



Canadian Solar Solutions Inc.  
and  
UC Solar Ltd.

Executive Summary

For

2176050  
Solar Energy Project

H335467  
Rev. 2  
January 13, 2012

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January 13, 2012

## Canadian Solar Solutions Inc. & UC Solar Ltd. 2176050 - Solar Energy Project

### Executive Summary

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## List of Acronyms Used in this Summary

AC : alternating current

ANSI : Areas of Natural and Scientific Interest

Canadian Solar : Canadian Solar Solutions Inc.

CPR : Construction Plan Report

dBA : weighted decibels are abbreviated dBA

DOR : Design and Operation Report

DC : direct current

DPR : Decommissioning Plan Report

FIT : Feed In Tariff

ha : hectare

Hatch : Hatch Ltd.

ISO : International Standard Association

Kg : kilogram

kV : kilovolt

kW : kilowatts

m : meter

MCL : Ministry of Culture

mm : millimetre

MOE : Ontario Ministry of the Environment

MTC : Ontario Ministry of Tourism and Culture

MVA : Megavolt-ampere

MW : megawatt

NEMA : National Electrical Manufacturers Association

OPA : Ontario Power Authority

O.Reg. : Ontario Regulation

PDR : Project Description Report

POR : Points of Reception

Project : 2176050 Solar Energy Project

PV : photovoltaic

REA : Renewable Energy Approval

REA Regulation : Ontario Regulation 359/09 – Renewable Energy Approvals

RESOP : Ontario Renewable Energy Standard Offer Program

UC Solar : UC Solar Ltd.

W : watt

## 1. Introduction

### 1.1 General

UC Solar Ltd. ("UC Solar") in partnership with Canadian Solar Solutions Inc. ("Canadian Solar") is proposing to develop a 9 megawatt (MW) solar photovoltaic (PV) project titled 2176050 Solar Energy Project (herein after called the "Project"). As required, UC Solar has completed the necessary requirements of the Renewable Energy Approval (REA) process as described in Ontario Regulation (O.Reg.) 359/09 under the *Environmental Protection Act*, as amended by O.Reg. 521/10, which came in effect as of January 1, 2011.

The Project Location<sup>1</sup> is situated on an approximately 25 hectares (ha) of land on Part of Lot 25, Concession 5, Township of Elizabethtown-Kitley (lower tier municipality), United Counties of Leeds and Greenville (upper tier municipality).

UC Solar Ltd. is the proponent of the Project. The contact information on behalf of UC Solar Ltd. is:

Jeff Roy, Program Manager, Solar Farm  
Canadian Solar Solutions Inc.  
67A Sparks Street, Suite 300  
Ottawa, ON, K1P 5A5

Tel: 519-954-2057 (Office)  
Tel: 613-304-0072 (Cell)  
Fax: 519-837-2550  
Email: [jeff.roy@canadian-solar.com](mailto:jeff.roy@canadian-solar.com)

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

Paul D. Holmes, P. Eng., Environmental Coordinator  
Hatch Ltd.  
2800 Speakman Drive  
Mississauga, ON  
L5K 2R7

Tel: 905-855-7600, ext., 4625  
Fax: 905-855-8270  
Email: [pholmes@hatch.ca](mailto:pholmes@hatch.ca)

### 1.2 Renewable Energy Approval Legislative Requirements

O. Reg. 359/09 – *Renewable Energy Approvals Under Part V.0.1 of the Act*, (herein referred to as the REA Regulation), came into force on September 24, 2009 and identifies the REA requirements for green energy projects in Ontario. The REA Regulation has since been amended by O. Reg. 521/10, which came in effect as of January 1, 2011. In accordance with Part II, section 4 of the REA

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<sup>1</sup> "Project Location means, when used in relation to a renewable energy project, a part of land and all or part of any building or structure in, on or over which a person is engaging in or proposes to engage in the project and any air space in which a person is engaging in or proposed to engage in the project" (O. Reg. 359/09, s. 1 (1)).

Regulation, an REA is required for Class 3 ground-mounted solar facilities with a name plate capacity greater than 12 kilowatts (kW).

The REA Regulation details the required activities and reports to be completed and submitted to the Ontario Ministry of the Environment (MOE) 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. All consultations and activities completed to date have been documented in the *Draft Consultation Report*, which will be submitted to the MOE as part of the REA application.

In accordance with the REA Regulation, the following reports have been prepared, including:

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

Pursuant to sections 16, 17 and 18 of the REA Regulation, these draft documents are to be respectively made available to the Aboriginal communities and to each local and upper-tier municipality greater than 60 days before the final Public Meeting and to the public at least 60 days before the final Public Meeting. Additionally, each local and upper-tier municipality must receive a copy of the MOE's Municipal Consultation Form at least 90 days before the final Public Meeting. A summary of each document must also be prepared and sent to the Aboriginal communities.

In addition, a *Letter of Confirmation* obtained from the Ontario Ministry of Natural Resources (MNR) based on their review of the *Natural Heritage Assessment Reports* and a *Letter of Confirmation* obtained from the Ontario Ministry of Tourism and Culture (MTC) based on their review of the Stage 1 and 2 Archaeological Assessment Report are included herein.

Also, as per sections 19 and 20 of the REA Regulation, a determination was made as to whether or not there are any protected properties (e.g. a property designated under the *Ontario Heritage Act*) or heritage resources located on the Project Location and whether a heritage assessment is required.

Although not strictly required under the REA Regulation, the following additional reports prepared by the Proponent have also been included with this submission:

- Geotechnical Investigation Report.
- Storm Water Management Study Report.

This *Executive Summary Report* and its supporting appendices have been prepared to meet the aforementioned requirements of the REA Regulation.

## 2. Project Information

### 2.1 Project Proponent

UC Solar is a leading PV solar system installer in Ontario. UC Solar was formed five years ago to participate in the Ontario Renewable Energy Standard Offer Program (RESOP). The Company migrated four 9 MW projects over to the new Feed In Tariff (FIT) Program and was successful with two of the projects while awaiting word from the Ontario Power Authority (OPA) on the other two.

UC Solar operates a testing facility in Brockville, Ontario in cooperation with Arizona State Power. Together they have been testing thin-film, PV and concentrated solar systems, along with inverter and tracking components for the last three years. In addition, UC Solar has been designing, testing and building a full line of solar power trackers. UC Solar is now a leading PV solar system installer in Ontario and was recently awarded the contract to design and install a 250 kW system on the Memorial Centre in Brockville, Ontario.

Canadian Solar was founded in Ontario in 2001 and is one of the world's largest solar module producers, delivering solar modules to customers in over 30 countries. Canadian Solar is a leading vertically integrated provider of ingots, wafers, solar cells, solar modules, solar power and systems specialized solar products, including turnkey solutions.

Canadian Solar has recently announced plans to open a new manufacturing facility in Guelph, Ontario that will employ 500 persons and produce 1, 000,000 solar modules per year to supply the Ontario market and meet the REA process requirements for domestic content.

### 2.2 Project Description

The Project is proposed to be constructed on privately owned land consisting of agricultural crop lands. The Project itself is located on approximately 25 hectares (ha) of land on Part of Lot 25, Concession 5, Township of Elizabethtown-Kitley (lower tier municipality), United Counties of Leeds and Greenville (upper tier municipality).

The proposed Project is a renewable energy generation facility which will use solar PV technology to generate electricity. Electricity generated by solar PV panels will be converted from direct current (DC) to alternating current (AC) by inverters, and subsequently stepped-up (via a substation transformer) to a voltage of 44 kV prior to being connected to the existing local distribution line. In order to meet OPA's FIT Program requirements, a specific percentage of equipment will be manufactured in Ontario.

The construction of the Project will begin once the REA has been obtained and a power purchase agreement is finalized with the OPA. The construction period is estimated to be approximately six months. Operationally, the lifespan of the Project will be at least 20 years, which can be extended up to 30 years or more with proper maintenance, component replacement and repowering.

### 2.3 Project Components

A conceptualized depiction of the Project including the Project Location boundaries, existing local roads, topographic contours, existing transmission lines, land uses, significant natural features and waterbodies on and within 300 meters (m) of the Project Location is provided in Figure 2.1. Also depicted are the Project components including the construction laydown area, access roads, solar PV

module arrays, inverter / transformer clusters, substation yard, and the connecting transmission line. Setback distances from identified significant natural features and waterbodies are also shown.

The main components of the Project will include the following:

- Approximately 47,034 solar PV modules, CS6P-230P Model 230 watt (W) solar module. The module's dimensions are 1638 mm long by 982 mm wide by 40 mm thick, and each weighs 20 kg.
- Eighteen 500 kW AC inverters that will convert the direct current supplied by the PV modules to alternating current. Nine pad-mounted 1 Megavolt-ampere (MVA) three-phase, liquid-filled transformers that will 'step up' the voltage to 27.6 kV. Each installation will consist of a pair of 500 kW inverters and a single 1 MVA transformer in one of nine building enclosures to protect the equipment from the weather and to reduce noise emissions.
- A gravel substation yard that will house a 9 MVA three-phase substation transformer that will 'step up' the voltage from 27.6 kV to 44 kV, switchgear, control and monitoring equipment.
- A paved site entrance road and several gravel interior access roads.
- A galvanized chain link fence around the perimeter of the Project Location and a gated entrance.
- A temporary laydown / staging area to be used for construction trailers, material and equipment storage and vehicle parking during construction of the Project.
- A surface water drainage system comprised of grassed swales and roadside ditches.

