

CarbonFree Brandon Solar Project
Draft Project Description Report

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1. Introduction

CarbonFree Brandon Solar LP. (CarbonFree) is proposing to develop an up to 70-megawatt (MW) Class 3 solar photovoltaic (PV) project adjacent to Brandon Road within Loyalist Township.

The proposed CarbonFree Brandon Solar Project (hereinafter referred to as the Project) is a renewable energy generation facility which will use solar PV technology to generate electricity. Electricity generated by solar PV panels will be converted from direct current (DC) to alternating current (AC) by inverters and then stepped-up (via pad-mounted inverters, medium voltage transformers and a main substation transformer) to 115 kilovolts (kV) prior to being connected to the existing Hydro One Networks Inc. (HONI) transmission line.

The Project aims to contribute to the government of Ontario's goal of accelerating new electricity generation from renewable sources to support the province's growing energy needs. Accordingly, CarbonFree intends to enter into an agreement for the sale or supply of electricity, the quantity of which will be commensurate with the name plate capacity of the facility.

1.1 Legislative Requirements

Ontario Regulation (O. Reg.) 359/09 – Renewable Energy Approvals Under Part V.0.1 of the Act, (herein referred to as the REA Regulation), came into force on September 24, 2009 and identifies the Renewable Energy Approval (REA) requirements for renewable energy generation facilities in Ontario. As per the REA Regulation (Part II, Section 4), ground mounted solar facilities with a name plate capacity greater than 10 kilowatts (kW) are classified as Class 3 solar facilities and require a REA.

Section 13 of the REA Regulation requires proponents of Class 3 solar projects to prepare a Project Description Report (PDR). As prescribed by Table 1 of O. Reg. 359/09, the PDR shall describe the following:

1. “Any energy sources to be used to generate electricity at the renewable energy generation facility
 2. The facilities, equipment or technology that will be used to convert the renewable energy source or any other energy source to electricity.
 3. If applicable, the class of the renewable energy generation facility.
 4. The activities that will be engaged in as part of the renewable energy project.
 5. The name plate capacity of the renewable energy generation facility.
5. How the requirement set out in section 57.2 is satisfied, including the following:

- i. A description of how the electricity that is proposed to be generated is intended to be used, sold or supplied to other persons.
 - ii. The duration of any agreements in respect of the use, sale or supply of the electricity.
 - iii. Whether the name plate capacity of the facility exceeds the quantity of electricity that is intended to be used, sold or supplied to other persons and, if so, by how much.
6. The ownership of the land on which the Project Location is to be situated.
 7. Any negative environmental effects that may result from engaging in the Project.
 8. An unbound, well marked, legible and reproducible map that is an appropriate size to fit on a 215 mm by 280 mm page, showing the Project Location and the land within 300 m of the Project Location.”

A draft of the PDR must be made available to the public, the local municipality and identified Indigenous communities, at least 60 days prior to the first and final public consultation meetings in accordance with O. Reg. 359/09.

1.2 Purpose of Report

The PDR is one of the first Project documents prepared once the REA process commences and serves several purposes. Initial drafts of the Report are used to provide preliminary information regarding the Project to the public, Indigenous groups, municipalities and other government agencies. As the REA process progresses, the PDR will be updated based on information obtained from various studies and data collection activities as well as preliminary planning and engineering of the Project. As a consequence, the final version of the PDR will serve as a comprehensive overview document that summarizes all of the important information about the Project.

Section 2 of the PDR describes general information about the Project including the Project name, location and contact information. Section 3 describes the Project components, the major construction activities, operational aspects and decommissioning. Section 4 describes the potential environmental effects associated with the Project’s construction, operation and decommissioning phases and the proposed mitigation measures to prevent/minimize those effects.

This PDR has been prepared in accordance with the requirements identified in Table 1 of O. Reg. 359/09, as well as the guidance provided in the Ministry of the Environment Conservation and Parks (MECP) *Guidance for Preparing the Project Description Report as part of an application under O. Reg. 359/09* (MECP, 2023).

2. General Information Requirements

2.1 General Information

The proposed Project is located at Brandon Road in the upper-tier municipality of Lennox and Addington, lower-tier municipality of Loyalist Township (the Township), Ontario.

The Project Location¹, per the definition in the REA Regulation, includes the entire footprint of the Project, including all temporary and permanent parts of the land that will be utilized. This includes the following features:

- all areas where vegetation will be cleared.
- temporary and permanent access roads.
- solar panel arrays.
- inverters/pad-mounted transformers.
- substation yard, main substation transformer and communication tower.
- temporary laydown area for construction.
- fencing.
- electrical distribution line from the substation to the interconnection point.

The majority of the properties that will make up the Project Location are located adjacent each other and are bound by Brandon Road to the north, east and west and Sharpe Road to the south. One additional property is located on the northeast corner of Brandon Road. An easement will be required to facilitate electrical connection over Brandon Road to this northeastern property.

