



Canadian Solar Solutions Inc. and
Saturn Power Inc. Joint Venture

Project Description Report

For

Mississippi Mills Solar Park
Proposed Solar Photovoltaic Project

H335467
Rev. 0
July 23, 2010

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July 23, 2010

Canadian Solar & Saturn Power Joint Venture - Mississippi Mills Solar Park

Draft Project Description Report

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1. Introduction

Saturn Power Inc. (hereinafter referred to as “Saturn”) in joint venture with Canadian Solar Solutions Inc. (Canadian Solar) is proposing to develop a 10-MW solar photovoltaic project titled Mississippi Mills Solar Park (hereinafter referred to as the “Project”). As required, Saturn is commencing with the Renewable Energy Approval (REA) process as described in Ontario Regulation 359/09 under the *Environmental Protection Act*. This Project Description Report has been prepared in accordance with O. Reg. 359/09.

The Project is located on Part of Lots 4 and 5, Concession 12, Town of Mississippi Mills (lower tier municipality), County of Lanark (upper tier municipality).

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

Dave Patterson
Project Developer
Saturn Power Inc.
100 Mill Street, Unit F
P.O. Box 6087
New Hamburg, ON
N3A 2K6

Tel: 519-804-9163
Fax: 519-220-5912
Email: dave@saturnpower.ca

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

Paul D. Holmes
Environmental Coordinator
1235 North Service Road West, 5th Floor
Oakville, ON
L6M 2W2

Tel: 905-465-4906
Fax: 905-469-3404
Email: pholmes@hatch.ca

The Project Description Report is the first step in the REA process. Saturn will complete the requirements for obtaining the REA as identified in O.Reg. 359/09.

In April, 2010, Saturn was notified that they had obtained a Feed-In-Tariff (FIT) contract with the Ontario Power Authority (OPA). In the application for the FIT contract, the proposed commercial operations date (COD) has been specified as 731 days from the date of contract date, corresponding to April 27, 2012.

2. Project Details

The following sections are intended to satisfy the requirements of Table 1 to O. Reg. 359/09: Section 10 – Project Description Report which directs the proponent to provide a description of the Project. Further details on the design of the Project will be provided in subsequent required reports as per O. Reg. 359/09, including the Construction Plan Report, Design and Operations Report and the Decommissioning Plan Report.

2.1 Energy Sources to Generate Electricity

Solar energy will be used to generate electricity.

2.2 Facilities, Equipment and Technology

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

At this time the solar module information, including make, model, size, dimensions, number of modules, etc. has not been determined.

2.3 Class of the Renewable Energy Facility

The Project will be a Class 3 solar facility. That is, the Project is ground mounted and greater than 10 kW.

2.4 Federal Involvement

No Federal lands or resources will be utilized for the Project and based on the resources within the Project area, issues under Federal jurisdiction are not anticipated. Therefore, no Federal involvement (including permits and approvals) is required.

2.5 Project Activities

The Project activities involved in the construction, operation and decommissioning phases of the Project are outlined in the following sections. It is anticipated that the time for construction is 4 to 8 months, depending on time of year and various other factors. Prior to construction, the area will be surveyed. Any buried utilities or infrastructure will be located prior to commencing with the access road construction and site preparation.

2.5.1 Access Road Construction

New access roads on private land will be required to allow transport of equipment from the main (municipal) road to the Project site. If necessary, trees will be cut and vegetation cleared, and topsoil removed prior to placement of a granular road base. A one-lane, 5-m wide access road will be constructed for the transportation of equipment to the site. The minimum thickness of the access road granular base and top course material will be at least 30 cm. Ditches and culverts will be constructed, as necessary, to maintain site drainage. Erosion and sedimentation control measures

(e.g., silt fence barriers, rock flow check dams, etc) will be installed if needed. If temporary access roads are to be removed following completion of construction, topsoil will be replaced.