## **2.4 Project Benefits**

### **2.4.1 Green Energy Act & 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:

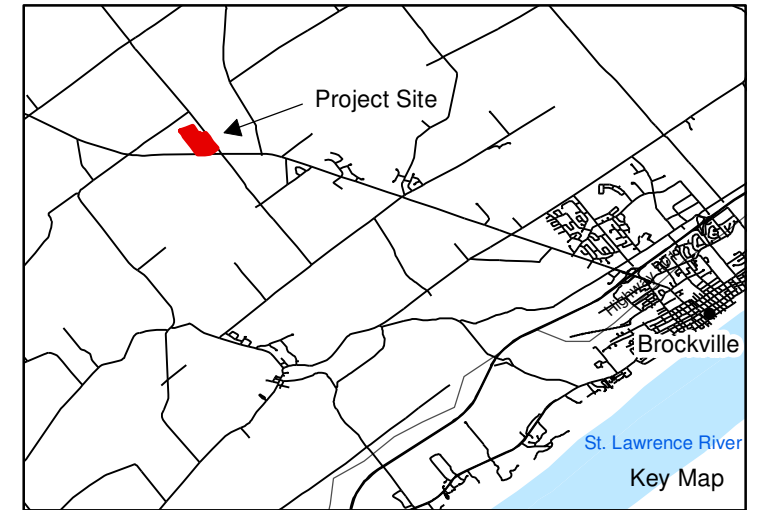
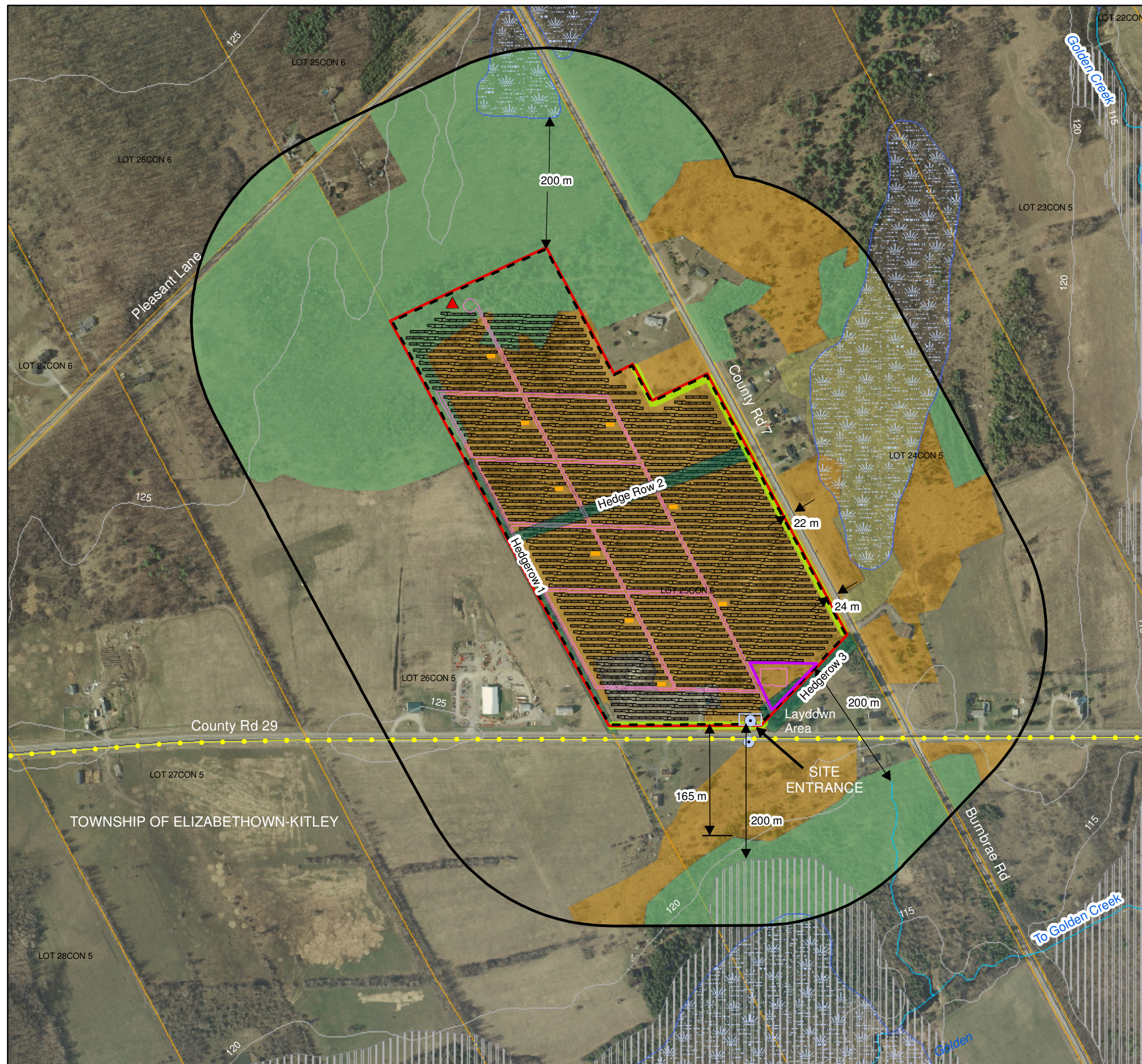
- Spark growth in clean and renewable sources of energy such as solar, wind, hydro, biomass and biogas in Ontario.
- Create the potential for savings and better managed household energy expenditures through a series of conservation measures.
- Create 50,000 jobs for Ontarians in its first three years.

The enactment of the Green Energy and Green Economy Act enabled the creation of the FIT program, which was launched on October 1, 2009. The FIT program is implemented to encourage use of renewable energy sources, 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 OPA awarded 184 FIT contracts to renewable power developers in Ontario on April 8, 2010.

## 2.4.2 Advantages of Solar Energy

Solar power has a multitude of advantages compared to fossil fuel powered energy plants that include:

- **Zero Emissions Energy** – Solar energy is clean, zero emissions renewable energy resource that the Ontario Government is investing in to eliminate coal-fired generation and help mitigate climate change
- **Low Impact** – Unlike many forms of traditional power generation, solar facilities have a minimal impact on the land because there are no permanent structures left on-site after decommissioning. Preferred sites are already disturbed or industrial lands, or agricultural lands with poor soil types. Further, soil conditions are not affected, and could improve over time. Drainage is managed on the site to maintain previous natural flows and minimize erosion.
- **Renewable** – Solar energy decreases Ontario’s reliance on fossil fuels and foreign oil, and delivers a renewable and entirely locally-produced source of energy, promising a more sustainable future for generations to come.
- **Friendly Neighbour** – Solar projects have a minimal visual impact as they have a low vertical profile, especially compared to other renewable energy sources such as wind. Existing vegetation on the site is preserved where possible and utilized as a visual barrier.
- **Immediate Job Creation** – For each 9 MW project developed, considerable benefits will be derived locally during the project construction, which typically extends between 5 to 6 months. In response to aggressive domestic content regulations, the vast majority of materials, supplies, and labour will be sourced locally (i.e. mechanical, electrical, and civil contractors). At peak construction periods there will be 60 to 80 local workers and skilled trades on site.
- **Lasting Impact** – When in service 1 to 2 permanent jobs will be created for the projects’ 20 year operating period and it will contribute to municipal tax revenues. The many solar projects that are being developed because of Ontario’s Innovative FIT Program have captured worldwide interest. They will contribute to Ontario’s Renewable Energy Targets and create a market for solar energy products and services in Ontario that will continue to have a lasting economic impact on the province.



**LEGEND**

**Existing Features**

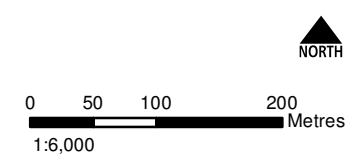
- Road
- Topographic Contour (5 m Interval)
- Watercourse
- Transmission Line
- ▭ Parcel
- ▭ Project Site
- ▭ Project Location
- ▭ 300 m from Project Location

**Natural Features**

- ▨ Provincially Significant Golden Creek-Lambs Pond Complex Wetland
- ▨ Unevaluated Wetland (LIO Mapping)
- ▨ Significant Woodland
- ▨ Cultural Hedge Row
- ▨ Gray Dogwood Cultural Thicket
- ▨ Gray Dogwood Organic Thicket Swamp

**Proposed Project Components**

- ⊙ Substation
- ⊙ Connection Point
- ▲ Communication Tower
- Inverter
- Transmission Line
- Panel Layout
- Access Roads
- Fence
- Tree Planting
- ▭ Laydown Area



Notes:  
 1. OBM and NRVIS data downloaded from LIO, with permission.  
 2. Spatial Referencing UTM NAD 83.  
 3. Air photos from CRCA, flown Spring 2008, scale 1:2000.

Figure 2.1  
 UC Solar Ltd.  
 2176050  
 Site Layout Plan **HATCH**

### 3. Brief Summary of the REA Reports

A list of the mandatory reports that have been prepared as part of the REA application for the Project is provided in Table 3.1. A brief summary of the REA reports is provided below and a more detailed summary of each respective report is provided in the appendices.

The *Project Description Report* (Appendix A) has been prepared to serve as a comprehensive overview document that summarizes all of the important information about the Project. The report describes the Project Location and facility components, the construction, operation and decommissioning activities, potential environmental effects and mitigation measures.

The *Construction Plan Report* (Appendix B), *Design and Operations Report* (Appendix C) and *Decommissioning Plan Report* (Appendix D) have been prepared to describe the proposed Project components (e.g. equipment and materials), activities, potential negative environmental effects and mitigation measures associated with the construction, operation and decommissioning phases of the Project. In addition, these reports provide a communications and emergency response plan, and environmental effects monitoring plan.

The *Natural Heritage Assessment Reports* (Appendix E, F, G and H) have been prepared to identify potential negative environmental effects the Project may have on existing significant natural features (e.g. wetlands, woodlands, wildlife habitat) on and within 120 m of the Project Location. Where potential negative impacts have been identified, mitigation measures are proposed to prevent these effects from occurring or in the event that they do occur, to minimize the magnitude, extent, duration and frequency to an acceptable level. These reports were submitted to the MNR Kemptville District Office and a Letter of Confirmation (Appendix N) has been obtained from the MNR confirming their agreement and acceptance of the findings and recommendations of the *Natural Heritage Assessment Reports*.

The *Water Body Assessment Reports* (Appendix I and J) have been prepared to identify potential negative environmental effects the Project may have on existing water body features (e.g. permanent streams, lakes, seepage areas) on or within proximity to the Project Location. Where potential negative impacts have been identified, mitigation measures are proposed to prevent these effects from occurring or in the event that they do occur, to minimize the magnitude, extent, duration and frequency to an acceptable level.

The *Stage 1 and 2 Archaeological Assessments Report* (Appendix K) was completed by a licensed archaeologist and a report was submitted to MTC. No archaeological resources were found as part of the Stage 1 and 2 archaeological assessments and the report concluded that the Project Location can be considered of any archaeological concerns. A *Letter of Confirmation* (Appendix O) has been obtained from the MTC confirming their agreement and acceptance of the findings and recommendations of the archaeological assessments.

Information was obtained and reviewed which confirmed that the Project is not located on a protected property (e.g. cultural heritage property designated under the *Ontario Heritage Act*) as defined in Column 1 of the Table in section 19(1) of O. Reg. 359/09 (Appendix L). In addition, consultation with the municipality and completion of the MTC – *Check Sheet for Environmental Assessments: Screening for Impacts to Built Heritage and Cultural Heritage Landscapes* (Appendix L)

has determined that there is no need to conduct a heritage impact assessment for the Project under section 23 of O. Reg. 359/09.

A *Noise Study Report* (Appendix M) involving acoustical computer modeling simulations of the Project's operation was prepared to identify potential noise effects on nearby noise receptors (e.g., residential homes). The study confirmed that the acceptable MOE noise level limits will not be exceeded at the locations of the nearest noise receptors.

Based on the findings of the various REA reports, no significant adverse residual environmental effects are expected to occur as a result of the Project construction, operation and decommissioning.

**Table 3.1 Project Reports Prepared for REA**

<b>Appendix</b>	<b>Report Name</b>	<b>Purpose</b>
<b>A</b>	Project Description Report	Summarizes the Project Location, construction and operational activities, potential environmental effects and mitigation, and social and environmental benefits.
<b>B</b>	Construction Plan Report	Provides details on the construction activities, timelines, materials, temporary uses of land, waste materials generated, potential environmental effects, mitigation and monitoring during construction.
<b>C</b>	Design and Operations Report	Provides the site layout plan, Project components, operations and maintenance activities, communications and emergency response plan, potential environmental effects, mitigation measures and a monitoring plan during operation.
<b>D</b>	Decommissioning Plan Report	Provides the activities to be undertaken during Project decommissioning and site restoration, environmental effects and mitigation, and a communications and emergency response plan.
<b>E</b>	Natural Heritage Assessment Records Review Report	Provides information from existing documentation on natural features on and within 120 m of the Project Location including: ANSI (earth science and life science), valleylands, woodlands, wetlands and wildlife habitat.
<b>F</b>	Natural Heritage Assessment 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 Location.
<b>G</b>	Natural Heritage Assessment Evaluation of Significance Report	Evaluates the significance of any natural features located on and within 120 m of the Project Location.
<b>H</b>	Natural Heritage Assessment Environmental Impact Study	Identifies potential negative environmental effects on natural features and proposes mitigation measures as well as monitoring programs to prevent or minimize adverse effects.
<b>I</b>	Water Body Records Review Report	Provides information from existing documentation on water body features on and within 120 m of the Project Location including: lakes, permanent and intermittent streams and seepage areas and within 300 m of a lake trout lake.
<b>J</b>	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 Location.
<b>K</b>	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 physical site investigation confirming the archaeological potential.
<b>L</b>	Protected Properties and Heritage Resources Information Summary	Documents the assessment of potential effects on protected properties and heritage resources.
<b>M</b>	Noise 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.
<b>N</b>	Letter of Confirmation (Natural Heritage Assessment Reports) – MNR	
<b>O</b>	Letter of Confirmation – (Stage 1 and 2 Archaeological Assessment Report) – MTC	

# Appendix A

## Project Description Report Summary

## Appendix A - Project Description Report Summary

### Introduction

Table 1 of the REA Regulation requires proponents of Class 3 solar projects to prepare a *Project Description Report* (PDR). The PDR is one of the first Project documents prepared once the REA process commences and serves to provide initial Project information to the public, Aboriginal groups, municipalities and other government agencies. As the REA process progressed, the PDR was updated based on information obtained from various studies and preliminary engineering of the Project. The final version of the PDR serves as a comprehensive overview document that summarizes all of the important information about the Project. This document is a summary of the *Project Description Report* for the 2176050 Solar Energy Project as per section 17 of the REA Regulation.

