



Stantec

**DAVID BROWN SOLAR PARK
PROJECT DESCRIPTION REPORT**

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Prepared for:

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1.0 Introduction

1.1 PROJECT OVERVIEW

Saturn Power Inc. (“Saturn”) is proposing to develop, construct and operate the David Brown Solar Park (“the Project”) within the Township of South Stormont, United Counties of Stormont, Dundas and Glengarry, Ontario, in response to the Government of Ontario’s initiative to promote the development of renewable electricity in the province.

For the purposes of this report, the Project Location represents the proposed physical footprint of the Project including the proposed facility components and temporary areas used during construction. The Zone of Investigation includes the Project Location in addition to a 120 metre (m) radius around the Project Location used to conduct environmental investigations.

Figure 1 in Appendix A shows the Project Location, Project Layout and Zone of Investigation.

The Project consists of a proposed 10 Megawatt (“MW”) Solar Photo Voltaic (“PV”) Grid connected system. The basic components of the Project are up to 55,000 solar panels which will be pole mounted on approximately 5,000 solar arrays, a racking system to support the solar panels, direct current cabling and combiner boxes, ten 1 MVA inverter stations consisting of 2 - 500kW inverters and a 1 MVA step-up transformer per inverter station, an underground AC collection system, a distribution pole line, temporary construction laydown area, access roads and an additional potential constructible area and a transformer substation that facilitates connection to an existing Hydro One Networks Inc. (HONI) distribution line at the point of common coupling (PCC). Additional information with regard to the Project can be found at: (www.saturnpower.ca).

The Project was awarded a FIT contract (FIT-F2J4W2H) from the Ontario Power Authority (OPA) on February 25, 2011.

Saturn has retained Stantec Consulting Ltd. (“Stantec”) to prepare the Renewable Energy Approval (REA) application, as required under O. Reg. 359/09.

1.2 PROJECT LOCATION

O. Reg. 359/09 defines the Project Location as:

“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 in engaging in or proposes to engage in the project”.

For the purpose of this Project, the Project Location includes a portion of a single property with the legal description *Plan 279, Part Block A, Part Lots 20 to 24, Concession 2 between 401 and Railroad, Township of South Stormont, United Counties of Stormont, Dundas and Glengarry.*

The subject property is approximately 140 acres and is bounded to the north by Highway 401, to the south by the Canadian National Railway corridor, to the east by Dickinson Drive and to the west by the extension of Farrans Point Road (**Figure 1, Appendix A**). The Project Location is approximately 83 acres of the subject property.

1.3 REPORT REQUIREMENTS

The purpose of the Project Description Report is to provide the public, municipalities, Aboriginal communities and regulatory agencies with a preliminary description of the Project, including environmental effects that may result from engaging in the Project.

The Project Description Report has been prepared in accordance with Item 10, Table 1 of O. Reg. 359/09 which includes the requirements outlined in the **Table 1.1**:

Table 1.1: Project Description Report Contents

Requirements	Completed	Section Reference
Set out a description of the following in respect of the renewable energy project:		
1. Any energy sources to be used to generate electricity at the renewable energy generation facility.	✓	2.1
2. The facilities, equipment or technology that will be used to convert the renewable energy source or any other energy source to electricity.	✓	3.0
3. If applicable, the class of the renewable energy generation facility.	✓	2.1
4. The activities that will be engaged in as part of the renewable energy project.	✓	5.0
5. The name plate capacity of the renewable energy generation facility.	✓	2.1
6. The ownership of the land on which the project location is to be situated.	✓	2.1
7. If the person proposing to engage in the project does not own the land on which the project location is to be situated, a description of the permissions that are required to access the land and whether they have been obtained.	✓	2.1
8. Any negative environmental effects that may result from engaging in the project.	✓	6.0
9. If the project is in respect of a Class 2 wind facility and it is determined that the project location is not on a property described in Column 1 of the Table to section 19, a summary of the matters addressed in making the determination.	N/A	N/A
10. If the project is in respect of a Class 2 wind facility in respect of which section 20 applies and it is determined that the project location does not meet one of the descriptions set out in subsection 20 (2) or that the project location is not in an area described in subsection 20(3), a	N/A	N/A

Table 1.1: Project Description Report Contents

Requirements	Completed	Section Reference
summary of the matters addressed in making the determination.		
11. An unbound, well-marked, legible and reproducible map that is an appropriate size to fit on a 215 millimetre by 280 millimetre page, showing the project location and the land within 300 metres of the project location.	✓	Appendix A

2.0 General Information

2.1 KEY FACTS

Key facts of the Project are provided in **Table 2.1** below.

Table 2.1: Key Project Facts			
Fact	Project Info		
Name of the Project	David Brown Solar Park		
Proponent	Saturn Power Inc		
Project Location	See Figure 1, Appendix A. Project is located in the southwest corner of the intersection of Highway 401 and Dickinson Road in the Township of South Stormont, United Counties of Stormont, Dundas and Glengarry in southeastern Ontario.		
Land Ownership	Project components will be constructed on one parcel of land privately owned by Saturn Farms Inc, a wholly owned subsidiary of Saturn Power Inc.		
Legal Description of the Land	Plan 279, Part Block A, Part Lots 20 to 24, Concession 2 between 401 and Railroad, Township of South Stormont, United Counties of Stormont, Dundas and Glengarry.		
Energy Sources	Solar photovoltaic energy – no supplementary fuel sources will be used.		
Class of Facility	Class 3 Solar Facility (defined as solar facilities with nameplate capacities exceeding 12 kW that are in any location other than mounted on the roof or wall of building).		
Nameplate Capacity	10 MW AC		
Geographic Location (southwest corner of property)	971600, 5000408 (UTM Zone 17N, +/- 10m, NAD 83)		
Contact Information	Contact information for the applicant/proponent and consultant is as follows:		
	<table border="0"> <tr> <td>Dave Patterson Commercial Development Manager Saturn Power Inc. 100 Mill ST, Unit F New Hamburg, ON, N3A 2K6 dave@saturnpower.ca (519) 804-9163 (800) 961-8654</td> <td>Julia Kossowski Project Manager Stantec Consulting Ltd. 49 Frederick St Kitchener, ON, N2H 6M7 julia.kossowski@stantec.com (519) 569-4338</td> </tr> </table>	Dave Patterson Commercial Development Manager Saturn Power Inc. 100 Mill ST, Unit F New Hamburg, ON, N3A 2K6 dave@saturnpower.ca (519) 804-9163 (800) 961-8654	Julia Kossowski Project Manager Stantec Consulting Ltd. 49 Frederick St Kitchener, ON, N2H 6M7 julia.kossowski@stantec.com (519) 569-4338
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Project Website: http://www.saturnpower.ca/solar/solar-development			

2.2 AUTHORIZATIONS, PERMITS AND APPROVALS REQUIRED

At the federal, provincial and municipal level, multiple permits, licenses, approvals and authorizations may be required to facilitate the development of the Project, in addition to the REA. The ultimate applicability of all permits, licenses and authorizations will be determined based on the Project's detailed design.

2.2.1 Federal Involvement

It is expected that a Federal EA will not be required for the Project, as the Project is not listed in the Designated Project Regulations under the Canadian Environmental Assessment Act, 2012.

Crossings of navigable watercourses will not be required for the Project and therefore a permit under the *Navigable Waters Protection Act* will not be required. According to consultation with the Raisin Region Conservation Authority, *Fisheries Act Authorization* will not be required for any components of the Project. Based on a records review and site investigation on and within 120m of the Project Location, no species protected under the federal Species at Risk Act have been identified as being potentially impacted by the Project. In addition, the Project is not on federal lands such as national parks, national wildlife areas, Aboriginal reserve land or military training areas.

2.2.2 Provincial

At the provincial level there are multiple permits and approvals that may be required to facilitate the development of the Project, in addition to the REA. Their ultimate applicability will be determined upon the Project's detailed design. **Table 2.2** lists the key permits and approvals that may be required; however additional permits may also be required.

Table 2.2: Key Provincial Permits and Authorizations

Key Permit / Authorization	Administering Agency	Rationale
Connection Impact Assessment	Hydro One Networks Inc. (HONI)	Technical documentation submitted for review and comment by HONI to ensure technical compliance with the Distributed Generation Technical Interconnection Requirements. Upgrades and changes to the utility system will be identified by HONI as part of this submission.
Approval of Connection	IESO	Electrical interconnect with IESO regulated network
Connection Cost Recovery Agreement	HONI	Recovery of costs to grid operator of upgrades to allow connection.
Joint Use Agreement	HONI	Agreement to share infrastructure including trench or pole lines for electrical routing.
Certificate of Inspection	Electrical Safety Authority	A record that completed electrical work complies with the requirements of the Ontario Electrical Safety Code.

Table 2.2: Key Provincial Permits and Authorizations

Key Permit / Authorization	Administering Agency	Rationale
Generator's License	Ontario Energy Board	Authorization for the generation and sale of electrical power within the province.
Notice of Project	Ministry of Labour	Notify the Ministry of Labour before construction begins.
Letter of Clearance	Ministry of Tourism and Culture (MTC)	Potential for archaeological and heritage resources is assessed and reported. These reports are required in order to obtain a Letter of Clearance from the MTC. (Complete)
Letter of Clearance	Ministry of Natural Resources (MNR)	The Natural Heritage Assessment (NHA) to be submitted with the REA must be reviewed by the MNR to confirm compliance and completeness. (Complete)
<i>Endangered Species Act</i> permit	MNR	If provincially listed species at risk are present on the site, a permit would be required from the MNR.
Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses Permit	Raisin Region Conservation Authority	Work within floodplains, water crossings, river or stream valleys, hazardous lands and within or adjacent to wetlands. Projects requiring review or Fisheries Act authorization are forwarded to the Department of Fisheries and Oceans (DFO).
Certificate of Approval – Air (Noise)	Ministry of the Environment	New solar energy facilities require a Certificate of Approval (C of A) for noise.
Building and Land Use Permit	Ontario Ministry of Transportation	Required if placing a building, structure, entrance or any road within 45 m of the limit of any highway. Highway 401 is adjacent to the site and a permit will be required.

2.2.3 Municipal

There is potential for the requirement of some permits and authorizations from the Township of South Stormont and/or the United Counties of Stormont, Dundas and Glengarry, as listed in **Table 2.3**.

Table 2.3: Key Municipal Permits and Authorizations

Key Permit / Authorization	Rationale
Municipal Consent, Work within the Right of Way and/or Road Use Agreement	Required for works in municipal road allowances.
Consent/Severance Application	Required if easements over private lands are needed.
Pre-Condition Survey	Assessment of pre-construction conditions by engineering staff.
Building Permit	Compliance with building codes.
Entrance Permit	Entrance from roads.
Top soil removal permit	If top soil is removed from the property, a permit is required.
Additional Plans related to general engineering (e.g. siltation control, lot grading, plan of services, etc.), water, wastewater, storm water, transportation, and geotechnical	Required supporting information/plans.

3.0 Project Information

The following section outlines the components and activities associated with operation of the Project including:

- Up to 55,000 solar photovoltaic panels pole mounted on approximately 5,000 solar arrays
- Solar Panel Racking system (non-tracking)
- Direct current cabling and combiner boxes
- Ten 1MVA Inverter Stations comprised of two 500kW inverters and a single 1 MVA step up transformer
- Alternating Current Collector system
- One transformer substation for interconnection to the HONI controlled grid
- Communication tower
- Distribution Line
- Access roads
- Temporary staging areas
- Perimeter Fencing

There is no control building on site as the facility is remotely operated.

The west side of the Project Location includes a potential constructible area. This area is not currently slated for development, however if restrictions elsewhere in the Project Location are identified during construction, then Project components may be placed in this area.

