro-seeding where required.

The revegetation where possible is forecasted to take place in September 2013.

3. Environmental Effects

Environmental effects and proposed mitigation measures are summarized in the table below.

Environmental Feature	Anticipated Impact	Proposed Mitigation
Soils	Negative effects on soil quality, loss of soils due to erosion and soil compaction.	Erosion and sedimentation control measures will be implemented and soil loosening measures could be applied, if necessary.
Groundwater	Pumping of groundwater could lower water table locally.	Limited impacts due to the duration of pumping (e.g., only during excavations). Any pumped water will be treated.
Surface Water Quality	Surface water quality could be impacted by erosion/ sedimentation of excavated or exposed soils, erosion caused by increased runoff from impervious or less pervious areas, or deposition of fugitive dust.	Erosion and sedimentation control measures, spill prevention and response plan, air quality measures will all mitigate impacts

Environmental Feature	Anticipated Impact	Proposed Mitigation
Aquatic Habitat and Biota	Limited impacts, as a 30-m setback from all watercourses.	N/A
Vegetation	Minor removal of vegetation and trees from a wooded area to occur. Dust deposition and spills could also impact vegetation.	In order to minimize potential losses from surrounding vegetation communities, areas where clearing is required will be well marked, and workers will be instructed not to enter areas of natural vegetation.
Wildlife	Impacts to wildlife could occur as a result of loss of habitat, disturbance from construction activities, or incidental mortality as a result of collision with construction vehicles.	In order to minimize the potential for habitat loss, work areas will be demarcated in order to ensure that the contractor does not work beyond those bounds. In order to minimize potential for disturbance or incidental take of wildlife, major construction activities (such as land grading and woodland clearing) will be timed outside of the breeding bird period (generally May through July), wherever possible. Vegetation ground cover to be used on the Project location will be selected in consideration of promotion of wildlife features.
Air Quality and Noise	Dust may become airborne from vehicular traffic, heavy machinery use, and soil moving activities. Dust in the air can have a range of effects including, but not limited to: impacts on human health as a result of irritation to lungs, eyes, etc, which could impact construction workers or nearby residents, impacts on surface water quality and aquatic habitat if the dust is deposited into waterbodies, impacts on vegetation if heavy dust loads build up on photosynthetic surfaces, thereby resulting in mortality of the plants.	These mitigation measures are to include, as required, use of dust suppression (i.e., water) on exposed areas including access roads, stockpiles and work/laydown areas as necessary, hard surfacing (addition of coarse rock) of access roads or other high-traffic work areas, phased construction, where possible, to limit the amount of time soils are exposed, avoid earth-moving works during excessively windy weather. Stockpiles to be worked (e.g., loaded/unloaded) from the downwind side to minimize wind erosion, stockpiles and other disturbed areas to be stabilized as necessary (e.g., taped, mulched, graded, revegetated or watered to create a hard surface crust) to reduce/prevent erosion and escape of fugitive dust, dust curtain to be used on loaded dump trucks delivering materials from off site).
Noise	Construction and installation activities have the potential to result in increased noise levels on and within the vicinity of the Project location.	Construction and installation activities that produce a large amount of noise will be limited to daylight hours. Vehicles will also be regularly checked for properly working mufflers or other noise reducing equipment, and all construction equipment will meet MOE emission standards.

Environmental Feature	Anticipated Impact	Proposed Mitigation
Traffic	Increased traffic volumes and equipment delivery to the Project location and temporary disruption along routes utilized by construction vehicles may result in occasional delays to local community traffic flow during the construction period.	Mitigation measures include: designated transportation routes will be utilized; a police or security escort will be utilized to guide or accompany major equipment deliveries to the Project location if necessary; flagmen will be utilized as required to facilitate traffic flow and control if necessary; construction vehicles will be driven in a proper manner with respect for all traffic laws, signage providing any detour directions will be prominently displayed, vehicle imprints or erosion gullies will be repaired or regraded as necessary.
Roadways	The use of local roadways by construction vehicle traffic may result in some minor damage to roadways during the construction of the Project, given their proximity to the Project location.	Mitigation measures include: designated and appropriate transportation routes will be utilized; construction vehicles will be driven in a proper manner with respect for all traffic laws; roadways will be photographed prior to construction and damage to local roadways, above and beyond normal wear and tear, will be repaired as necessary.
Public and Construction Site Safety	Construction of the proposed development poses potential public and construction site safety concerns in the vicinity of the Project location.	Mitigation measures include: public access to the construction area will be prevented through the use of fences, gates, and security procedures; signage will be posted to notify the public of construction in the area; workers will be required to adhere to prescribed safety procedures; proper procedures for construction traffic will be developed, where required.
Waste Management	Construction activities will likely result in the generation of recyclable material, as well as construction and sanitary waste.	Mitigation measures include, construction waste will be properly stored on site prior to disposal off site at local, registered disposal facilities, all sanitary waste is to be contained and hauled off site by a designated hauler throughout the construction period, hazardous wastes will be properly stored in secure containers inside impervious berms or other containment areas until disposal off site at a registered facility, reuse and recycling will be practiced wherever possible.
Land Use	Lands within the Project location will be removed from agricultural production upon Project construction.	Land use could be retained upon completion of the Project.
Protected Properties	No protected properties, as defined in Section 19(1) of O. Reg. 359/09, exist in the vicinity of the Project location.	N/A

Environmental Feature	Anticipated Impact	Proposed Mitigation
Built Heritage and Cultural Heritage Landscapes	No negative effects to built heritage and cultural heritage landscapes are anticipated as no potential impacts to the resources were identified.	N/A
Archaeological Resources	A Stage 1 and 2 Archaeological Assessment was conducted for the Project location. A single Euro-Canadian findspot was identified.	The Project location will be setback from the findspot, or a Stage 3 assessment will be completed.
Spills	Spills of petroleum hydrocarbon materials from vehicles/ equipment operating on site, such as fuel or hydraulic oils, or spills of concrete materials from concrete trucks, could occur during the construction process.	Best management practices shall be implemented, including but not limited to: all refuelling and equipment maintenance activities will be conducted at specified locations; equipment is to be monitored to ensure it is well maintained and free of leaks; spill containment and clean-up supplies are to be maintained on site at all times; spills will be cleaned up immediately and reported accordingly.

4. Conclusion

Weekly inspections will ensure conformance with environmental mitigation measures. Overall, no adverse impact to the environment is anticipated when the mitigation measures are implemented.

Appendix C
Design and Operations
Report Summary

**Northland Power Inc.
Long Lake Solar Project****Summary****Design and Operation Plan Report****1. Introduction**

As per Section 17 of the Renewable Energy Approvals (REA) Ontario Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Design and Operation Plan Report for the Long Lake Solar Project.

Northland Power Solar Long Lake L.P. (hereinafter referred to as “Northland”) is proposing to develop a Class 3 10-megawatt (MW) ground mounted solar photovoltaic (Solar PV) facility in the unorganized township of Calder (hereinafter referred to as the “Project”). The Project will be located on approximately 123 hectares (ha) of land located on Lots 2 and 3, in the unorganized Township of Calder. The Project location is situated on Calder, Concession Road 8.

The proposed Project will use solar photovoltaic technology to generate electricity. The solar modules will be mounted on fixed steel supports and arranged in the form of 14 arrays, each of 0.714 MW AC. Northland will continue to consider mounting solar modules onto a solar tracking support system; however, this report has been prepared assuming a fixed steel support system will be used. Electricity generated by solar photovoltaic modules from each array will be converted from direct current (DC) to alternating current (AC) by an inverter, and subsequently stepped up from a medium voltage to 115 kV in order to connect to the nearby transmission line. The interconnection point will be at the intersection of Concessions 8 and 9 and Highway 668.

2. Facility Components

Facility components consist of security gate, fencing and lighting, access roads, drainage systems, foundations, trenches for cabling and instrumentation control, structural support and temporary construction staging area. The Project is designed to generate 10 MW (AC) by using seven blocks of photovoltaic modules. Each block has a nominal capacity of 1.428 MW and is comprised of two sub-arrays, each with one inverter with a nominal capacity of 714 kW. The modules, inverters, intermediate transformers, AC switch, main step-up transformer, and the equipment control and monitoring system are the main electrical components of a solar facility.

3. Facility Operation Plan

The Project does not require any permanent on-site operator as it will be operated remotely. For general monitoring and maintenance purposes, intermittent/regular basis local personnel may be hired and will be dispatched from a central operations office as needed. Any damage or faults with

the PV modules and electrical systems will be alerted to staff remotely and repaired (or replaced) by facility staff or qualified professionals. Access to the site will be limited to Project personnel.

3.1 Maintenance

The weather conditions, such as the quantity and frequency of rain and snow at the Project location will determine the frequency of cleaning. At the very most, it is expected that the modules will require cleaning quarterly, but it is possible cleaning the modules will not be necessary at all. If required, water trucks will bring water to the site to supply the water required.

The transformers will be visually inspected on a monthly basis and their status recorded. Any leaks will be repaired immediately. Spill response equipment will be left on site or in the maintenance trucks should leaks be observed. The site will also be visually inspected for any erosion or sedimentation issues and remediation will be implemented as necessary to prevent environmental impacts.