### Project Overview

The proposed Project is a 9 MW renewable energy generation facility which will use solar PV technology to generate electricity. Electricity generated by solar PV panels will be converted from DC to AC by inverters, prior to being connected to the existing local distribution line.

Project construction will begin once the REA has been obtained and a power purchase agreement is finalized with the OPA. The construction period is estimated to be approximately 8 months. Operationally, the lifespan of the Project will be at least 20 years, which can be extended up to 30 years or more with proper maintenance, component replacement and repowering.

The Project Location consists of former agricultural lands, which are now covered by successional vegetation. Based on the findings of the various REA reports, there is significant woodland and significant wildlife habitat features on and within 120 m of the Project Location. There are no provincially significant wetlands or waterbodies on or within 120 m of the Project Location. There are no protected properties, built heritage or cultural landscapes on or within 120 m of the Project Location. The Stage 1 & 2 Archaeological Assessment did not identify any archaeological resources on the Project Location.

The Project will operate year round generating electricity when sufficient solar irradiation conditions exist. The Project will be operated remotely and does not require a permanent on-site operator. For general monitoring and site maintenance, two part time or full-time facility personnel would be dispatched from a central operations office as needed. Inspection and maintenance activities would be conducted periodically through the year, with primary activities including inspection of components and maintenance of ground cover vegetation.

There are no significant hazards involved in the operation of the Project, nor are hazardous materials used in, stored on the site or created by the Project during its operation. Project operation will not result in the discharge of contaminants or pollutants to the air, nor will the Project generate significant quantities of waste. The Project will not generate any wastewater (sewage) or discharge any liquid effluent from its operation.

The only noise emissions associated with the Project operation will be from the inverters and intermediate transformers, which will only operate during daylight hours. As per the *Noise Study*

Report (Appendix M), noise emissions from Project operation will be within the acceptable MOE noise level limits at the locations of the nearest noise receptors.

## Potential Environmental Effects

Based on the findings of the various REA reports, a summary of the potential negative environmental effects associated with the construction, operation and decommissioning phases of the Project are as follows:

- Potential soil erosion and compaction and sedimentation due to construction activities.
- Loss of 2.4 ha of forested woodland vegetation and 22.1 ha of cultural thicket, cultural meadow and hedgerow vegetation.
- Disturbances to nearby sensitive receptors (i.e., houses and institutions) due to noise emissions from the inverters and transformers during operation.
- Loss and alteration of wildlife habitat and avoidance of the Project Location by wildlife during construction and decommissioning phases.
- Minor potential of incidental take of wildlife during construction, operation and decommissioning phases.
- Temporary, non-significant increase in local area traffic from construction vehicles and workforce commuters.
- Potential reductions in local air quality from airborne dust generated from construction activities and exhaust emissions from construction vehicles and equipment.
- Alteration to surface drainage conditions and runoff due to facility installation.
- Alteration to visual landscape due to facility installation.

Mitigation measures have been identified to prevent or eliminate the potential negative environmental effects as a result of the Project. Potential effects and mitigation measures were assessed in more detail in other Project reports.

# Appendix B

## Construction Plan Report Summary

## Appendix B - Construction Plan Report Summary

### Introduction

Table 1 of the REA Regulation requires proponents of Class 3 solar projects to prepare a *Construction Plan Report* (CPR). The CPR provides details on the construction activities, timelines, materials, temporary uses of land, waste materials generated, environmental effects, mitigation measures and a monitoring plan during construction. This document is a summary of the *Construction Plan Report* for the 2176050 Solar Energy Project as per section 17 of the REA Regulation.

### Construction

Project construction will begin once the REA has been obtained and a power purchase agreement is finalized with the OPA. The construction period is estimated to be approximately six months. Operationally, the lifespan of the Project will be at least 20 years, which can be extended up to 30 years or more with proper maintenance, component replacement and repowering.

The construction process of the Project consists of four phases:

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

#### 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 expected to occur from January to April 2012.

#### Phase 2 - Construction and Installation

Construction and installation of the facility consists of building foundations, trenches for electrical cabling, structural supports for the solar PV module racks, installation of the solar PV modules on the racks, and installation of the inverters and transformers and associated electrical equipment. This includes the underground and above ground cabling installations within the Project Location and the overhead electrical transmission line from the Project substation to the local distribution line.

The construction and installation is expected to occur from April to September 2012.

#### Phase 3 – Testing and Commissioning

Testing and commissioning will be performed on the installation prior to start-up and connection to the power grid. The 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.

The testing and commissioning is expected to occur in September 2012.

#### **Phase 4 – Site Restoration**

Site restoration will occur during and following the final stages of the completion of the Project construction and installation activities. The main objective will be to stabilize and re-instate vegetation within all areas disturbed by the Project construction. Site restoration will include the removal of all construction material, equipment, temporary facilities and waste from the Project Location. Topsoil will be redistributed where required, followed by finished grading and landscaping to achieve proper drainage. Re-vegetation will include planting of native plants and hydro-seeding where required.

The site restoration is expected to occur in September 2012.

### **Environmental Effects Monitoring Plan**

Table 5.1 in the *Construction Plan Report* provides a detailed summary of the potential negative environmental effects and proposed mitigation measures to ensure that no significant adverse environmental impacts to the environment will occur as a result of construction of the Project.

Table 5.2 in the *Construction Plan Report* provides the details of the proposed *Environmental Effects Monitoring Plan* that will be implemented for the construction 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.

Overall, no significant adverse impacts to the environment are anticipated to occur as a result of construction of the Project.

# Appendix C

## Design and Operations Report Summary

## Appendix C - Design and Operations Report Summary

### Introduction

Table 1 of the REA Regulation requires proponents of Class 3 solar projects to prepare a *Design and Operations Report* (DOR). The DOR provides the site layout plan, Project components, operations and maintenance activities, communications and emergency response plan, environmental effects, mitigation measures and a monitoring plan during operation. This document is a summary of the *Design and Operations Report* for the 2176050 Solar Energy Project as per section 17 of the REA Regulation.

### Facility Components

The main components of the Project will include the following:

- Approximately 47,034 solar PV modules, CS6P-230P Model 230 watt (W) solar module. The module's dimensions are 1638 mm long by 982 mm wide by 40 mm thick, and each weighs 20 kg.
- Eighteen 500 kW AC inverters that will convert the direct current supplied by the PV modules to alternating current. Nine pad-mounted 1 Megavolt-ampere (MVA) three-phase, liquid-filled transformers that will 'step up' the voltage to 27.6 kV. Each installation will consist of a pair of 500 kW inverters and a single 1 MVA transformer in one of nine building enclosures to protect the equipment from the weather and to reduce noise emissions.
- A gravel substation yard that will house a 9 MVA three-phase substation transformer that will 'step up' the voltage from 27.6 kV to 44 kV, switchgear, control and monitoring equipment.
- A paved site entrance road and several gravel interior access roads.
- A galvanized chain link fence around the perimeter of the Project Location and a gated entrance.
- A temporary laydown / staging area to be used for construction trailers, material and equipment storage and vehicle parking during construction of the Project.
- A surface water drainage system comprised of grassed swales and roadside ditches.

### Facility Operation Plan

The Project will operate year-round and generate electricity during daylight hours. The Project does not require a permanent on-site operator as it will be operated remotely. For general monitoring and maintenance purposes, two local personnel may be hired and will be dispatched from a central operations office as needed. A Project Facility Manager will be responsible for day-to-day management of all Project facilities. 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.

There are no significant hazards involved in the operation of the Project, nor are hazardous materials used on the site, stored on the site or created by the Project during its operation. The Project will not generate significant quantities of waste from its operation nor will the Project generate any

wastewater (sewage) or discharge any liquid effluent from its operation. Project operation will not result in the discharge of contaminants or pollutants to the air.

The only noise emissions associated with Project operation will be from the inverters and intermediate transformers, which will only operate during daylight hours. A detailed *Noise Study Report* has confirmed that the applicable MOE noise level limits will not be exceeded at the locations of the nearest noise receptors.

## Inspection and Maintenance

The Project Location grounds including vegetation coverage, drainage systems and trees will be monitored and maintained regularly. Vegetation abatement such as grass cutting may be required several times throughout the summer months. No hazardous chemicals would be used for this vegetation control. Any constructed drainage features (e.g. grassed swales, culverts) and any erosion and sediment control measures (e.g. rip rap protection, rock flow checks) will be visually inspected for any signs of erosion or sedimentation and recorded in a log book.

The need to clean the solar PV modules will be determined according to local weather conditions, such as the quantity and frequency of rain and snow at the Project Location. At the very most, it is expected that the modules will require cleaning quarterly, but it is possible that cleaning the modules will not be necessary at all. If required, water trucks will bring water to the site to supply the water required. No chemicals will be used for the cleaning of the modules.

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.

During winter, Project access roads will be ploughed to clear snow to maintain access of personnel to Project facilities within the site. Under most winter conditions, snow is expected to melt due to the module heating and the tilt of the module. Under some conditions, manual snow removal may be performed by maintenance personnel.

## Environmental Effects, Mitigation and Monitoring

Table 5.1 in the *Design and Operations Report* provides a detailed summary of the potential negative environmental effects and proposed mitigation measures to ensure that no significant adverse environmental impacts to the environment will occur as a result of operation of the Project.

Table 5.2 in the *Design and Operations Report* provides the details of the proposed *Environmental Effects Monitoring Plan* that will be implemented for operation 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.

## Emergency Response Plan

The *Project Emergency Response and Communications 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 potential emergency scenarios that include: fire, personal injury and spills.

All Project personnel will be properly trained in the emergency response and communications procedures set out in the Plan.

## **Conclusions**

No significant adverse impacts to the environment are anticipated to occur as a result of operation of the Project.

# Appendix D

## Decommissioning Plan Report Summary

## Appendix D - Decommissioning Plan Report Summary

### Introduction

Table 1 of the REA Regulation requires proponents of Class 3 solar projects to prepare a *Decommissioning Plan Report* (DPR). The DPR provides the activities to be undertaken during Project decommissioning and site restoration, environmental effects and mitigation, and a communications and emergency response plan. This document is a summary of the *Decommissioning Plan Report* for the 2176050 Solar Energy Project as per section 17 of the REA Regulation.

Two scenarios were taken into consideration for the DPR 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, but are expected to be similar to the former scenario.