The layout of these Project components is shown on **Figure 1, Appendix A.**

3.1 SOLAR PANELS & RACKING SYSTEM

The Project Location will include the installation of up to 55,000 solar panels pole mounted on approximately 5,000 solar arrays. The manufacturer and specifications of the solar panels will be selected by Saturn Power Inc. during the detailed design phase. The representative solar panel make and model that is likely to be used for the Project is the Canadian Solar CS6X - P290 which is a 290 Watt panel measuring approximately 2m x 1m per panel. This panel will be manufactured in Ontario – meeting domestic content requirements. The panels will be installed in a fixed position (not-tracking) at a particular degree of declination facing the south in rows on the racking system.

3.2 RACKING SYSTEM

The racking system supports the solar panels with structural aluminum or galvanized steel racks aligned in rows. The lattice racking system will be supported by upright piles which are secured to the ground by one of several ways including grouted into bedrock, steel helical screw piles,

ballasted foundations and/or direct driven galvanized structural steel piles (approximately 3,000 upright piles are anticipated). Specific site geotechnical conditions for each row will define the method used. The supports are either installed to a depth of up to 2m below the frost level (depending on the amount of soil cover over rock), or, the ballasted foundations are positioned on grade. Once assembled, each rack will hold approximately 44 individual solar panels. The length of each row varies across the Project.

3.3 DIRECT CURRENT CABLING AND COMBINER BOXES

The solar panels generate Direct Current (DC) electricity. The panels are connected in series called a string. The DC cabling from each string is laid in cable tray along the racks to a combiner box, in certain locations the string cabling may be installed underground. A mounted combiner box will collect the DC electricity of several racks and then transmit the DC cabling to one of ten inverter stations. The cabling from the combiner box to the inverter stations will be routed underground in DC trenches.

3.4 INVERTER STATIONS

There are ten inverter stations which each include two 500kW inverters and a 1 MVA transformer. The inverters will convert the 600V DC electricity to alternating current (AC) electricity while the 1 MVA transformer will step-up the AC electricity from the low voltage AC output of the inverter (potentially 208 V) to 27.6 kV. The electricity is then useable at the local distribution grid level.

The two 500 kW inverters will be housed in a weather-protecting enclosure, this enclosure and the 1 MVA transformer will sit on structural beams which will rest on a foundation which may consist of a slab on grade foundation or structural steel pier's which are installed to grade. The overall footprint of the inverter station will be approximately 10m x 4m (40 square metres).

The manufacturer and specifications of the inverters will be selected by the owner during the detailed design phase. The representative inverter make and model that is likely to be used for the Project is the Advanced Energy Solaron 500 kW inverters which are pad mounted and housed inside a weather-protecting enclosure. The approximate dimensions of the unit are 2m high by 1m wide and 2.2 m long.

The manufacturer and specifications of the 1 MVA transformers will be selected by the Engineer-Procure-Construct (EPC) or General Contractor (GC) contractor during the detailed design phase. The pad mounted transformer will likely be mineral oil-filled with approximate dimensions of 2m high by 1.2 m long and 0.8 m wide. There will be no direct hydraulic connection (eg. Drains, sumps or piping) from the transformer to surface or groundwater. All will be self-contained with liquid level gauges.

3.5 COLLECTOR SYSTEM

The 27.6 kV AC electricity from all ten inverter stations will be collected via underground cables (the collection system) to a single transformer substation. The cable would be installed via trenching. Data cabling for the SCADA system will also be installed in the same trench.

3.6 TRANSFORMER SUBSTATION

The transformer substation will accept the 27.6 kV AC electricity from the inverter stations and step-up the electricity to 44 kV AC via a 10 MVA transformer.

This substation will be within a separate fenced-in area containing the 10MVA transformer, 27.6kV and 44 kV switchgear, 44kV disconnects, revenue metering equipment, and communication equipment. All of this equipment is prefabricated and transported to site. The equipment will be supported by either cast-in place slab on grade concrete pads or structural steel piers and the entire fenced in area will be graded and overlaid with a clear stone granular material. The specific make of the electrical equipment such as the 10 MVA transformer and electrical cabinets in the transformer substation will be selected by the EPC contractor during the detailed design phase. For the purpose of the REA process, the transformer substation is assumed to be contained within a 7m x 20m area (140 square meters).

The 10 MVA transformer will be mounted on a cast-in place slab on grade foundation with an integrated oil containment system in the supporting concrete foundation. The containment pit would be sized to hold all loss of the transformer oil, fire suppression water and runoff.

The equipment in the transformer substation will also provide a supervisory control and data acquisition (SCADA) system for monitoring and transfer tripping.

3.7 COMMUNICATION TOWER

A communication tower will be located adjacent to the transformer substation to facilitate communication between the Project and HONI. The communication tower will be a self-supporting structure up to 30 m in height with a concrete cast-in place foundation. There will be a number of communication dishes to allow HONI to communicate in real-time for generation disconnection to ensure that the new generating system does not adversely affect the local grid.

3.8 DISTRIBUTION LINE

From the transformer substation, approximately 300m long distribution line will bring the 44 kV cables to the Point of Common Coupling (PCC) which is located within the Project Location. The distribution line will be supported by wooden poles which would be installed with augured holes.

3.9 ACCESS ROADS

Existing provincial and municipal roads will be used to transport project-related components, equipment and personnel to the Project Location. An existing entrance from Dickinson Road south of the Highway 401 will be used for permanent access to the site.

Gravel access roads will be constructed on-site to provide access to the facility for the duration of the Project. The access roads will vary in width from three to six metres wide except at a turn around and parking area which is shown adjacent to the transformer substation.

An existing access road will be used with an existing culvert as the primary access into the site. No new watercourse crossings are required.

3.10 STAGING AREAS

A temporary staging area will be used for storage of Project materials and equipment on site. The temporary staging area is 9 acres and would support a construction trailer, portable toilets, waste disposal containers and pick-up areas, parking areas, equipment storage and maintenance area, truck unloading and loading area and laydown area for materials and equipment.

A permanent staging area approximately 1 acre in size will be used for future parking within the staging area.

3.11 PERIMETER FENCE AND SECURITY FEATURES

Area security fencing will be constructed around the entire perimeter of the site to ensure security and safety to the panels and the associated ancillary equipment. The chain link fence will likely be barbed and the height will be between 2 and 6 metres.

The facility will be equipped with motion-sensor security lighting at night.

4.0 Key Process Features

The following sections provide information relating to key process features as identified in O.Reg 359/09 and “Technical Guide to Renewable Energy Approvals (MOE, 2012).

4.1 WASTE MANAGEMENT

All wastes associated with the Project will be handled and recycled and disposed of in accordance with regulatory requirements. Minimal waste is anticipated to contribute to local landfill sites.

4.1.1 Solid Waste

Waste material will be generated at, and transported from, the Project Location during construction and decommissioning. Waste material produced by the Project is expected to consist of construction material (e.g., excess fill, soil, brush, scrap lumber and metal, banding, plastic wrap removed from palletized goods, equipment packaging, grease and oil, steel, etc.) and a minor amount of domestic waste (i.e., garbage, recycling and organics). This waste will be managed in accordance with regulatory requirements.

During construction, on site storage in weather-protected areas for collection and separation of waste materials would be located at the laydown area. Domestic and construction waste disposal would be the responsibility of the EPC contractor. The exact truck and method to dispose of the waste would be confirmed and determined by the EPC contractor prior to construction.

During operation, no waste management equipment or facilities is required. Only small waste bins will be located near the substation to collect small amounts of domestic waste and debris resulting from maintenance activities (i.e. broken equipment parts and packaging). A licensed waste disposal company will be hired to periodically empty the waste bins.

4.1.2 Liquid Waste

During construction and decommissioning there would be no liquid waste.

During operation, general maintenance may generate small amounts of waste lubricants and oils. A licensed contractor would be responsible for disposing these wastes at the appropriate facility. The transformers at the inverter stations and the 10 MVA transformers would both have oil that may need maintenance or removal.

4.1.3 Hazardous Waste

Very few hazardous materials relate to the construction and decommissioning of the Project and are limited to fuels and lubricants. These materials would be stored in appropriate storage

containers by the EPC or GC Contractor who would designate that appropriate storage unit type and disposal method.

4.2 AIR AND DUST EMISSIONS

Emissions are expected to occur intermittently during daylight hours over the duration of the construction and decommissioning period. During these phases, an increase in particulate matter (dust) may be experienced in the vicinity of the Project and along Dickinson Road due to vehicle traffic and earth moving activities. There will also be fuel combustion emissions from limited construction machinery and equipment during the same phases. The effects are expected to be localized and temporary and to not cause significant adverse effects on local air quality. Where possible, construction equipment will be equipped with emission control devices and the dust emissions will be minimized through standard construction mitigation techniques. No odour emissions are expected to result from construction or decommissioning of the Project.

During the operational phase of the Project, no substantive emissions of dust, odour or other air contaminants are expected.

All emissions will be managed within the limits set by regulatory requirements.

4.3 NOISE EMISSIONS

The nearest residences to the proposed Project are the homes located on the opposite (north) side of Highway 401. All other nearby buildings are industrial in nature.

The current ambient acoustic environment (baseline) in this area is expected to be influenced by noise from Highway 401 (adjacent to the Project), industrial use of the neighbouring land, local traffic noise, farming practices and the sounds of nature.

During the construction phase, construction activities may lead to elevated noise levels in the area due to construction equipment traffic and construction activities. Efforts will be made to minimize construction noise emissions. In addition, city by-law restrictions for construction, such as construction times, will be followed.

During the operation phase, the sound contribution from the units is expected to be minimal at the nearby receptors. Sources of sound may include the transformers and inverters. Noise levels from the equipment are assessed and documented in the Noise Study Report submitted as part of the REA submission. The assessment confirms that the Project is in compliance with the applicable MOE environmental noise guidelines at all receptors. Periodic activities such as panel washing and general repair and maintenance measures may also cause minimal noise emissions which are expected to have no adverse effects at the nearby receptors and will additionally meet noise control by-law restrictions.

4.4 SEWAGE AND STORMWATER MANAGEMENT

Sanitary waste generated during the construction phase would be collected via portable toilets and wash stations supplied by a licensed third party who would be retained prior to the start of major construction activities. The licensed third party would be responsible for the transportation and disposal of all such waste according to regulatory requirements. The exact type of transportation and number of trips required would be determined and confirmed by the third party prior to construction of the Project. During operation, permanent on-site sanitary facilities are not required. If sanitary facilities are determined to be required, portable toilets and wash stations will be provided by a local sanitation company.

As the solar panels are mounted above the ground, infiltration, filtration through vegetation, and other natural hydrologic processes will continue similar to existing conditions. Surface water from rainfall and snow will infiltrate through the existing permeable ground surface. Excess sheet flow from significant rainfall events will flow to a passive system of ditches/swales alongside roads and within the site. Based on the anticipated lack of changes to hydrology, no detention or treatment of stormwater is expected to be required. A stormwater management plan prior to construction (done as part of the detailed design by the EPC or GC contractor) will ensure post-development flows to the adjacent wetland will be similar to pre-development flows.

4.5 WATER TAKING ACTIVITIES

During construction, no water taking activities are expected to be required. Water will be required during construction for sanitary purposes and dust control purposes. However, in both cases, a temporary water storage facility would be used on site for this purpose, as confirmed by the EPC contractor.

During operation, no water taking activities are expected to be required. Water may be required during maintenance for cleaning of the solar panels, however, a temporary water storage facility would be used by a third party contractor to support panel cleaning.

5.0 Project Activities and Schedule

5.1 PROJECT ACTIVITIES

A general overview of the activities during construction, operation and decommissioning of the Project are provided in the table below.

Table 5.1: Summary of Key Project Activities

Project Phase	Activities
Construction	Surveying and delineation of work areas
	Geotechnical works
	Installation of sediment and erosion control measures (e.g. silt fencing)
	Site clearing, grubbing, stripping
	Access road and laydown area construction
	Delivery of Project components
	Perimeter fencing and entrance gate installation
	Foundation construction (substation and inverter stations, if required)
	Racking system and solar panel installation
	Installation of inverters, intermediate step-up transformers, and substation
	Electrical cable installation – underground and/or aboveground, depending on soil and bedrock conditions
	Site restoration, re-vegetation and landscaping
Operation	Planned maintenance
	Unscheduled maintenance
	Remote Monitoring
	Grounds keeping, including implementation of vegetation management plan beneath solar panels
Decommissioning	Component removal and reuse, recycling, or proper disposal
	Site grading to original contours, dependent upon agreement with landowner
	Possible removal of access road dependent upon agreement with landowner

5.2 PROJECT SCHEDULE

The key activities associated with the construction, operation and decommissioning phases of the Project are provided below. Details regarding these activities will be refined throughout the REA process.