The primary existing land use within the Project Location is agricultural and pasture. Additionally, aggregate extraction and residential land uses existing within 300 m of the Project Location.

The properties are expected to be privately owned or leased by a CarbonFree related entity pending the results of municipal consultation regarding land severances and mergers. The property identity numbers associated with the lands to be used in part for the Project are as follows:

- 451140214

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

- 451140226
- 451140238
- 451140240
- 451140242
- 451140552

The Project Location is presented in Appendix A as Figure 1.

2.2 Contacts

CarbonFree Brandon Solar LP. is the proponent of the Project. Contact information is as follows:

Doug Deeks
Vice President - Project Development
CarbonFree Group
1 St Clair Ave W #801, Toronto, ON M4V 1K6
Tel: 647-408-9680
Email: Ddeeks@carbonfree.com

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

Chris Sehl,
Environmental Scientist
Hatch Ltd.
4342 Queen Street, Niagara Falls, ON, L2E 7J7
Tel: 289-271-3517
Email: christopher.sehl@hatch.com

2.3 Federal Involvement

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

General compliance with the *Migratory Birds Convention Act* is expected to be maintained through removing and managing vegetation outside of the breeding bird period (April-September) or where necessary completing nest sweeps ahead of vegetation clearing activities.

2.4 Authorizations Required

In addition to the REA, the Project may require the following permits, approvals and authorizations, as applicable.

Federal Legislation:

- *Migratory Birds Convention Act* - Compliance with the migratory breeding bird timing windows.

Provincial Legislation:

- *Environmental Protection Act* - Renewable Energy Approval.
- *Ontario Endangered Species Act* - ESA Permit(s).

Municipal Legislation:

- Municipal Zoning Bylaw - Zoning By-law Amendment
- Municipal Approvals - Site Access Agreement, Site Plan Approval, Building Permit, Traffic Plan Approval.

3. Project Information

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

3.1 Land Ownership

The Project is proposed to be constructed on privately owned land. Ongoing consultation is being completed with Loyalist Township to determine necessary severances, mergers or easements required to facilitate the Project. The Project properties will be owned or leased by a related entity to the Project proponent which will lease or sublease the land to the Proponent. Current property boundaries are depicted within Figure 1 of Appendix A.

3.2 Energy Sources for Generation

Solar energy will be used to generate electricity. No supplementary fuel sources are used in the generation of this renewable energy.

3.3 Name Plate Capacity

The name plate capacity of the Project will be 70 MW.

3.4 Class of the Renewable Energy Facility

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

3.5 Project Components

Figure 1 in Appendix A provides a conceptualized depiction of the Project including the Project Location boundaries, existing local roads, topographic contours, existing transmission line, land uses, natural features and waterbodies on and within 300 m of the Project Location.

The main components of the Project are expected to include the following:

- Approximately 156,000 solar PV modules, each 625 watts (W) and weighing about 33 kg, with approximate dimensions of 2382 mm long by 1134 mm wide by 30 mm thick.
- 4.4 MW AC inverters that will convert the direct current supplied by the PV modules to alternating current. Eighteen pad-mounted 4.4 MVA (Megavolt-ampere) three-phase, liquid filled transformers that will 'step up' the voltage to 34.5 kV. Each installation will consist of a single 4.4 MW inverter and a single 4.4 MVA pad-mounted transformer.
- A gravel substation yard that will house an approximately 80 MVA substation transformer that will 'step up' the voltage from 34.5 kV to 115 kV, switchgear, control and monitoring equipment, and a communication tower.
- Approximately four entrance roads from Brandon or Sharpe Road and several gravel interior access roads.
- A chain link fence around the perimeter of the Project Location and a gated entrance.
- A surface water drainage system comprised of grassed swales, roadside ditches and culverts.

3.5.1 Project Layout and Concept

Upon exposure to sunlight, the solar modules convert solar radiation into direct current (DC) electricity through a process referred to as the photovoltaic effect. This effect occurs when the sunlight energy is transferred to semiconductors in the modules, which creates a corresponding electric current. The PV panels will be installed on racks mounted on tracking structures. The tracking structures are expected to be supported by steel piles, driven or screwed into the ground. Where necessary, these foundations may be supported by concrete. Tracking structures are expected to be oriented to the north-south, tracking the sun movement from east to west. A typical tracker system will have up to nine (9) foundation posts and up to 240 PV modules connected together by electrical wiring. The racks of modules will be arranged in long rows, typically spaced about 12 m apart east-to-west. The DC electrical current from the solar PV modules will be transmitted across the back of the modules and through underground wires connected to combiner boxes. The combiner boxes allow the connection of numerous incoming wires from the racks of modules into a single outgoing electrical cable. The DC electrical current from the combiner boxes will be transmitted through underground cabling connected to a 4.4 MW inverter. Each inverter will

convert the DC electrical current to alternating current (AC) and medium voltage (MV) transformer will step-up the voltage to 34.5 kV. The electricity, now at 34.5 kV (AC), will be transmitted through a combination of overhead and underground cabling to the main transformer situated in the substation yard, which will step up the voltage from 34.5 kV to 115 kV. Electricity will then flow from the substation yard through overhead electrical lines and connect to the transmission line at 115 kV.