### Decommissioning Activities

#### Equipment Dismantling and Removal

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

Decommissioning will require dismantling and removal of the electrical equipment, including inverters, transformers, underground cables and overhead lines, the prefabricated inverter enclosures and substation electrical building. Prior to removal of the transformers, the oil will be pumped into a separate industry approved disposal container and sealed to prevent any spill during storage and/or transportation. Equipment and material may be salvaged for resale or scrap value depending on market conditions.

#### 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.

## Site Restoration

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

- Site cleanup, re-grading and, if necessary, restoration of surface drainage swales and ditches. Any damage to tile drains (if present) will be repaired / restored.
- Any trenches / drains excavated by the Project will be filled with suitable materials and leveled.
- The roads, parking areas and substation yard 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.
- Prepared soil, with all the nutrients required for the vegetation to grow will be spread as necessary.
- Native vegetation will be planted as appropriate to provide a rapid return of nutrients and soil structure, and protect against erosion.

## Emergency Response and Communications Plan

The *Project Emergency Response and Communications Plan* will be implemented throughout the decommissioning 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. The Plan provides the emergency response and communications procedures to be used in response to potential emergency scenarios that include: fire, personal injury and spills. All Project personnel will be properly trained in the emergency response and communications procedures set out in the Plan.

## Restoration of Land Negatively Affected by the Project

Following decommissioning of the Project, if any land or water features are negatively affected by the Project, the Proponent is committed to restoring these features as necessary and as practically feasible. This would be subject to environmental requirements and in consultation with the landowner. Note that as per the environmental studies completed for the REA, significant negative impacts to land and water features are not expected.

## Conclusions

During decommissioning, mitigation measures similar to those used for a construction site (e.g. sediment and erosion controls) will be implemented and maintained by the Contractor and inspected by the Contractor's Environmental Site Inspector. The Contractor will be responsible for preparing and submitting environmental monitoring reports to the Proponent's Project Manager to ensure conformance with applicable regulatory requirements.

Overall, no significant adverse impacts to the environment are anticipated to occur as a result of decommissioning the Project.

## **Appendix E**

# **Natural Heritage Assessment Records Review Report Summary**

## Appendix E - Natural Heritage Assessment Records Review Report Summary

### Introduction

Proponents of renewable energy projects are required to complete a *Natural Heritage Assessment* under Part IV, section 24 of the REA Regulation. The *Natural Heritage Assessment Records Review Report* is the first stage of the *Natural Heritage Assessment*, as required under section 25 of the REA Regulation. The purpose of the records review is to gather information about the area in which the Project Location is proposed, identify natural features (including confirmed significant wildlife habitat<sup>1</sup>), and make preliminary determinations about site feasibility. This document summarizes the results of the *Natural Heritage Assessment Records Review Report* for the 2176050 Solar Energy Project as per section 17 of the REA Regulation.

### Summary of Report

The presence / absence of natural features identified on or within 120 m of the Project Location based on the information sources reviewed in the *Natural Heritage Assessment Records Review Report* are summarized below.

- **ANSI (Earth Science and Life Science)** – The information sources reviewed in the *Natural Heritage Assessment Records Review Report* did not identify any confirmed significant or potential ANSIs on or within 120 m of the Project Location.
- **Valleyland** – The information sources reviewed in the *Natural Heritage Assessment Records Review Report* did not identify any confirmed significant or potential valleylands on or within 120 m of the Project Location.
- **Wetland** – The information sources reviewed in the *Natural Heritage Assessment Records Review Report* identified an unevaluated wetland within the eastern 120 m setback of the Project Location.
- **Woodland** – The information sources reviewed in the *Natural Heritage Assessment Records Review Report* identified potential woodlands on and within 120 m of the Project Location. The presence / absence of these woodlands is discussed in the *Natural Heritage Assessment Site Investigation Report*.
- **Wildlife Habitat** – The *Natural Heritage Assessment Records Review Report* identified potential wildlife habitat on and within 120 m of the Project Location. The *Natural Heritage Assessment Records Review Report* is summarized for each of the following wildlife habitat types.
  - ◆ Habitats of Seasonal Concentrations of Animals: The *Natural Heritage Assessment Records Review Report* identified potential habitats of seasonal concentrations of animals on and

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<sup>1</sup> “Confirmed Significant Wildlife Habitat” means an area of significant wildlife habitat verified using procedures established or accepted by MNR (Natural Heritage Assessment Guide – MNR, 2010) and consists of areas identified in existing planning documents such as official plan schedules (Natural Heritage Reference Manual - MNR, 2010).

within 120 m of the Project Location based on the species with ranges that overlap the Project.

- ◆ Rare Vegetation Communities: The *Natural Heritage Assessment Records Review Report* identified potential rare vegetation communities that could occur on and within 120 m of the Project Location.
- ◆ Specialized Habitats for Wildlife: The *Natural Heritage Assessment Records Review Report* did not identify any confirmed specialized habitats for wildlife on or within 120 m of the Project Location. However, this does not preclude them from occurring and they will be considered during the site investigation.
- ◆ Habitats of Species of Conservation Concern: The *Natural Heritage Assessment Records Review Report* identified potential habitat for species of conservation concern on and within 120 m of the Project Location based on the species with ranges that overlap the Project.
- ◆ Animal Movement Corridors: The *Natural Heritage Assessment Records Review Report* did not identify any confirmed animal movement corridors on or within 120 m of the Project Location. However, this does not preclude them from occurring on and within 120 m of the Project Location and, therefore, they will be considered during the site investigation.

The following table (Table 2.1) provides a summary of the determinations made with respect to the presence or absence of a provincial park, conservation reserve and natural features on and within 120 m of the Project Location as a result of a review of the information sources identified in the *Natural Heritage Assessment Records Review Report*.

**Table 2.1 Summary of Determinations Made as a Result of the Information Reviewed in the *Natural Heritage Assessment Records Review Report*.**

Determination to be Made	Yes/No	Description
Is the Project Location in or within 120 m of a provincial park or conservation reserve?	No	There are no provincial parks or conservation reserves within 120 m of the Project Location.
Is the Project Location in a natural feature?	Yes	There are woodlands in the northern Portion of the Project Location. According to the MNR Kemptville, there is also moose late winter area at the Project Location. Since the area boundary is not available through the NHIC mapping system, the site investigation will determine the extent of this habitat of seasonal concentration of animal. There are no other confirmed significant wildlife habitat types on the Project Location, however, there is potential wildlife habitat based on the species identified in this report.
Is the Project Location 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 Location within 120 m of a natural feature that is not an ANSI (earth science)?	Yes	There is an unevaluated wetland located within the eastern 120 m setback. There is potential wildlife habitat within 120 m of the Project Location based on species with ranges that overlap the Project. There are also woodlands within 120 m of the Project Location.

## Conclusions

The *Natural Heritage Assessment Records Review Report* identified potential natural features on and within 120 m of the Project Location. These include potential wildlife habitat and woodlands on and within 120 m of the Project Location as well as an unevaluated wetland within the 120 m setback. As a result, site investigations were completed to verify the presence or absence of these natural features and any additional natural features not identified from the information sources reviewed in the *Natural Heritage Assessment Records Review Report*. The results of the site investigations are provided in the *Natural Heritage Assessment Site Investigation Report*.

## **Appendix F**

# **Natural Heritage Assessment Site Investigation Report Summary**

## Appendix F - Natural Heritage Assessment Site Investigation Report Summary

### Introduction

Proponents of renewable energy projects are required to complete a *Natural Heritage Assessment* under Part IV, section 24 of the REA Regulation. The *Natural Heritage Assessment Site Investigation Report* is the second stage of the *Natural Heritage Assessment*, as required under section 26 of the REA Regulation. The purpose of the *Natural Heritage Assessment Site Investigation Report* is to confirm the presence and boundaries of natural features on or within 120 m of the Project Location, verify the accuracy of the information reviewed in the *Natural Heritage Assessment Records Review Report*, identify any additional natural features and determine the presence of candidate significant natural features. This document summarizes the results of the *Natural Heritage Assessment Site Investigation Report* for the 2176050 Solar Energy Project as per section 17 of the REA Regulation.

### Summary of Report

Site investigations were completed in the summer and fall of 2010 and the spring of 2011 to verify the presence or absence of natural features identified in the *Natural Heritage Assessment Records Review Report* and document additional natural features not previously identified on or within 120 m of the Project Location. Information documented during the site investigations included: type, characteristics and attributes of natural features, wildlife observations, vegetation and habitat communities and wildlife habitat types on and within 120 m of the Project Location. To investigate the lands off the Project Location that were unsafe, inaccessible or on private property (and permission could not be obtained from the landowner), alternative site investigations were conducted that involved making observations of the area/features from the property line or public roadway, combined with a desktop review of published information and aerial imagery.

The presence or absence and candidate significant natural features identified on or within 120 m of the Project Location based on observations made during the site investigations are summarized below.

- **ANSI (Earth Science and Life Science)** – The site investigations confirmed that there are no ANSIs on or within 120 m of the Project Location.
- **Valleyland** – The site investigations confirmed that there are no valleylands on or within 120 m of the Project Location.
- **Wetland** – The site investigations confirmed that there is an unevaluated wetland located within the southern 120 m setback of the Project Location. The significance of the wetland is discussed in the *Natural Heritage Assessment Evaluation of Significant Report*.
- **Candidate Significant Woodland** – The site investigations identified candidate significant woodlands on and within 120 m of the Project Location, along the northern part of the Project Location. The significance of the woodland is discussed in the *Natural Heritage Assessment Evaluation of Significance Report*.

- **Wildlife Habitat** – The site investigations confirmed the presence or absence of the following wildlife habitat types on and within 120 m of the Project Location.
  - ◆ Candidate Significant Habitats of Seasonal Concentrations of Animals: The site investigations identified candidate significant *waterfowl nesting areas, raptor winter feeding and roosting areas, habitat for reptile hibernacula* and *amphibian breeding habitat (wetland)* on and within 120 m of the Project Location.
  - ◆ Candidate Significant Rare Vegetation Communities: The site investigations confirmed that there are no *rare vegetation communities* on or within 120 m of the Project Location.
  - ◆ Candidate Significant Specialized Habitats for Wildlife: The site investigations identified candidate significant *habitat for forest area-sensitive species* (Black-throated Blue Warbler, Northern Parula, Ovenbird, Wood Thrush and Veery), *forests providing a high diversity of habitat, woodland raptor nesting habitat, habitat for area-sensitive shrub/early successional breeding bird species*, and *woodlands supporting amphibian breeding ponds* on and within 120 m of the Project Location.
  - ◆ Candidate Significant Habitats of Species of Conservation Concern: The site investigations identified candidate significant *habitat for forest species of conservation concern* (five-lined skink, western chorus frog, Baltimore Oriole, Canada Warbler, Common Nighthawk, Eastern Wood-pewee, Northern Flicker, Olive-sided Flycatcher, Red-headed Woodpecker, Red-shouldered Hawk, Rose-breasted Grosbeak, Rusty Blackbird, Wood Thrush, Yellow Palm Warbler, and northern long-eared bat), *habitat for wetland/riparian species of conservation concern* (western chorus frog, eastern ribbonsnake, snapping turtle, Green Heron and Wilson’s Snipe), *habitat for grassland/agriculture species of conservation concern* (Eastern Kingbird), *habitat for shrub/thicket/early successional species of conservation concern* (Brown Thrasher, Eastern Towhee, and Field Sparrow) and *generalist habitat* (milksnake) on and within 120 m of the Project Location.
  - ◆ Animal Movement Corridors: The site investigations determined that there are candidate *amphibian movement corridors* within 120 m of the Project Location located within the wetland.