2.5.2 Site Preparation

Trees and large standing vegetation will be cleared from areas where the photovoltaic arrays will be constructed. Where practical, merchantable timber, non-merchantable timber (e.g. firewood) and other cleared vegetation, along with any removed topsoil will be stockpiled adjacent to the access road(s). Locations of topsoil, timber and vegetation stockpiles will be determined in consultation with the landowner and not within 30 m of a water body. If necessary to control sediment, erosion and sedimentation control measures will be installed.

2.5.3 Installation of Support Structures

Foundations and/or support structures will be required beneath transformers, inverters and photovoltaic panels. Detailed engineering for the design of the foundations and support structures are to be completed. However, it is expected that the pads for the transformers and inverters will be concrete slab-on-grade. It is also anticipated that drilling will be completed for the purposes of stabilizing the support structures of the photovoltaic arrays. The photovoltaic panels will be installed on fixed racking structures. Foundation construction and the installation of support structures will be subject to inspection prior to the installation of photovoltaic modules, and wiring.

2.5.4 Underground Cable Installation

DC wiring will run along the structural supports of the photovoltaic arrays. A network of underground DC cabling will be required at the termination point of the photovoltaic arrays to centrally located inverters which will then convert the electricity to AC. A simple trenching device will be used to install the cables, whereby a trench is opened, the cable laid, and the soil replaced.

2.5.5 Distribution Line Erection

An underground distribution line, will be constructed which transports the electricity from the inverters to the transformer. The transformer will step up the voltage, and a distribution connection from the transformer will be erected to transport the generated power from the Project to the 44-kV connection point. The connection point and feeder line are owned by Hydro One Networks Inc. (HONI) which is the local distribution company. The distribution line from the Project to the connection point will be along municipal road right-of-ways. New wooden poles (or existing poles) will be used.

2.5.6 Site Security

The Project will be gated and fenced, with additional security measures installed as deemed necessary by Saturn. This will include security cameras and motion sensor flood lighting.

2.5.7 Operation

The Project will operate year round and generate electricity during daylight hours. The amount of power generated will depend on daily weather conditions and sufficient solar irradiation. The Project will be operated remotely and therefore no employees will be on site with the exception of maintenance and inspections.

2.5.8 Maintenance and Inspection

The Project will typically be scheduled for maintenance every 2 to 3 months. Typically, maintenance includes checking the structures, interconnections and cleaning the photovoltaic panels. It is anticipated that the panels will be washed twice a year using on-site water with no cleaning solutions. All maintenance materials (e.g., hydraulic fluids) will be brought to the site as required so no on-site storage of this material will be necessary. The Project will also be inspected if the power output is lower than anticipated as this would be indicative of a mechanical problem.

2.5.9 Decommissioning

A 35 to 40-year lifespan is typically anticipated for the Project. At that time (or earlier if the power purchase agreements are not extended), the Project will be decommissioned or refurbished depending on market conditions and/or technological changes.

If the decision is to discontinue renewable energy generation, the process of decommissioning the Project would involve the following:

- removal of the scrap metal and cabling. Where possible, these materials will be recycled, with non-recyclables taken to an approved disposal site;
- removal of support structures and foundations unless the landowner requests otherwise. These materials will be recycled where possible;
- site cleanup and regrading to original contours and, if necessary, restoration of surface drainage swales and ditches;
- planting of leguminous crops and/or other native vegetation as appropriate to provide a rapid return of nutrients and soil structure;
- removal of the access road unless the landowner requests otherwise.

2.6 Authorizations Required

Permits, licenses and authorizations such as those listed below, in addition to the REA may be required for the Project to proceed:

- Entrance & Building Permit – The local municipality will likely require an entrance permit and a building permit to undertake construction.
- Conservation Authority Permit – Approval from the local Conservation Authority may be required should development occur within the Conservation Authority's Regulated Area.
- Ministry of Natural Resources (MNR) Work Permit and/or Lakes and Rivers Improvement Act Approval – MNR approval will be required should a water crossing be required for the Project.

2.7 Nameplate Capacity

The nameplate capacity of the Project will be up to 10 MW.