Figure 3-1: Typical View of PV, Tracker and Racking Set Up²

3.6 Project Activities

In accordance with Table 1 of O. Reg. 359/09, the Project activities involved in the construction, operation and decommissioning phases of the Project are outlined in the following sections.

3.6.1 Assessments & Surveys

Site investigations and targeted field surveys are planned to take place between spring and fall 2025, as appropriate for each survey type, to meet requirements from Loyalist Township, Cataraqui River Conservation Authority (CRCA), and REA processes. The results of these surveys may influence the layout of the Project. Site investigations and targeted field surveys may include the following:

- Ecological Land Classification.
- Wetland/Waterbody/Watercourse Delineation.
- Amphibian Surveys.
- Pileated Woodpecker Cavity Searches (No timing considerations).
- Breeding Bird Surveys.
- Grassland bird surveys.
- Turtle Basking Surveys.

² Example Image sourced from Arctech Skymart II Catalog. PV, tracker and racking technology used on site may vary.

- Snag Surveys.
- Bat Acoustic Monitoring.

3.6.2 **Construction**

It is anticipated that construction of the Project will take up to a year between 18 and 24 months, depending on time of year and various other factors. Prior to construction, the area will be surveyed, and any buried infrastructure will be located before commencing with site preparation. Construction is anticipated to start in late 2026, pending receipt of requisite permits and approvals.

3.6.2.1 *Site Preparation*

Prior to site preparation, a sediment and erosion control plan will be prepared and implemented. Trees and large standing vegetation will be cleared from areas where the PV arrays will be constructed. Meadow vegetation will be left in place to the extent possible. Locations of topsoil, timber and vegetation stockpiles will be pre-determined and not within 30 m of any identified waterbodies.

3.6.2.2 *Access Road Construction*

New primary access roads will be approximately 6 m wide, will be constructed of crushed gravel. Primary access roads will have entrances from Brandon Road or Sharpe Road. In addition, several smaller gravel roads, about 3-5 m wide each, will be constructed within the interior areas of the Project Location. Exact dimensions and locations of access roads will be finalized in consultation with Loyalist Township. Road construction will involve vegetation clearing (if necessary) and topsoil removal prior to the placement of a granular base. Ditches and culverts will be constructed, as necessary, to maintain drainage. Following construction, any access roads that are not required will be removed and restored by replacing the topsoil and seeding the area.

3.6.2.3 *Laydown Area*

A construction laydown area will occur on the Project Location, adjacent to where the solar PV arrays are installed.

3.6.2.4 *Perimeter Fencing*

A chain link fence topped with barbed wire and access gates will be installed around the perimeter of the Project Location to prevent unauthorized access.

3.6.2.5 *Installation of Support Structures*

Foundations and/or support structures will be required beneath transformers, inverters and PV panels. Detailed engineering for the design of the foundations and support structures are yet to be completed. However, it is expected that the pads for the transformers and inverters will be concrete slab-on-grade. The PV panels will be installed on racks mounted on tracking

structures. The tracking structures are expected to be supported by steel piles, driven or screwed into the ground. Concrete may be used to support or ballast the steel piles when necessary. It is estimated that up to 20,000 piles will be installed within the Project Location to support the tracking structures and the PV panels. Foundation construction and the installation of support structures will be subject to inspection prior to the installation of PV panels, and wiring.

3.6.2.6 *Installation of PV Modules, Trackers and Mounting Racks*

The solar PV modules will be mounted on racks mounted on tracking structures. Each tracker is comprised of a long steel torque tube (approximately 50 m – 100 m long) mounted on steel piles driven or screwed into the ground. A simple racking system will be assembled onto each torque tube, and the PV modules will be attached to the racking system. There will be approximately 1,100 trackers, each holding approximately 140 PV modules. The modules will be mounted on the racking system by installers with the help of a small mobile crane if needed.

3.6.2.7 *Electrical Cable Installation*

A network of underground DC cabling will be required from the termination point of the PV array to the inverters and MV transformers, which will then convert the DC electricity to AC and step up the voltage to 34.5 kV. A network of overhead and underground AC cables may be required from the inverters, to connect the PV array to the proposed substation and HONI transmission system. A simple trenching device will be used to install the underground cables, whereby a slot is opened, the cable laid, and the soil replaced. Where overhead wiring is required to reach the Project substation or to span over areas to minimize disturbance, wooden utility poles are expected to be utilized totaling less than 1 km of overhead MV transmission lines.