The following table (Table 2.1) provides a summary of the determinations made with respect to the presence or absence of a provincial park, conservation reserve and natural features on and within 120 m of the Project Location as a result of the site investigations. A summary of any corrections required to the *Natural Heritage Assessment Records Review Report* as a result of conducting the site investigations is also provided in the following table.

**Table 2.1 Summary of Determinations Made as a Result of the Site Investigations and Corrections Required to the *Natural Heritage Assessment Records Review Report*.**

Determination to be Made as a Result of Conducting the Site Investigation	Yes/No	Determination on Whether Corrections are Required to the Natural Heritage Assessment Records Review Report
Is the Project Location in or within 120 m of a provincial park or conservation reserve?	No	The results of the site investigation determined that there are no provincial parks or conservation reserves on or within 120 m of the Project Location. Therefore, there are no corrections required to the <i>Natural Heritage Assessment Records Review Report</i> with respect to this feature.
Is the Project Location in a natural feature?	Yes	The <i>Natural Heritage Assessment Records Review Report</i> indicated that the Project Location encroaches on a woodland. The site investigation confirmed that the Project Location will encroach upon the woodland and, therefore, no corrections are required to the <i>Natural Heritage Assessment Records Review Report</i> .
Is the Project Location within 50 m of an ANSI (earth science)?	No	The site investigation determined that there are no earth science ANSIs on or within 50 m of the Project Location. Therefore, there are no corrections required to the <i>Natural Heritage Assessment Records Review Report</i> (Hatch Ltd., 2011) with respect to this feature.
Is the Project Location within 120 m of a natural feature that is not an ANSI (earth science)?	Yes	The site investigation confirmed that the Project Location is within 120 m of a southern wetland and also determined that there is candidate significant wildlife habitat on and within 120 m of the Project Location. Therefore, there are no corrections required to the <i>Natural Heritage Assessment Records Review Report</i> (Hatch Ltd., 2011) with respect to this feature.

## Conclusions

The *Natural Heritage Assessment Site Investigation Report* determined that there is candidate significant woodland and candidate significant wildlife habitat on and within 120 m of the Project Location as well as a candidate significant wetland within the 120 m setback. These candidate significant natural features are discussed further in the *Natural Heritage Assessment Evaluation of Significance Report*.

## **Appendix G**

# **Natural Heritage Assessment Evaluation of Significance Report Summary**

## Appendix G - Natural Heritage Assessment Evaluation of Significance Report Summary

### Introduction

Proponents of renewable energy projects are required to complete a *Natural Heritage Assessment* under Part IV, section 24 of the REA Regulation. The *Natural Heritage Evaluation of Significance Report* is required under section 27 of the REA Regulation to determine the significance of natural features on and within 120 m of the Project Location that were identified in the *Natural Heritage Assessment Site Investigation Report*. The purpose of the *Natural Heritage Evaluation of Significance Report* is to determine whether a natural feature is significant (i.e., valleyland, woodland or wildlife habitat) or provincially significant ANSI (earth science or life science) or wetland), establish whether development prohibitions and setbacks apply, and whether a *Natural Heritage Assessment Environmental Impact Study Report* is required to address potential negative environmental effects associated with the proposed development. This document summarizes the results of the *Natural Heritage Assessment Evaluation of Significance Report* for the 2176050 Solar Energy Project as per section 17 of the REA Regulation.

### Summary of Results

The following candidate significant natural features were evaluated in the *Natural Heritage Assessment Evaluation of Significance Report*. The results of the evaluation and a determination whether the natural features are significant are summarized below.

- **Significant Woodland** – The *Natural Heritage Assessment Evaluation of Significance Report* determined that Woodland 1 located at the northern portion of the Project Location and within the 120 m setback is significant.
- **Significant Wetland** – The *Natural Heritage Assessment Evaluation of Significance Report* determined that Wetland 1 located within the eastern 120 m setback of the Project Location is significant based on a scoped evaluation.
- **Wildlife Habitat** – The *Natural Heritage Assessment Evaluation of Significance Report* evaluated the following wildlife habitat types to determine if they are significant. The results of the evaluation are discussed for each of the following wildlife habitat types:
  - ◆ Significant Habitats of Seasonal Concentrations of Animals: The *reptile hibernacula* on and within 120 m of the Project Location and the *amphibian breeding habitat (wetland)* within the 120 m setback on have been evaluated as significant.
  - ◆ Significant Specialized Habitats for Wildlife: The *habitat for area-sensitive forest species, forests providing a high diversity of habitats, woodland nesting raptors and woodland supporting amphibian breeding ponds* on and within 120 m of the Project Location have been evaluated as significant.
  - ◆ Significant Habitats of Species of Conservation Concern: The *habitat for forest species of conservation concern, habitat for shrub/early successional species of conservation concern, wetland/riparian habitats of species of conservation concern and generalist habitat of*

*species of conservation concern* on and within 120 m of the Project Location have been evaluated as significant.

- ◆ Animal movement corridors: The *amphibian movement corridor* within 120 m of the Project Location has been evaluated as significant.

## Conclusions

The *Natural Heritage Assessment Evaluation of Significance Report* identified a significant woodland and significant wildlife habitat on and within 120 m of the Project Location as well as a significant wetland within the 120 m setback. A *Natural Heritage Assessment Environmental Impact Study Report* has been prepared to 1) assess the potential negative environmental effects on each significant natural feature that may result from the proposed solar PV Project and 2) identify how the potential effects will be addressed through mitigation and monitoring.

## Appendix H

# Natural Heritage Assessment Environmental Impact Study Report Summary

## Appendix H - Natural Heritage Assessment Environmental Impact Study Report Summary

### Introduction

Proponents of renewable energy projects that are proposing to construct, install or expand a renewable energy generation facility (such as a Class 3 solar PV facility), in or within 120 m of a provincial park, conservation reserve or significant natural feature are required to complete a *Natural Heritage Assessment Environmental Impact Study Report* under Part V, section 38 of the REA Regulation. The purpose of the *Natural Heritage Assessment Environmental Impact Study Report* is to identify and assess any negative environmental effects of the Project on a provincial park, conservation reserve or significant natural feature if development is proposed in or within 120 m of these features, identify mitigation measures and describe how the *Environmental Effects Monitoring Plan* and *Construction Plan Report* addresses any negative environmental effects. This document summarizes the results of the *Natural Heritage Assessment Environmental Impact Study Report* for the 2176050 Solar Energy Project as per section 17 of the REA Regulation.

### Summary of Report

The following significant natural features were identified in the *Natural Heritage Assessment Evaluation of Significance Report*. A summary of the potential negative environmental effects and recommended mitigation measures for each of these significant natural features is provided below.

- **Significant Woodland** – There will be direct and indirect impacts to the significant woodland along the northern boundary of the Project Location.
  - ◆ Potential Impacts – Removal of trees and shrubs at the edge of the woodland will reduce the size of the woodland. Edge effects and fragmentation is not expected as tree removal is proposed along the periphery of existing woodland. Tree clearing will not affect the species composition or the woodland function as a result of hydrological changes. The woodland will still provide hydrological benefits to the unevaluated wetland. Damage to adjacent trees/shrubs and disturbance to the rooting zone through soil compaction and rutting for species outside of the area proposed for clearing. Perimeter fencing could prevent larger species from using or moving through the Project Location and may trap some wildlife. Increased human-wildlife interactions, potential incidental take and avoidance of forest breeding bird species or other wildlife species as a result of tree removal during the construction phase of the proposed development may occur. Dust generation can have a minimal impact on plant growth. However, since construction dust generation is temporary, there should not be an impact on plant composition.
  - ◆ Recommended / Implemented Mitigation Measures – The Project layout was developed through consultation with Hatch biologists to avoid encroachment, fragmentation and change of function of the significant woodland. The work areas will be well marked and construction workforce will be advised to stay within the boundaries of the work areas and not to enter natural vegetation communities off of the Project Location. Once the fence is

completed, a visual search of the Project Location will be conducted to search for any trapped wildlife species. Species observed will be directed off of the Project Location, or collected and transported and released by a qualified person. The fence will not have an impact on wildlife movement for reptiles, amphibians and small mammals. Tree removal will occur outside of breeding bird season (May to end of July). The workforce will be made aware of the potential for wildlife occurring on the Project Location and that measures should be taken to avoid wildlife wherever possible. Known occurrences of incidental take will be documented in the monthly environmental report and if a species of conservation concern is noted, work within the area will be ceased immediately. Work will not start again until a survey is conducted by a trained biologist to ensure there are no species of conservation concern present. Wood clearing will be performed during the construction phase only and negative environmental effects to local wildlife populations as it relates to auditory and visual disturbance will be temporary. Standard construction site best management practices will be implemented to prevent fugitive dust. Felled debris resulting from tree clearing will be spread around the periphery of the woodland as food and to create habitat.

- **Significant Wetland** – There will be no direct impacts to the wetland. However, there are potential indirect impacts that may occur as a result of the proposed solar facility.
  - ◆ Potential Impacts – Increased human-wildlife interactions with wildlife associated with the wetland and avoidance of the wetland by wildlife during the construction and decommissioning phases of the proposed development may occur. The installation of fencing along the perimeter of the Project Location may restrict wildlife movement in and out of the wetland. Dust generated as a result of soil exposure within the Project Location may be carried by winds into the woodland features, potentially affecting growth. There is the potential that deleterious substances spilled during construction activities may enter surface and groundwater and reach the wetlands.
  - ◆ Recommended / Implemented Mitigation Measures – The Project layout was developed through consultation with Hatch biologists to have the least amount of impact on the wetland and to avoid and prevent encroachment within the wetland. Barriers to wildlife movement as a result of fencing are expected to be negligible given the amount of natural areas and agricultural lands surrounding the Project Location. Best management practices will be implemented to minimize fugitive dust. A spill clean-up procedure and emergency response plan and appropriate equipment, with all staff trained in proper implementation in the event of a spill will be prepared.

#### Significant Habitats of Seasonal Concentrations of Animals

- **Significant Reptile Hibernacula** – There will be direct and indirect impacts to reptile hibernacula on and within 120 m of the Project Location as a result of the proposed solar energy project.
  - ◆ Potential Impacts – Larger trees within the Hedgerow 1 will be cut or topped to reduce shading effects; however, the stumps and rock piles within the hedgerow will remain. Increased human-wildlife interactions, potential incidental take and avoidance of reptiles as a result of increased noise and traffic volumes during site preparation, construction, operation and decommissioning phases may occur.