Table 5.2: Project Phases and Schedule

Milestone	Approximate Date
Initiation of the Renewable Energy Approval Process	October 2011
First Public Meeting	November 2011
Technical Studies	October 2011 to October 2012
Second Public Meeting	January 2013
Submission of Renewable Energy Approval application to Ministry of the Environment	January 2013
Start of Construction	June 2013
Commercial Operation Date (COD)	November 2013
Repowering/Decommissioning	2033 (approximately 20 years after COD)

6.0 Description of Potential Environmental Effects

6.1 METHODOLOGY

O.Reg 359/09 requires that any adverse environmental effects that may result from engaging in the Project be described. Generally, an area within a 120m radius of those activities has been considered in this assessment (known as the Zone of Investigation). The term “environment” in O. Reg. 359/09 includes the natural, physical, cultural and socio-economic environment.

The following is a high level summary of the methodology applied to identify the potential negative environmental effects that may result from construction and operation of the Project:

- Collected information on the existing environment using available background information, consultation with stakeholders and site investigations.
- Reviewed proposed Project activities in order to predict the potential interactions between the Project and environment.
- Identified potential interactions that could cause an adverse effect on the environment.
- Developed measures to avoid, mitigate and monitor potential adverse effects.

Based upon a screening of environmental features known to be at the site, experience gained through Project planning, and the requirements of the REA process, the following Project-specific issues and potential effects have been identified and are expected to be further analysed as part of the REA application process:

- Heritage and Archaeological Resources;
- Natural Heritage Resources;
- Water Bodies and Aquatic Resources;
- Air Emissions of Odour and Dust;
- Environmental Noise;
- Land Use and Socio-Economic Resources;
- Local Traffic;
- Local Economy;
- Water Material Disposal and Spills;
- Public Health and Safety; and,
- Areas Protected under Provincial Plans and Policies.

The potential effects to these environmental features have been identified in the Construction Plan Report and the Design and Operations Report. In addition, mitigation measures,

monitoring plans and contingency measures have been outlined to ensure mitigation measures are functioning as intended.

Detailed analysis of potential effects to environmental features has been conducted as outlined in the table below.

Table 6.1: Renewable Energy Approval Reports Providing Detailed Assessments

Report	Environmental Feature
Heritage Assessment	Heritage resources, including: built heritage resources and cultural heritage landscapes.
Protected Properties Assessment	Buildings and/or properties as described in Section 10 of O. Reg. 359/09.
Stages 1 and 2 Archaeological Assessment	Archaeological resources.
Water Assessment and Water Body Report	Water bodies.
Natural Heritage Assessment and Environmental Impact Study	Significant natural heritage resources.
Noise Study Report	Nearby points of reception.

A summary of the results is provided in **Appendix B**. An overview of the key results is provided in this section.

6.2 OVERVIEW OF KEY RESULTS

6.2.1 Existing Conditions

The Project is proposed on a property within the Employment District of a Settlement Area in the town of Ingleside, Township of South Stormont, United Counties of Stormont, Dundas and Glengarry. The property is zoned industrial and is currently used for storage of construction equipment and materials of a nearby construction company. Portions of the site were previously used for agriculture.

The subject property is bound by the Highway 401 to the north and a CN railway to the south. Some residential properties are located on the north side of Highway 401 whereas several active industrial properties are located to the south and east of the subject property.

The vegetation communities within the Project Location have been recently or historically subject to human disturbance including agriculture, cultural savannah and cultural meadow. Within the Project Location are one wetland evaluated as not-significant, one woodland evaluated as not-significant and one woodland treated as significant. Within the Zone of Investigation there are two wetlands treated as significant, two woodlands treated as significant,

and one woodland evaluated as not-significant which include deciduous forest, deciduous swamp, cultural woodland and shallow marsh communities.

A private drain transects the property in a generally east and west alignment along the north end of the property (close to Highway 401). The drain exits the property at the southeast corner and connects with Hoople Creek. The Mohawks of Akwesasne identified Hoople Creek and all associated tributaries as important valued features.

6.2.2 General Siting Conditions

The key mitigation strategy used to address potential environmental effects from construction and operation of the facility was avoidance of significant natural and socio-economic features to the extent possible during siting of the Project.

The original Project Location proposed in the early stage of the REA process included the entire 140 acre property. Upon completion of the Natural Heritage Assessment, the original Project Location was determined to include a portion of a large unevaluated wetland in close proximity to the Provincially Significant Ingleside Swamp. The Project Location was therefore revised to maintain a setback of 4 m from the boundary of this unevaluated wetland which was treated as significant in the NHA/EIS.

The Project Location was also influenced by consultation with neighbouring property owners. The Ontario Ministry of Transportation (MTO) confirmed that they would not permit the construction of any permanent structures (fences, pole lines, foundations, buildings, etc) within the Ultimate Highway Limit (UHL) - a defined distance from the shared property line of the Highway 401 and within the intersection of Dickinson Road and Highway 401. The MTO has long term expansion plans for the exit off the Highway 407. MTO provided the boundaries of the UHL and all permanent structures were sited setback from the UHL, as required. Figure 3 demonstrates the boundary of the UHL.

An existing culvert with a gravel access road crosses the existing drain and provides access to the main portion of the property. The design considered the use of this crossing and avoided introducing new or additional culverts.

6.2.3 Key Net Environmental Effects of the Project

Construction Phase

As is typical with the construction of any facility, there will be an increase in dust, noise, and traffic during the construction period. Therefore, it is anticipated that some nearby residents may experience some disturbance during the construction phase. Any increase in traffic, noise and dust levels resulting from construction are expected to be short-term in duration, temporary and would be minimized through the implementation of good site practices, transportation planning and communication with the community.

Construction of the project will require removal of a small wetland (1.23 ha) evaluated as not-significant and removal of a small woodland (3.4 ha) evaluated as not significant. In addition, a potential construction area has been assessed which would require the removal of 0.83 ha of a 20.58 ha woodland treated as significant (4.03%). This vegetation removal has some potential to reduce species diversity, reduce or fragment habitat, increase the spread of existing invasive species and potentially change surface water inputs to wetlands. The relatively small amount of woodland and wetland to be removed represents a very small proportion of the available habitat in the local area and is not anticipated to have a measureable effect on the ecological functions of the area. Consultation with the Mohawks of Akwesasne identified that the areas identified for vegetation clearing hosted some traditionally significant plants. As a result, Saturn Power committed to notifying the Akwesasne Environmental Office in advance of vegetation clearing activities and to allow community members to harvest these plants.

There is the potential for indirect impacts to significant and other natural heritage features resulting from construction activities such as dust generation, sedimentation, and erosion. Following appropriate remediation measures and the routine visual inspection of the Project Location for any drainage, erosion or sedimentation issues, any effects are expected to be short-term in duration and spatially limited to the work areas and their immediate vicinity. The perimeter of the Project Location will be silt fenced throughout the construction phase to minimize potential impacts to nearby natural features.

A positive net effect is expected during construction through the creation of direct and indirect jobs. Saturn Power has consulted with the Mohawks of Akwesasne and confirmed that tenders relating to steel manufacturing will be shared with the Economic Development Office to ensure that businesses within the community have an opportunity to submit a bid.

Additional information regarding potential effects during the construction phase is provided in **Appendix B** and the Construction Plan Report.

Operation Phase

During operation, Project infrastructure will be visible to residents, however the infrastructure is removable and as a result any indirect visual impact is considered temporary and reversible. The MTO constraints influenced the siting of solar panels adjacent to Dickinson Road where the project is most visible for local residents. Panels are immediate adjacent to 50m of Dickinson Road rather than 400m as originally planned. This lessens the visual impact of the solar panels from the local road. Setbacks from Highway 401 are also applied thus reducing visual impacts from the highway.

The Project is expected to operate for a minimum of 20 years and all land will be restored during the decommissioning phase of the Project.

The solar farm will be operated remotely; therefore there will be a negligible increase in noise and traffic during maintenance activities. Routine maintenance and monitoring will help

minimize the likelihood of malfunctioning equipment resulting in excessive noise emissions. The Complaint Response Protocol will be adhered to in order to minimize potential effects to nearby residents.

Routine visual inspections of the Project site will be undertaken for any signs of drainage, erosion or sedimentation issues and remediation activities will be carried out as required.

Potential effects to the natural environment during operation are anticipated to be minimal. While the perimeter fencing may interfere with the movement of large mammals, amphibians and small mammals will continue to be able to pass through this fence structure. It is anticipated that larger wildlife, in particular deer, will travel around the site when the perimeter fencing is encountered.

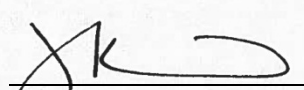
A positive net effect is anticipated on the local economy during construction and operation of the Project. The Project will provide employment and other fiscal benefits to the local area. Saturn Power has consulted with the Mohawks of Akwesasne and confirmed that tenders relating to operations and maintenance will be shared with the Economic Development Office to ensure that businesses within the community have an opportunity to submit a bid. The Township of South Stormont would receive ongoing property tax income from the Project. Existing businesses within local communities could benefit from the demands of the Project workforce during construction and operation.

7.0 Closure

The David Brown Solar Park Project Description Report has been prepared by Stantec for Saturn in accordance with Item 10, Table 1 of Ontario Regulation 359/09 and the *Technical Guide to Renewable Energy Approvals* (MOE, 2012).

This report has been prepared by Stantec Consulting Ltd. for the sole benefit of Saturn Power Inc., and may not be used by any third party without the express written consent of Saturn Power Inc. and Stantec Consulting Ltd. The data presented in this report are in accordance with Stantec's understanding of the Project as it was presented at the time of the report.

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8.0 References

Ontario Ministry of the Environment, 2012. Technical Guide to Renewable Energy Approvals.

O. Reg. 359/09. 2009. Ontario Regulation 359/09 Renewable Energy Approvals Under Part V.0.1 of the Act under the *Environmental Protection Act*.

Stantec

**DAVID BROWN SOLAR PARK
PROJECT DESCRIPTION REPORT**

Appendix A

Figures



Legend

- Road
- +— Railway Line
- ▭ Subject Property
- ▭ Project Location
- ▭ 120 m Zone of Investigation
- ▭ 300 m Zone of Investigation
- ▨ Construction Laydown Area
- ▨ Potential Constructible Area
- Inverter Station
- × Fence
- Access Road
- Communication Tower
- Proposed Distribution Line
- Transformer Substation
- Solar Panel
- Point of Common Coupling



Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2012.
3. Aerial imagery provided by First Base Solutions, Stormont Dundas and Glengarry, 2008.



