

PROJECT DESCRIPTION REPORT

Southgate Solar Project

DRAFT – December 2014

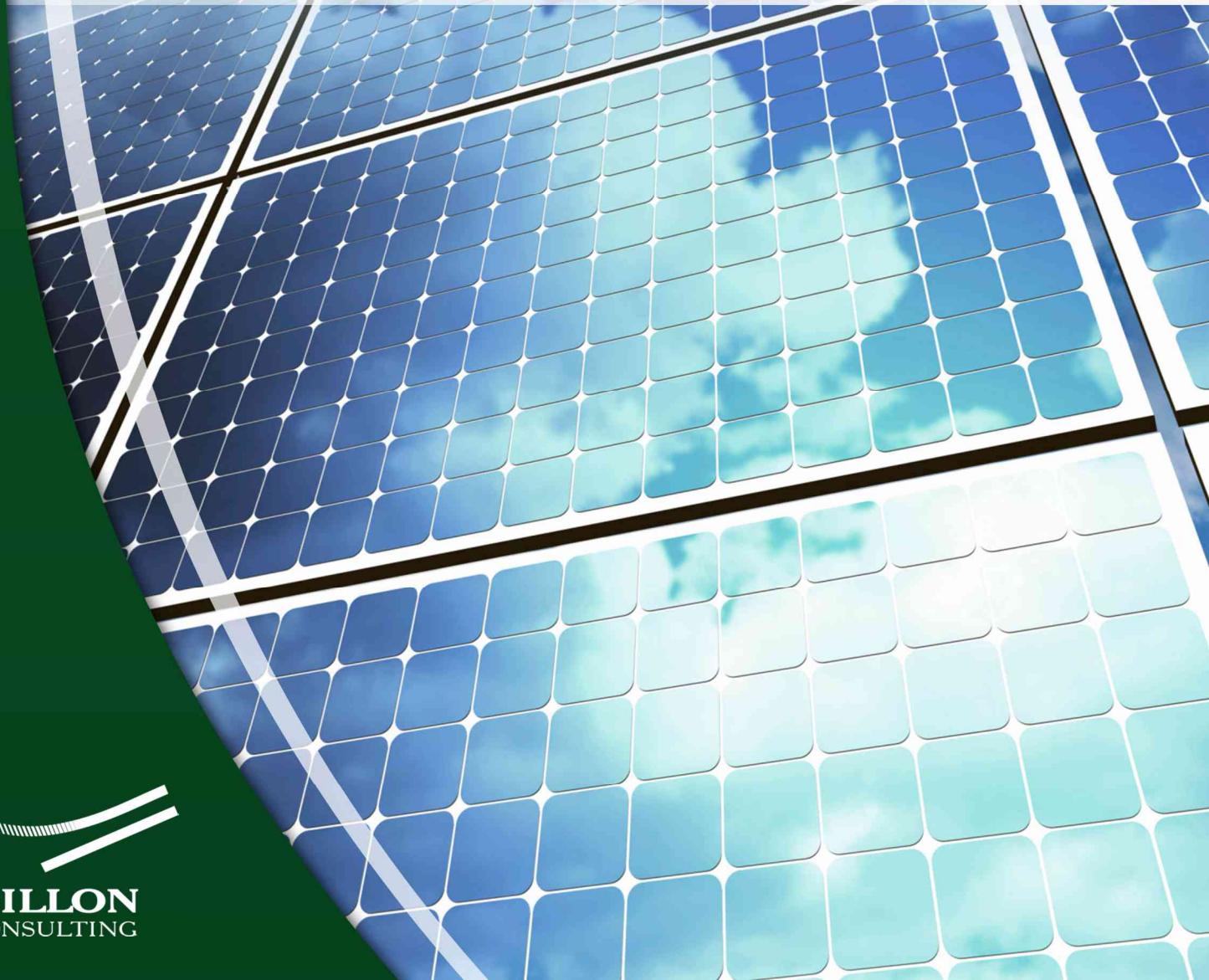


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1. INTRODUCTION

Southgate Solar LP proposes to develop a solar facility with a maximum nameplate capacity of 50 megawatts alternating current (MWac), located near Mount Forest, in the Township of Southgate, County of Grey, Ontario (**Figure 1**). The renewable energy facility will be known as the Southgate Solar Project (the “Project”).

Southgate Solar LP has initiated the Project through a Power Purchase Agreement (PPA) with the Ontario Power Authority. The Project will require approval under Ontario Regulation 359/09 (O. Reg. 359/09) – Renewable Energy Approval (REA) under Part V.0.1 of the *Ontario Environmental Protection Act*.

This draft Project Description Report (PDR) provides an overview of the proposed Project including location, components, activities and potential negative environmental effects and applicable mitigation measures as detailed in **Table 1**.

Table 1: Checklist for Requirements under O. Reg. 359/09 – Project Description Report

Required Documentation	Location in Report
Any energy sources to be used to generate electricity at the renewable energy generation facility.	Section 6.3, <i>Energy Sources</i>
The facilities, equipment or technology that will be used to convert the renewable energy source or any other energy source to electricity.	Section 6.4, <i>Project Components</i>
If applicable, the class of the renewable energy generation facility.	Section 6.1, <i>Nameplate Capacity and Classification</i>
The activities that will be engaged in as part of the renewable energy project.	Section 6.5, <i>Project Activities</i>
The name plate capacity of the renewable energy generation facility.	Section 6.1, <i>Nameplate Capacity and Classification</i>
The ownership of the land on which the Project Location is to be situated.	Section 6.2, <i>Land Ownership</i>
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.	Section 5, <i>Authorizations</i>
Negative environmental effects that may result from engaging in the Project.	Section 7, <i>Description of Environmental Effects</i>

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Required Documentation	Location in Report
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.	<i>Figures 2, 3</i>

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2. THE PROPOSER

In the course of developing renewable energy projects, Southgate Solar LP strives to satisfy various environmental approval requirements and obtains regulatory approvals that vary depending on the jurisdiction, project capacity and site location. In addition, Southgate Solar LP aims to build long-term relationships with the communities that host its projects. Southgate Solar LP is committed to the health and welfare of the residents of the Township of Southgate, and to ensure that the Southgate Solar Project is successful for stakeholders.

Contact information for the Proposer is as follows:

Full Name of Company:	<i>Southgate Solar LP</i>
Prime Contacts:	- <i>Simon Kim, Project Manager</i> - <i>A. José De Armas, Manager, Project Development</i>
Address:	<i>2050 Derry Road West 2nd Floor, Mississauga, ON, L5N 0B9</i>
Telephone:	<i>1-866-234-7094</i>
Email:	<i>ssp@samsungrenewableenergy.ca</i>

Dillon Consulting Limited is the prime contractor for the preparation of this report. The contact at Dillon is:

Full Name of Company:	<i>Dillon Consulting Limited</i>
Prime Contact:	<i>Michael Enright, Project Manager</i>
Address:	<i>1155 North Service Road West, Unit 14, Oakville, Ontario, L6M 3E3</i>
Telephone:	<i>(905) 901-2912 ext. 3401</i>
Email:	<i>menright@dillon.ca</i>

3. PROJECT LOCATION

The proposed Class 3 Solar Facility is to be located within the Township of Southgate, in the County of Grey, approximately 11 kilometres north of the community of Mount Forest. The proposed Project Location consists of approximately 235 hectares (581 acres) and is contained within an area bounded on the north by Southgate Road 24, Southgate Road 14 to the south, Southgate Road 47 to the east, and Highway 6 to the west. The proposed Project Location, consisting of multiple privately-owned parcels, is to be leased by Southgate Solar LP. It has an approximate centroid at the following geographic coordinates:

- Latitude: 44° 6' 07.78" N
- Longitude: 80° 44' 49.91" W

Figure 1 shows the general location of the project in Ontario. The Project Location is defined in Ontario Regulation 359/09 to be “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”.