2.8 Ownership of the Land

The Project will be located on privately owned lands identified as Part of Lots 4 and 5, Concession 12, Town of Mississippi Mills, County of Lanark. The lands encompass approximately 108 hectares. Saturn has entered into a lease agreement with the landowner for the duration of facility operation.

3. Description of Environmental Effects

3.1 General

This Section presents the results of a preliminary assessment of the potential negative environmental effects that may result from the Project.

The purpose of the assessment is to establish a preliminary identification of those critical aspects of the environment that: (i) may pose a development constraint to the Project (e.g., significant natural heritage feature that requires protection or preservation); (ii) may require a detailed Environmental Impact Study (EIS) (e.g., for potential Project development of lands adjacent to a significant natural heritage feature); and/or (iii) may require specific public, agency or aboriginal input and information specific to the planning and assessing the Project.

It is important to note that at this initial stage in the Renewal Energy Approvals process, the assessment of potential negative environmental effects is largely interpretive based on the experience and judgement of various environmental specialists involved in the planning and design of the Project. At this stage, no detailed site investigations activities have been conducted, nor have any consultation activities been carried out with municipalities, ministry agencies or conservation authorities by the Project environmental consultant. Such activities are proposed to be initiated following MOE's review of this Project Description.

The following activities were conducted as part of the preliminary assessment of potential negative environmental effects:

- Project Site Description.
- Preliminary Records Review.
- Potential Environmental Constraints.
- Preliminary Negative Environmental Effects.