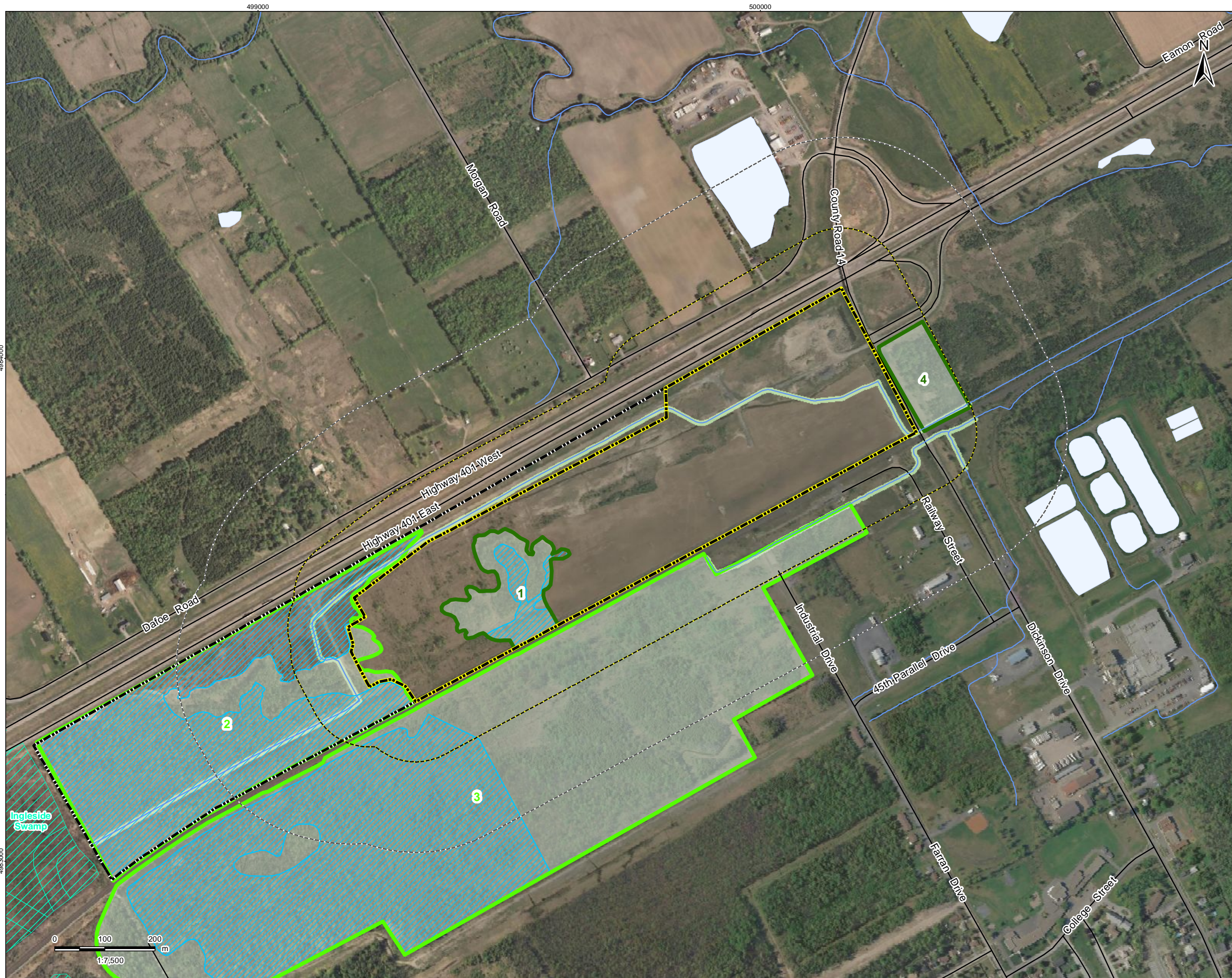
Stantec

January 2013
161011028

Client/Project
Saturn Power Inc.
David Brown Solar Park
Highway 401, Stormont Township, Ontario

Figure No.
1

Title
Project Location and Project Layout



Legend

- Subject Property
- Project Location
- 120 m Zone of Investigation
- 300 m Zone of Investigation
- Watercourse
- Waterbody
- Road
- Woodland Feature
- Surveyed Wetland Boundary (Stantec)
- Provincially Significant Wetland - Ingleside Swamp
- REA Waterbody
- Natural Features
- Significant Natural Features

Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2012.
3. Aerial imagery provided by First Base Solutions, Stormont Dundas and Glengarry, 2008.



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Client/Project
Saturn Power Inc.
David Brown Solar Park
Highway 401, Stormont Township, Ontario

Figure No.
2

Title
**Natural Features and
Water Bodies**



Legend

- Subject Property
- Project Location
- 120 m Zone of Investigation
- 300 m Zone of Investigation
- Noise Receptor
- MOE Water Well
- Road
- Ontario Ministry of Transportation Ultimate Highway Limit
- Railway Line
- Natural Gas Pipeline
- Topographic Contour (mAMSL)
- Transmission Line
- Property Boundary
- Construction Laydown Area
- Potential Constructible Area
- Inverter Station
- Fence
- Access Road
- Communication Tower
- Proposed Distribution Line
- Transformer Substation
- Solar Panel
- Point of Common Coupling

Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2012.
3. Aerial imagery provided by First Base Solutions, Stormont Dundas and Glengarry, 2008.



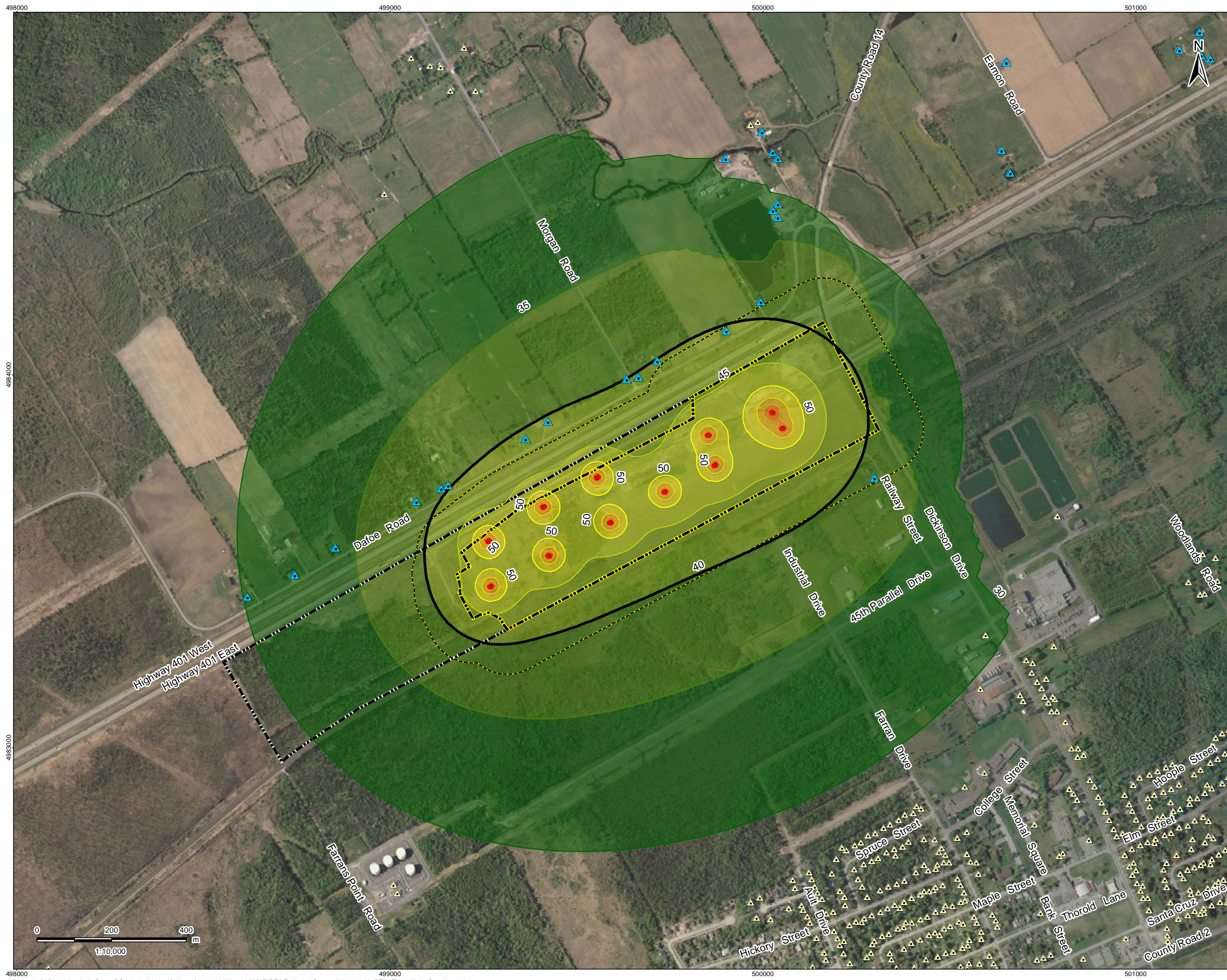
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161011028

Client/Project
Saturn Power Inc.
David Brown Solar Park
Highway 401, Stormont Township, Ontario

Figure No.
3

Title
Socio-Economic Features



Legend

- Subject Property
 - Project Location
 - 120 m Zone of Investigation
 - Receptors outside 500 m setback from HWY 401 (Class 3 Receptors)
 - Receptors within 500 m setback from HWY 401 (Class 2 Receptors)
 - Source
- Sound Level (dB)
- 35
 - 40
 - 45
 - 50
 - 55
 - 60
 - 65
 - 70
 - 75+

Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2012.
3. Aerial imagery provided by First Base Solutions, Stormont Dundas and Glengarry, 2008.



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Client/Project
Saturn Power Inc.
David Brown Solar Park
Highway 401, Stormont Township, Ontario

Figure No.
4

Title
Noise Assessment Results

Stantec

**DAVID BROWN SOLAR PARK
PROJECT DESCRIPTION REPORT**

Appendix B

**Overview of Potential Environmental Effects,
Mitigation Strategies a Monitoring Plans**

Environmental Effects Monitoring Plan during Operation						
Feature	Potential Adverse Effect	Performance Objective	Mitigation Strategy	Net Effects	Monitoring Plan and Contingency Measures	Section Reference
Archaeological Resources	<ul style="list-style-type: none"> • None. 	<ul style="list-style-type: none"> • None. 	<ul style="list-style-type: none"> • None required. 	<ul style="list-style-type: none"> • None. 	<ul style="list-style-type: none"> • None required. 	5.1.1
Cultural Heritage Resources	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None required. 	<ul style="list-style-type: none"> • None. 	<ul style="list-style-type: none"> • None required. 	0
Significant Natural Heritage Features	<ul style="list-style-type: none"> • Dust, maintenance traffic, sedimentation and erosion. • Potential for accidental spills. • Potential for alteration of surface water inputs to the significant wetland. • Increased risk of vehicle collision with amphibians 	<ul style="list-style-type: none"> • Minimize disturbance to significant wildlife and wildlife habitat. • No spills. 	<ul style="list-style-type: none"> • Avoidance of significant wetland habitat. • The Construction contractor will establish a vegetation ground cover at the end of the construction phase. • Maintenance activities such as infrequent mowing will occur during the day and will avoid the amphibian breeding season (April – June). • Contractors would remove all waste materials from the construction site during maintenance activities. • Liquid wastes will be properly labelled and stored in a secure area. • As appropriate, spill kits would be provided on-site during maintenance activities. • Dumping or burying wastes within the Project site would be prohibited. • Non-hazardous wastes will be disposed of at a registered waste disposal site. • If waste is classified as waste other than soil non-hazardous, a Generator Registration Number is required from the MOE and the generator would have obligations regarding manifesting of waste. • Implementation of an on-going waste management program. • Standard containment facilities and emergency response materials would be maintained on-site as required. • Equipment maintenance and other potentially contaminating activities would occur in designated areas. • As per s.13 of the Environmental Protection Act, all spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of prescribed regulatory levels should be reported to the MOE Spills Action Centre. 	<ul style="list-style-type: none"> • None. 	<ul style="list-style-type: none"> • Routine visual inspections of the Project site for any drainage, erosion or sedimentation issues will be conducted and remediation activities undertaken as required. • Remediation measures would include applying sod or seeding, re-grading, removal of trash/debris, and vegetation cutting as required. • Saturn Power will implement a vegetation management plan related to the ground cover beneath the solar panels. • Adherence to Complaint Response Protocol. • Implementation of the Emergency Response and Communications Plan in the event of an emergency (e.g., spill). • Appropriate remedial measures may be completed as necessary and additional follow-up monitoring conducted as appropriate in the event of an accidental spill and/or leak. The level of monitoring and reporting would be based on the severity of the spill/leak and may be discussed with the MOE Spills Action Centre and MNR. 	5.2.1
Other Natural Heritage Features	<ul style="list-style-type: none"> • Dust, traffic, sedimentation, and erosion. • Potential for accidental spills. • Improper disposal of wastes. • Potential for selective cutting of trees. • Potential to disrupt animal movement. 	<ul style="list-style-type: none"> • Minimize disturbance to other wildlife and wildlife habitat. • Minimize disturbance to woodlands. • No spills. 	<ul style="list-style-type: none"> • Tree cutting conducted in accordance with any tree cutting by-law, if applicable. • Establishment of a vegetation ground cover. • Contractors would remove all waste materials from the construction site during maintenance activities. • Liquid wastes will be properly labelled and stored in a secure area. • As appropriate, spill kits would be provided on-site during maintenance activities. • Dumping or burying wastes within the Project site would be prohibited. • Non-hazardous wastes will be disposed of at a registered waste disposal site. • If waste is classified as waste other than soil non-hazardous, a Generator Registration Number is required from the MOE and the generator would have obligations regarding manifesting of waste. • Implementation of an on-going waste management program. • Standard containment facilities and emergency response materials would be maintained on-site as required. • Equipment maintenance and other potentially contaminating activities would occur in designated areas. 	<ul style="list-style-type: none"> • Any adverse effects are anticipated to be short-term in duration and spatially limited. 	<ul style="list-style-type: none"> • The EPC contractor will establish a vegetation ground cover at the end of the construction phase as per the Vegetation Management Plan. • The Vegetation Management Plan will contain plans for the General Contractor to plant trees along the existing berm of the property. The species and number of trees will be determined through further consultation with the Mohawks of Akwesasne. • Routine visual inspections of the Project site for any drainage, erosion or sedimentation issues will be conducted and remediation activities undertaken as required. • Adherence to Complaint Response Protocol. • Implementation of the Emergency Response and Communications Plan in the event of an emergency (e.g., spill). • Follow-up monitoring /inspections in the event of an accidental spill/leak. Remedial actions may be required in the event monitoring indicates a negative effect to natural features. 	5.2.2