3.2 Environmental Effects Monitoring Plan

The Project Environmental Effects Monitoring Plan will be implemented through all phases of the Project. The purpose of the plan is to ensure that performance objectives and mitigation measures are working as designed to mitigate negative impacts. As well, it provides additional measures, if primary measures are not functioning. Table 5.2 in the Design and Operations Report provides the details of the proposed monitoring plan to monitor the impacts to the natural and social environments.

3.3 Emergency Response Plan

The Project Emergency Response Plan will be implemented through all phases of the Project. The purpose of the plan is to establish and maintain emergency procedures required for effectively responding to accidents and other emergency situations, and for minimizing associated losses. The Plan provides the emergency response and communications procedures to be used in response to these three potential emergency scenarios (i.e., fire, personal injury and spills).

All Project personnel will be trained in emergency response and communications procedures.

Appendix D
Decommissioning Plan
Report Summary

**Northland Power Inc.
Long Lake Solar Project****Summary****Decommissioning Plan Report****1. Introduction**

As per Section 17 of the Renewable Energy Approvals (REA) Ontario Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Decommissioning Plan Report for the Long Lake Solar Project.

Northland Power Solar Long Lake L.P. (hereinafter referred to as "Northland") is proposing to develop a Class 3 10-megawatt (MW) ground mounted solar photovoltaic (Solar PV) facility in the unorganized township of Calder (hereinafter referred to as the "Project"). The Project will be located on approximately 123 hectares (ha) of land located on Lots 2 and 3, in the unorganized Township of Calder. The Project location is situated on Calder, Concession Road 8.

The proposed Project will use solar photovoltaic technology to generate electricity. The solar modules will be mounted on fixed steel supports and arranged in the form of 14 arrays, each of 0.714 MW AC. Northland will continue to consider mounting solar modules onto a solar tracking support system; however, this report has been prepared assuming a fixed steel support system will be used. Electricity generated by solar photovoltaic modules from each array will be converted from direct current (DC) to alternating current (AC) by an inverter, and subsequently stepped up from a medium voltage to 115 kV in order to connect to the nearby transmission line. The interconnection point will be at the intersection of Concessions 8 and 9 and Highway 668.

As required, two scenarios were taken into consideration for the Decommissioning Plan which includes decommissioning after ceasing operation and decommissioning during construction should the Project be cancelled/abandoned during construction. The following provides the activities to be completed for the former scenario. For the latter scenario, the decommissioning activities depend on when the construction has ceased; however, the following provides a complete list of potential decommissioning activities under the latter scenario.

It is anticipated that the Project will have a useful lifetime of at least 20 years, which can be extended with proper maintenance, component replacement and repowering. It is assumed that the Project will be decommissioned after the 20-yr power purchase agreement with the Ontario Power Authority concludes.

2. Decommissioning Activities

2.1 Equipment Dismantling and Removal

All decommissioning of electrical devices, equipment, and wiring/cabling will be in accordance with local, municipal, provincial and federal agencies standards and guidelines. Any electrical decommissioning will include obtaining the required permits and following lockout/tag out procedures before de-energizing, isolating, and disconnecting electrical devices, equipment and wiring/cabling.

2.2 Site Restoration

The proposed Project area will be restored to its pre-development state, subject to environmental requirements and the wishes of the landowner. The following will be undertaken:

- any trenches/drains excavated will be filled with suitable materials and leveled
- any roads or embankments will be removed completely, filled with suitable sub-grade material and leveled
- any compacted ground will be tilled, mixed with suitable sub-grade materials and leveled
- any damage to any existing tile drainage system caused by the Project will be repaired/restored
- prepared soil, with all the nutrients required by the crop to grow, will be spread wherever necessary.

2.3 Management of Waste and Excess Materials

All waste and excess materials will be disposed of in accordance with municipal, provincial and federal regulations. Waste that requires disposal will be disposed of in a provincially licensed facility by a provincially licensed hauler. Although hazardous waste is not anticipated on site (with the exception of the aforementioned transformer oil), any hazardous waste will be removed from site and disposed of in accordance with federal, provincial and municipal requirements.

2.4 Emergency Response

The Project Emergency Response Plan will be implemented through all phases of the Project. The purpose of the plan is to establish and maintain emergency procedures required for effectively responding to accidents and other emergency situations, and for minimizing associated losses. The Plan provides the emergency response and communications procedures to be used in response to these three potential emergency scenarios (i.e., fire, personal injury and spills).

All Project personnel will be trained in the emergency response and communications procedures.

3. Restoration of Land Negatively Affected by the Project

Following decommissioning of the Project, if any lands or water features are negatively affected by the Project, Northland is committed to restoring the site as close to its pre-construction state as feasible. This would be subject to environmental requirements and wishes of the landowner.

Appendix E
Natural Heritage
Records Review Report Summary

**Northland Power Inc.
Long Lake Solar Project****Summary****Natural Heritage Records Review Report****1. Introduction**

As per Section 17 of the Renewable Energy Approvals (REA) Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Natural Heritage Records Review Report for the Long Lake Solar Project.

Northland Power Solar Long Lake L.P. (hereinafter referred to as "Northland") is proposing to develop a Class 3 10-megawatt (MW) ground mounted solar photovoltaic (Solar PV) facility in the unorganized township of Calder (hereinafter referred to as the "Project"). The Project will be located on approximately 123 hectares (ha) of land located on Lots 2 and 3, in the unorganized Township of Calder. The Project location is situated on Calder, Concession Road 8.

Section 25 of the REA Regulation requires proponents of Class 3 solar projects to undertake a Natural Heritage Records Review. Records were searched within a minimum distance of 1 km from the Project site from Ministry of Natural Resources (MNR), federal government, Hunta Local Roads Board, and other relevant sources.

2. Results

Key natural features and points of interest identified during the records review include the following:

- A single wetland community was identified within 120 m south of the Project location.
- The majority of data layers for which data was received from Land Information Ontario did not contain information relevant to the area on or within 120 m of the Project location.
- There are no ANSIs or Provincial Parks on or within 1 km of the Project Site.
- Ranges of several species of conservation concern, including species of birds, vegetation and mammals, overlap the Project area and suitable habitat may be found.

3. Conclusions

Table 3.1 summarizes the results of the records review.

Table 3.1 Summary of Records Review Determinations

Determination to be Made	Yes/No	Description
Is the Project in or within 120 m of a provincial park or conservation reserve?	No	The nearest such features are located more than 120 m away from the Project location.
Is the Project in a natural feature?	No known features. Potential for wildlife habitat features identified.	The nearest known features from the records are located more than 120 m away from the Project location. Although no confirmed wildlife habitats exist on or the Project location within the records, there exists potential for habitat of species of conservation concern on the Project location.
Is the Project within 50 m of an ANSI (earth science)?	No	The nearest earth science ANSI is located several kilometres from the Project location.
Is the Project within 120 m of a natural feature that is not an ANSI (earth science)?	Yes	There is one wetland within 120 m of the Project location. Although no known wildlife habitats exist within 120 m of the Project location within the records, there exists potential for habitat for species of conservation concern, as well as for waterfowl stopover and staging habitat, within 120 m of the Project location.

Therefore, depending on the layout of the proposed Project, some components could potentially be located within 120 m of a natural feature. As per Section 26 of the REA Regulation, a site investigation will be required to confirm the features identified during this records review. The site investigation will (i) identify if any corrections to the information presented herein are required, (ii) determine whether any additional natural features exist on or adjacent to the Project site, (iii) confirm the boundaries of the natural features within 120 m of the Project, and (iv) determine the distance from the Project to the natural feature boundary.

Appendix F
Natural Heritage
Site Investigation Report Summary

**Northland Power Inc.
Long Lake Solar Project****Summary****Natural Heritage Site Investigations Report****1. Introduction**

As per Section 17 of the Renewable Energy Approvals (REA) Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Natural Heritage Site Investigations Report for the Long Lake Solar Project.

Northland Power Solar Long Lake L.P. (hereinafter referred to as "Northland") is proposing to develop a Class 3 10-megawatt (MW) ground mounted solar photovoltaic (Solar PV) facility in the unorganized township of Calder (hereinafter referred to as the "Project"). The Project will be located on approximately 123 hectares (ha) of land located on Lots 2 and 3, in the unorganized Township of Calder. The Project location is situated on Calder, Concession Road 8.

Section 26 of the REA Regulation requires proponents of Class 3 solar projects to undertake a Natural Heritage Site Investigation for the purpose of determining if the information provided in the Natural Heritage Records Review Report is correct, if any additional natural heritage features are present within 120 m of the Project, and if the borders and distance of the natural heritage features from the Project site are correct. To obtain this information a site visit was completed. If any features are located within the specified setbacks, an Evaluation of Significance is required.

2. Results

Wetland communities were identified on and within 120 m of the Project location. Further, Table 2.1 summarizes the candidate significant wildlife habitats identified during the site investigations.