3.6.2.8 *Substation Construction*

The substation yard will be located in the northeast corner of the Project Location, north of Brandon Road. Construction will include excavation of topsoil, installation of ground grid, foundation construction, construction of secondary containment, covering the area with crushed stone, installation of the substation transformer and other electrical equipment. Switchgear, protection and control equipment will be housed in a prefabricated, weatherproof building enclosure. Secondary containment will be integrated into the design of the substation, will be impermeable to oil and will have the capacity to hold 110% of the transformer mineral oil capacity. If available for the specific transformer models, performance parameters, and environmental conditions identified during facility design, preference will be given to biodegradable natural esters (made from vegetable oils) over mineral oils.

The substation transformer will step-up the voltage from 34.5 kV to 115 kV prior to connecting to the existing HONI 115 kV transmission line.

3.6.2.9 *Electrical Distribution Line and Interconnection Point*

Connecting to the existing HONI 115 kV transmission line northeast of Brandon Road will require a less than 200 m overhead transmission line to be constructed between the Project substation yard and the point of interconnection (POI) with the existing HONI transmission line (presented in Figure 1, Appendix A).

3.6.2.10 *Testing and Commissioning*

Following the installation of all electrical components, testing and commissioning will be performed prior to start up and connection to the power grid. The solar modules, inverters, transformers and electrical cables will be checked for system continuity, reliability and performance. If problems or issues are identified, remedial corrections will be made prior to start up.

3.6.3 *Operation and Maintenance*

The Project will operate year-round and generate electricity during daylight hours. The amount of power generated will depend on daily weather conditions and sufficient solar irradiation. The Project will be operated remotely and accordingly, no employees will be on site with the exception of maintenance and inspection personnel or security staff (as needed). To ensure the safety and integrity of the Project, access will be limited to Project personnel and unauthorized public access will be prevented by fences, gates and security procedures.

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

3.6.3.1 *Maintenance and Inspection*

The Project solar PV modules, inverters and transformers and other electrical equipment, wiring and electrical connections will be routinely inspected, typically on a monthly basis. Any broken or malfunctioning PV modules, electrical cabling or components will be repaired or replaced by facility staff. Trash, debris and equipment parts replaced during maintenance and repair activities will be collected and properly stored in waste disposal bins. All waste collected during operation of the Project will be removed in accordance with provincial and municipal requirements.

Vegetation coverage, drainage systems and trees will be monitored and maintained typically on a monthly basis. Since suitable ground cover will be established under the PV modules, some form of vegetation abatement such as grass cutting may be required several times throughout the summer months and may extend outside of the fenced project area to maintain the fenceline of the Project. No hazardous chemicals are anticipated to be used for regular maintenance or vegetation abatement activities. If required, water trucks will bring water to supply the water to support vegetative cover.

The Project Location, including any drainage features (e.g., grassed swales, culverts) and any sediment and erosion control measures (e.g., rip rap protection, rock flow checks) will be visually inspected for any signs of erosion or sedimentation and recorded. Regular maintenance such as the cleanout of accumulated sediment and/or the removal of any debris blockage would be conducted at that time. If required, remedial works (e.g., stabilizing and/or reseeding of identified erosion areas) and repairs to any drainage features or sediment and erosion control measures will be implemented to minimize environmental impacts.

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

The transformers will be visually inspected on a quarterly basis and their status recorded. Any faulty equipment that could result in an oil leak will be repaired and any observed leaks will be cleaned up immediately by maintenance personnel. Secondary containment will be integrated into the design of the substation and will have the capacity to hold 110% of the mineral oil utilized in the transformer system. Transformer stations will be connected to a SCADA system that logs and communicates alarms in real time. Transformers will be monitored for oil levels, oil pressure, oil temperature, and gas accumulations to alert operators to faults so as to identify potential issues or leaks. Spill response equipment will be left on site or in the maintenance trucks should leaks be observed.

During winter, primary access roads will be ploughed to clear snow to maintain access of personnel to Project facilities. Under most winter conditions, snow is expected to melt due to the module heating and the tilt of the modules. Under some conditions, manual snow removal may be performed by maintenance personnel who will clear the snow using a brush attached to a long pole.