Environmental Effects Monitoring Plan during Operation						
Feature	Potential Adverse Effect	Performance Objective	Mitigation Strategy	Net Effects	Monitoring Plan and Contingency Measures	Section Reference
			<ul style="list-style-type: none"> As per s.13 of the Environmental Protection Act, all spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of prescribed regulatory levels should be reported to the MOE Spills Action Centre. 			
Groundwater	<ul style="list-style-type: none"> Potential for accidental spills. Contamination from herbicides for lawn maintenance. 	<ul style="list-style-type: none"> No spills. 	<ul style="list-style-type: none"> In the event of a well interference complaint during operation, Saturn Power will complete the following actions: <ul style="list-style-type: none"> resample groundwater quality and document groundwater levels within the Project Location; collect a water quality sample from private well(s), as applicable; and retain a third party consultant to review data and determine if adverse effects have occurred as a result of maintenance activity. If adverse effects have occurred due to maintenance, Saturn Power would provide a temporary potable water supply until corrective measures are taken and will comply with MOE Guideline B-9. Contractors would remove all waste materials from the construction site during maintenance activities. Liquid wastes will be properly labelled and stored in a secure area. As appropriate, spill kits would be provided on-site during maintenance activities. Dumping or burying wastes within the Project site would be prohibited. Non-hazardous wastes will be disposed of at a registered waste disposal site. If waste is classified as waste other than soil non-hazardous, a Generator Registration Number is required from the MOE and the generator would have obligations regarding manifesting of waste. Implementation of an on-going waste management program. Standard containment facilities and emergency response materials would be maintained on-site as required. Equipment maintenance and other potentially contaminating activities would occur in designated areas. As per s.13 of the Environmental Protection Act, all spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of prescribed regulatory levels should be reported to the MOE Spills Action Centre. Vegetation Management Plan will identify methods to minimize herbicide use less than typical agricultural operations. 	<ul style="list-style-type: none"> Accidental spills would be spatially limited and of short duration and protocols to minimize their impact would be provided in the Emergency Response and Communications Plan. 	<ul style="list-style-type: none"> Saturn Power will undertake a baseline groundwater monitoring program at the on-site monitoring well BH12-10 and the nearest adjacent residential well to characterize existing groundwater quality prior to construction. Adherence to Complaint Response Protocol. 	5.3.1
Surface Water, Fish, and Fish Habitat	<ul style="list-style-type: none"> Potential for accidental spills and/or leaks. Potential for soil erosion in exposed areas. 	<ul style="list-style-type: none"> No spills. 	<ul style="list-style-type: none"> Implementation of the vegetation management plan would prevent soil erosion through the maintenance of ground cover. Remediation measures intended to correct any soil erosion or sedimentation would include applying sod or seeding or re-grading as required. Contractors would remove all waste materials from the construction site during maintenance activities. Liquid wastes will be properly labelled and stored in a secure area. As appropriate, spill kits would be provided on-site during 	<ul style="list-style-type: none"> Accidental spills would be spatially limited and of short duration and protocols to minimize their impact would be provided in the Emergency Response Plan. 	<ul style="list-style-type: none"> Routine visual inspection of the site. Adherence to Complaint Response Protocol. Implementation of the Emergency Response and Communications Plan in the event of an emergency (e.g., spill). Follow-up monitoring /inspections in the event of an accidental spill/leak. Remedial actions may be required in the event monitoring indicates a negative effect to natural features. 	5.3.2

Environmental Effects Monitoring Plan during Operation						
Feature	Potential Adverse Effect	Performance Objective	Mitigation Strategy	Net Effects	Monitoring Plan and Contingency Measures	Section Reference
			<p>maintenance activities.</p> <ul style="list-style-type: none"> • Dumping or burying wastes within the Project site would be prohibited. • Non-hazardous wastes will be disposed of at a registered waste disposal site. • If waste is classified as waste other than soil non-hazardous, a Generator Registration Number is required from the MOE and the generator would have obligations regarding manifesting of waste. • Implementation of an on-going waste management program. • Standard containment facilities and emergency response materials would be maintained on-site as required. • Equipment maintenance and other potentially contaminating activities would occur in designated areas. • As per s.13 of the Environmental Protection Act, all spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of prescribed regulatory levels should be reported to the MOE Spills Action Centre. 			
Air Emissions	<ul style="list-style-type: none"> • Minor localized air emissions from periodic use of equipment for general repairs, maintenance of panels and from personnel vehicles. 	<ul style="list-style-type: none"> • Minimize duration and magnitude of emissions. 	<ul style="list-style-type: none"> • Use of multi-passenger vehicles where practical. • Avoid idling. • Maintain equipment and vehicles in good working order with functioning mufflers and emission control systems as available. • Ensure all equipment and vehicles meet emissions requirements of the MOE and/or MTO. 	<ul style="list-style-type: none"> • Any adverse net effects are anticipated to be short-term in duration and highly localized. 	<ul style="list-style-type: none"> • Adherence to Complaint Response Protocol. 	5.4.1
Environmental Noise	<ul style="list-style-type: none"> • Noise from operation and maintenance of the Project. 	<ul style="list-style-type: none"> • Predicted sound levels at all non-participating receptors to meet MOE Guidelines. 	<ul style="list-style-type: none"> • Comply with MOE environmental noise guidelines. • In the event the project does not operate in accordance with the terms and conditions of the REA, non-compliant components may be shut down until the problem is resolved. • Regular maintenance program to fix damaged components. 	<ul style="list-style-type: none"> • No significant net effects are anticipated. 	<ul style="list-style-type: none"> • Noise monitoring (if required), would be conducted in accordance with the REA for the Project. • Routine maintenance and monitoring would also help minimize the likelihood of malfunctioning equipment resulting in excessive noise emissions. 	5.4.2
Residential Land Use	<ul style="list-style-type: none"> • Disturbance to viewscape. 	<ul style="list-style-type: none"> • Minimize potential for visual disturbance. 	<ul style="list-style-type: none"> • Panels will be laminated with anti-reflection coating. 	<ul style="list-style-type: none"> • None. 	<ul style="list-style-type: none"> • None required. 	5.5.1
Agricultural Lands and Operations	<ul style="list-style-type: none"> • Change of land use. • Potential for erosion of topsoil in exposed areas. 	<ul style="list-style-type: none"> • Minimize potential for soil erosion. 	<ul style="list-style-type: none"> • The vegetation management plan that would be implemented during operation would prevent erosion of topsoil through the maintenance of ground cover. • Remediation measures intended to correct erosion of topsoil would include applying sod or seeding or re-grading as required. 	<ul style="list-style-type: none"> • Disturbances to agricultural lands and operations are expected to be temporary (life of Project), reversible, and spatially limited. 	<ul style="list-style-type: none"> • Routine visual inspections of the Project site. • Saturn Power will implement a vegetation management plan related to the ground cover beneath the panels. • Adherence to Complaint Response Protocol. 	5.5.2
Mineral, Aggregate, and Petroleum Resources	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None. 	<ul style="list-style-type: none"> • None required. 	<ul style="list-style-type: none"> • None. 	<ul style="list-style-type: none"> • None required. 	5.5.3
Hunting, Fishing and Gathering Resources	<ul style="list-style-type: none"> • Possible sensory disturbance from increased traffic and human activity. • Interference with the movement of large mammals. • Reduced amount of land for gathering/harvesting of traditionally significant plants identified by the Mohawks of Akwesasne. 	<ul style="list-style-type: none"> • Minimize disturbance to game and fishery resources. • Minimize disturbance to gathering resources. 	<ul style="list-style-type: none"> • Tree cutting conducted in accordance with tree cutting by-law, if applicable. • Establishment of a vegetation ground cover. • Contractors would remove all waste materials from the construction site during maintenance activities. • Liquid wastes will be properly labelled and stored in a secure area. • As appropriate, spill kits would be provided on-site during maintenance activities. • Dumping or burying wastes within the Project site would be prohibited. • Non-hazardous wastes will be disposed of at a registered waste disposal site. 	<ul style="list-style-type: none"> • Maintenance noise effects on games species are anticipated to be temporary and intermittent. • Net effects to gathering resources will be for the life of the project but across a small portion of land relative to the scale of the local landscape. 	<ul style="list-style-type: none"> • Noise monitoring (if required), would be conducted in accordance with the REA for the Project. • Routine maintenance and monitoring would also help minimize the likelihood of malfunctioning equipment resulting in excessive noise emissions. 	5.5.4

Environmental Effects Monitoring Plan during Operation						
Feature	Potential Adverse Effect	Performance Objective	Mitigation Strategy	Net Effects	Monitoring Plan and Contingency Measures	Section Reference
			<ul style="list-style-type: none"> • If waste is classified as waste other than soil non-hazardous, a Generator Registration Number is required from the MOE and the generator would have obligations regarding manifesting of waste. • Implementation of an on-going waste management program. • Standard containment facilities and emergency response materials would be maintained on-site as required. • Equipment maintenance and other potentially contaminating activities would occur in designated areas. • As per s.13 of the Environmental Protection Act, all spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of prescribed regulatory levels should be reported to the MOE Spills Action Centre. • Implementation of the vegetation management plan would prevent soil erosion through the maintenance of ground cover. • Remediation measures intended to correct any soil erosion or sedimentation would include applying sod or seeding or re-grading as required. • Comply with MOE environmental noise guidelines. • In the event the project does not operate in accordance with the terms and conditions of the REA, non-compliant components may be shut down until the problem is resolved. • Regular maintenance program to fix damaged components. • Mohawks of Akwesasne Environmental Office will be informed in advance of land clearing activities for construction. Community members will have the option of harvesting plants prior to land clearing. 			
Local Traffic	<ul style="list-style-type: none"> • Negligible change in road traffic. • Some instances where excess loads may require special traffic planning. 	<ul style="list-style-type: none"> • Minimize disturbance to local traffic. 	<ul style="list-style-type: none"> • All staff/personnel will abide by all traffic rules and regulations, and will carpool where possible. • Saturn Power may provide notification to the municipality and public regarding non-conventional load movements. 	<ul style="list-style-type: none"> • Traffic would be short-term in duration and intermittent. 	<ul style="list-style-type: none"> • Adherence to Complaint Response Protocol. 	5.6
Local Economy	<ul style="list-style-type: none"> • Local economic benefits from municipal taxes, local hiring and use of local materials. • To the extent possible, sourcing goods and services from qualified local suppliers where these items are available in sufficient quantity and at competitive prices. • Mohawks of Akwesasne showed special interest in providing operation/maintenance services. Saturn Power will coordinate with the Akwesasne Economic Development Office. 	<ul style="list-style-type: none"> • Create positive effects on local economy. 	<ul style="list-style-type: none"> • None required. 	<ul style="list-style-type: none"> • Positive. 	<ul style="list-style-type: none"> • None Required. 	5.7