Table 2.1 Candidate Significant Wildlife Habitats

Feature Type	Description of Community	Identified During Records Review?	Corrections to Records Review, and Rationale for Correction
Habitat for Area-Sensitive Species	Associated with various vegetation communities on and within 120 m of the Project location	No	As this feature was not identified during the records review, the identification of this candidate significant habitat type is considered to be a correction to the Records Review.
Waterfowl Nesting Habitat	Associated with the creek and associated wetlands and nearby upland areas in the western	No	As this feature was not identified during the records review, the identification of

Feature Type	Description of Community	Identified During Records Review?	Corrections to Records Review, and Rationale for Correction
	portion of the Property		this candidate significant habitat type is considered to be a correction to the Records Review.
Wetland supporting amphibian breeding habitat	Associated with the wetland communities on and within 120 m of the Project location, specifically gCM ₂₁	No	As this feature was not identified during the records review, the identification of this candidate significant habitat type is considered to be a correction to the Records Review.
Specialized Raptor Nesting Habitat	A red-tailed hawk nest was identified during the site investigations	No	As this feature was not identified during the records review, the identification of this candidate significant habitat type is considered to be a correction to the Records Review.
Habitat for Short-eared Owl, a Species of Conservation Concern	Associated with the agricultural lands within 120 m of the Project location.	Yes (potential for occurrence)	The locations of the habitat represent a correction to the Records Review.
Habitat for Canada Warbler, a Species of Conservation Concern	Associated with the swamp communities on and within 120 m of the southern portion of the Project location.	Yes (potential for occurrence)	The locations of the habitat represent a correction to the Records Review.
Habitat for Olive-sided Flycatcher, a Species of Conservation Concern	Associated with the edge habitats on and within 120 m of the Project location.	Yes (potential for occurrence)	The locations of the habitat represent a correction to the Records Review.
Habitat for Common Nighthawk, a Species of Conservation Concern	Associated with the agricultural lands on and within 120 m of the Project location.	Yes (potential for occurrence)	The locations of the habitat represent a correction to the Records Review.
Habitat for <i>Carex wiegandii</i> , a Species of Conservation Concern	Suitable habitat is found within the alder swamps present on and within 120 m of the Project location.	Yes (potential for occurrence)	The locations of the habitat represent a correction to the Records Review.

Feature Type	Description of Community	Identified During Records Review?	Corrections to Records Review, and Rationale for Correction
Habitat for <i>Carex haydenii</i> , a Species of Conservation Concern	Suitable habitat is found within the riparian corridor associated with Smith Creek.	Yes (potential for occurrence)	The locations of the habitat represent a correction to the Records Review.
Habitat for <i>Carex loliacea</i> , a Species of Conservation Concern	Suitable habitat is found within the black spruce swamps on and within 120 m of the Project location.	Yes (potential for occurrence)	The locations of the habitat represent a correction to the Records Review.
Habitat for <i>Scirpus heterochaetus</i> , a Species of Conservation Concern	Suitable habitat is found within the riparian corridor associated with Smith Creek.	Yes (potential for occurrence)	The locations of the habitat represent a correction to the Records Review.
Animal Movement Corridor	Associated with Smith Creek and associated riparian habitat which crosses the western edge of the Property between Syndicate Lake and waterbodies farther north.	No	As this feature was not identified during the records review, the identification of this candidate significant habitat type is considered to be a correction to the Records Review.

3. Conclusions

Therefore, some components of the Project are located within 120 m of a natural feature (i.e., wildlife habitat and wetlands). As per Section 27 of the REA Regulation, an Evaluation of Significance is required to determine if these natural features are significant.

Appendix G
Natural Heritage
Evaluation of Significance
Report Summary

**Northland Power Inc.
Long Lake Solar Project****Summary****Natural Heritage Evaluation of Significance****1. Introduction**

As per Section 17 of the Renewable Energy Approvals (REA) Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Evaluation of Significance – Natural Heritage Features for the Long Lake Solar Project.

Northland Power Solar Long Lake L.P. (hereinafter referred to as “Northland”) is proposing to develop a Class 3 10-megawatt (MW) ground mounted solar photovoltaic (Solar PV) facility in the unorganized township of Calder (hereinafter referred to as the “Project”). The Project will be located on approximately 123 hectares (ha) of land located on Lots 2 and 3, in the unorganized Township of Calder. The Project location is situated on Calder, Concession Road 8.

Section 24 of the REA Regulation requires proponents of Class 3 solar projects to undertake an Evaluation of Significance for each natural heritage feature identified in the records review and site investigations reports within 120 m of the Project. These reports identified the need to complete an Evaluation of Significance for:

- Wetlands
- Wildlife habitats.

2. Results**2.1 Seasonal Concentration Habitat****Waterfowl Nesting Habitat**

Waterfowl nesting area met the criteria for size, quality and location, it did not meet the criteria for species diversity or abundance, which are of greater import in determining significance. Therefore, this is not a significant waterfowl nesting area.

2.2 Wildlife Habitat**Specialized Raptor Nesting Habitat**

Red-tailed hawks nests were identified. It was determined that they would not contribute to identification of candidate significant raptor-nesting in this Ecoregion. Therefore, the identified nest is not a significant wildlife habitat.

Habitat for Area-Sensitive Grassland Birds

The criteria for area and adjacent residential development are met, the availability of suitable habitat and degree of disturbance on site indicate that this is not a significant wildlife habitat.

Habitat for Area-Sensitive Shrubland Species

The majority of the criteria were not met, including that of habitat size which is of primary importance, and therefore this is determined to not be a significant wildlife habitat type.

Habitat for Area-Sensitive Woodland Species

As a result of the recent forestry operations, the absence of a rare, uncommon or declining species, and availability of suitable habitat, the woodland community is not providing significant area-sensitive habitat for woodland birds.

Wetlands Supporting Amphibian Breeding Habitat

The criteria for degree of permanence, species diversity, size, presence of shrubs and adjacent forest habitat have been met, wetland communities around Smith Creek within 120 m west of the Project location is determined to be a significant wetland supporting amphibian breeding habitat.

2.3 **Habitat for Species of Conservation Concern**

Habitat for Short-eared Owl, a Species of Conservation Concern

Area-searches of grassland habitats did not result in any observations of Short-eared Owl nesting occurrences. Further, Short-eared Owls were not recorded during any of the evening surveys completed in association with amphibian monitoring. As a result, it is determined that they are not present on or within 120 m of the Project location.

Habitat for Canada Warbler, a Species of Conservation Concern

Area searches of woodland habitats, did not result in any observations of Canada Warbler. As a result, it is determined that they are not present on or within 120 m of the Project location.

Habitat for Olive-sided Flycatcher, Species of Conservation Concern

Area searches of woodland and wetland habitats did not result in any observations of Olive-sided Flycatcher. As a result, it is determined that they are not present on or within 120 m of the Project location.

Habitat for Common Nighthawk, Species of Conservation Concern

Evening bird surveys were completed in conjunction with the second site investigation for wetlands supporting amphibian breeding habitat. No Common Nighthawk were recorded during the surveys on or within 120 m of the Project location.

Habitat for Carex haydenii, Species of Conservation Concern

This species was not detected during vegetation surveys of suitable habitats on and within 120 m of the Project location. Details of vegetation surveys have been previously identified in the Natural Heritage Site Investigations Report.

Habitat for Carex loliacea, Species of Conservation Concern

This species was not detected during vegetation surveys of suitable habitats on and within 120 m of the Project location. Details of vegetation surveys have been previously identified in the Natural Heritage Site Investigations Report.

Habitat for Carex wiegandii Species of Conservation Concern

This species was not detected during vegetation surveys of suitable habitats on and within 120 m of the Project location. Details of vegetation surveys have been previously identified in the Natural Heritage Site Investigations Report

Habitat for Scirpus heterochaetus Species of Conservation Concern

This species was not detected during vegetation surveys of suitable habitats on and within 120 m of the Project location. Details of vegetation surveys have been previously identified in the Natural Heritage Site Investigations Report (Hatch, 2012b).

2.4 Animal Movement Corridors

Significant animal movement corridors were determined to be present in Smith Creek and associated wetland and shoreline/riparian habitats.

2.5 Wetlands

The wetland community evaluation determined that the communities on and within 120 m of the Project are part of a provincially significant wetland complex.

3. Conclusions

Table 3.1 summarizes the results of the evaluation of significance report.

Therefore, of the natural heritage features evaluated, the wildlife habitat features and wetlands will require an Environmental Impact Study as per Section 38 of the REA Regulation.

Table 3.1 Significant Natural Features on and within 120 m of the Project Location

Natural Feature		Project Location	Adjacent Lands (within 120 m)
SIGNIFICANT	Wildlife Habitat	No	Yes
PROVINCIALY SIGNIFICANT	Wetland	Yes	Yes
	Earth Science ANSI	No	No
	Life Science ANSI	No	No

Appendix H
Natural Heritage
Environmental Impact
Study Summary

**Northland Power Inc.
Long Lake Solar Project****Summary****Natural Heritage Environmental Impact Study****1. Introduction**

As per Section 17 of the Renewable Energy Approvals (REA) Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Environmental Impact Study - Natural Heritage Features for the Long Lake Solar Project.

Northland Power Solar Long Lake L.P. (hereinafter referred to as "Northland") is proposing to develop a Class 3 10-megawatt (MW) ground mounted solar photovoltaic (Solar PV) facility in the unorganized township of Calder (hereinafter referred to as the "Project"). The Project will be located on approximately 123 hectares (ha) of land located on Lots 2 and 3, in the unorganized Township of Calder. The Project location is situated on Calder, Concession Road 8.