3.6.3.2 *Stormwater Management*

A stormwater management design will be prepared to minimize any potential negative environmental effects to the existing drainage conditions (e.g. increased runoff, erosion and sedimentation) will not occur as a result of the Project. The following mitigation measures are expected to form part of the Project's stormwater management design:

- Existing drainage patterns within the Project Location will be maintained to the extent possible and/or as required to maintain the common law drainage rights of upstream or downstream riparian landowners.
- Following construction, the entire Project Location, with the exception of the access roads, will be re-vegetated with native grass or other suitable ground cover to promote surface water infiltration, filter storm water runoff and to prevent erosion.
- New drainage swales and channels will be constructed as enhanced (flat bottom) grassed swales to provide extended flow times, filtering of runoff and reduce the potential for erosion.
- Rainfall runoff from the solar modules, inverter building rooftops, transformer concrete pads (if not enclosed in an inverter building), interior roads and parking area will be directed to grassed or vegetated areas to promote infiltration and filtering of runoff by vegetation prior to its conveyance to on-site grassed swales.
- All transformers will use mineral oils or FR3 oils, which are non-toxic, non-bioaccumulating and readily biodegradable in the environment. All transformers will be routinely inspected and any faulty equipment that could result in an oil leak will be repaired.
- Spill response equipment will be left on-site, and any observed leaks will be cleaned up immediately by maintenance personnel.

3.6.3.3 *Water Supply Facilities*

The Project does not require any on-site facilities to supply groundwater (wells) or surface water (ponds, watercourses) for operation of the Project. It is anticipated that water from rain and snow will be sufficient for cleaning the solar PV modules and maintaining vegetative cover on site; if not, the Proponent will contact local suppliers to provide water in tankers from off-site sources for this purpose. No chemicals will be used in the cleaning of the PV modules.

3.6.3.4 *Wastewater (Sewage) Facilities*

The Project will not generate any wastewater (sewage) or discharge any liquid effluent from its operation, nor does the Project require any on-site facilities for the collection, transmission, treatment or disposal of wastewater for operation of the Project, however, secondary containment for the transformer substation will be incorporated into the substation design.

During operation, sanitary facilities (e.g. permanent washrooms with a septic disposal system) are not required. If sanitary facilities are determined to be required, portable toilets, provided and serviced by a local sanitation company, will be used.

3.6.3.5 Waste Disposal Facilities

The Project will not generate significant quantities of waste from its operation. A small waste disposal bin(s) will be provided on site to collect any trash, debris or equipment parts replaced during routine maintenance of the Project during its operation. Periodically, when required, the Proponent will arrange for a licensed waste disposal company to empty the bins and haul the waste to an appropriate waste disposal facility off-site.

3.6.3.6 Exhaust Equipment

The Project has no facilities or equipment that will discharge contaminants or pollutants to the air (e.g., exhaust gases from emergency back-up diesel generators) during operation of the Project.

3.6.3.7 Noise Generating Equipment

Noise generating equipment during the operation of the Project is expected to be limited to inverters and transformers adjacent to the solar PV arrays and within the substation. Minor noise may be generated by tracker motors at intervals throughout the day. A noise study will be completed to review proposed locations of noise emitting equipment to confirm the applicable MECP and NPC-300 noise levels will not be exceeded during operation.

3.6.4 Decommissioning

The anticipated lifespan of the Project is approximately 25 years. At that time the Project will be decommissioned or refurbished depending on market conditions and/or technological changes.

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

- Removal of the scrap metal and cabling. Where possible, these materials will be recycled, with non-recyclables taken to an approved disposal site.
- Removal of support structures and foundations; these materials will be recycled where possible.
- Cleanup and any necessary re-grading.

A Decommissioning Plan Report will be developed and published as part of the REA application process.

4. Potential Negative Environmental Effects

The potential negative environmental effects that may occur during construction, operation and decommissioning phases of the Project are described in Table 4-1. The Project is in the early development stages and thus, the details described herein are preliminary and will be revised following consultation and detailed environmental studies. The categories for the potential negative environmental effects were selected following the *Technical Guide to Renewable Energy Approvals* (MECP, 2023) and include:

- Cultural Heritage – includes protected properties, archaeological resources, and heritage resources.
- Natural Heritage – includes provincial parks or conservation reserves, Areas of Natural and Scientific Interest (ANSIs) (earth science and life science), southern wetlands, wildlife habitats, and woodlands.
- Water – includes water bodies, such as lakes, permanent streams, intermittent streams and seepage areas.
- Air, Odour and Dust.
- Noise.
- Local Interests, Land Use and Infrastructure.
- Provincial and local infrastructure.
- Public Health and Safety.
- Areas Protected under Provincial Plans and Policies.
- Other Resources.

Based on current knowledge of the Project, Project Location and standard/regulated environmental protection practices, proposed mitigation measures have been provided. Further details will be provided in subsequent reports (e.g., Natural Heritage Report, Water Assessment Report, Construction Plan Report, and where required, Environmental Impact Studies (EIS)). Monitoring activities to confirm mitigation measures are having the intended effects will be made available in future Environmental Effects Monitoring Plans within the relevant reports (e.g., Natural Heritage Report, Water Assessment Report, Construction Plan Report).

As part of the REA process for the Project, if environmental features (e.g., natural features, water bodies) are determined to be significant and within required setbacks from the Project, an EIS will be prepared. Any potential impacts identified in the EIS will have appropriate mitigation measures to minimize or eliminate negative effects.