- ◆ Recommended / Implemented Mitigation Measures – Hibernacula sites within Hedgerow 1 will not be disturbed by the development of the Project. The workforce will be made aware of the wildlife species that may occur on the Project Location and will carry out visual monitoring prior to performing activity within the work area. Any hibernacula sites found during all phases of the Project will be avoided and they will be demarcated to ensure that they are not disturbed or destroyed. Work during the construction and decommissioning phases of the Project will follow best management practices to promote ecological integrity which will benefit the naturalized areas on the Project Location. Felled debris and rocks cleared from the Project Location will be used to construct hibernacula sites along the periphery of the Project Location. To protect hibernating snakes and those staging near hibernacula sites, any work within Hedgerow 1 will occur outside the period of September 15 to May 15.
- **Significant Amphibian Breeding Habitat (wetland)** – There will be no direct impacts to the amphibian breeding habitat of the wetland within the 120 m setback of the Project Location. There may be indirect impacts that occur as a result of the proposed solar energy project.
  - ◆ Potential Impacts – Increased human-wildlife interactions with wildlife associated with the wetland and avoidance of the wetland by wildlife during the construction and decommissioning phases of the proposed development may occur. The installation of fencing along the perimeter of the Project Location may restrict wildlife movement in and out of the wetland. Dust generated as a result of soil exposure within the Project Location may be carried by winds into the woodland features, potentially affecting growth. There is the potential that deleterious substances spilled during construction activities may enter surface and groundwater and reach the wetlands.
  - ◆ Recommended / Implemented Mitigation Measures – The Project layout was developed through consultation with Hatch biologists to have the least amount of impact on the wetland and to avoid encroachment within the wetland. Barriers to wildlife movement as a result of fencing are expected to be negligible given the amount of natural areas and agricultural lands surrounding the Project Location. Best management practices will be implemented to minimize fugitive dust. A spill clean-up procedure and emergency response plan and appropriate equipment, with all staff trained in proper implementation in the event of a spill will be prepared.

#### Significant Specialized Habitats for Wildlife

- **Significant Habitat for Area-sensitive Forest Species** – There will be direct and indirect impacts on area-sensitive forest species as the proposed solar facility will encroach upon the southern portion of the woodland.
  - ◆ Potential Impacts – Land clearing along the southern edge of the woodland will result in the loss of interior habitat within the woodland which will reduce the amount of available habitat for area-sensitive forest species. Increased human-wildlife interactions and avoidance of forest species during the construction, operation and decommissioning phases of the proposed development may occur. The solar farm may produce adjacency effects resulting in diminished use of existing habitat by area-sensitive species. The installation of fencing along the perimeter of the Project Location may restrict wildlife movement.

- ◆ Recommended / Implemented Mitigation Measures – The Project Location results in the least amount of impact and limits the amount of direct impacts on the significant woodlands. Barriers to wildlife movement as a result of fencing are expected to be negligible given the amount of natural areas and agricultural lands surrounding the Project Location.
- **Significant Forests providing a High Diversity of Habitats** – There will be direct and indirect impacts on forests providing a high diversity of habitats.
  - ◆ Potential Impacts – Removal of trees and shrubs at the edge of the woodland will reduce the size of the woodland. Edge effects and fragmentation is not expected as tree removal is proposed along the periphery of existing woodland. Tree clearing will not affect the species composition or the woodland function as a result of hydrological changes. The woodland will still provide hydrological benefits to the unevaluated wetland. Damage to adjacent trees/shrubs and disturbance to the rooting zone through soil compaction and rutting for species outside of the area proposed for clearing. Perimeter fencing could prevent larger species from using or moving through the Project Location and may trap some wildlife. Increased human-wildlife interactions, potential incidental take and avoidance of forest breeding bird species or other wildlife species as a result of tree removal during the construction phase of the proposed development may occur. Dust generation can have a minimal impact on plant growth. However, since construction dust generation is temporary, there should not be an impact on plant composition.
  - ◆ Recommended / Implemented Mitigation Measures – The Project layout was developed through consultation with Hatch biologists to avoid encroachment, fragmentation and change of function of the significant woodland. The work areas will be well marked and construction workforce will be advised to stay within the boundaries of the work areas and not to enter natural vegetation communities off of the Project Location. Once the fence is completed, a visual search of the Project Location will be conducted to search for any trapped wildlife species. Species observed will be directed off of the Project Location, or collected and transported and released by a qualified person. The fence will not have an impact on wildlife movement for reptiles, amphibians and small mammals. Tree removal will occur outside of breeding bird season (May to end of July). The workforce will be made aware of the potential for wildlife occurring on the Project Location and that measures should be taken to avoid wildlife wherever possible. Known occurrences of incidental take will be documented in the monthly environmental report and if a species of conservation concern is noted, work within the area will be ceased immediately. Work will not start again until a survey is conducted by a trained biologist to ensure there are no species of conservation concern present. Wood clearing will be performed during the construction phase only and negative environmental effects to local wildlife populations as it relates to auditory and visual disturbance will be temporary. Standard construction site best management practices will be implemented to prevent fugitive dust. Felled debris resulting from tree clearing will be spread around the periphery of the woodland as food and to create habitat.
- **Significant Woodland Raptor Nesting Habitat** – There will be direct and indirect impacts on woodland raptor nesting habitat due to the proposed solar facility.

- ◆ Potential Impacts – Land clearing along the southern edge of the woodland will result in the loss of woodland habitat. Increased human-wildlife interactions and avoidance of forest species during the construction, operation and decommissioning phases of the proposed development may occur. The solar farm may produce adjacency effects resulting in diminished use of existing habitat by area-sensitive species.
- ◆ Recommended / Implemented Mitigation Measures – The Project layout results in the least amount of impact and limits the amount of direct impacts on the significant woodlands. To avoid the incidental take of birds, land clearing will occur outside the period of breeding birds (May through the end of July).
- **Significant Woodlands Supporting Amphibian Breeding Ponds** – There will be no direct impacts on the woodlands supporting amphibian breeding ponds. However, there will be indirect impacts due to the proposed solar facility.
  - ◆ Potential Impacts – Land clearing activities may change water drainage patterns affecting the quality and quantity of woodland amphibian breeding habitat. Land clearing may increase sedimentation of water and reduce water quality for breeding amphibians. The loss of the cultural thicket community may reduce the amount of available habitat for amphibians requiring woodland breeding ponds.
  - ◆ Recommended / Implemented Mitigation Measures – Best management practices will be implemented to minimize sedimentation. Land grading, where necessary, will ensure water flows mimic to the extent possible pre-construction conditions. The solar facility will be revegetated with native vegetation which will provide some habitat for amphibians.

#### Significant Habitats of Species of Conservation Concern

- **Significant Habitat for Forest Species of Conservation Concern** – There may be direct and indirect effects on forest species of conservation concern as a result of the proposed solar facility.
  - ◆ Potential Impacts – Potential impacts are minimal and primarily associated with disturbance and site avoidance during site preparation, construction and decommissioning of the solar facility. Adjacency effects associated with the Project may reduce the quality of the habitat for some avian species. Increased human-wildlife interactions and avoidance of forest breeding bird species during the construction, operation and decommissioning phases of the proposed development may occur.
  - ◆ Recommended / Implemented Mitigation Measures – The Project layout was developed through consultation with Hatch biologists to have the least amount of impact on this significant woodland community. The work areas will be well marked and construction workforce will be advised to stay within the boundaries of the work areas and not to enter natural vegetation communities off of the Project Location. Once the fence is completed, a visual search of the Project Location will be conducted to search for any trapped wildlife species. Species observed will be directed off of the Project Location, or collected and transported and released by a qualified person. The fence will not have an impact on wildlife movement for reptiles, amphibians and small mammals. Known occurrences of incidental take will be documented in the monthly environmental report and if a species of conservation concern is noted, work within the area will be ceased immediately. Work will

not start again until a survey is conducted by a trained biologist to ensure there are no species of conservation concern present. Wood clearing will be performed during the construction phase only and negative environmental effects to local wildlife populations as it relates to auditory and visual disturbance will be temporary. Best Management practices will be implemented to prevent fugitive dust. To the extent possible, activities within 120 m of the woodland will be avoided during the breeding season (May through to the end of July).

- **Significant Habitat for Wetland/Riparian Species of Conservation Concern** – The impacts to the habitat of these species is negligible.
  - ◆ Potential Impacts – Increased human-wildlife interactions with wildlife associated with the wetland and avoidance of the wetland by wildlife during the construction and decommissioning phases of the proposed development may occur. The installation of fencing along the perimeter of the Project Location may restrict wildlife movement in and out of the wetland. Dust generated as a result of soil exposure within the Project Location may be carried by winds into the woodland features, potentially affecting growth. There is the potential that deleterious substances spilled during construction activities may enter surface and groundwater and reach the wetlands.
  - ◆ Recommended / Implemented Mitigation Measures – The Project layout was developed through consultation with Hatch biologists to have the least amount of impact on the wetland and to avoid and prevent encroachment within the wetland. Barriers to wildlife movement as a result of fencing are expected to be negligible given the amount of natural areas and agricultural lands surrounding the Project Location. Best management practices will be implemented to minimize fugitive dust. A spill clean-up procedure and emergency response plan and appropriate equipment, with all staff trained in proper implementation in the event of a spill will be prepared.
- **Significant Habitat for Generalist Species of Conservation Concern (milksnake)** – There will be potential direct and indirect impacts to habitat for the milksnake as a result of the proposed solar energy project.
  - ◆ Potential Impacts – Loss of woodland habitat and cultural thicket habitat may occur. Although milksnake were not physically observed on the Project Location, if present, potential abandonment of part of its habitat may occur due to the conversion of natural areas into developed areas. Increased human-wildlife interactions, potential incidental take and avoidance of milksnake as a result of increased noise and traffic volumes during construction, operation and decommissioning phases may occur.
  - ◆ Recommended / Implemented Mitigation Measures – Potential negative environmental effects to milksnake populations as it relates to auditory and visual disturbance will be temporary. Re-vegetation of the Project Location with native groundcover vegetation such as meadow species to promote milksnake habitat may occur. Increased workforce awareness on potential wildlife that can occur on the Project Location and visual monitoring prior to performing activity within the work area will be carried out. To reduce potential incidental take of milksnake, land clearing will work from the centre of the Project Location to the periphery to allow wildlife to move to adjacent habitat. Known occurrences of incidental take of milksnake will trigger an immediate cease of work and the MNR/Environment

Canada will be contacted to make them aware of the occurrence. Work in the area will remain ceased until a survey is conducted by a trained biologist to ensure that there are no species of conservation concern present in the area.

#### Animal Movement Corridors

- **Significant Amphibian Movement Corridor** – There will be indirect effects to this habitat as the proposed solar facility will not encroach upon the wetland.
  - ◆ Potential Impacts – Increased human-wildlife interactions, incidental take and avoidance of habitat by amphibian species as a result of increased noise and traffic volumes during the construction, operation and decommissioning phases of the proposed development may occur. Sedimentation and degradation of the wetland may occur.
  - ◆ Recommended / Implemented Mitigation Measures – Sediment and erosion control measures will be applied prior to, during and post-construction activities as required. These areas will be monitored frequently and maintained to ensure their effectiveness. A grading plan will ensure that post-development surface runoff peak flows mimic pre-construction condition peak flows and drainage patterns.

## Conclusions

The *Natural Heritage Assessment Environmental Impact Study Report* determined that there will be direct impacts to wildlife habitat within the woodland on and within 120 m of the Project Location as a result of the proposed solar energy project. Mitigation measures have been proposed to prevent these effects from occurring or to minimize the magnitude, extent, duration and frequency in the event that they do occur. An *Environmental Effects Monitoring Plan Report* and *Construction Plan Report* have been prepared and include details on how the potential negative environmental effects will be addressed through monitoring and mitigation during the construction, operation and decommission phases of the Project.

## **Appendix I**

# **Water Body Records Review Report Summary**

## Appendix I - Water Body Records Review Report Summary

### Introduction

Proponents of renewable energy projects are required to complete a *Water Body Assessment* under Part IV, section 29 of O. Reg. 359/09 (herein referred to as the REA Regulation). The *Water Body Records Review Report* is the first stage of the *Water Body Assessment*, as required under section 30 of the REA Regulation. The purpose of the *Water Body Records Review Report* is to review published and unpublished records from a variety of information sources to determine whether the Project Location is on or within 120 m of a water body or within 300 m of a lake trout lake. Records were searched from the MOE, MNR, Ontario Ministry of Agriculture, Food and Rural Affairs, federal and municipal government (i.e. United Counties of Leeds and Grenville, Township of Elizabethtown – Kitley) and other relevant sources. This document summarizes the results of the *Water Body Records Review Report* for the 2176050 Solar Energy Project as per section 17 of the REA Regulation.