Figure 2 shows the outer boundary of the proposed Project Location and details on the location of solar facility components. Additional site plans are provided in the *Design and Operations Report*.

Figure 3 identifies natural features and water bodies based on the *Natural Heritage Assessment (NHA)* Records Review within 300 m of the Project Location.



SOUTHGATE SOLAR PROJECT

FIGURE 1
GENERAL PROJECT LOCATION

1:500,000
0 5 10 20 km
N
W S E

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: GM
MAP CHECKED BY: MB
MAP PROJECTION: NAD 1983 UTM Zone 17N

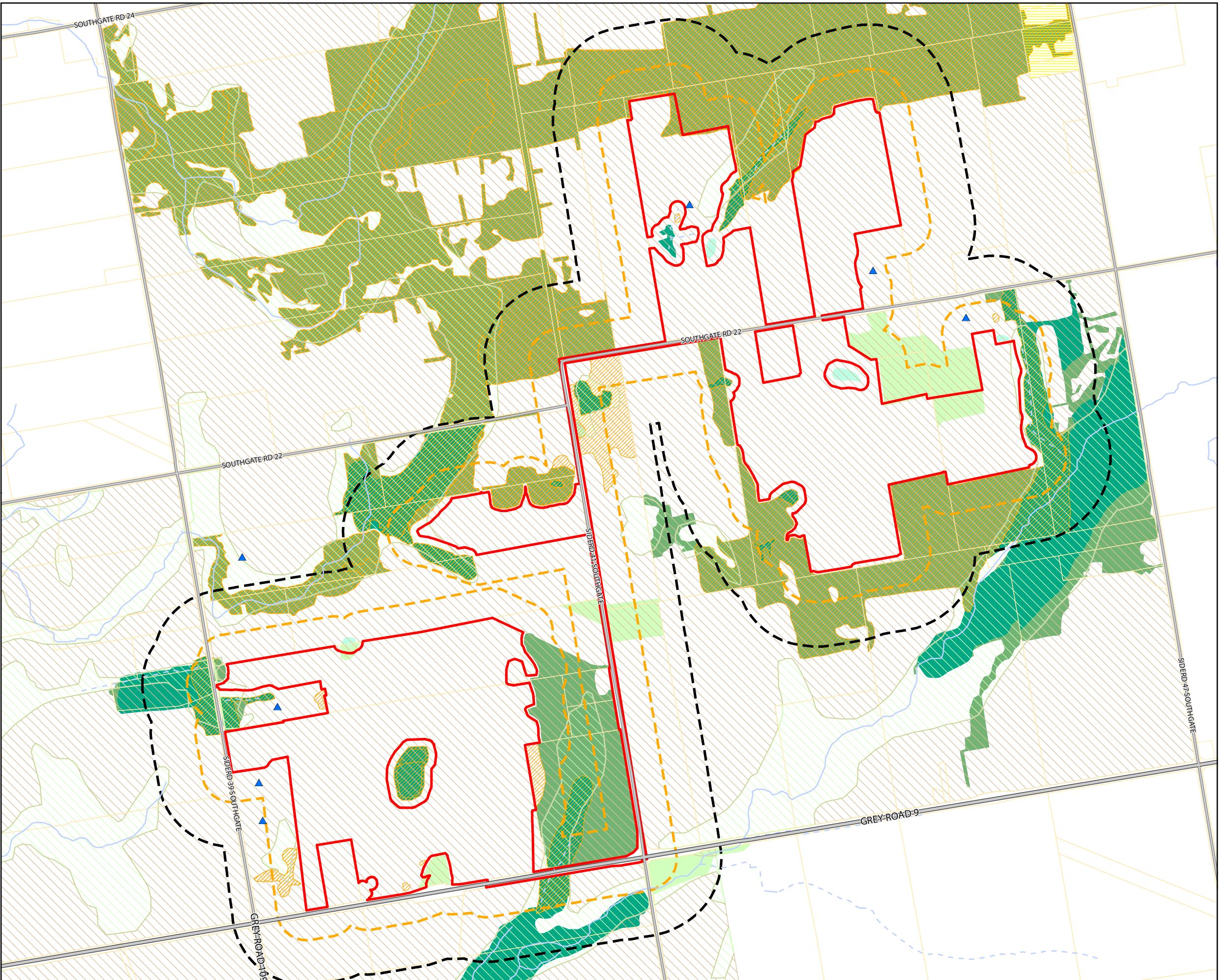
FILE LOCATION: I:\GIS\149154 - Samsung Southgate\mxd\PDF

PROJECT: 149154
DILLON
CONSULTING

STATUS: DRAFT
DATE: 11/12/2014



- Site Entrance
- Point of Common Coupling
- ▲ Communications Tower
- Noise Receptor
- Noise Receptor Involved with the Solar Project as Land Owners
- Vacant Lot Noise Receptor
- Overhead Cable
- Fence
- Access Road
- Solar Panel
- Project Location
- Project Location 50 m Setback
- Project Location 120 m Setback
- Project Location 300 m Setback
- Inverter
- Substation Transformer
- Substation
- Operations and Maintenance Building
- Parking Lot
- Parcel Boundary



4. OPERATIONAL FLEXIBILITY

As part of the design of the Project, Southgate Solar LP is requesting to pre-approve changes that may be made to the Project at the time of detailed design. These changes include, but are not limited to general modifications to the site plan that result in a decrease in the Project Location size within the current boundary, and a decrease in the number of Project components or infrastructure (including transformer substation(s), solar inverter/transformer cluster(s)). Adjustments to project components may also occur, however, it is not expected that noise components would be moved greater than 10 m from their current locations. In all cases where an operational or technical change is necessary, the project will remain within the bounds of the Project Location boundary as shown on **Figure 2**, and commitments made in the various technical reports. During operations, routine modifications to the solar facility may be implemented (e.g., repaving of entrance, repairs to fencing, etc.) provided their effects are environmentally insignificant and do not exceed the boundaries of the constructed Project.

Current REA documents and technical reports are developed for a Project Location which incorporates lands in excess of those required for the construction of solar facility components sufficient to generate 50 MWac. The classification (Class 3 Solar Facility) and nameplate capacity (50 MWac) of the Project are not subject to change. The approved layout will be refined during detailed design to incorporate only the quantity of project components required for a 50 MWac facility.

5. AUTHORIZATIONS

Table 2 provides a list of authorizations (applicable permits, agreements, licenses, approvals and confirmation letters) that Southgate Solar LP expects may be required in addition to the REA. The necessary permits will be obtained prior to construction of the proposed solar facility. The information contained in **Table 2** is preliminary and will be refined as the REA process progresses. The final list of permits required will be updated in the final PDR.