Table 4-1: Potential Negative Environmental Effects

Category	Environmental and Social Component	Potential Environmental Effects (Construction, Operation and Decommissioning)	Proposed Mitigation
Cultural Heritage	Archaeological Resources	Excavations during Project construction may result in the discovery and/or disturbance of archaeological resources.	An archaeological assessment will be undertaken by a licensed archaeologist at the proposed Project Location. The archaeological assessment process can include between 1 and 4 stages, beginning with a determination of the potential for archaeological resources (Stage 1), followed by a resource inventory (Stage 2), archaeological site assessment (Stage 3) and if necessary, mitigation (Stage 4). During construction, if an artifact is found, work will stop until a licensed archaeologist has cleared the area and approved that construction can re-commence, in accordance with Ministry of Citizenship and Multiculturalism requirements.
	Protected Properties, Built Heritage and Cultural Heritage Landscapes	The proposed Project has the potential to cause negative effects to protected properties, built heritage and cultural heritage landscapes if such resources are identified in the vicinity of the proposed Project Location.	If it is determined that there is a potential for heritage resources to be located at the Project Location a heritage assessment will be undertaken by heritage consultants or other qualified persons who have the appropriate expertise in the identification, evaluation and conservation of built heritage resources and cultural heritage landscapes and a heritage assessment report will be prepared to identify heritage resources, evaluate Project impacts and describe measures to be taken to avoid, eliminate or mitigate the impacts, where applicable.

Category	Environmental and Social Component	Potential Environmental Effects (Construction, Operation and Decommissioning)	Proposed Mitigation
Natural Heritage	Areas of Natural and Scientific Interest (ANSI)	No ANSIs were identified within 300 m of the Project Location.	None required.
	Wetlands	There are 16 unevaluated wetlands within the Project Location, and 30 additional wetlands within 300 m of the Project Location, whose boundaries often extend beyond 300 m. Project activities may infringe on the CRCA Regulated Area and/or impact wetlands located within the Project Location.	Any development within 30 m of wetlands greater than 0.5 h in area, watercourses or their associated floodplains will require a permit from the CRCA. The Project Location has been setback 30 m from wetlands and watercourses. Further studies will be completed in 2025 to confirm wetland boundaries and if necessary, setbacks will be adjusted to prevent impacts to wetlands.
	Woodland/Vegetation	The Project is located within areas of thickets, coniferous upland forest, mixed wood forests and agricultural lands. During construction, tree removal will be necessary to facilitate the construction of the Project.	Work areas will be flagged to limit clearing and ensure it will not extend beyond the Project Location. Consultation with Loyalist Township and CRCA is ongoing, and a Tree Identification, Preservation and Relocation Study and an Environmental Impact Assessment have been identified as potentially required to further identify potential impacts and associated mitigation measures.
	Terrestrial Wildlife/ Wildlife Habitat (including species at risk)	Potential loss of wildlife habitat and potential wildlife avoidance of the Project Location during construction and operation may occur as a result of disturbance.	Work areas will be clearly marked and will not extend beyond the Project Location. Further studies are planned in 2025 to identify candidate Significant Wildlife Habitats and identify necessary setbacks and additional mitigation measures. This information will be made available in the Natural Heritage Report and Water Assessment Report. Additional mitigation measures are expected to include phasing vegetation removal outside of the active breeding bird and bat maternity periods (April-September), exclusion fencing (where necessary), and setbacks from present natural heritage features (wetlands, waterbodies)

Category	Environmental and Social Component	Potential Environmental Effects (Construction, Operation and Decommissioning)	Proposed Mitigation
	Physiography/Topography	During construction, re-grading of excavated soils and some minor alterations to local topography may occur.	Decommissioning of the Project Location will include re-grading to original conditions (or as agreed to with the landowner) and as prescribed in any conditions of approval.
	Soils	Grading activities are not expected to require soil excavation or removal from the Project Location. Potential reductions in soil quality may occur as a result of accidental spills, erosion, and soil compaction during construction.	Erosion and sediment control measures will be implemented prior to and during construction and will remain in place until vegetation and soils are stabilized at the Project Location. Mitigation measures will be implemented to protect soil quality and minimize compaction during construction.
Water	Surface Water	One natural waterbody exists within 300 m of the Project Location. Accidental spills and soil sedimentation and erosion pose a risk of deteriorating surface water quality.	A 30-m setback will be applied from all waterbodies. Erosion and sediment control measures and spill prevention and response measures will be implemented to minimize any potential impacts to surface water. A stormwater management plan will be developed, as required to maintain adequate site drainage. Mitigation measures will include best management practices, including, but not limited to, erosion and sediment control measures and maintenance of existing drainage conveyance (quality, quantity, surface water volumes/flow rates).
	Groundwater	Accidental spills pose a risk of deteriorating groundwater quality.	Spill prevention and response measures will be put into place throughout the Project Location to minimize the likelihood and impact of accidental spills.
	Aquatic Habitat	The installation of the Project may result in negative impacts to fish and fish habitat, due to loss of riparian vegetation which provide sources of shade, cover and food production. In addition, certain materials such as fuel,	A 30-m setback of the Project Location from all waterbodies will be applied to ensure the protection of aquatic biota and habitats. Erosion and sediment controls and spill prevention and response measures will be implemented to minimize any potential impacts to aquatic