### Summary of Report

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

- A wetland is located approximately 65 m east of the Project Location, partly within the 120 m setback (there is no indication that this wetland encompasses a water body feature)
- Unclassified wetland located approximately 250 m north of the Project Location
- Golden Creek located about 650 m east of the Project Location
- A tributary of Golden Creek located about 200 m southeast of the Project Location
- A watercourse that runs in a north-south direction located approximately 215 m southeast of the Project Location
- The NRCAN topographic mapping did not identify any water features within 120 m of the Project Location
- The Township of Elizabethtown-Kitley Official Plan (2009) Schedules A2 and A3 (Elizabethtown-Kitley Central/South) (<http://www.elizabethtownkitley.on.ca/siteengine/ActivePage.asp?PageID=76>) identified Lambs Pond and Golden Creek situated northeast and east of the Project, respectively, similar to that identified on the OBM mapping

The following table (Table 2.1) summarizes the results and determinations made as a result of the records reviewed in the *Water Body Records Review Report*.

**Table 2.1 Summary of Records Review Determinations**

Determination to be Made	Yes/No	Description
Is the Project Location in a water body?	No	No part of the Project will be constructed 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	No lakes were identified on or 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	No lake trout lakes were identified on or within 300 m of the Project Location.
Is the Project Location within 120 m of the average annual high water mark of a permanent or intermittent stream?	No	No permanent or intermittent streams were identified on or within 120 m of the Project Location.
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.

## Conclusions

The *Water Body Records Review Report* determined that there are no water body features on or within 120 m of the Project Location. Site investigations, as required in section 31 of the REA Regulation were completed to i) confirm the presence / absence of the water body features identified in the *Water Body Records Review Report* and any additional water body features not previously identified, ii) determine if any corrections are required to the *Water Body Records Review Report* as a result of the site investigations and iii) confirm the boundaries and distances of any water body feature to the Project Location. The results of the site investigations are provided in the *Water Body Site Investigation Report*.

## Appendix J

# Water Body Site Investigation Report Summary

## Appendix J - Water Body Site Investigation Report Summary

### Introduction

Proponents of renewable energy projects are required to complete a *Water Body Assessment* under Part IV, section 29 of the REA Regulation. The *Water Body Site Investigation Report* is the second stage of the *Water Body Assessment*, as required under section 31 of the REA Regulation. The purpose of the *Water Body Site Investigation Report* is to confirm the presence and boundaries of water body features on and within 120 m of the Project Location, verify the accuracy of the information reviewed in the *Water Body Records Review Report* and identify any additional water body features. This document summarizes the results of the *Water Body Site Investigation Report* for the 2176050 Solar Energy Project as per section 17 of the REA Regulation.

### Summary of Report

The site investigation was completed in the fall of 2010 to verify the presence or absence of water body features identified in the *Water Body Records Review Report* and document additional water body features not previously identified on and within 120 m of the Project Location. The results of the site investigations are summarized below.

- **Lake Trout Lake** – The site investigation did not identify any lake trout lakes on or within 300 m of the Project Location.
- **Lakes** – The site investigation did not identify any lakes on or within 120 m of the Project Location.
- **Permanent Stream** – The site investigation did not identify any permanent streams on or within 120 m of the Project Location.
- **Intermittent Stream** – The site investigation did not identify any intermittent streams on or within 120 m of the Project Location.
- **Seepage Areas** – The site investigation did not identify any seepage areas on or within 120 m of the Project Location.

The following table (Table 2.1) provides a summary of the determinations made with respect to the presence or absence of a water body on and within 120 m of the Project Location as a result of the site investigations. A summary of any corrections required to the *Water Body Records Review Report* as a result of conducting the site investigations is also provided in the following table.

**Table 2.1 Summary of Determinations Made as a Result of the Site Investigations and Corrections Required to the *Water Body Records Review Report*.**

Determination to be Made	Yes/No	Corrections Required?
Is the Project Location in a water body?	No	The results of the site investigation have determined that there are no corrections required to the Water Body Records Review Report with respect to water bodies on the Project Location.
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 results of the site investigation have determined that there are no corrections required to the Water Body Records Review Report.
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 results of the site investigation have determined that there are no corrections required to the Water Body Records Review Report with respect to lakes within 120 m of the Project Location.
Is the Project Location within 120 m of the average annual high water mark of a permanent or intermittent stream?	No	The results of the site investigation have determined that there are no corrections required to the Water Body Records Review Report.
Is the Project Location within 120 m of a seepage area?	No	The results of the site investigation have determined that there are no corrections required to the Water Body Records Review Report with respect to seepage areas.

## Conclusions

The *Water Body Site Investigation Report* determined that there are no water body features on or within 120 m of the Project Location. As a result, a *Water Body Environmental Impact Study Report* is not required.

## **Appendix K**

# **Stage 1 and 2 Archaeological Assessment Report Summary**

## Appendix K - Stage 1 and 2 Archaeological Assessment Report Summary

### Introduction

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 assessment was to confirm the presence or absence of significant archaeological resources that could represent potential constraints for the proposed 2176050 Solar Energy Project. The assessment included a Stage 1 background study of past archaeological investigations and known archaeological sites within a 2 km radius of the 2176050 Solar Energy Project site. A Stage 2 archaeological assessment was also conducted. This document summarizes the results of the *Stage 1 and 2 Archaeological Report* for the 2176050 Solar Energy Project as per section 17 of the REA Regulation.

### Summary of Report

The Stage 1 and 2 *Archaeological Assessment Report* indicated that the physiographic setting of the Project Location demonstrates a high potential for the recovery of cultural resources. The study area is situated in the Leeds Knobs and Flats physiographic region characterized by flats of clay lying between areas of granite and other Precambrian rock knobs occupying an area of approximately 385 square miles. The study area is located less than 250 m from the locally significant Golden Creek wetland and a tributary of Golden Creek flows less than 100 m south of the study area. Given the location of Golden Creek and the numerous wetland areas, the study area exhibits high archaeological potential.

A Stage 2 archaeological assessment was conducted and no archaeological resources were identified within the subject property.

### Conclusions

The office of the MTC 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 L

# Protected Properties and Heritage Resource Information Summary

## Appendix L – Protected Properties and Heritage Resource Information Summary

### Introduction

Proponents of Class 3 solar projects are required to determine whether the Project Location is on a property described in Column 1 of the Table to section 19 of the REA Regulation. Section 23 of the REA Regulation requires proponents of Class 3 solar projects, as a result of the consideration mentioned in subsection 20, to determine whether engaging in the renewable energy project may have an impact on a heritage resource described in subsection 20 (1). This document is a summary of the Protected Properties and Heritage Resource Information obtained for the 2176050 Solar Energy Project as per section 17 of the REA Regulation.

### Protected Properties

The table (Table 1.1) following the conclusion of this summary has been prepared to determine whether the Project Location is on a property described in Column 1 of the Table to section 19 (1) of the REA Regulation.

### Heritage Assessment

The checklist provided in the table (Table 1.2) following the conclusion of this summary was used to help identify potential cultural heritage resources, determine how important they are and indicate whether a cultural heritage impact assessment is needed in accordance with section 23 of the REA Regulation.

### Conclusions

Based on the information presented in the following table (Table 1.1) the Project is not located on a Protected Property as described in Column 1 of the Table to section 19 of the REA Regulation. In addition, research and agency consultation undertaken as described within Table 1.2 has not identified the need for a heritage impact assessment under section 23 of the REA Regulation.

**Property:** 2176050 (UC Solar Ltd.)

**Address:** Latitude 44° 37'51.65"N Longitude 75° 48'15.43"W; Part of Lot 25, Concession 5

**Township and County:** Township of Elizabethtown-Kitley, United Counties of Leeds and Greenville

**Table 1.1 Protected Properties Table Under Section 19 (1) of the REA Regulation**

Item	Description of Property	Reference
1	A property that is subject of an agreement, covenant or easement entered into under clause 10(1)(b) of the <i>Ontario Heritage Act</i> .	See MCL Check Sheet Step 2, Item 4. The property is not designated under clause 10(1)(b) of the <i>Ontario Heritage Act</i> .
2	A property in respect of which a notice of intention to designate the property to be of cultural heritage value or interest has been given in accordance with section 29 of the <i>Ontario Heritage Act</i> .	Consultation with the municipality, as per MCL Check Sheet Step 2, Item 8 has not determined that a notice of intention to designate has been given. In addition, The MCL Ontario Heritage Properties Database includes properties designated under Part IV of the <i>Ontario Heritage Act</i> . The Project is not proposed to be located on or adjacent to such a property.
3	A property designated by a municipal by-law made under section 29 of the <i>Ontario Heritage Act</i> as a property of cultural heritage value or interest.	Consultation with the municipality, as per MCL Check Sheet Step 2, Item 8 has not determined that the Project is located on a property designated by a municipal by-law. In addition, The MCL Ontario Heritage Properties Database includes properties designated under Part IV of the <i>Ontario Heritage Act</i> . The Project is not proposed to be located on or adjacent to such a property.
4	A property designated by order of the Minister of Culture made under section 34.5 of the <i>Ontario Heritage Act</i> as a property of cultural heritage value or interest of provincial significance.	The MCL Ontario Heritage Properties Database includes properties designated under Part IV of the <i>Ontario Heritage Act</i> . The Project is not proposed to be located on or adjacent to such a property.
5	A property in respect of which a notice of intention to designate the property as property of cultural heritage value or interest of provincial significance has been given in accordance with section 34.6 of the <i>Ontario Heritage Act</i> .	The MCL Ontario Heritage Properties Database includes properties designated under Part IV of the <i>Ontario Heritage Act</i> . The Project is not proposed to be located on or adjacent to such a property.
6	A property that is subject of an easement or a covenant entered into under section 37 of the <i>Ontario Heritage Act</i> .	The MCL Ontario Heritage Properties Database includes properties designated under Part IV of the <i>Ontario Heritage Act</i> . The Project is not proposed to be located on or adjacent to such a property.
7	A property that is part of an area designated by a municipal by-law made under section 41 of the <i>Ontario Heritage Act</i> as a heritage conservation district.	The MCL Ontario Heritage Properties Database includes properties designated under Part V of the <i>Ontario Heritage Act</i> . The Project is not proposed to be located on or adjacent to such a property.
8	A property designated as a historic site under Regulation 880 of the Revised Regulations of Ontario, 1990 (Historic Sites) made under the <i>Ontario Heritage Act</i> .	The property is not designated a historic site under Regulation 880.