Table 2: Possible Authorizations and Requirements for the Project

Authority, Agency or Governing Body	Requirement
Department of Fisheries and Oceans (DFO)	<ul style="list-style-type: none"> • Fisheries Act subsection 35(2) authorization for watercourse crossings (or Letter of Advice)
Electrical Safety Authority	<ul style="list-style-type: none"> • Connection Authorization • Safety Inspection
Hydro One (HONI)	<ul style="list-style-type: none"> • Customer Impact Assessment - Integration of project within HONI and effects on customers • Connection Cost Recovery Agreement
Independent Electricity System Operator (IESO)	<ul style="list-style-type: none"> • Authorization as market participant • Registration of facility • Registration of metering service • System Impact Assessment (SIA) - Integration of project with HONI's transmission and distribution infrastructure • Connection Assessment Approval (CAA)
Landowners	<ul style="list-style-type: none"> • Lease Agreements
Ministry of Natural Resources and Forestry (MNRF)	<ul style="list-style-type: none"> • Water Crossings Work Permit under Regulation 453/96 of the <i>Lakes and Rivers Improvement Act</i> • Species at Risk Permit under the <i>Endangered Species Act</i> (2007) if designated species habitat is impacted – (to be confirmed)
Ministry of Transportation (MTO)	<ul style="list-style-type: none"> • Compliance with Road User Safety Policy and Corridor Management Permits, including <i>Highway Traffic Act</i> and Road Safety Regulations • Highway Entrance Permit(s), Transportation Permits (e.g. Oversize, Overweight Permit or Special Vehicle Configuration Permit)
Saugeen Valley Conservation Authority (SVCA)	<ul style="list-style-type: none"> • Permit for development in natural hazard lands under <i>Regulation 169/06 (Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses)</i>

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Authority, Agency or Governing Body	Requirement
Ontario Energy Board (OEB)	<ul style="list-style-type: none">License to Generate under Section 57(c) of the OEB Act
Ontario Power Authority (OPA)	<ul style="list-style-type: none">Power Purchase AgreementNotice to ProceedDomestic Content Plan, security deposits, financing plan, metering plan, etc.
Township of Southgate and/or County of Grey	<ul style="list-style-type: none">Building Permit(s)Transportation and public safety permits (e.g. entrance permit, road occupancy, moving permit, encroachment permit)Tree Cutting Permit (to be confirmed)Road Use Agreement
Industry Canada	<ul style="list-style-type: none">Communication Frequency License

6. PROJECT INFORMATION

6.1 Nameplate Capacity and Classification

The Project is designed to generate a maximum of 50 MWac of electricity. According to Part II, Section 4 of O. Reg. 359/09, the proposed Project is a Class 3 Solar Facility. The characteristics of a Class 3 Solar Facility, as described in the Regulation, are as follows:

- The location of solar photovoltaic collector panels and devices are at any location other than mounted on the roof or wall of a building; and
- The nameplate capacity of the solar facility is greater than 10 kilowatts.

6.2 Land Ownership

The proposed Project Location is comprised of land that is all privately owned and will be leased to Southgate Solar LP to construct, operate and decommission the Project (see **Figure 2**). Detailed legal descriptions of these properties are provided in **Table 3**.

Table 3: Legal Description

Property No.*	Legal Description
11	LT 23 CON 3 EGREMONT; S/T GS100280, GS36035 SUBJECT TO AN EASEMENT IN GROSS OVER PT 3 16R9610 AS IN GY27130 TOWNSHIP OF SOUTHGATE
12	LT 25 CON 3 EGREMONT; S/T GS100282, GS36398 SUBJECT TO AN EASEMENT IN GROSS OVER PT 5 16R9610 AS IN GY27092 TOWNSHIP OF SOUTHGATE
13	LT 26 CON 3 EGREMONT EXCEPT PT 1-6 16R7235; PT LT 27-28 CON 3 EGREMONT AS IN GS130467; SOUTHGATE
14	PT LT 1-2 CON 18 EGREMONT AS IN R411045; SOUTHGATE
16	LT 3 CON 18 EGREMONT; SOUTHGATE
18	LT 2-3 CON 17 EGREMONT EXCEPT PT 1, 2 16R9502; SOUTHGATE
19	LT 4 CON 17 EGREMONT; SOUTHGATE

*Property numbers are representative of Southgate Solar LP's internal naming convention and are also depicted on **Figure 2**.

6.3 Energy Sources

The primary source of energy that will be used to generate electricity will be the kinetic energy of moving photons, which radiate from the sun. As the sun's rays hit the silicon atoms of the

solar cells, they transfer their energy to loose electrons. This will create direct current (DC) electricity, which is converted to AC electricity by inverters.

6.4 Project Components

PV panels will be the technology used to convert solar energy into electricity. DC electricity generated from the panels will be collected and converted into AC electricity by inverters, which are contained in multiple Medium Voltage (MV) stations. The AC voltage will be “stepped-up” to 34.5 kV through the multiple MV stations and connected to the main HV substation transformer where the voltage will be stepped up to 230 kV and connected to the transmission grid.

Details about the project components, both temporary and permanent, that will be used to construct, operate, maintain and decommission the solar facility are provided below.

6.4.1 Project Size and Layout

As discussed in **Section 4**, the Project has been designed such that it allows for operational flexibility during the detailed design stage. The current boundary of the Project Location includes lands in excess of those required to construct a 50 MWac solar facility. The Project layout may be subject to changes during detailed design through a reduction in the number of components. Any changes made during detailed design will remain within the Project Location boundary as shown on **Figure 2**.

6.4.2 Solar Modules and Mounting System

Approximately 197,000 to 207,000 solar panels of 290-305 (or higher) watts (DC) each will be installed for the Project. The estimated number of panels uses a conservative 1.2 DC to AC conversion rate. This results in a high level estimate for the number of modules (panels) to be installed.

The panels will be aligned in table rows between 8 to 12 m apart, and will be mounted on racking structures. The racking system will be in a fixed position and tilted to 28-42 degrees, subject to refined modeling to achieve optimal energy yields. Based on the results of a geotechnical assessment, it is anticipated that helical ground screws will be used to minimize potential negative environmental effects.

Additional details on the racking system and supporting structures are provided in the *Design and Operations Report*.

6.4.3 Medium Voltage Stations and Equipment

An MV Station houses multiple components, including inverters, an MV transformer and SCADA monitoring equipment. The AC voltage created by the inverters will be “stepped-up” to 34.5 kV through the approximately 34 MV stations. The MV transformer consists of a three-phase high-voltage winding and two separate low-voltage windings each rated for 360 volts. It is anticipated that the inverter used will be a 800 kW model, or similar, and the MV Transformer used will be a

1600 KVA 34.5kV-360/360 V delta HV connection with an ungrounded wye low voltage connection. Additional details are provided in the *Design and Operations Report*.

6.4.4 Electrical Collector System

The AC electrical energy output from the MV Stations will be collected via underground and overhead cables and connected to the main HV substation transformer. Lines will generally follow the internal access roads, public road networks, and the lines will be directionally drilled under any existing drains, where necessary. The lines will all be connected to the main HV substation transformer, which will ultimately be connected to the HONI 230 kV transmission line.

6.4.5 Substation and Other Equipment

The collector system voltage will be stepped up to the 230 kV transmission grid voltage at one main HV substation transformer to be located on Parcel 11 off of Southgate Sideroad 41, immediately adjacent to the HONI corridor, which contains an existing 230 kV transmission line. Specifically, the Project will be transmission connected to the IESO controlled grid and the Point of Common Coupling (PCC), located east of the main HV substation transformer and north of the HONI corridor within the Project Location boundary. HONI will be responsible for the necessary equipment within its corridor.