Section 38 of the REA Regulation requires proponents of Class 3 solar projects to complete an Environmental Impact Study (EIS) for all significant natural heritage features determined to be within a specified setback in order to obtain a REA. The EIS is required in order to determine (i) any potential negative environmental effects on the natural features (ii) identify mitigation measures (iii) describe how the environmental effects monitoring plan in the Design and Operations Report addresses any negative environmental effects and (iv) describe how the Construction Plan Report addresses any negative environmental effects.

The natural heritage features that were classified as significant are significant wildlife habitat that included

- wetlands supporting amphibian breeding habitat
- animal movement corridor
- wetlands.

2. Results

The results of the EIS on the significant natural features are summarized in Table 2.1.

Table 2.1 Summary of Potential Negative Environmental Effects and Proposed Mitigation

Potential Negative Effect	Proposed Mitigation Measures
Construction Phase	
Encroachment on wetland community	Remediation measures will be undertaken should any encroachment beyond the established work areas be identified.
Dust generation and off-site transport	Dust control measures implemented as necessary to prevent/minimize dust generation.
Operation Phase	
None identified	
Decommissioning Phase	
Dust generation and off-site transport	Dust control measures implemented as necessary to prevent/minimize dust generation.

Table 5.1 in the EIS summarizes the proposed monitoring plan.

As discussed in the Design and Operations Report, environmental effects monitoring is proposed with respect to any negative environmental effects that may result from engaging in the Project. The monitoring plan in the Design and Operations Report identifies: performance objectives with respect to the negative environmental effects; mitigation measures to assist in achieving the performance objectives; and, a program for monitoring negative environmental effects for the duration of the time the Project is engaged in, including a contingency plan to be implemented if any mitigation measures fail.

In addition, the Construction Plan Report for the Project details the construction and installation activities, location and timing of construction and installation activities, any negative environmental effects that result from construction activities within 300 m of the Project and mitigation measures for the identified negative environmental effects.

3. Conclusions

The EIS has been prepared to identify potential negative environmental effects that all phases of the Project may have on the significant natural feature. Mitigation measures have been proposed to prevent these effects from occurring or minimize the magnitude, extent, duration and frequency in the event that they do occur to an acceptable level.

Appendix I
Water Body
Records Review Report Summary

**Northland Power Inc.
Long Lake Solar Project****Summary****Water Body Records Review Report****1. Introduction**

As per Section 17 of the Renewable Energy Approvals (REA) Ontario Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Water Body Records Review Report for the Long Lake Solar Project.

Northland Power Solar Long Lake L.P. (hereinafter referred to as “Northland”) is proposing to develop a Class 3 10-megawatt (MW) ground mounted solar photovoltaic (Solar PV) facility in the unorganized township of Calder (hereinafter referred to as the “Project”). The Project will be located on approximately 123 hectares (ha) of land located on Lots 2 and 3, in the unorganized Township of Calder. The Project location is situated on Calder, Concession Road 8.

Section 30 of the REA Regulation requires proponents of Class 3 solar projects to undertake a Water Body Records Review. The focus of the assessment was on identifying whether or not the Project was located within or adjacent to any of the specified water features (e.g., within 120 m of the average annual high water mark of a permanent or intermittent stream). Records were searched from the Ministry of Natural Resources (MNR), Ontario Ministry of Agriculture, Food and Rural Affairs, federal government, Hunta Local Roads Board, and other relevant sources.

2. Results

Key water body features and points of interest identified during the records review include the following:

- Smith Creek, which is a tributary of Syndicate Lake, as being within 120 m of the northwestern portion of the Project Location.
- An unnamed tributary of Kennedy Lake (referred to as Unnamed Watercourse 1) originates on the southeastern portion of the property on which the Project is located (and approximately 30 m from the Project location),
- Another unnamed tributary of Kennedy Lake (referred to as Unnamed Watercourse 2) runs within 120 m south of the Project Location.
- Syndicate Lake is located approximately 320 m southwest of the Project Location, and Kennedy Lake is located approximately 700 m southeast of the Project Location.

3. Conclusions

Table 3.1 summarizes the results of the records review.

Table 3.1 Summary of Records Review Determinations

Determination to be Made	Yes/No	Description
Is the Project Location in a water body?	No	The Project location is not located within a water body.
Is the Project Location within 120 m of the average annual high water mark of a lake, other than a lake trout lake that is at or above development capacity?	No	The Project location is not within 120 m of the average annual high water mark of any lake.
Is the Project Location within 300 m of the average annual high water mark of a lake trout lake that is at or above development capacity?	No	The Project location is not within 300 m of the average annual high water mark of any lake.
Is the Project Location within 120 m of the average annual high water mark of a permanent or intermittent stream?	Yes	The Project location is between 30 and 120 m from three watercourses (Smith Creek, Unnamed Watercourse 1 and Unnamed Watercourse 2)
Is the Project Location within 120 m of a seepage area?	No	No seepage areas were identified on or within 120 m of the Project Location.

As per Section 31 of the REA Regulation, a site investigation will be completed to (i) confirm the features identified during this records review, (ii) identify if any corrections to the information presented herein are required, (iii) determine whether any additional waterbodies exist in the Project area, (iv) confirm the boundaries of any water feature within 120 m of the Project and (v) determine the distance from the Project to the water boundary.

Appendix J

Water Body Site Investigation Report Summary

**Northland Power Inc.
Long Lake Solar Project****Summary****Water Body Site Investigations Report****1. Introduction**

As per Section 17 of the Renewable Energy Approvals (REA) Ontario Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Water Body Site Investigations Report for the Long Lake Solar Project.

Northland Power Solar Long Lake L.P. (hereinafter referred to as "Northland") is proposing to develop a Class 3 10-megawatt (MW) ground mounted solar photovoltaic (Solar PV) facility in the unorganized township of Calder (hereinafter referred to as the "Project"). The Project will be located on approximately 123 hectares (ha) of land located on Lots 2 and 3, in the unorganized Township of Calder. The Project location is situated on Calder, Concession Road 8.

Section 31 of the REA Regulation requires proponents of Class 3 solar projects to undertake a water site investigation for the purpose of determining if the information provided in the Water Body Records Review Report is correct and identifies any knowledge gaps, if any additional waterbodies are present on or within 120 m of the Project site, and if the borders and distance of the waterbodies from the Project site are correct. A site visit was completed to obtain this information.

2. Results

Three waterbodies, including Smith Creek, were identified on and within 120 m of the Project site.

Smith Creek (Tributary of Syndicate Lake)

- Smith Creek is found in the western portion of the property on which the project is located. A site investigation, confirmed the presence of this water body feature.
- The creek contains several existing and previous beaver dams and lodges within the property, which significantly alters the water's surface area. Agricultural fields exist on all sides of the creek on the project property, with tilled land extending down to a meadow marsh type wetland which borders both shores.
- It is evident that meadow marsh area periodically floods through beaver activity or freshet flows, therefore the border between tilled land and the meadow marsh habitat was considered the average annual high water mark of Smith Creek.
- Small forage fish were observed within the creek's channels and ponds.
- Smith Creek is a permanent stream that provides continual flows in an average year and, therefore, meets the definition of a water body, according to the REA Regulation.

Unnamed Watercourse 1 (Tributary of Kennedy Lake)

- Unnamed Watercourse 1 originates in the southeastern corner of the property and flows northeasterly off the property at which time it makes a relatively abrupt 180° turn to flow south toward Kennedy Lake.
- The channel is segmented on the property as it meanders through the wetland head waters. The owner of the property on which the Project is located indicated the area in which the tributary originates remains wet throughout the year and thus it is anticipated that the watercourse is permanent. Farther downstream toward Kennedy Lake, off the project property, the watercourse gains more distinct watercourse features.
- Unnamed Watercourse 1 meets the definition of a permanent stream according to the REA Regulation

Unnamed Watercourse 2 (Tributary of Kennedy Lake)

- Unnamed Watercourse 2 is located off the project property but is within 120 m of the southeast corner of the Project location. Similar to Unnamed Watercourse 1, the watercourse originates within the wetlands adjacent to the property, with a defined channel becoming apparent moving downstream toward Kennedy Lake.
- An assessment of this water body feature determined that the tributary meets the definition of a water body according to the REA Regulation.

3. Conclusions

Corrections to Water Body Records Review Report are summarized below.

Determination to be Made	Yes/No	Corrections Required?
Is the Project Location in a water body?	No	There are no corrections required to the Water Body Records Review Report (Hatch Ltd., 2012)
Is the Project Location within 120 m of the average annual high water mark of a lake, other than a lake trout lake that is at or above development capacity?	No	There are no corrections required to the Water Body Records Review Report (Hatch Ltd., 2012) with respect to lakes. The site investigation confirmed that there are no lakes within 120 m of the Project Location.
Is the Project Location within 300 m of the average annual high water mark of a lake trout lake that is at or above development capacity?	No	There are no corrections required to the Water Body Records Review Report (Hatch Ltd., 2012) with respect to lake trout lakes.
Is the Project Location within 120 m of the average annual high water mark of a permanent or intermittent stream?	Yes	There are no corrections required to the Water Body Records Review Report (Hatch Ltd., 2012) with respect to Smith Creek or either Unnamed Watercourses 1 and 2 (i.e., permanent streams). All three of these watercourses are located within 120 m of the Project Location. They were identified in the Water Body Records Review Report (Hatch Ltd., 2012), and further confirmed during site investigations. In addition, Smith Creek was confirmed to be fish habitat.