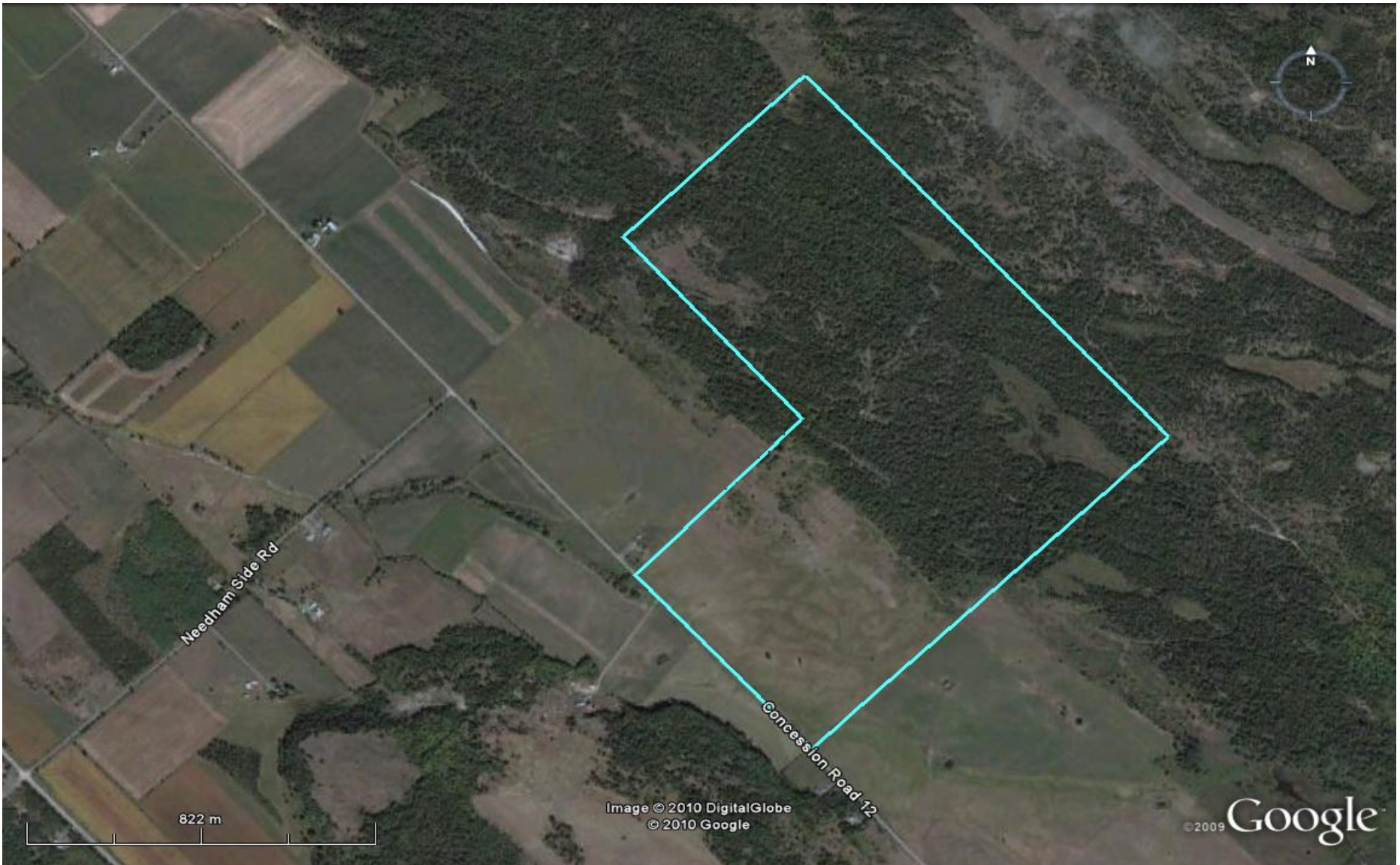
3.2 Project Site Description

The location of the Project site is depicted in Figure 3.1. The site encompasses approximately 108 hectares. The longitude and latitude are 45° 18' 52.02" and 76° 14' 17.26".

Nearby communities include the village of Pakenham which about 3.8km northeast of the site and the Town of Almonte which about 8.8 km to the south. Local roads include Concession Road 12 and Panmure Road to the west and south of the site, respectively.

The eastern half of the site is undeveloped forested and the southwest corner of the site is presumed to be active agricultural lands. A small waterbody/wetland feature is present in the southeast corner of the site. A second watercourse, Haydons Creek is situated in the southwest corner of the site. These watercourse are under the jurisdiction of the Mississippi Valley Conservation (MVC).

Surrounding land use around the site is either forested woodlands or agriculture with a few rural residential dwellings along Concession Road 12.



Google Imagery Date Spetember 2005



Figure 3.1
Saturn Power Inc.
**Mississippi Mills Solar Park
Location Map**

The Township of Mississippi Mills Official Plan (2006) (available on line at: <http://www.mississippimills.ca/building/planning.cfm>) Schedule B (Ward of Pakenham) identifies the western quadrant of the Project site lands as a Agricultural land use policy category and the eastern half of the site as a Rural land use policy category.

3.3 Preliminary Records Review

A preliminary records review was completed to determine where the natural heritage features, water bodies, wetlands (including Provincially Significant Wetlands), quarries/pits, Areas of Natural and Scientific Interest (ANSIs), etc, are located on and in proximity to the Project site.

The preliminary record reviews involved obtaining and reviewing geographic information system (GIS) data available through the Ontario Ministry of Natural Resources (MNR) Land Information Ontario (LIO) database (online at <http://www.mnr.gov.on.ca/en/Business/LIO/index.html>).

Information requested through LIO included, but was not limited to, the following:

- Areas of Natural and Scientific Interest (ANSI)
- Wetlands (incl. significant wetlands)
- Conservations Areas and Reserves
- Environmentally Sensitive Areas
- Significant Wildlife Habitat (such as Deer Wintering Areas)
- Waterbodies and Valleylands
- Provincial/National Parks
- Agreement Forests
- Woodlands
- Aggregate Sites

In addition to LIO information, a geographic query of the MNR Natural Heritage Information Centre (NHIC) database (online at http://nhic.mnr.gov.on.ca/MNR/nhic/queries/geographic_old.cfm) was conducted to determine if any known federal or provincial species at risk have been identified within 1 km of the Project site.

3.4 Potential Environmental Constraints

All relevant feature information obtained from the preliminary records review was mapped and is illustrated on Figure 3.2.