**Property:** 2176050 (UC Solar Ltd.)

**Address:** Latitude 44° 37'51.65"N Longitude 75° 48'15.43"W; Part of Lot 25, Concession 5

**Township and County:** Township of Elizabethtown-Kitley, United Counties of Leeds and Greenville

**Table 1.2 MTC Checklist Sheet for Environmental Assessments Screening for Impacts to Built Heritage and Cultural Heritage Landscapes**

Step 1 – Screening Potential Resources			
		Built heritage resources	Reference
Yes	No	Does the property contain any built structures, such as:	The following resources were assessed using Google Earth 5.2.1.1329 (beta) on July 7, 2010 supplemented by topographic survey data prepared by the Proponent. All lands for the Project Location are on land cultivated for agricultural use.
	√	Residential structures (e.g. house, apartment building, trap line shelter)	N/A
√		Agriculture (e.g. barns, outbuildings, silos, windmills)	There is one building on the Project Location which appears to be a barn or agricultural structure.
	√	Industrial (e.g. factories, complexes)	N/A
	√	Engineering works (e.g. bridges, roads, water/sewer systems)	To the south of the Project Location is County Road 29. To the east of the Project is Burnbrae Road. There are no municipal potable water services or sewer services supplying the Project Location.
		Cultural heritage landscapes	
Yes	No	Does the property contain landscapes such as:	
	√	Burial sites and/or cemeteries	N/A
	√	Parks	N/A
	√	Quarries or mining operations	N/A
	√	Canals	There are nearby wetlands.
√		Other human-made alterations to the natural landscape	Land has been cultivated for agricultural use, but is now covered by successional vegetation.

Step 2 – Screening Potential Significance			
Yes	No	A property's heritage significance may be identified through the following:	Reference
			According to the MCL Ontario Heritage Properties Database there are heritage properties located within the Township of Elizabethtown-Kitley; however, they are not within the vicinity of the Project Location. (Website search: 07Jul10)
	√	1. Is it designated or adjacent to a property designated under the Ontario Heritage Act?	See general comment above.
	√	2. Is it listed on the municipal heritage register or provincial register (e.g. Ontario Heritage Bridge List)?	See general comment above.
	√	3. Is it within or adjacent to a Heritage Conservation District?	None of Ontario's Heritage Conservation Districts are located within the Municipality according to the MCL's current list. (Research completed 07Jul10 <a href="http://www.culture.gov.on.ca/english/heritage/conservation/conservation_list.htm">http://www.culture.gov.on.ca/english/heritage/conservation/conservation_list.htm</a> )
	√	4. Does it have an Ontario Heritage Trust easement or is it adjacent to such a property?	According to the Ontario Heritage Trust website ( <a href="http://www.heritagefdn.on.ca">www.heritagefdn.on.ca</a> ) 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 07Jul10)
	√	5. Is there a provincial or federal plaque?	There are no provincial plaques located in the vicinity of the Project Location (Research completed 07Jul10 <a href="http://www.ontarioplaques.com/index.html">http://www.ontarioplaques.com/index.html</a> ). Federal plaques appear at National Historical Sites of Canada, none of which exist within the vicinity of the Project (See Item 6 below).
	√	6. Is it a National Historic Site?	National Historic Sites are included within the Ontario Heritage Properties Database (Research completed 07Jul10). In addition, no sites within the vicinity of the Project are listed on the Canadian Register of Historic Places (Research completed 07Jul10). <a href="http://www.historicplaces.ca">www.historicplaces.ca</a> .
	√	7. Does documentation exist to suggest built heritage or cultural heritage landscape potential (e.g. research studies, heritage impact assessment reports, etc.)?	There is no documentation to suggest built heritage or cultural heritage landscape potential near the Project site. Heritage Elizabethtown-Kitley discussed the proposed solar projects at their heritage meeting on August 19, 2010. The Committee has no heritage-related objections to the solar project locations. Tracy Gayda, Chairperson of the Elizabethtown-Kitley Heritage Committee was contacted ( <a href="mailto:tgayda@ripnet.com">tgayda@ripnet.com</a> ) and the response given by John Southin, secretary of the Heritage Committee, to verify this.
√		8. Was the municipality contacted regarding potential cultural heritage value?	
	√	Were any concerns expressed?	
		9. What are the dates of construction?	January to October 2012.
	√	Are the buildings and/or structures over 40 years old?	N/A
	√	Is it within a Canadian Heritage River watershed?	The Project Location is not situated within a Canadian Heritage River watershed.
	√	10. Is a renowned architect or builder associated with the property?	N/A

Note: If you answer "yes" to any of the questions in Step 2, a heritage impact assessment is required.

Step 3 – Screening for Potential Impacts			
Yes	No		Reference
	√	Destruction of any, or part of any, significant heritage attribute or feature.	N/A
	√	Alteration that is not sympathetic, or is incompatible, with the historic fabric or appearance.	N/A
	√	Shadows created that alter the appearance of a heritage attribute or change the visibility of a natural feature or plantings, such as a garden.	N/A
	√	Isolation of a heritage attribute from its surrounding environment, context or a significant relationship.	N/A
	√	Direct or indirect obstruction of significant views or vistas from, within, or to a built and natural feature.	N/A
	√	A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces.	Current successional vegetation land use will be discontinued within the Project Location during operation of the Project. This use could be restored if the Project operation was to cease at the end of its operational lifetime. No change to the Municipal land use designation or zoning is required for renewal energy projects approved under O. Reg. 359/09.
	√	Land disturbances such as a change in grade that alters soils and drainage patterns that adversely affect an archaeological resource.	No significant changes to topography or surface drainage patterns are anticipated as a result of the Project. A Stage 1 and 2 archaeological assessment was completed for the Project Location and the lands were determined to be clear of any archaeological resource potential.

# Appendix M

## Noise Study Report Summary

## Appendix M - Noise Study Report Summary

### Introduction

This *Noise Study Report* was prepared in accordance with the document entitled “Basic Comprehensive Certificates of Approval (Air) – User Guide” by the MOE. The sound pressure levels at the points of reception (POR) have been estimated using International Standard Association (ISO) 9613-2, implemented in the CADNA-A computer code. The performance limits used for verification of compliance correspond to the values for rural areas (45 weighted decibels (dBA) for day time, 40 dBA for night time). The results presented in this summary report are based on the best available information at this time. It is the intention that, in the detailed engineering phase of the Project, certified noise data based on final plans and designs will confirm the conclusions of the noise study. This document summarizes the results of the *Noise Study Report* for the 2176050 Solar Energy Project as per section 17 of the REA Regulation.

### Results

- The main sources of noise from the Project will be the step-up transformer, located at the substation, and nine inverter clusters which also include medium-voltage transformers.
- Presently, inverters for the Project consist of the SMA Sunny Central 1000 MV unit which comprises two inverters and one medium voltage transformer, contained in a prefabricated building enclosure. The main sources of noise are the cooling/ventilation fans for the inverters, the electrical components on the inverters and the medium-voltage transformer.
- The POR used in this study were initially identified from Ontario Base Maps (OBM) within a 1.2 km distance from the Project Location.
- The sound pressure levels at the POR were predicted using procedures from ISO 9613-2, which is a widely used standard for evaluation of noise impact in environmental assessments. The sound power levels were estimated from the National Electrical Manufacturers Association (NEMA) standards for the substation transformer.

### Conclusions

Based on the results obtained in this study, the sound pressure levels at the POR will not exceed MOE requirements for rural areas. Any noise issues that might arise during Project operation will be manageable and can be resolved by implementing typical remediation measures. Field measurements will be taken upon completion of installation and during the initial commissioning of the Project to ensure that the noise levels at the POR are within the limits set by the MOE.

## **Appendix N**

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

Ministry of Natural  
Resources

Kemptville District

10 Campus Drive  
Postal Bag 2002  
Kemptville, ON K0G 1J0  
Tel: 613-258-8204  
Fax: 613-258-3920

Ministère des Richesses  
naturelles

District de Kemptville

10 Dr. Campus  
Sac Postal, 2002  
Kemptville, ON K0G 1J0  
Tél.: 613-258-8204  
Télééc.: 613-258-3920



August 30, 2011

Paul Holmes  
Hatch – Environmental Services Group  
4342 Queen St. Suite 500  
Niagara Falls, ON  
L2E 7J7

To Paul Holmes,

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 2176050 Solar Energy Project in Elizabethtown-Kitley Township submitted by Canadian Solar Solutions Inc. and UC Solar Ltd.

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 (if required).
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 assessment report has been prepared in accordance with procedures established by the MNR.

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.

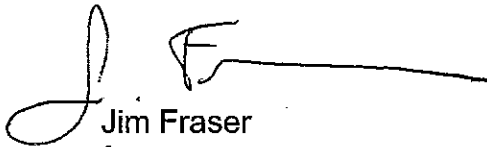
Where specific commitments have been made by the applicant in the NHA with respect to project design, construction, rehabilitation, operation, mitigation, or monitoring, MNR expects that these commitments will be considered in MOE's Renewable Energy Approval decision and, if approved, be implemented 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 Heather Zurbrigg at [heather.zurbrigg@ontario.ca](mailto:heather.zurbrigg@ontario.ca) or at (613)-258-8366

Sincerely,

A handwritten signature in black ink, appearing to be 'J Fraser', with a long horizontal line extending to the right.

Jim Fraser  
for  
Ken Durst  
Kemptonville District MNR

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

## **Appendix O**

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

**Ministry of Tourism and Culture**

Culture Programs Unit  
Programs and Services Branch  
Culture Division  
401 Bay Street, Suite 1700  
Toronto, ON, M7A 0A7  
Telephone: 416/314-7132  
Facsimile: 416/314-7175  
Email : Jim.Sherratt@ontario.ca

**Ministère du Tourisme et de la Culture**

Unité des programmes culturels  
Direction des programmes et des services  
Division de culture  
401, rue Bay, Bureau 1700  
Toronto, ON, M7A 0A7  
Téléphone: 416/314-7132  
Télécopieur: 416/314-7175  
Email : Jim.Sherratt@ontario.ca



July 22, 2011

Mr. Paul Holmes  
Hatch Limited  
2800 Speakman Drive  
Mississauga, Ontario  
L5K 2R7  
[pholmes@hatch.ca](mailto:pholmes@hatch.ca)

**RE: UC Solar Project 2176050, Lot 25, Concession 5, Township of Elizabethtown-Kitley, County of Leeds and Grenville, Ontario, FIT-F-000572-SPV-130-505, MTC File no. HD00628, PIF No. P052-208-2010 and P052-295-2011.**

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 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.\*

The report [P052-208-2010 and P052-295-2011] recommends the following:

*The majority of the subject property consisted of pasture land and rocky areas. All of the subject property was assessed by test pit survey at 5 metre intervals. Soil depths were shallow, generally less than 10 cm and the soils were loamy. The Stage 2 archaeological assessment was conducted by means of a shovel test pit survey at 5 metre intervals (Figure 3). Test pits measured approximately 30cm in diameter and were excavated to bedrock. All soil fills were screened through 6mm mesh and test pits were backfilled. Despite careful scrutiny, no archaeological resources were discovered.*

*In light of these results, it is recommended that:*

- 1. The study area as depicted by Figure 3 should be considered free of any archaeological concern.*
- 2. Should deeply buried archaeological remains be found on the property during construction activities, the Culture Programs Unit of the Ministry of Tourism and Culture (MTC) should be notified immediately.*

3. *In the event that human remains are encountered during construction, the proponent should immediately contact both Ministry of Tourism and Culture (MTC) and the Registrar of Cemeteries of the Cemeteries Regulation Unit of the Ministry of Consumer and Business Services (416) 326-8404.*

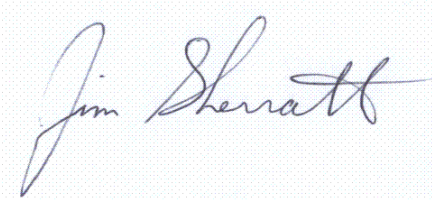
The Ministry is satisfied with these recommendations.

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 "Jim Sherratt". The signature is written in black ink on a light-colored, textured background.

Jim Sherratt  
Archaeology Review Officer  
Eastern Region

- c. Mr. Keith Powers, The Archaeologists Inc.

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\*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.



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