Determination to be Made	Yes/No	Corrections Required?
Is the Project Location within 120 m of a seepage area?	No	There are no corrections required to the Water Body Records Review Report (Hatch Ltd., 2012) with respect to seepage areas. The site investigation confirmed that there are no seepage areas on or within 120 m of the Project Location.

Based on the results of the site investigation and the proposed Project location, some components of the Project will be located between 30 and 120 m of the average annual high water mark of the Smith Creek, Unnamed Watercourse 1 and Unnamed Watercourse 2. Therefore, an EIS will be required to assess the potential effects of the Project and the required mitigation measures to prevent or minimize adverse effects on these waterbodies.

Appendix K
Water Body
Environmental Impact Study
Summary

**Northland Power Inc.
Long Lake Solar Project****Summary****Water Body Environmental Impact Study****1. Introduction**

As per Section 17 of the Renewable Energy Approvals (REA) Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Waterbodies Environmental Impact Study for the Long Lake Solar Project.

Northland Power Solar Long Lake L.P. (hereinafter referred to as "Northland") is proposing to develop a Class 3 10-megawatt (MW) ground mounted solar photovoltaic (Solar PV) facility in the unorganized township of Calder (hereinafter referred to as the "Project"). The Project will be located on approximately 123 hectares (ha) of land located on Lots 2 and 3, in the unorganized Township of Calder. The Project location is situated on Calder, Concession Road 8.

Sections 39 and 40 of the REA Regulation require proponents of Class 3 solar projects to complete an Environmental Impact Study (EIS) for all waterbodies determined to be within a specified setback in order to obtain a REA. The EIS is required in order to determine (i) any potential negative environmental effects on the natural features (ii) identify mitigation measures (iii) describe how the environmental effects monitoring plan in the Design and Operations Report addresses any negative environmental effects and (iv) describe how the Construction Plan Report addresses any negative environmental effects.

This EIS was completed on the impact to (i) surface water runoff (patterns and rates), (ii) surface water quality, (iii) aquatic and riparian habitat and biota and (iv) groundwater from the presence of the Project.

2. Results

The results of the EIS on the water bodies are summarized in Table 2.1.

Table 2.1 Summary of Potential Negative Environmental Effects and Proposed Mitigation

Negative Environmental Effects	Proposed Mitigation Measures
Construction Phase	
Increases in surface water runoff from the construction site	Stormwater management measures will be remediated as necessary to ensure that they are functioning as designed. Alternate measures may be required and will be determined based on on-site issues and conditions.

Negative Environmental Effects	Proposed Mitigation Measures
Construction Phase	
Soil compaction due to heavy equipment use and stockpiling	Areas of compaction will be remediated as necessary to alleviate compaction (e.g., discing).
Erosion and sedimentation resulting in increased turbidity in site runoff	Alternate ESC measures will be used as necessary to ensure required control.
Dust generation and off-site transport	Alternative dust control measures will be implemented as necessary to prevent/minimize dust generation.
Potential for adverse surface water and ground water quality due to accidental spills	Spill contingency measures will be implemented as necessary in the event of a spill. Following spill event, response will be reviewed to determine if additional or altered response protocols are necessary to meet performance objectives.
Operation Phase	
Increases in surface water runoff from Project location	Stormwater management measures will be remediated as necessary to ensure that they are functioning as designed.
Erosion and sedimentation resulting in increased turbidity in site runoff	Erosion remediated as necessary to ensure no long erosion issues.
Potential for adverse surface water and ground water quality due to accidental spills	Spill contingency measures will be implemented as necessary in the event of a spill. Following spill event, response will be reviewed to determine if additional or altered response protocols are necessary to meet performance objectives.
Decommissioning Phase	
Erosion and sedimentation resulting in increased turbidity in site runoff	Alternate ESC measures will be used as necessary to ensure required control.
Potential for adverse surface water and ground water quality due to accidental spills	Spill contingency measures will be implemented as necessary in the event of a spill. Following spill event, response will be reviewed to determine if additional or altered response protocols are necessary to meet performance objectives.

Table 5.1 in the EIS summarizes the proposed monitoring plan.

As discussed in the Design and Operations Report, environmental effects monitoring is proposed in respect of any negative environmental effects that may result from engaging in the Project. The monitoring plan in the Design and Operations Report identifies: performance objectives in respect of the negative environmental effects; mitigation measures to assist in achieving the performance objectives; and, a program for monitoring negative environmental effects for the duration of the time the Project is engaged in, including a contingency plan to be implemented if any mitigation measures fail.

In addition, the Construction Plan Report for the Project details the construction and installation activities, location and timing of construction and installation activities, any negative environmental effects that result from construction activities within 300 m of the Project and mitigation measures for the identified negative environmental effects.

3. Conclusions

The EIS has been prepared to identify potential negative environmental effects that all phases of the Project may have on waterbodies. Mitigation measures have been proposed to prevent these effects from occurring or minimize the magnitude, extent, duration and frequency in the event that they do occur. The primary mitigation measure that will prevent adverse effects on the waterbodies is adherence to the 30-m setback requirement. Monitoring measures have been proposed to confirm that mitigation measures are having the intended effect and that performance objectives are being met.

Overall, while the Project will result in some changes to the natural environment, no negative effects on waterbodies are anticipated to occur following implementation of the mitigation and monitoring measures proposed in this EIS.

Appendix L
Stage 1 and 2
Archaeological Assessment Report
Summary

**Northland Power Inc.
Long Lake Solar Project****Summary****Stage 1 and 2 Archaeological Assessment Report****1. Introduction**

As per Section 17 of the Renewable Energy Approvals (REA) Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Archaeological Assessment Report, prepared by Archaeological Research Associates for the Long Lake Solar Project.

Northland Power Solar Long Lake L.P. (hereinafter referred to as "Northland") is proposing to develop a Class 3 10-megawatt (MW) ground mounted solar photovoltaic (Solar PV) facility in the unorganized township of Calder (hereinafter referred to as the "Project"). The Project will be located on approximately 123 hectares (ha) of land located on Lots 2 and 3, in the unorganized Township of Calder. The Project location is situated on Calder, Concession Road 8.

Section 22 of the REA Regulation requires proponents of Class 3 solar projects to undertake an Archaeological Assessment where there is a concern that an undertaking could impact archaeological resources. The purpose of the present assessment was to confirm the presence or absence of significant archaeological resources that could represent potential constraints for the proposed Long Lake Solar Project. The assessment included a Stage 1 background study of past archaeological investigations and known archaeological sites within a 2-km radius of the Long Lake Solar Project site. It also included a systematic 5-m interval Stage 2 archaeological survey of all of the Leased Lands in the property.

2. Results

The Stage 1 research indicated a high potential for the presence of both Pre-Contact and Euro-Canadian archaeological sites in the study area. During the Stage 2 assessment, one Euro-Canadian findspot (Findspot 1), consisting of a large scatter of Euro-Canadian artifacts on the summit of a knoll near Concession Road 8-9. This findspot was determined to possess sufficient Cultural Heritage Value or Interest such that the Project should be setback from the feature, or a Stage 3 assessment undertaken.

3. Conclusions

The office of the Ministry of Tourism and Culture has reviewed the Archaeological Assessment Report in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18, and accepted its findings.

Appendix M

Stage 1 and 2 Archaeological Assessment for Transmission Line Report Summary

**Northland Power Inc.
Transmission Line for Abitibi, Empire,
Martin's Meadows and Long Lake Solar Projects**

Summary

Transmission Line - Stage 1 and 2 Archaeological Assessment Report

1. Introduction

As per Section 17 of the Renewable Energy Approvals (REA) Regulation (O. Reg. 359/09) under Part V.0.1 of the *Environmental Protection Act*, the following is a summary of the Archaeological Assessment Report, prepared by Archaeological Research Associates for the 115-kV Transmission Line for the Abitibi, Empire, Long Lake and Martin's Meadows Solar Projects.

The 115-kV transmission line will service the Abitibi, Empire, Long Lake and Martin's Meadows Solar Projects. This 115 kV line is located within the District of Cochrane.

Section 22 of the REA Regulation requires proponents of Class 3 solar projects to undertake an Archaeological Assessment where there is a concern that an undertaking could impact archaeological resources. The purpose of the present assessment was to confirm the presence or absence of significant archaeological resources that could represent potential constraints for the proposed 115-kV transmission line. The assessment included a Stage 1 background study of past archaeological investigations and known archaeological sites within a 2-km radius of the 115-kV transmission line Project. It also included a test pit survey for all of the 115-kV transmission line lands.

2. Results

The Stage 1 research indicated that in the Project land contains a mixture of areas for high archaeological potential and areas with no archaeological potential due to past man-made disturbances. The Stage 2 was conducted on all lands with the potential to be impacted by the Project. During the Stage 2 assessment, no archaeological material was identified.