The main HV substation transformer will be sized appropriately for a 50 MWac solar facility and the required VAR compensation. Electrical equipment supplied must be Canadian Standards Association (CSA) approved, meet Electrical Safety Authority (ESA) requirements and be acceptable to HONI/IESO with respect to protection, control and SCADA requirements. Dynamic VAR compensation (DSTATCOM) as well as static VAR (capacitors and reactors) will be required by the IESO to regulate the grid voltage during generation. The IESO will establish the voltage set point. The size of the VAR compensation will ultimately be determined by the IESO via the System Impact Assessment (SIA) process.

The main HV substation transformer will require an auxiliary source in the event that its power supply is interrupted from the grid. The auxiliary power source is assumed to be a secondary power supply from the Local Distribution Company. The load is assumed to be approximately 200kW.

6.4.6 Access Roads

The main entrances to the solar facility will be located off Grey Road 9, Southgate Sideroad 41 and Southgate Road 22. Other existing internal access roads will be utilized to access the panel arrays within the Project Location. In addition, temporary and/or permanent gravel access roads will be constructed to facilitate installation and delivery of equipment as well as maintenance requirements during operations. These granular access roads will be approximately 6 m wide and constructed as appropriate for the Project Location and final engineering design.

6.4.7 Perimeter Fence and Lighting

For the safety of the public and for security purposes, a perimeter fence will be installed. This will be a chain link fence of standard height (approximately 1.8 m) that will be installed around the entire Project Location. Alternatively, consideration will also be given to the installation of an anti-climb or predator-proof fence to facilitate potential livestock grazing during operations. The perimeter fence is a requirement of the Electrical Safety Authority and will be built to their specifications. Gates will be installed where the fence intersects access roads.

For security and maintenance purposes, lighting may be installed near the entrances of the solar facility and task-specific lights will be provided as necessary. They may also be motion-sensored to address potential negative impacts.

6.4.8 Temporary Storage and Construction Areas

During construction it will be necessary to designate/construct temporary storage areas for equipment and components. These areas form part of the Project Location and will be included in the detailed Site Plan of the *Design and Operations Report*. Such areas will fall within the Project Location as shown in **Figure 2** however; pending the final design, any part of the Project Location may be used as temporary storage, which will be dependent on how construction will be staged.

6.4.9 Control Building/Communication Tower

A control building and microwave (communication) tower will also be installed to provide transfer of solar facility operation data to HONI during operations. These components will be located within the substation yard on Parcel 11, as shown on **Figure 2**.

6.4.10 Operations and Maintenance Building

An operations and maintenance building will be constructed as part of the Project and would provide a reception area, office(s) for operation staff, a washroom, lunch room, warehouse and parking area. The location for the operations and maintenance building will be on Parcel 11 off of Southgate Sideroad 41, as shown on **Figure 2**. It is likely that temporary office buildings (e.g., portable trailers) will be required during construction; however, these are anticipated to be removed during the operations phase.

6.4.11 Water Crossings

It is not anticipated that the Project will require the installation of new water crossings. Appropriate buffers have been applied to water bodies found within 300 m of the Project Location. For more information, please refer to the *Water Assessment Report* and *Water Body Report*. Additional details on water bodies within the Project Location are provided within **Section 7.3**.

6.4.12 Drainage and Erosion Control

Construction activities associated with the Project are not anticipated to increase the peak flow runoff from the Project Location. It is proposed that stormwater quality control will be achieved following a treatment train approach of source and conveyance controls. The proposed source control will be provided by the establishment of low maintenance, dense-growing vegetation over the site. The specific species to be used for the vegetative cover will be determined during the detailed design phase of the Project. The proposed conveyance control system will be provided by enhanced grass swales with rock check dams. These swales are designed to promote infiltration of stormwater and the filtering and settling of pollutants by reducing the velocity of water along the swale.

If necessary, specific details regarding surface drainage and additional construction mitigation requirements will be established as part of a detailed stormwater management plan, to be prepared prior to the start of construction during the detailed design phase of the Project. The recommended stormwater management (SWM) and erosion and sediment control (ESC) measures will remain installed throughout the construction period and will be routinely inspected by the contractor. It is anticipated that the recommended ESC measures will be required during the construction phase of the Project; however, the need for any permanent measures during the operations phase will be determined during detailed design. SWM measures will be also be confirmed during detailed design.

The draft *Stormwater Management Report* is appended to the *Design and Operations Report*.

6.4.13 Water Supply

If feasible and readily available, water for use in toilets and sinks will be supplied from the municipal system. If not feasible, water would either be taken from an on-site well or be trucked in from a municipal supply using a local water hauler and stored in an above ground water tank within the building. Bottled water would be provided for drinking purposes.

6.4.14 Sewage Disposal

The operations and maintenance building would contain a washroom and kitchen facilities. Sewage from the washroom and kitchen facilities will be directed to a septic holding tank, designed in accordance with the Ontario Building Code and municipal building standards. A level gauge would be provided to monitor the need for emptying the tank by a licensed septic tank hauler and high level alarms with audible and visual warning would be provided to prevent overfilling.

6.5 Project Activities

The following subsections outline project activities during the construction, operations and maintenance and decommissioning phases of the Project. The Project will not require the collection, transmission, treatment, storage, handling, processing or disposal of sewage, biogas, biomass or source separated organics or surface water. The operation of the solar facility will

not discharge contaminants to the air. If necessary, some management of stormwater may be required as discussed in **Section 6.4.12**. Further detail on stormwater management will be provided in subsequent versions of this report.

6.5.1 Construction

The following activities associated with construction of the solar facility will take between 10 to 12 months (see **Table 3**). Pending the receipt of all necessary approvals and permits, construction is tentatively scheduled to begin in early 2016. The construction activities will occur in the relative order in which they are presented below. Additional details can be found in the draft *Construction Plan Report*.

Table 4: Construction Activities

Activity	Description
Survey and Staking of Project Location	Prior to the construction phase, the Project Location will be surveyed and staked to delineate the boundaries for fencing, access roads, excavations and foundation locations. Areas to be avoided will be fenced and/or flagged for public safety.
Clearing, ground levelling and grading	The Project Location will be minimally graded to facilitate construction activities based on a grading plan, and a preliminary Stormwater Management Report (see the <i>Design and Operations Report</i>) will be implemented to maintain the pre-construction off-site drainage patterns as much as possible. Selective vegetation clearing may be necessary. If necessary, a detailed design Stormwater Management Plan will be completed by the project contractor prior to the start of construction.
Drainage and Erosion Control	It is not anticipated that the construction of the Project will have a significant impact on stormwater peak flows at the Project Location. A detailed Stormwater Management Plan will be developed prior to construction to address any temporary and/or permanent systems to manage flow and protect natural features during construction and operations. This detailed plan will be consistent with the preliminary Stormwater Management Report documented as part of the <i>Design and Operations Report</i> . Temporary erosion and sediment control measures will be installed prior to and during site construction to protect natural features and other considerations identified in the NHA.