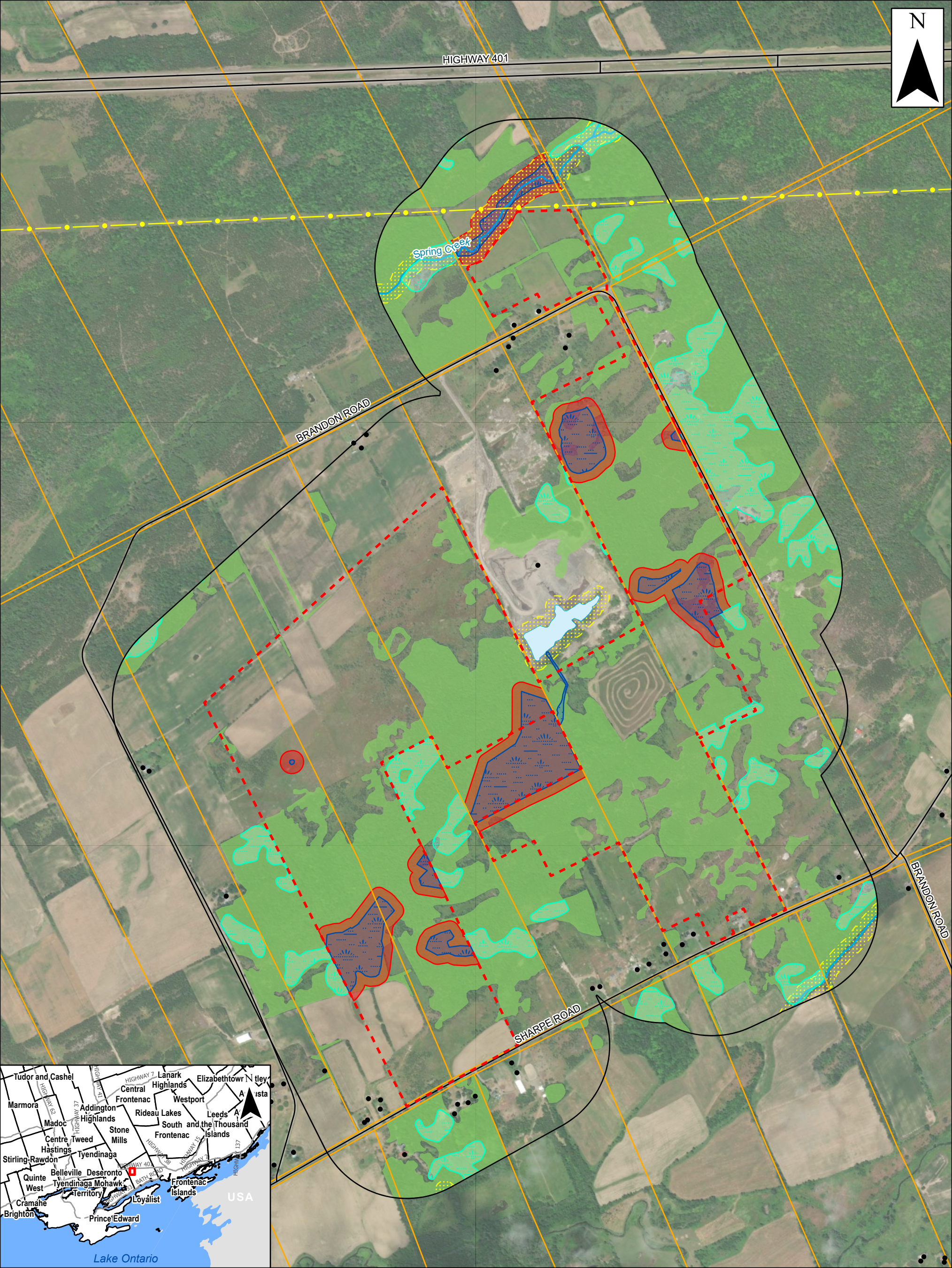
Category	Environmental and Social Component	Potential Environmental Effects (Construction, Operation and Decommissioning)	Proposed Mitigation
		lubricating oils and other fluids associated with Project activities have the potential to negatively impact aquatic habitats.	biota/habitats.
Air Quality	Air Quality, Odour and Dust	Reductions in local air quality may occur during construction and decommissioning. Fugitive dust may occur as vegetation is removed and soils remain bare, as well as through the operation of equipment and vehicle traffic. There are no anticipated impacts identified during operations.	Mitigation measures will include standard best management practices. Dust will be suppressed during construction/decommissioning, in accordance with provincial requirements and regulations.
Noise	Noise	Temporary disturbance to neighboring residents, businesses and surrounding wildlife may occur during construction and decommissioning. The operation of inverters and transformers may result in increased ambient sound levels.	Siting of noise emitting equipment will be the primary mitigation measure to accommodate NPC-300 standards at adjacent noise receptors. Any necessary additional mitigation or noise attenuation strategies will be developed, as required.
Local Interests, Land Use and Infrastructure	Visual Landscape	Installation of the Project will result in a change to the local landscape.	Consultation is ongoing with Loyalist Township to discuss the potential for adverse aesthetic effects as well as the development of appropriate mitigation measures, where necessary.
	Land Use	The Project is proposed to be located on privately owned land which is currently utilized for agricultural activities or is currently vacant and covered by woodland and successional vegetation.	Consultation with Loyalist Township and the CRCA will be undertaken to determine any studies required to support municipal approvals.
	Traffic	Construction and decommissioning of the Project may result in increases in local area traffic and the potential for temporary	A traffic management plan may be developed to address and mitigate any potential effects associated with traffic and ensure compliance with municipal requirements.