3. Conclusions

The office of the Ministry of Tourism, Culture and Sport has reviewed the Archaeological Assessment Report in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18, and accepted its findings.

Appendix N

Noise Study Report Summary

**Northland Power Inc
Long Lake Solar Project****Summary****Noise Assessment Report****1. Introduction**

This report presents the results of the noise assessment study for the Long Lake Solar Project, required under Regulation 359/09 as part of the Renewable Energy Approval Process (REA).

Northland Power Solar Long Lake L.P. (hereinafter referred to as “Northland”) is proposing to develop a Class 3 10-megawatt (MW) ground mounted solar photovoltaic (Solar PV) facility in the unorganized township of Calder (hereinafter referred to as the “Project”). The Project will be located on approximately 123 hectares (ha) of land located on Lots 2 and 3, in the unorganized Township of Calder. The Project location is situated on Calder, Concession Road 8.

This Noise Impact Assessment has been prepared based on the document entitled “Basic Comprehensive Certificates of Approval (Air) – User Guide” by the Ontario Ministry of the Environment (MOE), which requires that the sound pressure levels at the points of reception (POR) are estimated using ISO 9613-2. The performance limits used for verification of compliance correspond to the values for Class 3 areas (45 dBA for day time, 40 dBA for night time) as established by MOE.

2. Results

- The main sources of noise from the Project will be seven inverter clusters, each one containing two inverters and one medium-voltage transformer, and a substation containing the main step-up transformer.
- The Project will be located in a Class 3 Area. Class 3 area means a rural area with an acoustical environment that is dominated by natural sounds, having little or no traffic, such as an agricultural area.
- Seven inverter clusters will be installed as part of the Project. Each cluster comprises of two SMA Sunny Central 800CP inverters and one medium voltage transformer. A 1.6-MVA transformer used to step-up the 360-V power from the inverters to 27.6 kV will be located in proximity to the inverters. One 10-MVA/44-kV substation transformer will step-up the 27.6-kV power collected from the inverter clusters to 44-kV prior to being sent to the existing local distribution line. Since the transformer make and model have not been selected at this point, the sound power levels resulting from the operation of the transformer were evaluated using data from NEMA TR 1-1993.

- At night time the facility will not operate. Under these conditions the inverters do not produce noise. The transformers (at the substation and clusters) are energized and make some magnetostrictive noise at a reduced level, but no cooling fans are in operation.
- The sound pressure levels at the points of reception have been estimated using the CADNA-A model, based on ISO 9613-2. The performance limits used for comparison correspond to Class 3 areas, with 45-dBA during day time (7:00 a.m. to 7:00 p.m.) and 40 dBA during night time. It has been determined that no mitigation measures are needed for the Project operation.

3. Conclusions

Based on the results obtained in this study, it is concluded that the sound pressure levels at the POR will be well below MOE requirements for Class 3 areas at both night time and day time (40 dBA and 45 dBA, respectively).

Appendix O

Protected Properties and Heritage Resource Information

Project Report

October 18, 2012

**Northland Power Inc.
Long Lake Solar Project**

Protected Properties and Heritage Resources Report

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1. Introduction

1.1 Project Description

Northland Power Solar Long Lake L.P. (hereinafter referred to as “Northland”) is proposing to develop a Class 3 10-megawatt (MW) ground mounted solar photovoltaic (Solar PV) facility in the unorganized township of Calder. This Project, known as the Long Lake Solar Project, is hereafter referred to as “Long Lake” or the “Project.”

The Project location is approximately 123 hectares (ha) in size and located on Lots 2 and 3, in the unorganized Township of Calder. The Project location is situated on Clute, Concession Road 8.

1.2 REA Legislative Requirements

Ontario Regulation (O. Reg.) 359/09 – *Renewable Energy Approvals Under Part V.0.1 of the Act*, (herein referred to as the REA Regulation) made under the *Environmental Protection Act* identifies the Renewable Energy Approval (REA) requirements for projects in Ontario. As per Section 4 of the REA Regulation, ground mounted solar facilities with a name plate capacity greater than 10 kilowatts (kW) are classified as Class 3 solar facilities and do require an REA.

Section 19 of the REA Regulation requires proponents of Class 3 solar facilities to determine whether the Project location is on a property (“protected property”) described in Column 1 of the Table to Section 19. Section 23 of the REA requires that proponents of Class 3 solar projects, as a result of the consideration mentioned in subsection 20, determine whether engaging in the renewable energy project may have an impact on a heritage resource described in Subsection 20(1).

In June 2011, the Ministry of Tourism and Culture (MTC) released *An Information Bulletin for Applicants Addressing the Cultural Heritage Component of Projects Subject to Ontario Regulation 359/09 Renewable Energy Approvals*. The applicable identification and self-assessment processes described in Parts 1, 3B and 4 of this Bulletin have been completed to satisfy the requirements of the MTC with respect to the consideration of Protected Properties and Heritage Resources under the REA Regulation. Findings are presented in Tables 1.1, 1.2 and 1.3 of this report.

As per MTC’s Information Bulletin, “Project location” is defined as per Ontario Regulation 359/09, “as part of land and all or part of any building or structure in, on or over which the REA applicant engages or proposed to engage in the project and any air space in which a person is engaging in or proposes to engage in the project”. All phases of the project (i.e. construction, operation and decommissioning) must be considered.

2. Protected Properties

Resources used to determine whether the Project location was on or abutting Protected Properties described in Column 1 of the Table to Section 19 included internet searches of various Provincial and Municipal websites in addition to Municipal consultation as directed within Appendix B of the MTC’s Information Bulletin (June 2011). As discussed in Section 1.2 above, Tables 1.1 and 1.2 have been prepared to address Section 19 of the REA Regulation.

3. Heritage Resources

Resources used to determine whether the Project may or will impact heritage resources at the Project location included (i) internet searches of various Federal, Provincial and Municipal websites among others; (ii) Archaeological Assessments conducted for the Project location; as directed within Appendix B of the MTC's Information Bulletin (June 2011). As discussed in Section 1.2 above, Table 1.3 has been prepared to address Section 23 of the REA Regulation.

4. Conclusion

Based on the information presented in Tables 1.1 and 1.2, the proposed Project is not located on a Protected Property as described in Column 1 of the Table to Section 19. Hatch contacted all of the appropriate people or bodies and has determined that the Project is not located on the applicable type(s) of protected property.

In addition, research and agency consultation undertaken as described within Table 1.3 has not identified the need for a heritage impact assessment under Section 23 of the REA Regulation.

Table 1.1 Identifying Protected Properties at the Project Location

Project Name: Long Lake Solar Project
Project Location: longitude & latitude: 49° 8'50.67"N and 81°17'2.30"W
REA Project Identifier: n/a
Type and Classification of Project: Class 3 Solar Facility
Proponent Name: Northland Power Solar Long Lake L.P.
Proponent Contact Info: Michael Lord
 General Manager, Solar Development
 Northland Power Inc.
 30 St. Clair Ave. West, 17th Floor
 Toronto, ON M4V 3A1
 647-288-1045

If you answer YES to any of the following questions you will require: either written authorization as set out in the Table in section 19 of O. Reg. 359/09, or written confirmation that written authorization is not required. Continue until all questions are answered for each property at the project location.

Description of Property	YES	NO	Reference
Is the property subject to an Ontario Heritage Trust easement agreement?		✓	According to the Ontario Heritage Trust website (http://www.heritagetrust.on.ca/Home.aspx) no easement properties are located in the vicinity of the property. In addition, the Ontario Heritage Properties Database did not reveal any easement properties. (Research completed May 9, 2012).
Has a notice of intention to designate been issued by a municipality for the property?			No relevant municipality exists for the Project.
Is the property municipally designated?			No relevant municipality exists for the Project.
Is the property provincially designated?		✓	As per Appendix G of the 'Protected Properties, Archaeological and Heritage Resources An Information Bulletin for Applicants Addressing the Cultural Heritage Component of Projects Subject to Ontario Regulation 359/09 Renewable Energy Approvals' (2011), no properties have been designated under Section 34.5 of the <i>Ontario Heritage Act</i> .
Has a notice of intention to designate been issued by the Ministry of Tourism and Culture for the property?		✓	As per Appendix G of the 'Protected Properties, Archaeological and Heritage Resources An Information Bulletin for Applicants Addressing the Cultural Heritage Component of Projects Subject to Ontario Regulation 359/09 Renewable Energy Approvals' (2011), a notice of intention to designate has not occurred for the Project location.
Is the property subject to a municipal easement agreement?			No relevant municipality exists for the Project.

Description of Property	YES	NO	Reference
Is the property located within a designated Heritage Conservation District?		✓	The unorganized Township of Calder is not part of a Heritage Conservation District and as such does not have any properties located within a Heritage Conservation District or properties listed under Part V of the Ontario Heritage Act (http://www.mtc.gov.on.ca/en/heritage/heritage_conserving_list.shtml). Therefore no properties part of a designated Heritage Conservation District are in the Project location.
Is the property designated as a historic site under Regulation 880?		✓	As per Appendix G of the <i>Protected Properties, Archaeological and Heritage Resources: An Information Bulletin for Applicants Addressing the Cultural Heritage Component of Projects Subject to Ontario Regulation 359/09 Renewable Energy Approvals</i> (2011), there are only three sites designated as a historic site under Regulation 880, and these three sites do not occur within the Project location.