Based on the results of the databases review, the following features were identified that could potentially constrain development of portions of the site:

- Woodlands – There are woodlands located on and adjacent to the Project site.
- Waterbodies – Haydons Creek, and its tributaries flow through the Project site at two locations; the southwest corner and the southeast corner. In addition, tributaries approach the Project site in other locations. The REA Regulation states that no solar panels or transformers can be located within 30 m of a waterbody. Further, if crossing of the waterbodies are needed, permits/approvals may be required which will necessitate the need for detailed design of a watercourse crossing, and, depending on the waterbody, may require fisheries investigations prior to construction in order to document fish species and/or habitat.
- Wetlands – Several small wetlands are present on and within 120 m of the Project site.

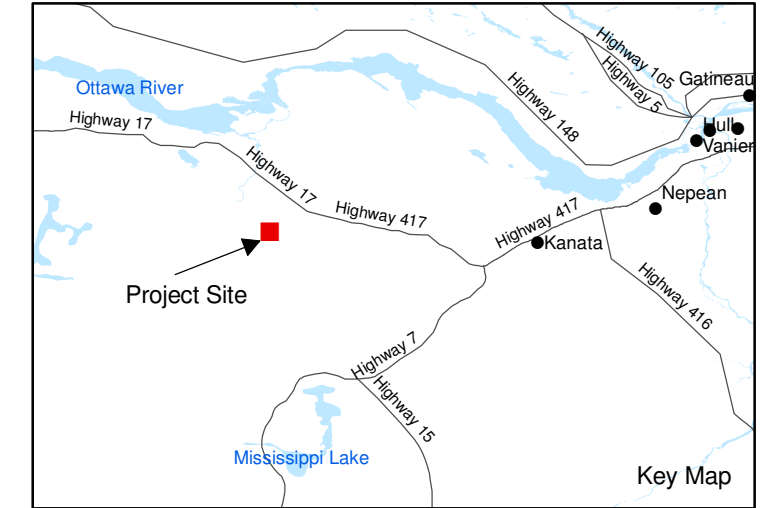
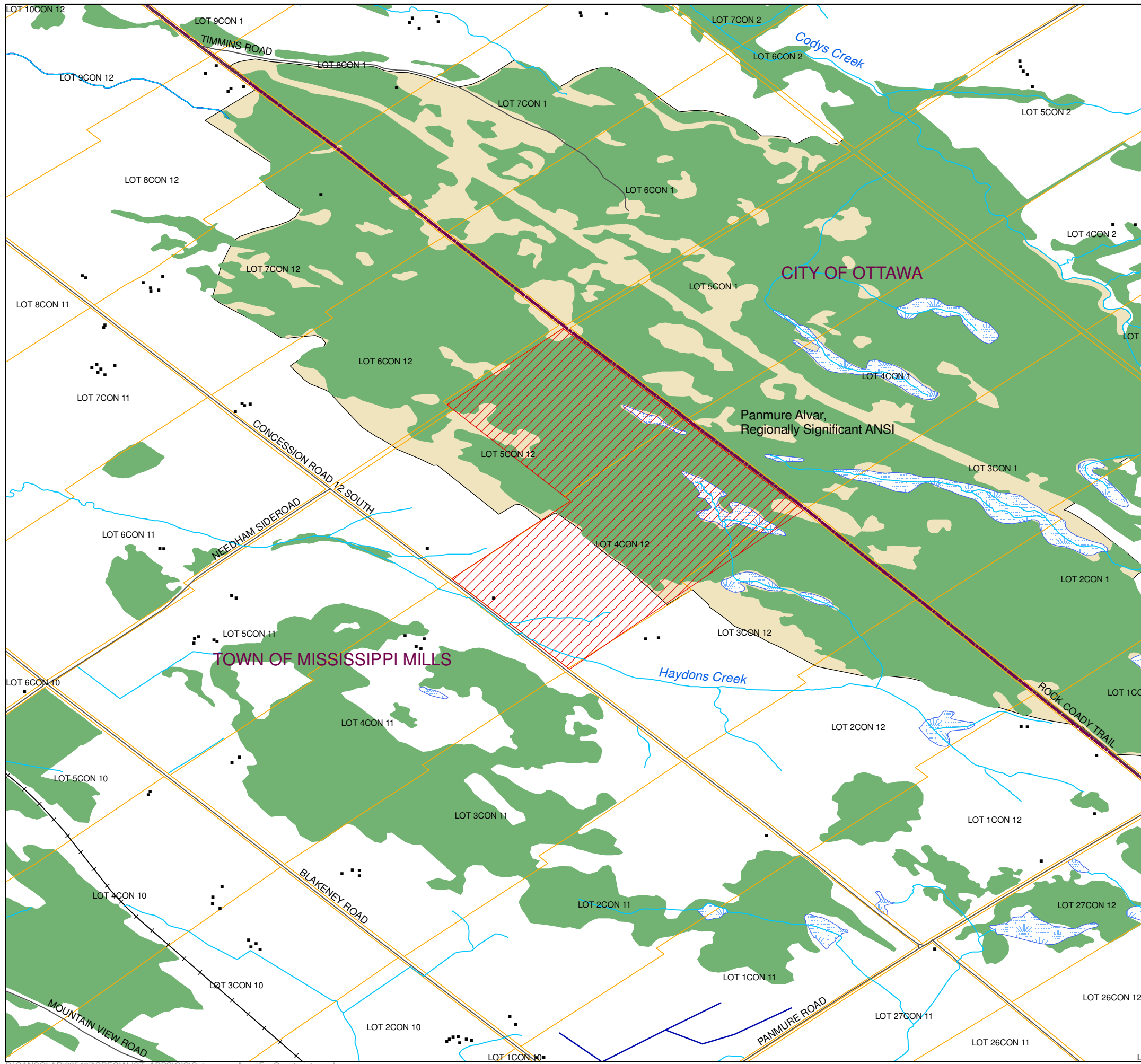
- Areas of Natural and Scientific Interest – A portion of the Project site is located on the Panmure Alvar Regionally Significant Candidate Life Science ANSI.
- Wildlife Habitat – Alvars are a type of wildlife habitat that can be considered significant due to its rareness within the province
- Species at Risk – There is a record of the provincially and federally threatened Stinkpot turtle (*Sternotherus odoratus*) from the area. Any critical habitat of species identified as threatened or endangered under the *Endangered Species Act, 2007* or the *Species at Risk Act* would likely impact the development of certain portions of the Project site..