Environmental Effects Monitoring Plan during Operation						
Feature	Potential Adverse Effect	Performance Objective	Mitigation Strategy	Net Effects	Monitoring Plan and Contingency Measures	Section Reference
Municipal Infrastructure	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> None required. 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> None required. 	5.8.1
Other Infrastructure	<ul style="list-style-type: none"> Potential to limit future expansion of Highway 401. Potential for change in drainage to impact use of CN Railway. 	<ul style="list-style-type: none"> Minimize limits on expansion of Highway 401. Maintain same drainage patterns. 	<ul style="list-style-type: none"> All new structures are located 20m from the Highway 401 Ultimate Highway Limit (UHL). Design will ensure that drainage patterns are maintained. Provide drainage plans to CN Railway for review. Provide drainage plans to Highway 401 for review under the Building and Land Use Permit Application. 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> None required. 	5.8.2
Waste Material Disposal and Spills	<ul style="list-style-type: none"> Improper disposal of waste material may result in contamination to soil, groundwater, and/or surface water resources. Potential for accidental spills of fuel, lubricating oils and other fluids associated with maintenance vehicles. Litter may become a nuisance to nearby residences. 	<ul style="list-style-type: none"> Minimize accidental spills. Ensure proper disposal of waste. 	<ul style="list-style-type: none"> Contractors would remove all waste materials from the construction site during maintenance activities. Liquid wastes will be properly labelled and stored in a secure area. As appropriate, spill kits would be provided on-site during maintenance activities. Dumping or burying wastes within the Project site would be prohibited. Non-hazardous wastes will be disposed of at a registered waste disposal site. If waste is classified as waste other than soil non-hazardous, a Generator Registration Number is required from the MOE and the generator would have obligations regarding manifesting of waste. Implementation of an on-going waste management program. Standard containment facilities and emergency response materials would be maintained on-site as required. Equipment maintenance and other potentially contaminating activities would occur in designated areas. As per s.13 of the Environmental Protection Act, all spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of prescribed regulatory levels should be reported to the MOE Spills Action Centre. 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Adherence to Complaint Response Protocol. Implementation of the Emergency Response and Communications Plan in the event of an emergency (e.g., spill). Follow-up monitoring /inspections in the event of an accidental spill/leak. Remedial actions may be required in the event monitoring indicates a negative effect to natural features. 	5.9
Public Health and Safety	<ul style="list-style-type: none"> Inherent risk of fire associated with an accident or malfunction. Possible failure of overhead line poles. Contamination of groundwater from herbicides. 	<ul style="list-style-type: none"> No structural failure of the panels, poles or ancillary equipment that could affect public health and safety. 	<ul style="list-style-type: none"> Proper education and training of staff operating the control system and maintaining the panels. Installation and maintenance of the solar panels and associated electrical equipment in accordance with applicable safety standards. Implement site access restrictions including perimeter fencing and "No Trespassing" signs. Municipal emergency response staff would also be trained to appropriately deal with any potential accidents and malfunctions resulting from the operation of the solar farm. Overhead lines will be designed and constructed in accordance with applicable regulatory guidelines. Vegetation Management Plan will identify methods to minimize herbicide use less than typical agricultural operations. 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Preparation and implementation of an Emergency Response and Communications Plan. Access restrictions may include "No Trespassing" signs. Saturn Power to provide tour of facility and training, if necessary, for Township of South Stormont fire services and volunteer fire staff. 	5.10

Environmental Effects Monitoring Plan – Construction Phase

Feature	Potential Adverse Effect	Performance Objective	Mitigation Strategy	Net Effects	Monitoring Plan and Contingency Measures	Section Reference
Archaeological Resources	<ul style="list-style-type: none"> Impacts to archaeological resources could occur if additional artifacts are encountered during construction activities. 	<ul style="list-style-type: none"> Minimize disturbance to archaeological resources. 	<ul style="list-style-type: none"> Appropriate standards were followed when conducting the Stage 2 Archaeological Assessment. In the event additional archaeological or historical materials or features are discovered during construction of the Project, the following procedures shall be adhered to: <ul style="list-style-type: none"> Work in the area of the archaeological site or artifacts shall halt immediately and the Construction Contractor notified of the discovery; and A licensed consultant archaeologist shall be contacted to determine the appropriate course of action. In the event that human remains are discovered during construction activities the following procedures shall be adhered to: <ul style="list-style-type: none"> All work shall cease in the immediate area of the discovery and the Construction Contractor notified immediately; and The Ontario Provincial Police or local police and coroner shall be contacted immediately. The Ministry of Tourism, Culture and Sport, appropriate Aboriginal communities, and the Registrar of Cemeteries at the Ministry of Consumer Services will also be notified. 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> None Required. 	<ul style="list-style-type: none"> 0
Cultural Heritage Resources	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> 3.1.2
Significant Natural Heritage Features	<ul style="list-style-type: none"> Direct removal of 0.83 ha from a 20.53 ha significant woodland (4.03%) has potential impacts including: <ul style="list-style-type: none"> Loss of species diversity Reducing or fragmenting available habitat Introduction or spread of invasive species Temporary disruption of movement to wildlife Potential indirect impacts such as dust generation, sedimentation and erosion Contamination through accidental spills. Some increased risk of amphibian mortality on construction roads. Some potential for change in surface water inputs to significant wetlands. 	<ul style="list-style-type: none"> Minimize likelihood of spill; contain spill material; and contain sediments in run-off. Minimize potential for amphibian mortality. 	<ul style="list-style-type: none"> No development in significant wetland boundary. Limits of vegetation clearing are to be staked in the field. To the extent practical, tree and/or brush clearing will be completed prior to or after the core nesting season for migratory birds (May 1 to July 31). The boundaries of all significant wetlands within 30 m of the proposed construction area will be flagged / staked in the field by a qualified ecologist prior to construction to assist with the demarcation of the construction area, to ensure construction activities avoid these sensitive areas and to assist with the proper field installation of E&S controls. Where possible, and as appropriate, access roads will be constructed at or near existing grade to maintain surface flow contributions to significant wetlands. Where new access roads cross existing drainage features, design will include culverts or other appropriate structures of sufficient size to accommodate flow. Construction contractor to ensure no work occurs outside of the limits of construction envelope. No refuelling or maintenance of vehicles in, or adjacent to the significant wetland. In the event of an accidental spill, the MOE Spills Action Centre should be contacted and emergency spill procedures implemented immediately. Sediment and erosion control implemented and maintained in good repair, including maintenance of sediment fencing around the perimeter of the Project Location as a barrier to amphibians. Construction staff will be trained in amphibian identification and visually inspect work areas for amphibian presence prior to the initiation of construction activities and relocate identified amphibians from the work zone. Proper muffling of construction machinery to keep noise levels at a minimum Implementation of a vegetation management plan related to the ground cover beneath the solar panels; the vegetation management will be confined within the perimeter fence of the Project Location; infrequent mowing is expected and will occur only during the day. Mowing during the amphibian breeding season (April – June) will be avoided (Figure 1, Appendix A). 	<ul style="list-style-type: none"> The relatively small amount of significant woodland to be removed represents a very small proportion of the available habitat in the local area and is not anticipated to have a measurable effect on the ecological functions of the area. 	<ul style="list-style-type: none"> Weekly visual inspections to ensure proper sediment control structures are in good repair. Monitoring to occur at storage locations, as necessary. Follow-up monitoring /inspections in the event of an accidental spill/leak. Remedial actions may be required in the event monitoring indicates a negative effect to natural features. Qualified project representatives will ensure protection measures remain in good functional repair through construction. Regular inspection will identify and fix any gaps in the fencing, including areas where erosion and sedimentation is not an issue. 	<ul style="list-style-type: none"> 3.2.1
Other Natural Heritage Features	<ul style="list-style-type: none"> Direct removal of 1.23 ha not-significant wetland and 3.4 ha not-significant woodland. Limited clearing of natural vegetation. Reduction of available habitat through removal of 	<ul style="list-style-type: none"> Minimize likelihood of spill. Contain spill 	<ul style="list-style-type: none"> Restoring cleared areas with native species following construction. All disturbed areas would be re-vegetated as soon as conditions allow. All equipment refueling will occur well away from natural features, in designated areas at the main staging/laydown areas. In the event of an accidental spill, the MOE 	<ul style="list-style-type: none"> Effects are expected to be short-term in duration and spatially limited to 	<ul style="list-style-type: none"> Vegetation clearing activities would be conducted under observation and monitoring of the Construction Contractor to 	<ul style="list-style-type: none"> 3.2.2

Environmental Effects Monitoring Plan – Construction Phase

Feature	Potential Adverse Effect	Performance Objective	Mitigation Strategy	Net Effects	Monitoring Plan and Contingency Measures	Section Reference
	<p>vegetation.</p> <ul style="list-style-type: none"> Some limited mortality of slow-moving wildlife from vehicle collisions. Increase in the potential for the spread of existing invasive species, and an increase of dust, erosion and sedimentation. Sensory disturbance to wildlife. Contamination of natural heritage features through accidental spills and/or leaks and improper waste disposal. 	<p>material.</p> <ul style="list-style-type: none"> Contain sediments in run-off. Minimize disturbance to wildlife. 	<p>Spills Action Centre will be contacted as appropriate and emergency spill procedures implemented immediately.</p> <ul style="list-style-type: none"> Any fuel storage (within certified storage tanks) and activities with the potential for contamination will occur in properly protected and sealed areas well removed from natural features. Maintaining equipment in good running condition and in compliance with regulatory requirements. Protecting stockpiles of friable material with a barrier or windscreen and in the event of dry conditions and excessive dust. Dust suppression (e.g. water) of source areas (water will be obtained via tanker trucks). Covering loads of friable materials during transport. Company and construction personnel will avoid idling of vehicles when not necessary for construction activities. Equipment and vehicles will be turned off when not in use unless required for construction activities and/or effective operation. All construction equipment will meet the emissions requirements of the MOE and/or MTO. All engines associated with construction equipment will be equipped with mufflers and/or silencers in accordance with MOE and/or MTO guidelines and regulations and requirements of the Occupational Health and Safety Act. Noise levels arising from equipment will be compliant with sound levels established by the MOE. All materials and equipment used for the purpose of site preparation and Project construction shall be operated and stored in a manner that prevents any deleterious substance (e.g., petroleum products, silt, etc.) from entering the water: Any stockpiled materials will be stored and stabilized away from the water; Refuelling and maintenance of construction equipment will occur a minimum of 100 m from the water body; As appropriate, spills will be reported to the MOE Spills Action Centre; Sediment and erosion control measures will be implemented prior to construction and maintained during the construction phase to prevent entry of sediment into the water: Silt fencing and/or barriers will be used along the periphery of the Project Location; No equipment will be permitted to enter any natural areas beyond the silt fencing during construction; Topsoil stockpiles will be sufficiently distant from the water body to preclude sediment inputs due to erosion of stored soil materials; If the sediment and erosion control measures are not functioning properly, no further work will occur until the sediment and/or erosion problem is addressed; Alterations to site drainage will be designed such that there will be no substantial changes to watershed discharge; All disturbed areas of the construction site will be stabilized immediately and re-vegetated as soon as conditions allow; and Sediment and erosion control measures will be left in place until all areas of the construction site have been stabilized. Where vegetation clearing is proposed, including wooded areas, mitigation measures include staking and monitoring the limits of vegetation clearing to prevent encroachment, implementing erosion and sediment controls and restoring cleared areas with native species following construction. Any vegetation removal will avoid the breeding bird window if possible (approximately May 15 to July 31); if the avoidance window cannot be observed, a qualified biologist will be sent to conduct nest surveys and any regulated nest will be avoided in accordance with the federal Migratory Birds Convention Act. All tree cutting will be conducted in compliance with the any municipal tree-cutting by-laws, if applicable. 	<p>the work areas and their immediate vicinity.</p> <ul style="list-style-type: none"> Adverse net effects to wildlife are anticipated to be short-term in duration and intermittent. No long-term effects to wildlife is anticipated as a result of construction activities. The relatively small amount of woodland and wetland to be removed represents a very small proportion of the available habitat in the local area and is not anticipated to have a measureable effect on the ecological functions of the area. 	<p>ensure that vegetation is cleared only from designated areas.</p> <ul style="list-style-type: none"> Follow-up monitoring /inspections in the event of an accidental spill/leak. Remedial actions may be required in the event monitoring indicates a negative effect to natural features. Contaminated soils would be removed and replaced as appropriate. As appropriate, records of waste generation and hauling would be maintained. All sediment and erosion control measures will be inspected at least weekly and during and immediately following rainfall events to ensure that they are functioning properly and are maintained and/or upgraded as required; 	