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Activity	Description
Installation of the perimeter fence and Security Lighting	<p>Fencing will be installed for the duration of the project lifespan around the perimeter of the Project Location. The fence will be installed in accordance with the requirements of the Electrical Safety Authority (ESA) but is anticipated to be a chain-link fence with three strands of barbed wire on top. Alternatively, consideration will also be given to the installation of an anti-climb fence or predator-proof fencing to facilitate potential livestock (sheep) grazing during operations. Gated entrances will be installed at the site entrances. Temporary entrances may be in place during the construction phases. For security and maintenance purposes, lights may be installed near the entrance of the solar facility and task-specific lights will be provided as necessary.</p> <p>During construction, the site will be monitored by the supervising construction staff and if necessary, 24-hour on-site security will also be utilized. Lights will be installed near the main HV substation transformer and site entrances to the solar facility and task-specific lights will be installed where necessary.</p>
Construction of Access Roads and Installation of Temporary Power	<p>The main entrances to the solar facility will be located off Grey Road 9, Southgate Sideroad 41 and Southgate Road 22. Other existing internal access roads will be utilized. In addition, temporary and/or permanent gravel access roads will be constructed to facilitate installation and delivery of equipment as well as maintenance requirements during operations. These granular access roads will be approximately 6 m wide and constructed as appropriate for the Project Location and final engineering design. It is anticipated that geo-textile mats will be installed under all Project access roads to be constructed, to reduce the need for land rehabilitation during decommissioning.</p> <p>During the construction period, it is anticipated that on-site electricity will be obtained from the local distribution utility from nearby suitable distribution lines to provide the Project Location with auxiliary power as required to power equipment and for temporary construction offices, lighting and other purposes. If no distribution supply is available nearby, the requirements for an auxiliary generator will be determined once the layout of the solar facility is reviewed in detail.</p>

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Activity	Description
Delineation of Temporary Storage and Construction Areas and Installation of Temporary Facilities	Temporary laydown and construction staging areas will be located within the defined Project Location, as shown on Figure 2 . However, pending the final design, any part of the Project Location may be used as temporary storage, which will be dependent on how construction will be staged. These areas will be used for the construction office trailers, portable washrooms, first aid stations, vehicle parking, construction equipment parking, storage sheds, truck unloading/loading, waste disposal pick-up areas, and equipment and material lay-down. After site grading (discussed above) a layer of granular material will be installed to provide an adequate base for construction vehicles, heavy equipment and material laydown. A small portion of the area may be retained to accommodate vehicle parking for maintenance personnel and equipment storage. Additional storage and/or staging areas may be placed in the area between the Project Location boundary and the final fence line (i.e., area of operational flexibility).
Construction of Foundations	Engineered foundations for the MV Stations, main HV substation transformer and the operations and maintenance building will be constructed. The types of foundations will be determined based on the final engineering design, but based on the preliminary geo-technical study, it is anticipated that conventional spread footings will be used.
Installation of Supports, Racking and PV Modules	The Project will consist of approximately 197,000 to 207,000 solar panels of between 290-305 watts (or higher), (DC) each. The panels will be aligned in rows 8 to 12 m apart and will be mounted on 28 – 36 degree fixed tilt ground mounting system. The types of foundations will be determined based on the final engineering design, but it is anticipated that helical screw foundations and/or steel driven piles will most likely be used.

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Activity	Description
Installation of Wiring and Inverters/Transformers	<p>The electricity generated by the PV panels will be in the form of direct current (DC). Inverters will be required to convert the DC output of the PV cells into alternative current (AC) suitable for supplying the electrical grid. DC wiring mounted to the back side of the racks is connected to a combiner box.</p> <p>From the combiner box, the DC current will be transmitted below ground to one of up to 63 inverters configured to 793kW. The AC voltage created by the inverters will be “stepped-up” to 34.5 kV through the multiple MV stations. A MV Station houses multiple components, including inverters, and a MV transformer. Approximately 34 MV Stations will be required for the Project. Further details are provided in the <i>Noise Study Report</i>. The MV transformer consists of a three-phase high-voltage winding and two separate low-voltage windings each rated for 360 volts. It is anticipated that the inverter used will be an 800 kW model, or similar, and the MV Transformer used will be a 1600 KVA 34.5kV-360/360 V delta HV connection with an ungrounded wye low voltage connection.</p> <p>The AC electrical energy output from the MV Stations will be collected via underground cables and connected to the main HV substation transformer. At the substation, the voltage will be stepped up to 230 kV and connected to the IESO transmission grid.</p> <p>The underground cables will be installed in trenches by a cable trenching machine or dropped in trenches created by an excavator. A tape will be layered above the underground cabling system to serve as a marker, as per ESA standards.</p> <p>After all major construction activities are completed the components will be tested. If any problems or issues arise, remedial corrections and calibration of equipment will be made prior to start-up.</p>
Clean-up of Work Areas	<p>After all major construction activities are completed work areas will be returned to their pre-construction condition or similar. All construction-related waste and excess materials brought to the site will be removed and reused, recycled, or disposed of as applicable by a licensed contractor in accordance with provincial guidelines. Trucks will be used to remove all non-permanent equipment from the Project Location, along with any debris.</p>

Activity	Description
Site Landscaping and Vegetation	<p>Site restoration and reclamation is planned for as much of the Project Location as possible, including along access roads. The restoration and reclamation strategy may include re-contouring of the land to natural drainage patterns (in accordance with a final design Stormwater Management Plan to be prepared prior to construction), management and replacement of subsoil (if applicable) and topsoil and re-vegetation. Disturbed areas may be seeded with a low-growing species such as clover, or allowed to re-vegetate naturally as needed, to help stabilize soil conditions, enhance soil structure and increase soil fertility. Alternatively, the grounds may potentially be grazed by livestock (sheep), thus the disturbed areas may be seeded with pasture grasses. This may occur during several phases of construction, including after grading activities are completed in areas where limited disturbance is anticipated for the remainder of the construction period.</p>

All construction activities will be conducted by licensed contractors in accordance with required standards and codes and all activities will abide by local laws and requirements. Construction-related activities will be conducted within the Project Location boundary outlined in **Figure 2**. After all major construction activities are complete the components will be tested. If any problems or issues arise, remedial corrections and calibration of equipment will be made prior to start-up. During construction, no hazardous materials, including fuel, oils or grease will be stored on site, although equipment may require their use. Disposal of hazardous wastes will only be required in the case of accidental spills and will follow the procedures outlined in the Spills Response Plan. Decisions on waste disposal or recycling during, and immediately after, construction will be made by the on-site contractor who will refer to the *Environmental Protection Act*.

6.5.2 Operation and Maintenance

The following activities, outlined in **Table 4**, are associated with the operation and maintenance of the solar facility. Overall, few activities are associated with the operational phase of the Project. The proposed solar facility will be monitored and managed remotely and minimal on-site activity is required for its daily operation. An operations and maintenance manual will be prepared prior to the start of construction of the Project. Security and minor maintenance are the only regular activities anticipated on-site, although, there could be some permanent on-site employees working out of the operations and maintenance building.