As part of the REA process for the Project, if environmental features are determined to be significant and within required setbacks from the Project, an Environmental Impact Study (EIS) will be prepared. It is anticipated the EIS will determine the impacts to these features and mitigation measures will be developed to minimize or eliminate the negative effects. In addition, if any water bodies are within the specified setbacks, an EIS will also be prepared.

3.5 Potential Negative Environmental Effects

The potential negative environmental effect of the Project on the environmental components identified from the records review and constraint mapping are provided in Table 3.1.

In addition, other environmental components (i.e., not related to natural heritage features, wetlands, ANSIs, water bodies, etc.) have been included in Table 3.1. However, since these environmental components have not been researched and field studies and impact assessments have not been completed, these potential impacts provided are generic to some solar projects and will not necessarily be realized on this Project.



- Legend**
- Building
 - Watercourse
 - Rail
 - Roads
 - ▨ Project Site
 - ▭ Municipality
 - ▭ Parcels
 - ▭ Waterbody
 - ▭ Wetland
 - ▭ Wooded Area
 - ▭ Candidate ANSI, Life Science
- ANSI - Area of Natural and Scientific Interest

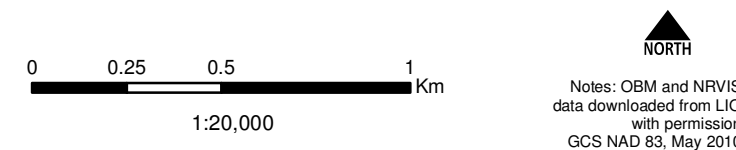


Figure 3.2
 Saturn Power Inc.
Mississippi Mills Solar Park
Potential Environmental Constraints