Environmental Effects Monitoring Plan – Construction Phase

Feature	Potential Adverse Effect	Performance Objective	Mitigation Strategy	Net Effects	Monitoring Plan and Contingency Measures	Section Reference
			<ul style="list-style-type: none"> All disturbed areas would be re-vegetated as soon as conditions allow. All equipment refueling will occur well away from natural features, in designated areas at the main staging/laydown areas. In the event of an accidental spill, the MOE Spills Action Centre will be contacted as appropriate and emergency spill procedures implemented immediately. Any fuel storage (within certified storage tanks) and activities with the potential for contamination will occur in properly protected and sealed areas well removed from natural features 			
Groundwater	<ul style="list-style-type: none"> In the event that groundwater seepage was encountered during construction activity, such as grubbing, stripping, earth moving or fill placement, dewatering would be completed on an as-required basis. Some dewatering activities may be required Potential for accidental spills infiltrating groundwater supplies. 	<ul style="list-style-type: none"> No spills. Minimize disturbance to ground water. 	<ul style="list-style-type: none"> Existing clay and silt overburden material is expected to remain in place and act as an aquitard layer protecting the underlying bedrock aquifer. Any water pumped from excavated areas will be directed away from surface water features and allowed to re-infiltrate. In the event of a well interference complaint, Saturn Power will complete the following actions: <ul style="list-style-type: none"> Resample groundwater quality and document groundwater levels at BH12-10; Collect a water quality sample from private well(s), as applicable; and Retain a third party consultant to review data and determine if adverse effects have occurred as a result of construction activity. If adverse effects have occurred due to construction, Saturn Power would provide a temporary potable water supply until corrective measures are taken and will comply with MOE Guideline B-9: Resolution of Groundwater Interference Problems. Systematic collection and separation of waste materials within on-site storage areas in weather-protected areas located at the main staging/laydown areas. Systematic collection and separation of waste materials within on-site storage areas in weather-protected areas located at the main staging/laydown areas. Transportation of all waste materials and recycling off-site by private waste material collection contractors licensed with a Certificate of Approval – Waste Management System. Requirement for contractors to remove their excess materials from the site (e.g. extra cable, formwork, scrap metals, pallets, etc.). Excess materials generated during construction would be handled in accordance with the MOE's Protocol for the Management of Excess Materials in Road Construction and Maintenance. Excess excavated soils may be reused elsewhere on the property with landowner permission. All hazardous and liquid wastes will be properly labelled and stored in a secure area. As per s.13 of the Environmental Protection Act, all spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of the prescribed regulatory levels would be reported to the MOE's Spills Action Centre. Dumping or burying wastes within the Project sites would be prohibited. Should contaminated soil be encountered during the course of earth moving, the contaminated material would be disposed of in accordance with the current appropriate provincial legislation, such as Ontario Regulation 347, the General – Waste Management Regulation. Disposal of non-hazardous waste at a registered waste disposal site(s). If waste is classified as waste other than solid non-hazardous, a Generator Registration Number is required from the MOE and the generator would have obligations regarding manifesting of waste. Compliance with Schedule 4 of Regulation 347 is mandatory when determining waste category. Implementation of an on-going waste management program consisting of reduction, reuse, and recycling of materials. A washout location will be provided on-site to rinse concrete trucks prior to leaving 	<ul style="list-style-type: none"> Any potential effects are anticipated to be short term in nature and have little to no effect on groundwater quality and adjacent private water wells. 	<ul style="list-style-type: none"> Saturn Power will undertake a baseline groundwater monitoring program within the on-site monitoring wells to characterize existing groundwater quality prior to construction. Monitoring of the adjacent residential well will only be completed with the owner's permission. Adherence to Complaint Response Protocol if a concern is submitted to Saturn Power. 	<ul style="list-style-type: none"> 3.3.1

Environmental Effects Monitoring Plan – Construction Phase

Feature	Potential Adverse Effect	Performance Objective	Mitigation Strategy	Net Effects	Monitoring Plan and Contingency Measures	Section Reference
			<p>the construction site.</p> <ul style="list-style-type: none"> Sanitary waste generated during the construction phase would be collected via portable toilets and wash stations supplied by a licensed third party who would be retained prior to the start of major construction activities. Standard containment facilities and emergency response materials would be maintained on-site as required. Refueling, equipment maintenance, and other potentially contaminating activities would occur in designated areas. The Construction Contractor will develop a detailed Construction Emergency Response and Communications Plan, which will contain procedures for spill contingency and response plans, spill response training, notification procedures, and necessary cleanup materials and equipment. As per s.13 of the Environmental Protection Act, all spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of prescribed regulatory levels should be reported to the MOE Spills Action Centre. 			
Surface Water, Fish and Fish Habitat	<ul style="list-style-type: none"> Short-term increase in turbidity from runoff and soil erosion; Potential change in discharge resulting from improper grading; Water quality and habitat disturbance effects to aquatic habitat; Changes to riparian vegetation during maintenance activities within road allowance and vicinity can reduce shoreline cover, shade and food production areas. Erosion and sedimentation from site disturbance and dewatering (if required); Collapse of the punch or bore hold under the water body(if applicable); Disturbing riparian vegetation can reduce shoreline cover, shade and food production areas; and Spill/leaks into water bodies of deleterious substances such as fuel or lubricating oil. 	<ul style="list-style-type: none"> No erosion, sediment transport or surface water turbidity. No spills. 	<ul style="list-style-type: none"> All in-water work would be completed within MNR timing windows to protect local fish populations during their spawning and egg incubation periods. A typical construction timing window for warmwater streams is July 1 to March 15 (period during which in-water work is permitted). All materials and equipment used for the purpose of site preparation and Project construction shall be operated and stored in a manner that prevents any deleterious substance (e.g., petroleum products, silt, etc.) from entering the water: <ul style="list-style-type: none"> Any stockpiled materials will be stored and stabilized away from the water; Refuelling and maintenance of construction equipment will occur a minimum of 100 m from the water body; As appropriate, spills will be reported to the MOE Spills Action Centre; Any part of equipment entering the water should be free of fluid leaks and externally cleaned/degreased to prevent any deleterious substance from entering the water; and Only clean material, free of fine particulate matter should be placed in the water. Sediment and erosion control measures will be implemented prior to construction and maintained during the construction phase to prevent entry of sediment into the water: <ul style="list-style-type: none"> Silt fencing and/or barriers will be used along the periphery of the Project Location; No equipment will be permitted to enter any natural areas beyond the silt fencing during construction; All sediment and erosion control measures will be inspected at least weekly and during and immediately following rainfall events to ensure that they are functioning properly and are maintained and/or upgraded as required; Topsoil stockpiles will be sufficiently distant from the water body to preclude sediment inputs due to erosion of stored soil materials; If the sediment and erosion control measures are not functioning properly, no further work will occur until the sediment and/or erosion problem is addressed; Alterations to site drainage will be designed such that there will be no substantial changes to watershed discharge; All disturbed areas of the construction site will be stabilized immediately and re-vegetated as soon as conditions allow; and Sediment and erosion control measures will be left in place until all areas of the construction site have been stabilized. In addition, the Operational Statement provided by the Department of Fisheries and 	None.	<ul style="list-style-type: none"> Environmental monitoring will occur at least weekly during construction. Monitoring during the following spring run-off the year after construction (first year of operations), to review the effectiveness of the site stabilization and re-vegetation, to check bank and slope stability, and to ensure surface drainage has been maintained. In the event that adverse effects are noted, appropriate remedial measures will be completed as necessary (i.e. site rehabilitation and re-vegetation) and additional follow-up monitoring conducted as appropriate, under the direction of a qualified project representative. Follow-up monitoring /inspections in the event of an accidental spill/leak. Remedial actions may be required in the event monitoring indicates a negative effect to natural features. Contaminated soils would be removed and replaced as appropriate. 	0

Environmental Effects Monitoring Plan – Construction Phase

Feature	Potential Adverse Effect	Performance Objective	Mitigation Strategy	Net Effects	Monitoring Plan and Contingency Measures	Section Reference
Air and Dust Emissions	<ul style="list-style-type: none"> Minor localized air emissions from operating heavy equipment and vehicles. Short-term nuisance dust effects. 	<ul style="list-style-type: none"> Minimize duration and magnitude of emissions. 	<p>Oceans will be applied.</p> <ul style="list-style-type: none"> Maintaining equipment in good running condition and in compliance with regulatory requirements. Protecting stockpiles of friable material with a barrier or windscreen and in the event of dry conditions and excessive dust. Dust suppression (e.g. water) of source areas (water will be obtained via tanker trucks). Covering loads of friable materials during transport. Company and construction personnel will avoid idling of vehicles when not necessary for construction activities. Equipment and vehicles will be turned off when not in use unless required for construction activities and/or effective operation. All construction equipment will meet the emissions requirements of the MOE and/or MTO. 	<ul style="list-style-type: none"> Net effects are expected to be short-term in duration and highly localized. 	<ul style="list-style-type: none"> All vehicles identified through a monitoring program that fail to meet the minimum emission standards would be repaired immediately or replaced as soon as practicable from the construction area. Adherence to Complaint Response Protocol if a concern is submitted to Saturn Power. 	<ul style="list-style-type: none"> 3.4.1
Environmental Noise	<ul style="list-style-type: none"> Noise will be generated by the operation of heavy equipment and vehicles on-site and from increased vehicular traffic on County Road 29. 	<ul style="list-style-type: none"> Sound level of construction equipment to meet MOE guidelines 	<ul style="list-style-type: none"> All engines associated with construction equipment will be equipped with mufflers and/or silencers in accordance with MOE and/or MTO guidelines and regulations and requirements of the Occupational Health and Safety Act. Noise levels arising from equipment will be compliant with sound levels established by the MOE. On-site construction activities would be limited to the hours between 7:00 a.m. and 11:00 p.m. (9:00 a.m. to 11:00 p.m. on Sundays and Statutory holidays). 	<ul style="list-style-type: none"> Any net effects are expected to be limited to short-term, intermittent noise increases during daylight hours at the work areas and/or along the haul routes. 	<ul style="list-style-type: none"> Monitoring and maintenance of noise abatement devices on construction and support equipment would also take place to keep noise levels within MOE and Municipal guidelines (if applicable). Adherence to Complaint Response Protocol if a concern is submitted to Saturn Power. 	<ul style="list-style-type: none"> 3.4.2
Residential Land Use	<ul style="list-style-type: none"> Temporary increase in noise and dust levels around the work and haul areas resulting in potential effects to adjacent residential land uses. 	<ul style="list-style-type: none"> Minimize duration and magnitude of emissions. 	<ul style="list-style-type: none"> All engines associated with construction equipment will be equipped with mufflers and/or silencers in accordance with MOE and/or MTO guidelines and regulations and requirements of the Occupational Health and Safety Act. Noise levels arising from equipment will be compliant with sound levels established by the MOE. On-site construction activities would be limited to the hours between 7:00 a.m. and 11:00 p.m. (9:00 a.m. to 11:00 p.m. on Sundays and Statutory holidays). Maintaining equipment in good running condition and in compliance with regulatory requirements. Protecting stockpiles of friable material with a barrier or windscreen and in the event of dry conditions and excessive dust. Dust suppression (e.g. water) of source areas (water will be obtained via tanker trucks). Covering loads of friable materials during transport. Company and construction personnel will avoid idling of vehicles when not necessary for construction activities. Equipment and vehicles will be turned off when not in use unless required for construction activities and/or effective operation. All construction equipment will meet the emissions requirements of the MOE and/or MTO. 	<ul style="list-style-type: none"> Disturbance is expected to be short-term in duration, temporary, and would be minimized through the implementation of good site practices, transportation planning and communication with the community. 	<ul style="list-style-type: none"> All vehicles identified through the monitoring program that fail to meet the minimum emission standards would be repaired immediately or replaced as soon as practicable from the construction area. Adherence to Complaint Response Protocol if a concern is submitted to Saturn Power. 	<ul style="list-style-type: none"> 0
Agricultural Lands and Operations	<ul style="list-style-type: none"> The current landowner does not utilize the property for agricultural activities however, the potential use of the site for agricultural activities will cease with the onset of construction activities. Movement of heavy machinery on wet soil may cause rutting, compaction, and mixing of topsoil and subsoil. Erosion of exposed soils. 	<ul style="list-style-type: none"> Minimize disturbance to soils. 	<ul style="list-style-type: none"> Construction activities will be restricted to the delineated construction areas and following the completion of construction, as appropriate, temporary workspaces would be graded and de-compacted (if required), the topsoil replaced, and the area left as close to pre-existing condition as possible. Minimal grading and earth moving is anticipated for construction of the Project. Vegetation ground cover will be established as soon as practicable by the Construction Contractor at the end of the construction phase. 	<ul style="list-style-type: none"> While the potential for the site for use as agricultural land will be eliminated with the onset of construction, the effects to the agricultural soils are expected to be temporary and spatially limited and 	<ul style="list-style-type: none"> Saturn Power will implement a vegetation management plan related to the ground cover beneath the solar panels following construction. 	<ul style="list-style-type: none"> 3.5.2