Table 1.2 Identifying Protected Properties Abutting a Project Location

Project Name: Long Lake Solar Project
Project Location: longitude & latitude: 49° 8'50.67"N and 81°17'2.30"W
REA Project Identifier: n/a
Type and Classification of Project: Class 3 Solar Facility
Proponent Name: Northland Power Solar Long Lake L.P.
Proponent Contact Info: Michael Lord
 General Manager, Solar Development
 Northland Power Inc.
 30 St. Clair Ave. West, 17th Floor
 Toronto, ON M4V 3A1
 647-288-1045

If you answer YES to any of the following questions a heritage assessment is required.

Description of Property	YES	NO	Reference
Is there an abutting subject to an Ontario Heritage Trust easement agreement?		✓	The Ontario Heritage Trust website (http://www.heritagetrust.on.ca/Home.aspx) was searched on July 26, 2011 for easement agreements. The query did not identify any easements abutting the Project location.
Is there an abutting property for which a notice of intention to designate been issued by a municipality?			No relevant municipality exists for the Project.
Is there an abutting property that has been municipally designated?			No relevant municipality exists for the Project.
Is there an abutting property that has been provincially designated?		✓	As per Appendix G of the 'Protected Properties, Archaeological and Heritage Resources An Information Bulletin for Applicants Addressing the Cultural Heritage Component of Projects Subject to Ontario Regulation 359/09 Renewable Energy Approvals' (2011), no properties have been designated under Section 34.5 of the Ontario Heritage Act.
Is there an abutting property for which a notice of intention to designate has been issued by the Ministry of Tourism and Culture?		✓	As per Appendix G of the 'Protected Properties, Archaeological and Heritage Resources An Information Bulletin for Applicants Addressing the Cultural Heritage Component of Projects Subject to Ontario Regulation 359/09 Renewable Energy Approvals' (2011), a notice of intention to designate has only been issues to one property, which occurs in the District of Manitoulin, and as such does not occur abutting the Project location.

Description of Property	YES	NO	Reference
Is there an abutting property that is subject to a municipal easement agreement?		✓	No relevant municipality exists for the Project.
Is there an abutting property that is part of a designated Heritage Conservation District?		✓	The unorganized township of Calder is not part of a Heritage Conservation District and as such does not have any properties located within a Heritage Conservation District or properties listed under Part V of the Ontario Heritage Act (http://www.mtc.gov.on.ca/en/heritage/heritage_conserving_list.shtml). Therefore no properties part of a designated Heritage Conservation District are in the abutting Project location.
Is there an abutting property designated as a historic site under Regulation 880?		✓	As per Appendix G of the 'Protected Properties, Archaeological and Heritage Resources An Information Bulletin for Applicants Addressing the Cultural Heritage Component of Projects Subject to Ontario Regulation 359/09 Renewable Energy Approvals' (2011), there are only three (3) sites designated as a historic site under Regulation 880, and these three sites do not occur within the Project location.

Table 1.3 Consideration of Heritage Resources at the Project Location: Self-Assessment Checklist

Project Name: Long Lake Solar Project
Project Location: longitude & latitude: 49° 8'50.67"N and 81°17'2.30"W
REA Project Identifier: n/a
Type and Classification of Project: Class 3 Solar Facility
Proponent Name: Northland Power Solar Long Lake L.P.
Proponent Contact Info: Michael Lord
 General Manager, Solar Development
 Northland Power Inc.
 30 St. Clair Ave. West, 17th Floor
 Toronto, ON M4V 3A1
 647-288-1045

Screening Question	Yes	No	Reference
Part A: Recognized Cultural Heritage Value:			
1. Is the project area abutting a protected heritage property as described in the table in section 19 of O. Reg. 359/09?		✓	See Table 1.2.
If you answer YES , a heritage assessment is required. The heritage assessment report and MTC's written comments must be included in the application. It is not necessary to complete the remaining questions in the checklist.			
If you answer NO , a copy of the correspondence required for Appendix E must be submitted as part of the application. Continue to question 2.			
2. Is the subject property listed on the municipal heritage register, or a provincial register/list?		✓	See Table 1.1.
If you answer YES , a heritage assessment is required. The heritage assessment report and MTC's written comments must be included in the application. It is not necessary to complete the remaining questions in the checklist.			
If you answer NO , a copy of the printouts/screenshots of all relevant queries must be submitted as part of the application. Continue to question 3.			
3. Is there a municipal, provincial or federal plaque on or related to the subject property?		✓	A search of Ontario Heritage Trust website (http://www.heritagetrust.on.ca/Resources---Learning/Online-Plaque-Guide/Plaque-Information.aspx?searchtext=635) resulted in 0 plaques located within 1 km of the Project. A search of Parks Canada website (http://www.pc.gc.ca/apps/dfhd/default_eng.aspx) resulted in the determination that there are no federal plaques on or related to the subject property.

Screening Question	Yes	No	Reference
If you answer YES , a heritage assessment is required. The heritage assessment report and MTC's written comments must be included in the application. It is not necessary to complete the remaining questions in the checklist.			
If you answer NO , a copy of correspondence with the Municipality and printouts/screenshots of all relevant queries must be submitted as part of the application. Continue to question 4.			
4. Is the subject property a National Historic Site or a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?		✓	The Project is not located on any National Historic Site or United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site.
If you answer YES , a heritage assessment is required. The heritage assessment report and MTC's written comments must be included in the application. It is not necessary to complete the remaining questions in the checklist.			
If you answer NO , a copy of printouts/screenshots of all relevant queries and project area information indicating that it is not within the Rideau Canal Corridor must be submitted as part of the application. Continue to question 5.			
Part B: Potential Cultural Heritage Value			
Built Heritage Resources. These are defined as significant buildings, structures, monuments, installations or remains associated with architectural, cultural, social, political, economic or military history and are identified as being important to a community.			
5. Can it be confirmed that buildings at the project location are less than forty years old? Consideration should include:	✓		There are no buildings on the Project location over 40 years old.
a) Residential structures (e.g. house, apartment building, shanty or trap line shelter)	✓		There is a residential structure located on the Project, as shown in Figure 1.1.
b) Farm buildings (e.g. barns, outbuildings, silos, windmills)	✓		There are farm building located on the Project, as shown in Figure 1.1.
c) Industrial, commercial or institutional operations (e.g. factory, school, quarry, mining, etc)		✓	There are no such buildings within the Project location.
d) Engineering works (e.g. bridges, water or communications towers, roads, water/sewer systems, dams, canals, locks, earthworks, etc)		✓	There are no such buildings within the Project location.
e) Monuments or Landmark Features (e.g. cairns, statues, obelisks, fountains, reflecting pools, retaining walls, boundary or claim markers, etc)		✓	There are no such features within the Project location.

Screening Question	Yes	No	Reference
If you answer YES , a written summary of historic source materials consulted (with bibliography) must be submitted as part of the application. Continue to question 6.			
If you answer NO , to any part, a heritage assessment is required. The heritage assessment report and MTC's written comments must be included in the application. It is not necessary to complete the remaining questions in the checklist.			
Cultural Heritage Landscapes. These are defined geographical areas of heritage significance that human activity has modified and that a community values. Such an area involves a grouping(s) of individual heritage features, such as structures, spaces archaeological sites and natural elements, which together form a significant type of heritage form distinct from that of its constituent elements or parts. Examples include: villages, parks, gardens, battlefields, mainstreets and neighbourhoods, cemeteries, trails and industrial complexes of cultural heritage value.			
6. Is there a known burial site and/or cemetery located at or abutting the project location?		✓	There is no relevant municipal authority to provide information on cemeteries. During field investigation, burial sites and/or cemeteries were not identified.
If you answer YES to any part, a heritage assessment is required. The heritage assessment report and MTC's written comments must be included in the application. It is not necessary to complete the remaining questions in the checklist.			
If you answer NO , a copy of printouts/screenshots of all the database queries must be submitted as part of the application. Continue to question 7.			
7. Is the project location within a Canadian Heritage River watershed?		✓	The Project is not located within the watershed of a Canadian Heritage River.
If you answer YES , a heritage assessment is required. The heritage assessment report and MTC's written comments must be included in the application. It is not necessary to complete the remaining questions in the checklist.			
If you answer NO , a map or correspondence from the appropriate conservation authority or municipal staff indicating that the project area is not located within a Canadian Heritage River watershed must be submitted as part of the application. Continue to Part C.			
Part C: Other Considerations			
The presence/existence of the following at or abutting the project location is an indicator of cultural heritage value or interest. However, they may be more difficult to verify definitively. Many cultural landscape features are readily visible and could be identified during a site visit.			
Is the property or an abutting property associated with a known architect, landscape architect, planner or builder?		✓	There are no buildings within the Project location. In reference to abutting properties, no association with a known architect, landscape architect, planner or builder was discovered over the course of researching the project lands. Further consultation with the municipality to confirm
Is the property or an abutting property associated with a historic road or rail corridor?		✓	No, the local area was not developed until the 20 th century.
Is the property or an abutting property a park or planned/designated recreational or community space?		✓	No
Is there accessible documentation to indicate built heritage or cultural heritage landscape potential?		✓	No information was available regarding built heritage or cultural heritage landscape potential.