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Table 5: Operations and Maintenance Activities

Activity	Description
Monitoring and meter calibrations	The solar facility will be monitored remotely twenty-four hours a day off-site to ensure proper power output and to alert the operations staff to potential issues. Most issues can be remotely diagnosed so that the correct individual(s) can be dispatched to the solar facility to correct any problems or potentially corrected by permanent staff working out of the operations and maintenance building.
Routine periodic maintenance and inspection of project components	Site visits will occur as scheduled to visually inspect the solar facility and Project Location and ensure that the solar facility is in proper working order. Activities that will occur during these visits may include data collection, regular maintenance (as described below) and any necessary minor repairs such as replacement of weathered electrical components. Security visits may also occur periodically. Some of these activities may be undertaken by permanent staff working out of the operations and maintenance building. Transformers, inverters, panels and arrays will be visually inspected during scheduled visits.
Lighting	For security and maintenance purposes, lighting may be installed near the entrances of the solar facility and task-specific lights will be provided as necessary. These will be appropriately shielded or directed to avoid impacts to neighbours and will be inspected for burned/broken bulbs. Perimeter lighting is not anticipated. Regularly scheduled maintenance will occur.
Cleaning of panels	It is anticipated that the rain would generally be sufficient for cleaning the solar panels; however, depending on the quantity and frequency of rain at the Project Location, the modules may require periodic cleaning. If required, water trucks would bring water to the site. It is not anticipated that chemical detergents will be used to clean panels.
Periodic landscape maintenance	Short native vegetation may be planted once construction activities are complete. It will be necessary to maintain the land in such a way that vegetation does not shade or in other ways impact the solar panels. Regular scheduled maintenance will also occur to manage weed growth as required. There is also potential for maintenance of the vegetation by grazing livestock (sheep), however details of this will be determined during the detailed design stage. This will be done in consideration of any seasonal limitations outlined in the NHA. It is not anticipated that herbicides will be used to manage vegetation.
Major maintenance	Unforeseen, large repairs are not anticipated. Should major maintenance be required it will be performed using existing roads and site access points.

Activity	Description
Third party inspections and testing	Activities will be carried out as required by the local utility and other governing bodies in addition to any regularly scheduled inspections and testing.
Traffic	No major deliveries are anticipated for maintenance. Minimal vehicle traffic is associated with regular maintenance.
Drainage and erosion control	If necessary, stormwater runoff at the Project Location will be managed as per a Stormwater Management Plan to be developed by the appropriate contractor at the detailed design stage. This will be done with consideration to maintaining pre-construction drainage patterns and recommendations or limitations outlined in the <i>Natural Heritage Assessment</i> or <i>Water Reports</i> . Implemented measures will be inspected during routine maintenance reviews.
Waste	The operation of the system does not produce waste. All debris as a result of maintenance or cleaning will be removed from the site immediately by the contractor. An exception is sewage disposal from the washrooms and kitchen facilities, which will be directed to a septic tank designed to building code requirements.

During the operations phase, no hazardous materials will be stored on-site with the exception of oil for transformers, which will be adequately contained and accompanied by a Spills Response Plan, to be developed prior to the start of construction.

6.5.3 Decommissioning

Most of the materials used in a solar facility are reusable or recyclable, and some equipment may have manufacturer take-back and recycling requirements. Through the decommissioning phase of the Project, the site will be returned to a state similar to its pre-construction condition. Materials such as steel/aluminum from the racking and copper from the electrical infrastructure will be removed and recycled. The PV panels will be removed and either returned through manufacturers' recycling protocols or refurbished and recycled where possible. Any remaining materials will be removed and disposed of off-site at an appropriate location.

The following activities are associated with the decommissioning of the solar facility. These activities will take place approximately 20 years after commissioning. Decommissioning activities are expected to take between 6-9 months and will occur in the relative order in which they are presented below. More information is provided in the *Decommissioning Plan Report*:

- Disconnection and removal of above and below-ground wiring
- Removal of PV modules, steel/aluminum structures and electrical equipment
- Removal of foundations and any maintenance buildings or other structures
- Removal of access roads
- Topsoil replacement as necessary

- Site grading and rehabilitation as necessary
- Removal of waste from the Project Location

The final decision on waste disposal or recycling will be the responsibility of the on-site contractor who will refer to the *Environmental Protection Act*, or the applicable standards of the day before submitting a Generator Registration Report, or other applicable report, for each type of waste produced at the solar facility. Additional details are provided in the draft *Decommissioning Plan Report*.

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7. DESCRIPTION OF ENVIRONMENTAL EFFECTS

The following subsections provide a summary of potential effects that may result from the construction, installation, operation; use and retirement of the solar facility at the Project Location and surrounding 300 m. Appropriate mitigation and monitoring requirements to minimize negative effects will be evaluated and implemented, where necessary. Details on mitigation measures and monitoring are provided in additional reports, including the *Natural Heritage Assessment*, *Construction Plan Report* and the Environmental Effects Mitigation and Monitoring Plan included in the *Design and Operations Report*.

7.1 Heritage and Archaeological Resources

Stantec Consulting Limited was retained by Dillon Consulting to complete a Heritage Assessment and Stage 1 and 2 Archaeological Assessment as required under *Ontario Regulation 359/09*,

A Heritage Assessment was undertaken to identify resources of potential cultural heritage value or interest. The assessment included background research, consultation with appropriate agencies, review of historical and archival documents, and field surveys. The assessment identified nine heritage resources within the study area, however only seven built heritage resources and one cultural heritage landscape were determined to satisfy criteria under *Ontario Regulation 9/06* indicating the presence of cultural heritage value or interest (see **Figure 3**). The assessment identified two potential indirect impacts from the project, including vibration during construction, and anticipated change in land use during operations. The change in land use is considered reversible; therefore no mitigation measures were recommended. The potential vibration impacts during construction were identified for five of the eight cultural heritage resources. Where development cannot be avoided within 50 m of these resources, the Heritage Assessment recommends that a vibration study be completed prior to construction by a qualified engineer. The Ministry of Tourism, Culture and Sport (MTCS) provided their acceptance of the Heritage Assessment and agreement with recommended mitigation measures in their comment letter dated December 10, 2014. A copy of this letter is provided as part of the *Heritage Assessment*.

The Stage 1 Archaeological Assessment included a desktop background study and property investigation, and was conducted in June 2014, in accordance with the Ministry of Tourism, Culture and Sport (MTCS) 2011 *Standards and Guidelines for Consultant Archaeologists*. The Stage 1 Assessment identified the potential for archaeological finds to occur, citing moderate to high potential for pre-contact Aboriginal, post-contact Aboriginal, and Euro-Canadian sites to be discovered. The Stage 1 Archaeological Assessment recommended that the Project Location be subject to a Stage 2 archaeological assessment. MTCS provided their acceptance of the Stage 1 Archaeological Assessment into the Ontario Public Register on July 14, 2014.

The Stage 2 Archaeological Assessment was undertaken between July 23, 2014 and December 1, 2014. Nine archaeological finds were identified, including four pre-contact Aboriginal sites and five Euro-Canadian sites. Further archaeological investigation was recommended for all nine finds prior to development. Additional archaeological investigation will occur prior to development for finds within 20 m of planned infrastructure. Further detail is available as part

of the *Stage 2 Archaeological Assessment*. The *Stage 2 Archaeological Assessment* is currently being reviewed by MTCS.