Table 3.1 Potential Negative Environmental Effects

Environmental Component	Potential Environmental Effect
Natural Environment	
Physiography/Topography	During construction, regrading of excavated soils and some minor alterations to local topography may occur.
Soils	During construction, some soil compaction by heavy equipment and possible soil erosion from runoff from exposed areas. Minor potential for effects to soil quality as a result of accidental spills during construction
Aggregate Resources	Not applicable.
Surface Water	No negative effects to surface water runoff regime are expected since rainfall runoff from solar panels will be directed to grassed and vegetated areas. Minor potential for effect to water quality as a result of soil erosion during construction or accidental spills.
Groundwater	No negative effects to groundwater are expected since no major changes to ground water recharge conditions are expected and no major excavations involving significant groundwater dewatering will occur. Minor potential for effect to groundwater quality as a result of accidental spills.
Aquatic Habitats/Biota	The installation of the Project may result in negative impacts to fish and fish habitat, if watercourse crossings are required. Potential effects on fish and fish habitat, and mitigation requirements associated with watercourse crossings (if required) will be reviewed during detailed design.
Areas of Natural and Scientific Interest	The Panmure Alvar Candidate Life Science ANSI may be directly encroached upon depending upon layout. This encroachment may result in removal of vegetation as well as land grading and ditching. There may also be indirect effects by Project activities, such as the generation of dust during construction which could impact vegetation communities.
Wetlands	It is not anticipated that construction will be required within the boundaries of the on-site wetland, however the wetland may be indirectly effected by Project activities, such as the generation of dust during construction.
Valleylands	Not applicable.
Woodlands	Clearing of the woodlands on the Project site may be required. Woodlands adjacent to the Project site may be indirectly effected by Project activities, such as the generation of dust during construction which could impact vegetation communities.
Vegetation	Vegetation clearing within natural vegetation communities will be required, which may result in negative impacts to vegetation communities and wildlife habitat.
Terrestrial Wildlife / Wildlife Habitat (including species at risk)	Potential loss of wildlife habitat and potential wildlife avoidance of the Project area during construction and operation may occur as a result of disturbance.
Air Quality	Reductions in local air quality from operation of construction equipment and dust displacement may occur due to vehicle traffic.
Social Environment	
Land Use	Current land use will be discontinued within the Project footprint.
Tourism and Recreation	Any tourism or recreational resources existing within the immediate Project vicinity will be considered in determining potential impacts.

Environmental Component	Potential Environmental Effect
Archaeological and Cultural Heritage Resources	Excavations during Project construction may result in the discovery of archaeological resources. Archaeological assessments will be conducted to determine potential. Potential heritage resources will be determined as per the requirements of the Ministry of Culture.
Sound Levels	Temporary disturbance to neighbouring residents may occur during construction. The operation of inverters and transformers may result in increased ambient sound levels. Noise studies in accordance with O.Reg. 359/09 are required to meet sound levels.
Visual Landscape	Installation of the Project will result in a change to the local landscape. If necessary, mitigation may include retention of existing vegetation around the site and/or inclusion of berms and/or tree plantings.
Public and Construction Site Safety	During construction, there could be an increased risk to public and workforce safety on the Project site. During operation, potential risks to public safety are limited.
Local Traffic	During construction, there may be increased local area traffic resulting from workforce commuters as well as temporary delays during equipment delivery to the site.
Municipal Roadways	Construction vehicles may result in damage to local roadways. Municipal 'half-load' requirements for roads will be adhered to. Any damage to local roadways will be repaired or compensated.
Waste Management and Disposal Sites	Construction and operation of the Project will likely result in the generation of recyclable material, and municipal hazardous and sanitary waste.



Suite 500, 4342 Queen Street
Niagara Falls, Ontario, Canada L2E 7J7
Tel 905 374 5200 ♦ Fax 905 374 1157