Environmental Effects Monitoring Plan – Construction Phase

Feature	Potential Adverse Effect	Performance Objective	Mitigation Strategy	Net Effects	Monitoring Plan and Contingency Measures	Section Reference
				there are no anticipated significant effects.		
Mineral, Aggregate and Petroleum Resources	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> 3.5.3
Hunting, Fishing and Gathering Resources	<ul style="list-style-type: none"> Sensory disturbance to game species due to noise and increased traffic and human activity. Reduce amount of land for gathering/harvesting of traditionally significant plants identified by the Mohawks of Akwesasne. 	<ul style="list-style-type: none"> Minimize disturbance to game and fishery resources. Maximize potential for gathering prior to construction. 	<ul style="list-style-type: none"> All engines associated with construction equipment will be equipped with mufflers and/or silencers in accordance with MOE and/or MTO guidelines and regulations and requirements of the Occupational Health and Safety Act. Noise levels arising from equipment will be compliant with sound levels established by the MOE. On-site construction activities would be limited to the hours between 7:00 a.m. and 11:00 p.m. (9:00 a.m. to 11:00 p.m. on Sundays and Statutory holidays). Mohawks of Akwesasne Environmental Office will be informed in advance of land clearing activities for construction and community members will have the option of harvesting plants. 	<ul style="list-style-type: none"> Construction noise effects are anticipated to be temporary and intermittent. Net effects to gathering resources will be for the life of the project but across a small portion of land relative to the scale of the local landscape. 	<ul style="list-style-type: none"> Monitoring and maintenance of noise abatement devices on construction and support equipment would also take place to keep noise levels within MOE and Municipal guidelines (if applicable). 	<ul style="list-style-type: none"> 3.5.4
Local Traffic	<ul style="list-style-type: none"> Increase in traffic. Noise from increased traffic. Minor localized air emissions from operating heavy equipment and vehicles. Short-term nuisance dust effects. 	<ul style="list-style-type: none"> Minimize disturbance to local traffic. 	<ul style="list-style-type: none"> The Construction Contractor will implement a detailed Traffic Management Plan to identify and deal with specific planning issues and the delivery of materials. Truck traffic would be restricted to pre-determined times to the greatest extent possible. All engines associated with construction equipment will be equipped with mufflers and/or silencers in accordance with MOE and/or MTO guidelines and regulations and requirements of the Occupational Health and Safety Act. Noise levels arising from equipment will be compliant with sound levels established by the MOE. On-site construction activities would be limited to the hours between 7:00 a.m. and 11:00 p.m. (9:00 a.m. to 11:00 p.m. on Sundays and Statutory holidays). Maintaining equipment in good running condition and in compliance with regulatory requirements. Protecting stockpiles of friable material with a barrier or windscreen and in the event of dry conditions and excessive dust. Dust suppression (e.g. water) of source areas (water will be obtained via tanker trucks). Covering loads of friable materials during transport. Company and construction personnel will avoid idling of vehicles when not necessary for construction activities. Equipment and vehicles will be turned off when not in use unless required for construction activities and/or effective operation. All construction equipment will meet the emissions requirements of the MOE and/or MTO. 	<ul style="list-style-type: none"> Limited, short term effect on traffic during construction. 	<ul style="list-style-type: none"> Adherence to Complaint Response Protocol if a concern is submitted to Saturn Power. 	<ul style="list-style-type: none"> 3.6
Local Economy	<ul style="list-style-type: none"> Indirect and induced employment (positive). To the extent possible Saturn Power and/or the Construction Contractor would source required goods and services from local qualified suppliers where these items are available in sufficient quantity and at competitive prices (positive) especially among the Mohawks of Akwesasne community for steel fabrication and operation/maintenance services. Local hiring would be maximized (positive). 	<ul style="list-style-type: none"> Create positive effects on local economy. 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Positive. 	<ul style="list-style-type: none"> None required. 	<ul style="list-style-type: none"> 3.7

Environmental Effects Monitoring Plan – Construction Phase

Feature	Potential Adverse Effect	Performance Objective	Mitigation Strategy	Net Effects	Monitoring Plan and Contingency Measures	Section Reference
Municipal Infrastructure	<ul style="list-style-type: none"> Transportation of excess loads and large components may produce abnormal wear on Dickinson Road. Site grading has potential to impact site drainage and impact municipal drains. 	<ul style="list-style-type: none"> Minimize disturbance to municipal infrastructure. 	<ul style="list-style-type: none"> Saturn Power will enter into a Road Use Agreement with the County and/or municipality for the Project which will include a requirement for Saturn Power to repair any road damage at their own cost. Consultation with the County and municipality regarding any potential effects to municipal interests. A meeting will be held between Saturn Power, the Construction Contractor and municipal staff prior to the start of construction. Drainage plans will be engineered to maintain site drainage and will be distributed to Township of South Stormont and United Counties of Stormont, Dundas and Glengarry for review. 	<ul style="list-style-type: none"> Anticipated to have a limited, short term effect on municipal roads. 	<ul style="list-style-type: none"> Potential monitoring to be determined during development of Road Use Agreement with County and/or municipality. 	<ul style="list-style-type: none"> 3.8.1
Other Infrastructure	<ul style="list-style-type: none"> Potential for utility lines to be discovered during construction and risk of damage. Potential for change in drainage to impact use of CN Railway and Highway 401. 	<ul style="list-style-type: none"> Minimize impacts on utilities. Maintain same drainage patterns. 	<ul style="list-style-type: none"> Construction Contractor will be responsible for completing utility locates prior to the start of construction. Design will ensure that drainage patterns are maintained. Provide drainage plans to CN Railway and Highway 401 for review. 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> None required. 	<ul style="list-style-type: none"> 3.8.2
Waste Material Disposal & Spills	<ul style="list-style-type: none"> Improper disposal of waste material generated during construction may result in contamination to soil, groundwater, and/or surface water resources on and off Project lands. Litter generated during construction may also become a nuisance to nearby residences if not appropriately contained and allowed to blow off the construction site. Some materials, such as fuel, lubricating oils and other fluids associated with construction, have the potential for discharge to the on-site environment through accidental spills. 	<ul style="list-style-type: none"> Ensure proper disposal of waste. No spills. 	<ul style="list-style-type: none"> Systematic collection and separation of waste materials within on-site storage areas in weather-protected areas located at the main staging/laydown areas. Transportation of all waste materials and recycling off-site by private waste material collection contractors licensed with a Certificate of Approval – Waste Management System. Requirement for contractors to remove their excess materials from the site (e.g. extra cable, formwork, scrap metals, pallets, etc.). Excess materials generated during construction would be handled in accordance with the MOE's Protocol for the Management of Excess Materials in Road Construction and Maintenance. Excess excavated soils may be reused elsewhere on the property with landowner permission. All hazardous and liquid wastes will be properly labelled and stored in a secure area. As per s.13 of the Environmental Protection Act, all spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of the prescribed regulatory levels would be reported to the MOE's Spills Action Centre. Dumping or burying wastes within the Project sites would be prohibited. Should contaminated soil be encountered during the course of earth moving, the contaminated material would be disposed of in accordance with the current appropriate provincial legislation, such as Ontario Regulation 347, the General – Waste Management Regulation. Disposal of non-hazardous waste at a registered waste disposal site(s). If waste is classified as waste other than solid non-hazardous, a Generator Registration Number is required from the MOE and the generator would have obligations regarding manifesting of waste. Compliance with Schedule 4 of Regulation 347 is mandatory when determining waste category. Implementation of an on-going waste management program consisting of reduction, reuse, and recycling of materials. A washout location will be provided on-site to rinse concrete trucks prior to leaving the construction site. Sanitary waste generated during the construction phase would be collected via portable toilets and wash stations supplied by a licensed third party who would be retained prior to the start of major construction activities. Standard containment facilities and emergency response materials would be maintained on-site as required. Refueling, equipment maintenance, and other potentially contaminating activities would occur in designated areas. The Construction Contractor will develop a detailed Construction Emergency Response and Communications Plan, which will contain procedures for spill 	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Follow-up monitoring /inspections in the event of an accidental spill/leak. Remedial actions may be required in the event monitoring indicates a negative effect to natural features. Contaminated soils would be removed and replaced as appropriate. 	<ul style="list-style-type: none"> 3.9

Environmental Effects Monitoring Plan – Construction Phase

Feature	Potential Adverse Effect	Performance Objective	Mitigation Strategy	Net Effects	Monitoring Plan and Contingency Measures	Section Reference
			contingency and response plans, spill response training, notification procedures, and necessary cleanup materials and equipment. <ul style="list-style-type: none"> • As per s.13 of the Environmental Protection Act, all spills that could potentially have an adverse environmental effect, are outside the normal course of events, or are in excess of prescribed regulatory levels should be reported to the MOE Spills Action Centre. 			
Public Health and Safety	<ul style="list-style-type: none"> • Increased construction related traffic. • Unauthorized access of the public to the construction site. 	<ul style="list-style-type: none"> • Prevent unauthorized access to the construction site. • Ensure worker safety. 	<ul style="list-style-type: none"> • The Construction Contractor will implement a detailed construction plan, including plans for traffic management, health and safety, and emergency response and communications • The Construction Contractor would employ good site safety practices. • Public access to the construction site will be prevented primarily through the use of perimeter fencing, gate, and security procedures including signage. • Other measures include the use of personal protective equipment, accident reporting, and equipment operation. • Discussions with local emergency services personnel shall take place prior to construction to address concerns of local emergency services personnel. 	<ul style="list-style-type: none"> • Minimal increased new risk to public health and safety. 	<ul style="list-style-type: none"> • Adherence to Complaint Response Protocol if a concern is submitted to Saturn Power. 	<ul style="list-style-type: none"> • 3.10