Screening Question	Yes	No	Reference
Is the subject property or abutting property associated with a person or event of historic interest?		✓	No association with a person or event of historic interest was discovered over the course of researching the project lands, further consultation, with public or municipality is required.
<p>If YES to any of the above questions, a heritage assessment is required. If uncertain, additional research is required to make this determination, and a heritage assessment is required. The heritage assessment report and MTC's written comments must be included in the application.</p> <p>If NO to all of the above questions, a heritage assessment is not required.</p>			

Appendix P

**Letter of Confirmation –
Ontario Ministry of Natural Resources**

April 18, 2012

Mike Lord
General Manager, Solar Development
Northland Power Inc.
30 St. Clair Avenue West
17th Floor
Toronto, Ontario, Canada
M4V 3A1

Dear Mr. Lord:

RE: NHA Confirmation for Long Lake Solar Project

In accordance with the Ministry of the Environment's (MOE's) Renewable Energy Approvals (REA) Regulation (O.Reg.359/09), the Ministry of Natural Resources (MNR) has reviewed the natural heritage assessment and environmental impact study for Long Lake Solar Project in Hunta submitted by Northland Power Solar Long Lake L.P. on October 31, 2011.

In accordance with Section 28(2) and 38(2)(b) of the REA regulation, MNR provides the following confirmations following review of the natural heritage assessment:

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

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

Although the raptor nest identified during the site investigation (shown on the map to be in the northwest corner of the project location) was not determined to be significant wildlife habitat, the nest does have protection under the Migratory Birds Regulations (pursuant to the Migratory Birds Convention Act). Section 6 of the Migratory Birds Regulation states: "Subject to subsection 5(9), no person shall (a) disturb, destroy or take a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird, or (b) have in his possession a live migratory bird, or a carcass, skin, nest or egg of a migratory bird except under authority of a permit therefor."

The species was identified by investigators as Red-Tailed Hawk and therefore is a migratory bird and is protected under the Migratory Birds Convention Act. Section 26.2 of the Migratory Birds Regulations speaks to permits for the removal of nests. MNR Cochrane District urges you to contact the appropriate Federal agency for permits and approvals under the Migratory Birds Convention Act.

This confirmation letter is valid for the project as proposed in the natural heritage assessment and environmental impact study, including those sections describing the Environmental Effects Monitoring Plan and Construction Plan Report. Should any changes be made to the proposed project that would alter the NHA, MNR may need to undertake additional review of the NHA.

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

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

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

If you wish to discuss any part of this confirmation or additional comments provided, please contact Jennifer Telford at 705-272-7130.

Yours sincerely,



Roger P. Roy
A/District Manager
Cochrane District - OMNR

cc. Jim Beal, Renewable Energy Provincial Field Program Coordinator, Regional
Operations Division, MNR
Narren Santos, Environmental Assessment and Approvals Branch, MOE

Appendix Q

**Letter of Confirmation –
Ontario Ministry of Tourism and Culture**

Ministry of Tourism and Culture

Culture Programs Unit
Programs and Services Branch
401 Bay Street, Suite 1700
Toronto, ON M7A 0A7
Telephone: (416)-314-7691
Facsimile: (416)-314-7175
Email : lan.Hember@ontario.ca

Ministère du Tourisme et de la Culture

Unité des programmes culturels
Direction des programmes et des services
401 Rue Bay, Suite 1700
Toronto, ON M7A 0A7
Téléphone: (416)-314-7691
Télécopieur: 416-314-7175
Email : lan.Hember@ontario.ca



December 8, 2010

Tom Hockin
Northland Power Inc.
30 St. Clair Avenue West
17th Floor
Toronto, ON
M4V 3A1

RE: Long Lake Solar Project, Part Lots 2 & 3, Concession 8, Township of Calder, District of Cochrane, Ontario. FIT-FE8GSGA. MTC File HD00541. PIF P007-280-2010

Dear Proponent:

This letter constitutes the Ministry of Tourism and Culture's written comments as required by s. 22(3)(a) of O. Reg. 359/09 under the *Environmental Protection Act* regarding archaeological assessments undertaken for the above project.

Based on the information contained in the report(s) you have submitted for this project, the Ministry believes the archaeological assessment complies with the *Ontario Heritage Act's* licensing requirements, including the licence terms and conditions and the Ministry's 1993 Archaeological Assessment Technical Guidelines. Please note that the Ministry makes no representation or warranty as to the completeness, accuracy or quality of the Report(s).*

The report(s) recommends the following:

- *That project re-design to avoid impacts to the vicinity of Findspot 1 be discussed with the proponent; and*
- *That the remaining project lands be released from further heritage concerns.*

If avoidance is not possible, then it is recommended that:

- *Findspot 1 be subjected to Stage 3 archaeological assessment*
- *All project work crews, contractors, and subcontractors should be made aware of the findspot*
- *No construction should take place within 50m of the artifact scatter until the archaeological resource has been mitigated*

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site

immediately and engage a licenced (sic) consultant archaeologist to carry out archaeological fieldwork in compliance with Section 48(1) of the Ontario Heritage Act. This condition provides for the potential for deeply buried or enigmatic local sites not typically identified in evaluations of potential.

The Cemeteries Act requires that any person discovering human remains must immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Small Business and Consumer Services. All work in the vicinity of the discovery will be suspended immediately. Other government staff may be contacted as appropriate, however, media contact should not be made in regard to the discovery.

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

The Ministry is satisfied with these recommendations.

This letter does not waive any requirements which you may have under the Ontario *Heritage Act*. A separate letter addressing archaeological licensing obligations under the Act will be sent to the archaeologist who completed the assessment and will be copied to you.

This letter does not constitute approval of the renewable energy project. Approvals of the project may be required under other statutes and regulations. It is your responsibility to obtain any necessary approvals or licences.

Please feel free to contact me if you have questions or require additional information.

Sincerely,

Archaeology Review Officer

c. Paul Racher, Archaeological Research Associates
Kimberly Arnold, Hatch, Ltd

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

Ministry of Tourism,
Culture and Sport

Ministère du Tourisme,
de la Culture et du Sport

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Email: andrew.hinshelwood@Ontario.ca

June 15, 2012

Hatch Ltd.
4342 Queen St., Suite 500
Niagara Falls, ON L2E 7J7

Northland Power
30 St. Clair Ave. W., 17th Floor
Toronto, ON M4V 3A1

Attn.: Kimberley Arnold
larnold@hatch.ca

Tom Hockin
tom.hockin@northlandpower.ca

RE: 115kV Transmission Line

**Geo. Twp. Glackmeyer, Clute and Calder,
District of Cochrane**

MTC File HD000675

MTC PIF P007-378-2011

Dear Proponent:

This letter constitutes the Ministry of Tourism and Culture's written comments as required by s. 22(3)(a) of O. Reg. 359/09 under the *Environmental Protection Act* regarding archaeological assessments undertaken for the above project.

Based on the information contained in the report(s) you have submitted for this project, the Ministry believes the archaeological assessment complies with the *Ontario Heritage Act's* licensing requirements, including the licence terms and conditions and the Ministry's 1993 Archaeological Assessment Technical Guidelines or the 2011 Standards and Guidelines for Consultant Archaeologists (whichever apply). Please note that the Ministry makes no representation or warranty as to the completeness, accuracy or quality of the report(s).*

The Archaeological Assessment Report Entitled, *Stage 1 and 2 Archaeological Assessments 115 kV Transmission Line Geo. Townships of Glackmeyer, Clute and Calder District of Cochrane, Ontario*, dated December 12, 2011, received MTCS Toronto office, December 08, 2011, recommends the following:

- *The Stage 1 and 2 archaeological assessment of the project lands were completed in November, 2011. The Stage 1 background study demonstrated that the study area*

consisted of areas of archaeological potential and areas of no archaeological potential. The Stage 2 property assessment of the project lands, conducted under optimal conditions, did not result in the identification of any archaeological materials.

- *Based on these findings, ARA feels that no further archaeological assessment of the study area would be productive. It is recommended that the project lands be released from further archaeological concerns.*

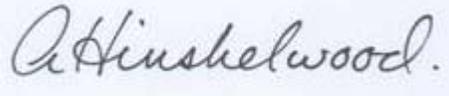
The Ministry is satisfied with these recommendations.

This letter does not waive any requirements which you may have under the Ontario *Heritage Act*. A separate letter addressing archaeological licensing obligations under the Act will be sent to the archaeologist who completed the assessment and will be copied to you.

This letter does not constitute approval of the renewable energy project. Approvals of the project may be required under other statutes and regulations. It is your responsibility to obtain any necessary approvals or licences.

Please feel free to contact me if you have questions or require additional information.

Sincerely,

A handwritten signature in cursive script that reads "A Hinshelwood." The signature is written in black ink on a light blue rectangular background.

Andrew Hinshelwood
Archaeology Review Officer

cc. Paul Racher, ARA, pracher@arch-research.com
Mansoor Mahmood, MOE, mansoor.mahmood@ontario.ca

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