7.2 Natural Heritage Resources

Southgate Solar LP has undertaken a *Natural Heritage Assessment* (NHA) consisting of a Records Review, Site Investigation, Evaluation of Significance, and Environmental Impact Study to identify all natural features within the Project Location and surrounding 50 m. The NHA identified the following natural features within 50 m of the Project Location:

- 21 unevaluated wetlands
- 11 unevaluated woodlands
- Candidate Significant Wildlife Habitat, including:
 - Colonial Nesting Bird Breeding Habitat (Bank and Cliff) (1 unit)
 - Colonial Nesting Bird Breeding Habitat (Tree/ Shrub) (11 units)
 - Colonial Nesting Bird Breeding Habitat (Ground) (2 units)
 - Deer Winter Congregation Area (1 unit)
 - Turtle Nesting Area (1 unit)
 - Woodland Raptor Nesting Area (1 unit)
 - Amphibian Breeding Habitat (Wetlands) (14 units)
 - Amphibian Breeding Habitats (Woodlands) (4 units)
 - Marsh Breeding Bird Habitat (6 units)
 - Woodland Area-sensitive Bird Breeding Habitat (1 unit)
 - American Gromwell Habitat (6 units)
 - Hill's Pondweed Habitat (5 units)
 - Scarlet Beebalm Habitat (7 units)
 - Soft-hairy False Gromwell (6 units)
 - Common Nighthawk Habitat (5 units)
 - Redheaded Woodpecker Habitat (1 unit)
 - Golden-winged Warbler Habitat (1 unit)
 - Harlequin Darner Habitat (11 units)
- Generalized Candidate Significant Wildlife Habitat, including:
 - Waterfowl Stopover and Staging Areas (Aquatic)
 - Shorebird Migratory Stopover Areas
 - Bat Maternity Colonies
 - Turtle Wintering Areas
 - Hill's Pondweed
 - Scarlet Beebalm
 - Deer Winter Congregation Areas
 - Seeps and Springs
 - Marsh Bird Breeding Habitat
 - Woodland Area-Sensitive Bird Breeding Habitat

These features were evaluated for significance using procedures and criteria approved by the Ministry of Natural Resources and Forestry (MNRF). The following determinations were made:

The Project Location is within 50 m of the following significant natural features:

- 16 southern wetlands
- 5 southern woodlands
- Deer Winter Congregation Area (1 unit)
- Amphibian Breeding Habitat (Wetland) (1 unit)
- Amphibian Breeding Habitat (Woodland) (3 units)
- Woodland Area- Sensitive Bird Breeding Habitat (1 unit);
- Redheaded Woodpecker Habitat (1 unit)
- Generalized Candidate Significant Wildlife Habitat

In addition, the following natural features have been treated as significant and will be assessed pre-construction:

- Turtle Nesting Area (1 unit)
- Turtle Wintering Areas (2 units)
- Amphibian Breeding Habitat (Wetland) (11 units)
- Hill's Pondweed Habitat (5 units)
- Harlequin Darner Habitat (3 units)

Colonially- Nesting Bird Breeding Habitat (Tree/ Shrub) (2 units), American Gromwell Habitat (1 unit), and Soft- hairy False Gromwell Habitats (3 units), are within areas adjacent to the Project Location for which access was not granted. These habitats have been treated as significant and addressed in the *Environmental Impact Study*. No pre-construction surveys will be completed.

Based on the field studies conducted, the Project Location was refined to minimize avoid impacts to significant natural heritage features where possible. The layout of the Project has been developed to minimize its footprint and prioritize the protection of natural features. Potential negative environmental impacts to significant natural features and wildlife have been identified.

In consideration of the identified potential environmental effects, mitigation measures have been proposed to address these effects and maintain the ecological integrity and functionality of significant natural features. Details regarding proposed mitigation measures can be found in the NHA reports and in **Appendix A** of the *Design and Operations Report*.

The Project has been developed to retain the value of significant natural features identified and to mitigate any negative effects that will occur. For the natural features deemed to be significant, the layout of the Project will allow for the persistence of all of these natural features after this Project is constructed and operational.

The Natural Heritage Assessment is currently under review with the MNRF, and has not been finalized to date. Therefore, significant natural features listed within this section are subject to change pending confirmation from the MNRF.

7.3 Water Bodies

Southgate Solar LP has undertaken a *Water Assessment* and completed a *Water Body Report* to identify all water bodies within the Project Location and surrounding 120 m. Specific details related to the identification and mitigation of environmental effects are available in the *Water Body Report*.

Under *Ontario Regulation 359/09*, the definition of a water body includes lakes, permanent and intermittent streams and seepage areas, but does not include grassed waterways, temporary channels for surface drainage, rock chutes and spillways, roadside ditches that do not contain a permanent or intermittent stream, temporary ponded areas that are normally farmed, dugout ponds or artificial bodies of water that are intended for the storage, treatment, or recirculation of runoff from farm animal yards, manure storage facilities and outdoor confinement areas.

As outlined in Sections 30 and 31 of *Ontario Regulation 359/09*, a records review and site investigation were undertaken to fulfill the requirements of the *Water Assessment Report*. The records review identified one potential water body mapped within the Project Location and surrounding 120 m. The site investigation confirmed the presence of this water body and also identified ten additional water bodies that meet the definition of a water body as defined by *Ontario Regulation 359/09*. Each of these eleven water bodies and the results of the site investigation are discussed below:

- The Beatty Saugeen River was found to occur as mapped in the records review. It is a natural permanent stream. It originates northeast of the Project Location, flows generally south-westward, enters the 120 m setback at a location approximately 120 m south of the southern boundary of the Project Location near the intersection of Grey Road 9 and Southgate Sideroad 41, flows generally westward, crosses under Southgate Sideroad 41 via a bridge, then exits the 120 m setback approximately 50 m west of Southgate Sideroad 41.
- Tributary 1 to the Beatty Saugeen River was found during the site investigation to occur within the Project Location 120 m setback. It originates approximately 30 m east of the Project Location and 250 m south of Southgate Township Road 22, flows generally southward for approximately 370 m, then turns south-eastward and exits the 120 m setback. It is a natural intermittent stream within an associated wetland.
- Tributary 2 to the Beatty Saugeen River was found during the site investigation to occur within the Project Location and the 120 m setback. Within the project location it crosses under Grey Road 9 where the collector line will connect the various areas of the Project. Tributary 2 flows generally southward and is within 120 m of the Project Location approximately 330 m west of Southgate Sideroad 41. It is a natural intermittent stream within an associated wetland.

- Unnamed Stream 1 was found during the site investigation to originate within the 120 m setback north of the Project Location within an associated wetland. It is a natural intermittent stream. From its origin, it flows generally south-westward approximately 170 m in the setback, and then dissipates near the south-western perimeter of the associated wetland.
- Unnamed Stream 2 was found during the site investigation to occur within the 120 m setback. It is a natural intermittent stream. It originates from a groundwater seepage area (Seepage Area 1), flows south-westward for approximately 10 m into a dugout pond, empties from the pond over a concrete weir, continues generally southward for approximately 70 m, forms a confluence with Unnamed Stream 3 from the east, continues generally southward for approximately 60 m, then empties into and dissipates within an area of shallow water in a meadow marsh wetland.
- Unnamed Stream 3 was found during the site investigation to occur within the 120 m setback. It is a natural intermittent stream. It originates from a groundwater seepage area (Seepage Area 2) located approximately 120 m southeast of Seepage Area 1, flows generally westward approximately 100 m and forms a confluence with Unnamed Stream 2.
- Unnamed Stream 4 was found during the site investigation to occur within the 120 m setback. It is a natural intermittent stream. It originates from a dugout pond located approximately 5 m west of Southgate Sideroad 39, flows from an outlet on the southwest corner of the pond generally westward for approximately 30 m through a cedar swamp wetland, exits the 120 m setback, continues for approximately 360 m, then dissipates below the ground surface in the agricultural field.
- Unnamed Stream 5 was found during the site investigation to occur within the 120 m setback. It is an intermittent stream within a channelized ditch on a residential property. It originates from a groundwater seepage area (Seepage Area 3), flows generally westward for approximately 180 m through the channelized ditch, then dissipates in a wetland located immediately east of Southgate Sideroad 39.
- Seepage Area 1 was found during the site investigation to occur within the 120 m setback, near the northwest area of the Project location ($44^{\circ} 06' 49.15''$, $80^{\circ} 44' 39.63''$). It occurs as a point source of groundwater emerging from the ground near a fence line adjacent to a cattle pasture. The Seepage Area was surrounded by a horizontal circular steel cylinder with an approximate diameter of 1 m, set into a substrate base of sand, gravel and organic soil. Groundwater was emerging from the substrates, filling the cylinder, flowing over its wall and feeding Unnamed Stream 2.
- Seepage Area 2 was found during the site investigation to occur within 120 m setback, near the northwest area of the Project Location ($44^{\circ} 06' 45.89''$, $80^{\circ} 44' 37.83''$), and approximately 120 m southeast of Seepage Area 1. It occurs as a point source of groundwater emerging from the ground in a cattle pasture. The Seepage Area was surrounded by a horizontal circular steel cylinder with an approximate diameter of 1 m,

set into a substrate base of sand, gravel and organic soil. Groundwater was emerging from the substrates, filling the cylinder, flowing over its wall and feeding Unnamed Stream 3.