Category	Environmental and Social Component	Potential Environmental Effects (Construction, Operation and Decommissioning)	Proposed Mitigation
		disruption along routes used. Traffic flow is not expected to be affected throughout the operation of the Project.	Mitigation would include, but not limited to, measures to control traffic and safety protocols.
Provincial and Local Infrastructure	Local Roads	Construction, operation and decommissioning of the Project will require the use of roads maintained by the Ministry of Transportation, the County of Lennox Addington and Loyalist Township. The use of these roads is not expected to cause adverse effects beyond normal road usage.	A traffic management plan may be developed to address and mitigate any potential effects associated with traffic and ensure compliance with municipal requirements. Mitigation would include, but not limited to, measures to control traffic and safety protocols.
Public Health and Safety	Community Safety	Construction and decommissioning of the Project will result in a risk to community and workforce safety. During operation, potential risks to public safety are limited.	Safety procedures will be followed to ensure both worker and public safety. The public will not be allowed access during construction, operations or decommissioning. Perimeter fencing and gating will be utilized to prevent unauthorized access.
Areas Protected under Provincial Plans and Policies	Protected Area	The Project is not within any provincial land use plan areas (i.e., Greenbelt Plan, Oak Ridges Moraine Conservation Plan, Niagara Escarpment Plan, Lake Simcoe Protection Plan).	None required.
Other Resources	Waste Management and Disposal Sites	Construction and decommissioning of the Project will likely result in the generation of recyclable material, and municipal and sanitary waste.	The disposal and proper storage of wastes and recyclables will occur in accordance with municipal and provincial requirements and regulations.
	Aggregate Resources	A land parcel adjacent to the proposed Project Location is zoned for aggregate resource development. Consultation with Loyalist Township has begun to understand requirements for study	Currently, the Project Location will not encompass areas zoned for agricultural development and is not expected to impact ongoing operations in proximity to the Project Location. The Project will not influence the availability of aggregate

Category	Environmental and Social Component	Potential Environmental Effects (Construction, Operation and Decommissioning)	Proposed Mitigation
		and protection of potential aggregate resources within the proposed Project location.	resources in the area. Any aggregate resources available within the Project location will remain in place throughout the construction, operation and decommissioning of the Project.
	Airports/Aerodromes	The closest airport/aerodrome is over 17 km away from the Project Location.	Currently, glare associated with the Project is not anticipated a concern. Backtracking technology is anticipated to aid in minimize potential glare impacts.

Appendix A

Figure 1: Project Location



300 m from Project Location

Project Location

Building

Transmission Line

Road

Watercourse - Intermittent

Watercourse - Permanent

30 m Setback from Natural Features within Project Footprint

Lot Fabric

CRCA Regulated Area

Wetland (Field Verified)

Unevaluated Wetland (MNR)

Waterbody

Wooded Area

Notes

1. Produced by Hatch, contains information under the Open Government License - Ontario

2. CRCA Regulated Area Digitized 2024

3. Spatial referencing: NAD 83 UTM Zone 18N

0125250500

Meters

1:11,500

PROJECT:

Project Description Report
Brandon Solar Project

FIGURE TITLE:

Project Location

CLIENT:

CarbonFree Brandon Solar LP

DWG BY:
J. VILLELLA

CHK BY:
C. SEHL

FIG NO.:
1

PROJ. NO.:
H-375443

DATE:
25/03/06

PAGE:
1 of 1

REV NO.:
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