- Seepage Area 3 was found during the site investigation to occur within the 120 m setback, near the western portion of the Project Location ($44^{\circ} 05' 44.26''$, $80^{\circ} 45' 56.72''$). It occurs as a single point source of groundwater emerging from a west-facing hillside on a residential property, approximately 30 m west of a house. The Seepage Area was surrounded by a horizontal circular concrete cylinder with an approximate diameter of 1.0 m, set into a substrate base of sand and gravel. Groundwater was emerging from the substrates, filling the concrete cylinder, flowing over its wall and feeding Unnamed Stream 5.

Potential negative effects to water bodies within the Project Location or the surrounding 120 m have been identified. No solar facility components will be constructed, installed or expanded within 30 m of the average annual high water mark of a water body. Therefore, potential negative environmental effects of the Project are considered to be indirect effects associated with the drainage area for each water body. None of the Project activities is expected to have direct or indirect effects on a water body provided appropriate mitigation measures are implemented. Mitigation measures are proposed to minimize and/or eliminate negative environmental effects to water bodies within 120 m of the Project Location, and will be implemented during each Project phase. Details regarding mitigation measures can be found in the *Water Bodies Report, Construction Plan Report, and Design and Operations Report*.

7.4 Air, Odour and Dust

Once operational, the solar facility will not create dust, odour or emissions to the air. During construction, increases in particulate matter (dust) will be experienced in the adjacent area, which are predominantly agricultural with some isolated residential dwellings.

Additionally, there will be emissions from the diesel engines of construction machinery and equipment which may cause temporary negative impacts to local air quality.

The impacts from construction will be localized and temporary in nature and are very unlikely to be of a level capable of having a residual impact on regional air quality or climate change.

The following air quality mitigation measures will be implemented during construction where appropriate:

- vehicle idling will be minimized where possible in order to minimize particulate matter from vehicles and equipment;
- equipment will be maintained in good working order;
- vehicular traffic will be minimized on exposed soils and high traffic areas will be stabilized with fresh gravel;
- gravel roads will be watered down as required to reduce dust during construction; and

- construction activities causing increased odour or dust will be carried out in accordance with applicable regulations and standards.

7.5 Noise

During the construction period, which is expected to be 10 to 12 months, construction activities will lead to elevated levels of noise in the area. Efforts will be made to minimize this noise. Noise levels within the Township of Southgate are governed by Bylaw 25-2006. Construction activities resulting in noise emissions will typically take place during normal business hours. Should work need to be conducted on weekends, this work will be done in accordance with local regulations and policies to minimize disturbance to the surrounding community. Additionally, mitigation measures will be implemented to reduce the impact of construction noise on surrounding land properties. These include maintaining equipment in good working order, and prohibiting vehicle idling where possible.

Once the solar facility has been constructed and is operational, the only noise generated will be from the MV Stations and main HV substation transformer. This equipment will be located so as to minimize noise impacts on receptors and noise levels will be modelled to confirm that regulated levels are met. Minimal noise (from vehicles, spray washing, etc.) may be experienced during the operations phase at nearby receptors during times of periodic maintenance. Efforts will be made to minimize this noise and the Project will comply with applicable By-laws and restrictions.

Based on the results of the noise modelling, no mitigation measures are required to achieve compliance with MOECC noise standards at either the MV Stations or the main HV substation transformer. The modelling was conservative and assumed the worst-case noise scenario based on equipment manufacturer specifications. For more information, please refer to the *Noise Study Report*.

7.6 Land Use and Resources

The proposed solar facility will be located primarily within lands currently zoned by the Township of Southgate as Agricultural. The Official Plan for the Township of Southgate designates the Project Location as Agricultural, with some land designated as Hazard lands and Rural. The upper-tier municipality (County of Grey) designates the lands as Agricultural and Rural, with some Hazard Lands. Temporary loss of agricultural land will occur for the duration of the Project. Short native vegetation will be grown beneath and between the panel rows to control erosion. The Project Location will be returned to its original condition or similar after decommissioning.

The proposed solar facility is physically low-profile and would be non-obtrusive to the surrounding community. Visual impact studies will be conducted as necessary and appropriate vegetative screening may be installed.

7.7 Provincial and Local Infrastructure

Existing roads in the vicinity of the Project Location including (but not limited to) Grey Road 9, Southgate Sideroad 39, Southgate Sideroad 41, and Southgate Road 22 may be required for use during the construction phase of the Project and may experience additional wear from heavy construction loads. Road damage will be repaired by Southgate Solar LP based on a Road Use Agreement to be established between Southgate Solar LP and the Township of Southgate. Periodic traffic disruptions are possible along the aforementioned roads, and some local roads, during the construction phase of the Project.

Connection to the provincial grid has been considered as part of the Project and no negative effects are predicted during the operational phase of the Project.

7.8 Public Health and Safety

Potential impacts to public health and safety are minimal but include those generally related to construction. Noise, vibration and dust during construction are the key potential causes of human health impacts. The level of noise, vibration, and dust emissions expected during construction are anticipated to be low, localized and temporary in nature and mitigation measures will be implemented to minimize or eliminate the impacts.

Temporary and permanent fencing will prevent unauthorized access and ensure public safety during the construction, operations and decommissioning phases. Appropriate signage, flagging and other safety measures will be taken to notify the public and ensure public safety. Applicable safety policies and procedures will be adhered to during the construction phase of the Project.

An Emergency Response Plan and Communications Plan will also be prepared prior to construction and will outline the protocol to be followed in the event of an emergency at the Project. This plan will be developed in consultation with the local emergency services department from the Township of Southgate. The Emergency Response Plan will provide key contact information for relevant responders, regulators, landowners and other stakeholders.

7.9 Areas Protected under Provincial Plans and Policies

The Project is not located in areas subject to Land Use Plans. Specifically, the Project does not lie within the Niagara Escarpment, Lake Simcoe Watershed, Oak Ridges Moraine or the Greenbelt. The Project supports the goals of the Province's *Green Energy and Green Economy Act, 2009* and *Long-Term Energy Plan (LTEP), 2013*.

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8. BENEFITS OF THE PROJECT

The generation of power from solar energy will displace approximately 50 MWac of electricity annually that otherwise may have been generated by fossil fuel or non-renewable power plants. As a result, the energy generated will not contribute to climate change or emissions-related health impacts. There will be not only a direct benefit to the local economy in terms of the number of construction jobs that will be created, but also an economic spin-off to the local service sector (i.e. hotels, restaurants, etc.).

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